Critical Success Factors for Offshore Software Development Outsourcing Vendors: A Systematic Literature Review

Siffat Ullah Khan, Mahmood Niazi and Rashid Ahmad

Abstract

CONTEXT – Offshore software development outsourcing is a modern business strategy for producing high quality software at low cost

OBJECTIVE – To identify various Critical Success Factors (CSFs) that have a positive impact on software outsourcing clients in the selection process of offshore software development outsourcing vendors.

METHOD – We have performed a Systematic Literature Review process for the identification of factors in the selection process of offshore software development outsourcing vendors.

RESULTS – We have identified factors ‘cost-saving’, ‘skilled human resource’, ‘appropriate infrastructure’ and ‘quality of product and services’ that are generally considered important by the outsourcing clients. The results also reveal the similarities and differences in the factors identified in different continents.

CONCLUSIONS – Cost-saving should not be considered as the only prime factor in the selection process of software development outsourcing vendors. Vendors should have to address other factors in order to compete in the offshore outsourcing business.

Key Words: Offshore software outsourcing vendors, systematic literature review, critical success factors

1. Introduction

This research is premised on the need to gain an in-depth understanding of the range of criteria used by the software development outsourcing clients for the selection of software development outsourcing vendors. Understanding the selection criteria will lead software development outsourcing vendors in addressing those criteria in order to be fully ready for software development outsourcing initiatives. This may also help to ensure the successful outcome of outsourcing projects and long lasting relationships between clients and vendors.

Offshore software development outsourcing is a modern business strategy for developing high quality software in low wages countries at low cost. Software development outsourcing is a contract-based relationship between client and vendor organisations in which a client(s) contracts out all or part of its software development activities to a vendor(s), who provides agreed services for remuneration [1-3]. Over the last decade, many firms in the U.S.A and UK have outsourced software development projects to offshore countries [4]. McKinsey consulting argues that for every dollar of client organisation in U.S.A spending on outsourcing to vendor organisation in India, U.S.A benefits $1.14 and India gets 0.33 cents [5].

There are many reasons for software development outsourcing [6]. Client organisations benefit from offshore outsourcing because vendors in developing countries (offshore vendors) usually cost one-third less than onshore vendors and even less when compared with in-house operations [7]. Moreover offshore vendors improve their skills and service quality with the experience of offshore outsourcing projects, and they learn totally new ways to satisfy clients’ needs. It is professed that offshoring vendors can add significant value to their clients’ supply chains [8]. However, in addition to the outsourcing benefits there are many risks in an outsourcing process [9, 10].

Many problems have been reported in the offshore software outsourcing process. One of the key challenges is to handle complex communication and coordination problems in conditions of time and cultural separation [4, 9, 11, 12]. Other challenges are to develop software development outsourcing practices, creating confidence and trust among the outsourcing companies and to manage the expectations of what can and what cannot be done in a distributed setting [4, 13-18]. However, despite the importance of offshore software development outsourcing, little empirical research has been carried out on offshore
software development outsourcing practices in general and identification of factors that have a significant impact on client organisations in particular. To do this we intend to address the following research questions:

RQ1. What factors do offshore software outsourcing vendors need to address in order to have a positive impact on software outsourcing clients?

RQ2. Do the identified factors vary from continent to continent?

This paper is organised as follows. Section 2 describes the background. Section 3 describes the research methodology. In Section 4 findings from the systematic literature review are presented and analysed with some discussion. Section 5 describes the limitations; Section 6 provides the conclusion and future work.

2. Background and Motivation

Offshore software development outsourcing activities have been going on for more than a decade. However, software development outsourcing companies are still facing many problems. In addition, different risks (e.g. cost and time over-run, cultural differences) have also been identified for software development outsourcing [19].

A number of researchers have tried to address some of the issues of software development outsourcing, e.g. (Nguyen et al. [13]; Oza [20], Oza and Hall [21], Oza et al. [16], Sabherwal [22]),

- A study to examine the outsourcing relationship was conducted in Hertfordshire University UK [20]. The focus of this study was to manage the offshore software outsourcing relationships and the author has proposed a model for managing offshore software outsourcing relationships. The focus of the model is around Indian software vendor organizations and their client organizations in US and European countries.
- A similar study was conducted by Nguyen et al. [13] where they have examined the offshore outsourcing relationships between the software vendors in Vietnam and their corresponding European and American clients. In this study the authors have examined the perceptions of the Vietnamese software outsourcing vendors for maintaining and establishing trust in software outsourcing relationships.
- Sabherwal [14] has also worked on the role of trust in software outsourcing relationships where different case studies were conducted with vendor organizations in India and Colombia and with client organizations in US, UK, Netherland, Thailand and Oman.
- Rajkumar et al. [23] have worked on the offshore software outsourcing risks, benefits and conditions that are applicable in the Indian software industry and corresponding clients in US. A similar study was conducted by Khan et al. [24] to examine the scale and scope of offshore software outsourcing risks and benefits in Indian software industry [24]. Their research is based on an empirical investigation of the software outsourcing vendors in India and client organizations in the UK. Sakthivel [25] has also identified various risks related with offshore outsourced software development projects. In another study, Iacovou et al. [26] have identified a risk profile of offshore software development projects that have outsourced from client organizations in US to Indian software outsourcing vendors.
- Narayanaswamy et al. [27] have worked on the management of offshore outsourced software development projects. A research model has been proposed in which culture is considered as a prime factor affecting the choice of control mechanisms in offshore outsourced software development projects [27].
- Aubert et al. [28] have developed a framework for the completeness of outsourcing contracts and associate costs in order to minimize risks. They have conducted an empirical study in order to measure different levels of outsourcing contract.

The work in this paper complements work previously done in these studies. Most of the existing studies focus on the topics of ‘outsourcing relationship’ and ‘outsourcing trust’. Outsourcing relationships and outsourcing trust are important areas to address. However, research suggests that half of the companies that have tried outsourcing have failed to realise the anticipated results [29]. There are many reasons for outsourcing failures [12, 17, 18, 30]. One of the major issues in the outsourcing business is to find the capable outsourcing vendor to be ready to undertake the outsourcing activities [29]. For example, Dun & Bradstreet survey found 50% of outsourcing relationships worldwide failed within five years due to poor planning [29]. In a study conducted in the UK and India, Sahay et al [4] have discussed different problems related to transfer of UK culture to India. They have also described the role of power and control during this
outsourcing business. Another study [31] has examined some political and cultural issues in the globalisation of software development. Despite the importance of these problems, little empirical research has been carried out in order to determine which factors have a significant impact on software outsourcing clients in the selection process of offshore software development outsourcing vendors. The knowledge about these factors will contribute in improving the readiness of offshore software development vendors as vendors organisations will try to address the factors that have a positive impact on client organisations. Previously, no Systematic Literature Review (SLR) has been performed on this topic. Research in this area is expected to provide useful information for outsourcing vendor organisations.

3. Research Methodology

We have used a Systematic Literature Review (SLR) process [32] as the main approach for data collection because a SLR is a defined and methodical way of identifying, assessing, and analysing published primary studies in order to investigate a specific research question. Systematic reviews differ from ordinary literature surveys in being formally planned and methodically executed. They are intended to be independently replicable, and so have a different type of scientific value than ordinary literature surveys. In finding, evaluating, and summarising all available evidence on a specific research question, a systematic review may provide a greater level of validity in its findings than might be possible in any one of the studies surveyed in the systematic review.

A systematic review protocol was written to describe the plan for the review, and this protocol is described in detail in a technical report [33]. The major steps in our methodology are:

- Determine the search strategy then perform the search for relevant studies;
- Perform the study selection process;
- Apply study quality assessment;
- Extract data and analyse the extracted data.

Details on the course of these steps are described in the following subsections.

3.1 Search Strategy, and Search

The search strategy for the SLR is a plan to:

- Construct search terms by identifying population, intervention and outcome
- Find the alternative spellings and synonyms
- Verify the key words in any relevant paper
- Use Boolean Operators

An initial scoping study was conducted to determine the resources to be searched, and the search terms to use for each resource. The major terms in the search string come from our research questions. Their complete description is provided in our Technical Report [33]. The technical report was reviewed by 4 experts and necessary changes were made to the report accordingly. In this scoping study a trial search was conducted using the following search string on CiteSeer digital library:

("software outsourcing" OR “IT outsourcing” OR “IS/IT”) AND ("vendor" OR "selection criteria" OR "readiness" OR "client" OR "factors" OR "barriers" OR "models").

The information retrieved through this search string was used as a guide for the development and validation of the major search terms. The scoping study identified an initial list of resources, and an initial uniform search term. These were incrementally modified during the scoping study. Different resources required different concrete syntax for the search terms. In the scoping study, some papers that were already known to be relevant were used to check the inclusiveness of the search terms. The resources searched in the scoping study include databases, specific journals, and conference proceedings. We have selected these resources based on our previous SLR experience and discussions with our colleagues at Keele University. The final list of sources searched, their search terms, and the number of publications found for each resource are listed in Table 1.

3.2 Publication Selection

3.2.1 Inclusion Criteria

It is used to determine which piece of literature (papers, technical reports, etc.) found by the search term will be used for the data extraction.

Table 1 Data sources and search strategy

<table>
<thead>
<tr>
<th>Resource</th>
<th>Total Results found</th>
<th>Primary selection</th>
<th>Final selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>IEEExplore</td>
<td>468</td>
<td>155</td>
<td>36</td>
</tr>
<tr>
<td>ACM</td>
<td>195</td>
<td>58</td>
<td>34</td>
</tr>
<tr>
<td>Science Direct</td>
<td>567</td>
<td>58</td>
<td>30</td>
</tr>
<tr>
<td>Google Scholar</td>
<td>54</td>
<td>32</td>
<td>14</td>
</tr>
<tr>
<td>CiteSeer</td>
<td>16</td>
<td>16</td>
<td>8</td>
</tr>
</tbody>
</table>
The criteria are listed below:

- Studies that describe vendor’s capabilities for software outsourcing
- Studies that describe the critical success factors in the selection process of software outsourcing vendor
- Studies that describe the relationship between software outsourcer and vendor
- Studies that describe motivation in software outsourcing

3.2.2 Exclusion Criteria

It is used to determine which piece of literature found by the search term will be excluded. The criteria are listed below:

- Studies that are not relevant to the research questions.
- Studies that don’t describe software outsourcing vendor or client
- Studies that don’t describe factors in software outsourcing vendor selection process

3.2.3 Selecting Primary Sources

The planned selection process had two parts: an initial selection from the search results of papers that could plausibly satisfy the selection criteria, based on a reading of the title and abstract of the papers; followed by a final selection from the initially selected list of papers that satisfy the selection criteria, based on a reading of the entire papers. In order to reduce the researcher’s bias we have performed the inter-rater reliability test.

3.3 Publication Quality Assessment

The measurement of quality is performed after final selection of publications. The quality of publications is assessed in parallel at the time of data extraction. The quality checklist contains the following questions:

- Is it clear how the vendor screening was performed?
- Is it clear how the CSFs in the selection of software outsourcing vendor were identified?

Each of the above factors will be marked as ‘YES’ ‘NO’ or ‘NA’. The results of the study quality assessment were not used to limit the selection of publications.

3.4 Data Extraction

The review was undertaken by a single researcher, who was alone responsible for the data extraction. A secondary reviewer was approached for guidance in case of an issue regarding the data extraction.

The inter-rater reliability test was performed after the data extraction process by the primary reviewer. The secondary reviewer has selected 5 publications randomly from the list of publication already chosen by the primary reviewer. The secondary reviewer has independently extracted the data from the randomly selected publication. The results were compared with the results produced by the primary reviewer.

From each paper we extracted a list of Quotes, where each Quote described a list of factors that have a positive impact on software outsourcing clients in the selection process of offshore software development outsourcing vendors.

The following data was extracted from each publication: Date of review, Title, Authors, Reference, Database, Critical Success Factors: factors that have a positive impact on software outsourcing clients in the selection of software development outsourcing vendors, Methodology (interview, case study, report, survey etc), Target Population, Sample Population, Publication Quality Description, Organisation Type (software house, university, research institute etc), Company size (small, medium, large), Country/location of the Analysis and Year.

3.5 Data Synthesis

A primary reviewer with the help of secondary reviewer has performed data synthesis. At the end of the Data Extraction phase described in section 3.4 we had identified a list of factors from the sample of 122 papers. The primary researcher reviewed these in order to derive a list of categories to classify the CSFs and initially a list of 33 categories was identified. These were reviewed and some of these categories were merged together and in this way we got a final list of 22 factors shown in Table 2.

4. Results

4.1. CSFs Identified through Systematic Literature Review

In order to answer RQ1, Table 2 shows the list of CSFs identified through the SLR. ‘Cost-saving’ is the most common factor in our study, i.e. 69%. This suggests that low cost software production or to charge a fair price has a positive impact on the outsourcing clients in the selection process of outsourcing vendors. Due to this factor the western countries are outsourcing projects to developing countries to take advantage from the reduced labour costs. In order to be competitive, vendors organisations should provide better and cheaper services to the clients [34].

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Our results also indicate that ‘skilled human resource’ (67%) is an important factor for the selection of competent vendor organisations. Research suggests that half of the companies that have tried outsourcing have failed to realise the anticipated results [29]. One of the reasons for software development outsourcing failures is the difficulties in creating confidence and trust among the outsourcing companies [3, 15]. We argue that ‘skilled human resource’ can play a vital role in establishing a good relationship between client and vendor organisations as this will help vendor organisations to provide adequate services to client organisations. Different studies have also described the importance of ‘skilled human resource’ factor:

- A high-quality skilled manpower is the backbone of the IT industry and vendors should employ high skilled workers with professional degrees in Computer Science, Engineering, Management and similar fields [35].
- Often a client organisation is eager to know the technical capability of vendor organisation [13].

We have also found an ‘appropriate infrastructure of vendor organisation’ as the important factor (i.e. 60%). By ‘appropriate infrastructure’ we mean:

- IT infrastructure/Network infrastructure/Telecommunication infrastructure.
- Physical infrastructure (related both with the country and the company) which includes Telecom, power/electric supply, roads, transportation, physical buildings, office layouts, Internet access and sewer and water system etc.
- Sufficient resources including hardware and software to maintain large development projects.

Our findings indicate that developing an appropriate infrastructure by vendor organisations has a positive impact on client organisations. Hence, in order to be the victor in outsourcing projects vendor organisations should check the IT resources, including the number of servers, the intranet structure and the performance of the systems resources prior to undertake outsourcing activity [36].

### Table 2 List of Success Factors

<table>
<thead>
<tr>
<th>S.No</th>
<th>Success Factors</th>
<th>Frequency (n=122)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Cost-saving</td>
<td>84</td>
<td>69%</td>
</tr>
<tr>
<td>02</td>
<td>Skilled Human Resource</td>
<td>82</td>
<td>67%</td>
</tr>
<tr>
<td>03</td>
<td>Appropriate Infrastructure</td>
<td>73</td>
<td>60%</td>
</tr>
<tr>
<td>04</td>
<td>Quality of Products and Services</td>
<td>69</td>
<td>57%</td>
</tr>
<tr>
<td>05</td>
<td>Efficient Outsourcing Relationships Management</td>
<td>59</td>
<td>48%</td>
</tr>
<tr>
<td>06</td>
<td>Organisation’s track record of successful projects</td>
<td>53</td>
<td>43%</td>
</tr>
<tr>
<td>07</td>
<td>Efficient Project Management</td>
<td>47</td>
<td>39%</td>
</tr>
<tr>
<td>08</td>
<td>Efficient Contract Management</td>
<td>45</td>
<td>37%</td>
</tr>
<tr>
<td>09</td>
<td>SPI Certification</td>
<td>41</td>
<td>34%</td>
</tr>
<tr>
<td>10</td>
<td>Knowledge of the Client’s Language and Culture</td>
<td>39</td>
<td>32%</td>
</tr>
<tr>
<td>11</td>
<td>Timely Delivery of the Product</td>
<td>30</td>
<td>25%</td>
</tr>
<tr>
<td>12</td>
<td>Knowledge Exchange</td>
<td>25</td>
<td>21%</td>
</tr>
<tr>
<td>13</td>
<td>Data Protection Laws</td>
<td>23</td>
<td>19%</td>
</tr>
<tr>
<td>14</td>
<td>Financial Stability</td>
<td>14</td>
<td>12%</td>
</tr>
<tr>
<td>15</td>
<td>Company Size (Large and Medium)</td>
<td>08</td>
<td>07%</td>
</tr>
<tr>
<td>16</td>
<td>Risk Sharing</td>
<td>08</td>
<td>07%</td>
</tr>
<tr>
<td>17</td>
<td>Pilot Project Performance</td>
<td>06</td>
<td>05%</td>
</tr>
<tr>
<td>18</td>
<td>Vendor’s Responsiveness</td>
<td>05</td>
<td>04%</td>
</tr>
<tr>
<td>19</td>
<td>Political Stability</td>
<td>03</td>
<td>03%</td>
</tr>
<tr>
<td>20</td>
<td>Overseas Offices</td>
<td>02</td>
<td>02%</td>
</tr>
<tr>
<td>21</td>
<td>Soft Deliverable</td>
<td>01</td>
<td>01%</td>
</tr>
<tr>
<td>22</td>
<td>Industry-University Linkage</td>
<td>01</td>
<td>01%</td>
</tr>
</tbody>
</table>
Fifty seven percent of articles in our study have cited a ‘quality of products and services’ factor that has a positive impact on client organisations. Due to the growth in free markets of globalisation and advancements in information and communication technologies, organisations have to consider taking advantage of outsourcing strategies, not only to utilize the cost advantages but also to benefit from the improved quality that offshore vendors provide [37]. Indian software companies have been reported to provide high quality software [38]. This is the reason that in the software export market, India is a dominant software outsourcing provider [39]. These trends show that ‘Quality of products and services’ is used as one of the criteria in the selection of software development outsourcing vendors.

Nearly half of the articles in our study cited ‘efficient outsourcing relationships management’ as an important factor for client organisations. This shows that establishing reliable relationships can help to ensure the successful outcome of outsourcing projects and long lasting relationships between clients and vendors [3, 14, 40]. We have also identified ‘organisation’s track record of successful projects’ and ‘efficient project management’ factors that have a positive impact on client organisations.

4.2. Comparison of the CSFs across various continents

In order to answer RQ2, Table 3 shows the list of CSFs identified in different continents. Figure 1 shows the number of articles reporting studies related to different continents. In this paper we have only compared the factors identified in three continents, i.e. Asia, America and Europe. Our aim is to find whether these factors differ from continent to continent. We suggest that understanding the similarities and differences in these factors can contribute to the body of knowledge of software development outsourcing. This is because where articles from different continents consider that a factor has a positive impact on client organisations then that factor needs to be taken very seriously by the vendor organisations in that continent.

Because of the ordinal nature of the data we have used the linear by linear association chi-square test in order to find significant differences between factors identified in three continents. The linear by linear association test is preferred when testing the significant difference between ordinal variables because it is more powerful than Pearson chi-square test [41].

Comparison of the factors identified in three continents indicates that there are more similarities than differences between the factors. Table 3 shows that 20 factors are cited in Asia, 19 factors in America and 19 factors in Europe. We have found only one significant difference between the three continents (i.e. efficient contract management). The percentage of ‘efficient contract management’ is low in Asia (18%) while it has high percentages in America (42%) and in Europe (55%). We argue that as most of the clients are from America and Europe so they consider contract management important in order to avoid any risks associated with the outsourcing process.

Our findings show that ‘cost-saving’, ‘skilled human resource’ and ‘appropriate infrastructure’ are the most important factors in all three continents. ‘Efficient outsourcing relationships’, ‘efficient project management’ and ‘SPI certification’ are important factors in Asia (58%, 45% and 39%) and Europe (45%, 45% and 35%). ‘Quality of products and services’ and ‘schedule’ (Timely Delivery of the Product) are important factors in America (58% and 33%) and Europe (65% and 35%). ‘Organisation’s track record of successful-projects’ is important in Asia (55%).

Our findings indicate that the factors such as ‘Company size’, ‘Political stability’, ‘Financial stability’, ‘Industry-university linkage’, ‘Overseas-offices’ and ‘Risk sharing’ are not important for client organisations in Asia, Europe and America. However, studies show that some of these factors are important in outsourcing business. For example:

- Bhalla et al. argue that establishing offshore delivery centre provides an exposure to vendor organisations [34]. In addition, some organisations like Mirantis, Reksoft and StarSoft development labs have their overseas offices in California St.Petersburg, Ukraine and Cambridge in order to gain access to the international outsourcing market [42].
- Government policies and political stability in vendor countries can play important role in attracting client organisations. Chinese government is focussing on offshore outsourcing industry from the last few years [43], which may be a reason that China proceeds rapidly to victor the offshore software industry.
Figure 1: Final selection of papers from various continents

Table 3: Summary of factors across 3 continents as identified in the SLR

<table>
<thead>
<tr>
<th>Success Factors</th>
<th>Occurrence in SLR (N=122)</th>
<th>Chi-square Test (Linear-by-Linear Association) α = .05</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Asia (N=33)</td>
<td>America (N=43)</td>
</tr>
<tr>
<td>Appropriate Infrastructure</td>
<td>21</td>
<td>23</td>
</tr>
<tr>
<td>Company Size (Large and Medium)</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Cost-saving</td>
<td>22</td>
<td>32</td>
</tr>
<tr>
<td>Data Protection Laws</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Efficient Contract Management</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>Efficient Outsourcing Relationships Management</td>
<td>19</td>
<td>14</td>
</tr>
<tr>
<td>Efficient Project Management</td>
<td>15</td>
<td>13</td>
</tr>
<tr>
<td>Financial Stability</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Industry-University Linkage</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Knowledge Exchange</td>
<td>7</td>
<td>21</td>
</tr>
<tr>
<td>Knowledge of the Client’s Language and Culture</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>Organisation’s track record of successful projects</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Overseas Offices</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Pilot Project Performance</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>Political Stability</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Quality of Products and Services</td>
<td>16</td>
<td>25</td>
</tr>
<tr>
<td>Risk Sharing</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Skilled Human Resource</td>
<td>24</td>
<td>28</td>
</tr>
<tr>
<td>Soft Deliverable</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>SPI Certification</td>
<td>13</td>
<td>10</td>
</tr>
<tr>
<td>Timely Delivery of the Product</td>
<td>6</td>
<td>14</td>
</tr>
<tr>
<td>Vendor’s Responsiveness</td>
<td>2</td>
<td>6</td>
</tr>
</tbody>
</table>
• Economic stability and company size of vendor organisations may influence clients because financially instable and smaller in size vendor organisations are usually riskier and unreliable [44].
• “Financial soundness of outsourcing organisation” may influence client’s organisation in outsourcing vendor selection process [45].
• Risk sharing is important but not essential for vendor organisations in the context of offshore outsourcing [46].

We argue that it is important to determine the reasons of why these factors are not important for client organisations in Asia, Europe and America. We encourage independent studies on this topic.

5. Limitations

How valid are our findings of CSFs in the selection process of offshore software development outsourcing vendors? One possible threat to internal validity is that for any specific article, their reported CSFs may not have in fact described underlying reason. We have not been able to independently control this threat. The authors of these studies were not supposed to report the original reasons why these CSFs were used during the selection of vendors. It is also possible that in some studies there may have been a tendency for particular kinds of CSFs to not be reported. Many of the contributing studies were self-reported experience reports, case studies and empirical studies which may be subject to publication bias.

How safe is it to generalise these findings? Our sample contains many articles from many countries (Figure 1). Our findings are not based on any studies that used a random sample of software-developing outsourcing organisations in the world. However, in the investigation of our research questions, our study is the most comprehensive to date. The issue of generalising these findings can also be considered by comparing our findings with results from other related studies, as discussed in sections 4.1 and 4.2. We found many similarities in our findings and findings by other people, and this provides some support for generalisation.

6. Conclusion and Future Work

We identified through the SLR, factors that are generally considered critical by clients in the selection of offshore software outsourcing vendor. We suggest that focusing on these factors can help offshore outsourcing vendors to improve their readiness for software outsourcing activities.

Our findings indicate that cost-saving should not be considered as the only prime factor in the selection process of software development outsourcing vendors. Vendors should have to address the factors such as skilled human resource, appropriate infrastructure, quality of products and services, efficient outsourcing relationships management, organisation’s track record of successful projects, and efficient project management. We suggest that outsourcing vendors should focus on these CSFs for improving their readiness for the outsourcing activities. We have also compared these identified factors across the reported datasets for the continents of Asia, Europe and America and found that there are more similarities than differences between the factors.

We encourage independent studies on this topic. This will increase confidence in our findings and also track changes in attitudes to offshore outsourcing over time. We believe that a good understanding of these factors is vital in improving the vendor organisations readiness for software development outsourcing activities. From the findings of this study, we have identified the following goals that we plan to follow in future:

• Analyse the critical barriers in the selection process of offshore outsourcing vendors.
• Conduct empirical studies to determine the implementation of those factors which have been frequently cited in our study.
• It is also important to determine the reasons of why some factors are not important for client organisations in Asia, Europe and America.

Our ultimate aim is to develop a Software Outsourcing Vendors Readiness Model (SOVRM) [47]. This paper contributes to only one component of the SOVRM, i.e. the identification of the CSFs. We will validate these findings via questionnaire surveys in the software development outsourcing industry which will be the second stage in the development of SOVRM. Finally we will conduct 3 case studies for the evaluation of SOVRM. The eventual outcome of the research is the development of SOVRM to assist offshore outsourcing vendors in assessing their
readiness for software development outsourcing activities.

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8. References


