

# The Impact of Transition Costs on Offshore Systems Development

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## Abstract

Transition costs associated with ramping up a vendor will be encountered in most outsourcing arrangements. However, it is believed that due to circumstances unique to offshoring, the transition costs of these types of arrangements will be more prolific. Specifically, cultural issues will impede the transition of work and knowledge between the client and vendor, requiring additional time. Additionally, there will be communication issues between the client and vendor which will further impede efforts, leading to greater costs. Finally, with offshoring of jobs previously held by domestic employees, there will be a loss of confidence among client employees that will slow the transition of knowledge to the vendor. This study will investigate whether these unanticipated challenges will reduce, and potentially even eliminate, the value of any cost savings sought by the client in entering an offshoring relationship. If these additional factors are enough to mitigate any potential expected cost savings, the main premise for seeking offshore systems development may be nullified.

**Keywords:** outsourcing, offshoring, software development, transition cost

## 1. INTRODUCTION

Intangible costs are frequently overlooked when offshoring systems development. Ancillary costs include cultural issues between the domestic client and the offshore vendor, communication issues, and loss of confidence by the client's employees. While it may be difficult to point to specific costs from communicating across cultures, working in this environment will quickly show inefficiencies, impacting overall project progress. Kleim (2004) discusses how cultural differences can prove challenging in getting a diverse team to "gel". Harmony can quickly yield to disharmony, especially if a team lacks homogeneity in race, culture, or religion. Beyond this, Alami et al. (2008) have analyzed specific differences between Eastern and West-

ern cultures and uncovered significantly different approaches to conflict.

Cultural differences may further manifest themselves and be complicated by differences in language. For example, speaking a language from childhood is very different from learning a new language (Gonzalez et al., 2006). There are a number of idiosyncrasies and idioms inherent within a language that will not typically carry through to a non-native speaker further complicating the communication process.

Entering a new environment will also require a period of adjustment and learning – a transition period to climb the learning curve and be productive in the new role. This ramp-up period will be further complicated and take longer considering the inherent challenges of culture and language and potential displace-

ment of client staff. Client employees may realize that their job is at risk from the presence of the offshore vendor and may impede the transition process, delaying knowledge transfer or costing retention bonuses to remain for the short-term.

## 2. LITERATURE REVIEW

### ***Factors Impacting Project Transition Costs***

Missteps during the transition phase of the project may have greater impact as the project progresses. Identified factors that may impact this transition period include: cultural discrepancies between the client and vendor, communication challenges, and employee loss of confidence.

### ***Transition Costs***

The "learning curve" or adjustment period between the client and vendor may be more perilous when bringing together parties with divergent culture and language. Pfannenstein and Tsai (2004) indicate that the transition period is perhaps the most expensive stage of an offshore relationship. It can take from three months to a full year to completely hand the work over to an offshore partner. Overby (2003) places transition cost estimates - based upon interviews with executives - at 15% - 57% of the cost of the project. Rottman and Lacity (2006) also support this finding as their research uncovered transaction costs for offshore projects of 50% of contract value. While some of the aforementioned costs will be incurred with a domestic outsourcing relationship, Rottman and Lacity (2006) found transition costs to be as little as 5% - 10%. Yu (2006) also concurs that although there are often lower-cost offshoring alternatives to a company's current situation, the transaction costs of choosing offshoring are often greater than any cost advantages.

Although offshore outsourcing can lower some costs (mainly IT wages), it creates new up-front expenses including vendor selection costs, legal and contract costs, and the cost to transition work to outsourcing providers (Overby, 2003). Aron and Singh (2005) state that when firms outsource processes that require the transfer of a large amount of tacit knowledge, they have to invest time and effort in training providers' employees.

Murray and Crandall (2006) also document that managers should prepare for possible internal consequences of the offshoring decision, especially the effect on employee morale and productivity. People who know their jobs best will leave early to take other jobs, causing the transition to be longer and more problematic. Those that remain will likely have very low morale, causing their productivity to drop drastically (Overby, 2003). Retention bonuses for employees who help with the transition will cause costs to escalate.

### ***Cultural Issues***

Working with an offshore vendor introduces significant cultural challenges not encountered in a domestic arrangement. Carmel and Agarwal (2002) mention that globally dispersed projects are more difficult to manage because of cultural differences. These cultural differences are not "right" or "wrong", but executives negotiating contracts and monitoring performance must understand the differences as they apply to the contract and its services (Davis et al., 2006). In the end, culture does matter in IS offshore outsourcing arrangements (Winkler et al., 2008) and can cause the misinterpretation of business conversations and professional behaviors (Djavanshir, 2005).

Research by Krishna et al. (2004) indicates that particular societies tend to have distinct ways of working that can prove problematic when attempting cross-border collaboration. Detailed accounts of such problems have been published (Matloff, 2004).

Cultural differences also impact the way that individuals interact with supervisors, perceive the importance of group harmony, and handle quality-of-life concerns. Winkler et al. (2008) noted that getting to know, and learning about Indian co-workers' cultural traits and working behaviors proved essential to being able to successfully manage the offshoring arrangement. It should be noted though, this additional effort on the part of the client has a cost, in effect requiring the client to change to suit the vendor.

### ***Communication Issues***

In addition to the challenges posed by working across cultures, there are also language and communication issues that may crop up. Goles et al. (2008) indicate that communica-

tion skills are fundamental and vital to several other desired skills including systems analysis, project management, and managing customer relations. Winkler et al. (2008) state that India should be recognized as a continent with 14 languages. Even though English is an official language of India, many professionals do not speak it well enough to interact with U.S. clients and personnel (Farrell et al., 2005). This becomes especially problematic during critical project periods such as Requirements Gathering, or Design and Architecture. Any items missed in the communication process early on can have a devastating impact later in the project.

Problems derived from a poor knowledge of the language can make the communication between customer and provider more difficult as well as cause problems related to the lack of knowledge detected in some offshore providers (Gonzalez et al., 2006). Differences in language, which complicate the relationship as a general matter, pose a particular problem in scope definition as this process often requires coordination between the parties (Schultz, 2006). This increases the upfront costs of the transaction making it more difficult to precisely define client requirements and whether the vendor can meet these requirements at a particular price (Weiss and Azaran, 2007). In international contexts, accomplishing these tasks becomes critical; language differences between the customer and vendor will reduce the likelihood that there will be an implicit understanding between them regarding the terms of their deal. Hence, what may be left unstated in a domestic contract must be made explicit in an offshore outsourcing engagement (Weiss and Azaran, 2007).

In order to mitigate the challenges of communication between the client and offshore vendor, training and education may be used. However, Gonzalez et al. (2006) mention that all the costs that these investments generate must be added to the total cost of offshoring.

#### **Employee Loss of Confidence**

Permanent employees represent one of the most vital resources to the organization. During any type of transition, it is important to allocate appropriate time to allow the organizational knowledge held by the organization's workers to be transferred to the vendor, and allow them to be as productive as

possible. However, institutional knowledge gained over many years of work is difficult to transition in a short period of time.

Weiss and Azaran (2007) mention that a customer that outsources risks losing employees that have a significant amount of valuable firm-specific human capital. This loss of human capital is serious because it can reduce a customer's flexibility when the outsourcing relationship ends – customers will be less able to bring processes back in-house or transfer them to other vendors.

Offshore outsourcing poses greater risks for the IT work force in developed countries because it typically translates into the exportation of domestic jobs to foreign countries. Therefore, offshore outsourcing represents job insecurity, possible unemployment, lower wages, and fewer benefits for IT workers (Shao and Smith-David, 2007). This phenomenon has become so prolific that displaced IT workers and organized labor are lobbying to prevent government agencies from offshoring their IT services, either directly or indirectly (Glasner, 2003; Thibodeau, 2003).

#### **Theoretical Framework**

##### **Transition Costs**

One of the largest cost considerations in systems development is the cost of transitioning responsibilities and knowledge to the vendor (Pfannenstein and Tsai, 2004). As such, any efforts that will smooth this transition period, or add difficulty to this process, will have a greater effect on Total Cost of Ownership (TCO). The transition of employees into a new environment can be difficult enough with efforts taking anywhere from three months to one year. Add to this other issues such as cultural adjustment, communication issues, and client employees concerns, the process can be delayed and add to the total costs of the project.

##### **Cultural Issues**

Krishna et al. (2004) state that particular societies tend to have distinct ways of working that can prove problematic when attempting cross-border collaboration. These differences in working styles, norms, values, and approaches to issues differ between cultures and can impact the integration of vendor personnel into the client environment. Cultural differences will also impact how the

vendor interacts with client personnel supervisors, perceive the importance of group harmony, respond to gender issues, and handle quality-of-life concerns.

Domestic managers may have significant experience working with colleagues from their own culture. Attempting to integrate staff into their team, or work with vendor staff unaccustomed to domestic culture, will impact methods of managing the project. These differences in culture, shared experiences, and issue resolution techniques are simply a fact that must be dealt with. Some authors have mentioned the need for cultural training (Alami et al., 2008) to help acclimate domestic managers to the vendor environment and help them be more successful in dealing with foreign nationals. This additional training will represent costs to the client beyond working with a domestic vendor.

Hypothesis 1: Cultural challenges brought about by integrating two diverse cultures will lead to higher transition costs.

### **Communication Issues**

One of the most critical elements of the systems development process is the communication between the customer and development staff. Both groups tend to be less familiar with the needs of the other yet still need to communicate to develop a system that will meet the needs of the business. In a domestic relationship, this communication process between the non-technical business customer and the technical development staff can be challenging enough. Adding in the hurdle of potential language barriers and communication styles will further complicate this process. Small missteps made early in setting project direction can cause larger deviations during project development. These additional communication issues can complicate the transition process and impede project progress.

Hypothesis 2: Language and communication issues between the client and vendor will lead to higher transition costs.

### **Employee Loss of Confidence**

In addition to cultural and communication challenges working with teams from foreign countries, there is also the concern regarding disposition of current staff. One of the critical functions will be transitioning the busi-

ness and system knowledge of the current staff to the vendor, allowing them to adequately perform the systems development function. This transition process will be complicated by the fact that the client staff realizes their job will also be transitioned offshore.

This process has to be managed very cautiously. On the one hand, transitioning responsibilities may allow current staff to be placed in new roles within the organization, providing career advancement opportunities. On the other hand, there may no longer be a need for current staff and they will have to be released. This will add to project costs through retention bonuses and severance packages during the transition period.

As current staff realize their employment is limited, their efforts will be directed towards finding their next job, if not leaving for their next job before transition is complete. This exodus of knowledge capital from the firm will significantly slow the knowledge transfer process, or require the vendor to learn the system on their own.

All of these factors will slow the transition process and add to the costs of transitioning system knowledge to the vendor.

Hypothesis 3: Employee loss of confidence will bring about higher transition costs.

Taken together, these above factors lead to the anticipated relationship illustrated in Figure 1.

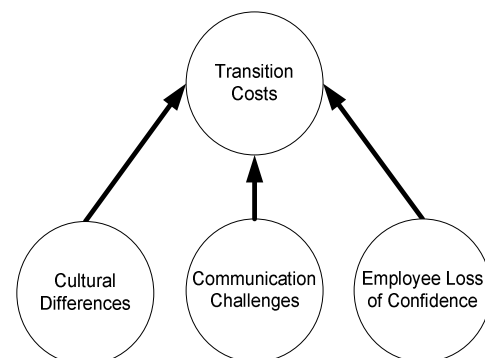


Figure 1: Transition Cost of Ownership

### 3. METHODOLOGY

#### *Project Background*

This research utilizes data gathered from a large manufacturing company for a multi-year, multi-million dollar engagement. The first phase of the project (four applications) focused on the rearchitecture and redesign of a set of applications with one of the largest Indian software developers. The second phase (nine applications) continued efforts with another of the largest Indian software vendors. The need for this migration effort was based on the sunsetting of the current application environment and the need to maintain the application functionality to support business operations.

The group surveyed for both phases of the Project is the Retailer Operation Development Team responsible for maintenance, support, and development activities on the applications being rewritten. This group includes the Client Manager, Project Manager, Technical Lead, and two Subject Matter Experts and is summarized in Table 1 below. The participants were the same for both rounds of surveys. Prior to this two-phased initiative, this was the whole team responsible for support of this application portfolio.

<b>Retailer Operation Development Team</b>
Client Manager
Project Manager
Technical Lead
Subject Matter Experts (2)

Table 1: Client Personnel Surveyed

#### *Research Method*

This research utilized a multi-method approach combining multiple case studies to investigate its assertions. Based on the authors' access to data from this particular client, it was decided to pursue this manufacturer's offshoring experiences in greater detail. There have not been many detailed, in-depth studies of a particular project or multiple projects (Rao et al., 2006). It is believed that in-depth study of large, separate-but-related projects will help highlight potential items that may not be possible from higher-level analysis, show consistency with, and lend support to earlier theory. According to Yin (2003), the multiple-case method allows the possibility of direct replica-

tion, providing results more powerful than those coming from a single case alone.

Additionally, even in the context of the two cases there is likely to be some difference. Each project phase would use a different offshore vendor allowing the impact of different representative offshore companies to be studied. As mentioned earlier, these are two of the largest offshore companies and as such will have greater impact on the offshore systems development market. If common conclusions from both of these projects can still be derived, external generalizability will have been greatly expanded (Yin, 2003). Additionally, the significant increase in offshoring is a relatively contemporary phenomenon (Reingold, 2004; Hirschheim et al., 2004) and the research in this area is still in the exploratory phase.

Identical surveys were distributed separately after each of the two project phases to the Retailer Operation information technology professionals at the client via email and responses gathered in the same manner. After receipt of the surveys, follow-up interviews were conducted with each of the respondents to clarify responses, and expand upon answers given. These interviews were conducted both as a group and individually in a semi-structured fashion by reviewing the participants' previous answers and obtaining clarification to some of the responses given.

Based on surveys and interviews with client project personnel over both phases of the project, the study clustered participant responses to provide support for each exploratory dimension of how each of the identified factors (e.g. cultural differences) impacted the cost of transitioning to the vendor and in turn the cost to the client company. Data were analyzed based on the interpretive hermeneutical approach; consistent with Klein and Meyers (1999) who categorize interpretive research as helping to determine reality through social constructions such as language, shared meanings, documents, tools, and other artifacts. This process employs a meaning categorization form of analysis as described by Kvale (1996) and is primarily concerned with the meaning of a text or text-analogue. (Alami et al., 2008)

The authors analyzed survey data for consistent messages with triangulation of the responses. Interpretive research can help IS researchers to better understand thought

and action in both social and organizational contexts and also produce deeper insights into Information Systems phenomena such as information systems development (Klein and Meyers, 1999). This multiple case study approach strengthens the results by replicating the pattern-matching, thus increasing confidence in the robustness of theory (Herriott and Firestone, 1983; Alami et al. 2008).

#### 4. ANALYSIS OF RESULTS

##### ***Transition Costs***

This research investigates the impact of the previously identified factors on the transition costs of an offshore systems development effort. Transition costs have been noted to be among the largest costs of the systems development effort (Pfannenstein and Tsai, 2004). The respondents confirmed the primary goal of offshoring was anticipated cost savings in each item measured.

One respondent noted that the duration of the transition period took over three months for a year-long project, far beyond initial expectations and adding to the overall cost of the project. This timeline has also been confirmed by Pfannenstein and Tsai (2004) who note that the typical transition period can last from three months to one year. Additionally, one option mentioned was having the application re-write performed by the in-house team. This would have eliminated the need for knowledge transition and eliminated these costs altogether. Completing this function in-house would have saved roughly 25% of the total project cost.

Considering that the vendor was changed for the second phase of the project, the client incurred duplicate costs for transitioning the knowledge and work to a different vendor. The second vendor experienced 180% turnover during the second phase of the project. In fact, a number of respondents specifically noted the challenges posed by significant vendor turnover such as the amount of knowledge that left every time there was a going away party. Other respondents noted the inadequate turnover process implemented by the vendor between their employees. In the case studied, it became apparent that the second vendor had a marginal process for knowledge transfer to new staff, instead relying upon retraining by the client, thus adding to overall client time and effort.

Ultimately, the transition period for the project took longer than anticipated and was not managed as well as possible from the vendor side. This required additional resources to be devoted by the client, thus adding to project costs.

##### ***Cultural Issues***

Respondents have noted there were challenges in dealing with the vendors based on items such as working styles, status reporting, and overall personality conflicts. Respondents also indicated there was an understanding by the original vendor of look-and-feel requirements for the application, however there was little understanding of the logic and function requirements of the applications. This ties back directly to Rottman and Lacity (2006), and Weiss and Azaran (2007) as they cite specific examples of common domestic business processes that offshore vendors would not be exposed to in their culture and have difficulty understanding. The belief is that the specific business domain knowledge required to effectively implement these applications may have been lacking with the vendor causing challenges in communicating and defining application requirements. Additionally, in the absence of this domain knowledge, the vendor simply sought to recreate the applications without an updating of requirements no longer required.

Both vendors also ran into difficulties accurately communicating project status and continually reported the project proceeding on task until deliverables were required by the client. At these times, the vendors would attempt to push deadlines allowing additional time to complete tasks. This confirms prior work of Keil et al. (2007) who specify a cultural component to the reporting of bad news. In their analysis, eastern cultures place greater emphasis on relationships and saving face – preferring to delay reporting of bad news – whereas western cultures prefer to bring information to light. Delay in addressing issues caused project delays.

##### ***Communication Issues***

Respondents have noted a number of challenges with simple language difficulties, noting communication gaps with both vendors. Communication did play a factor with both vendors in an understanding of project issues and documentation, hampering project

progress. Poor understanding of project scope allowed the original vendor to submit change controls under the guise of poor requirements definition by the client. These change controls resulted in further project delays and greater project expense for the client. Ultimately, it is believed that this major failing on the part of the original vendor prevented them from being seriously considered for the second - potentially more lucrative - phase of the project.

Code reviews for the second vendor revealed numerous deviations from naming conventions. This could be due in part to an oversight or, more seriously, lacking command of the language. Either way, for future maintenance, these items would have to be brought in line with corporate standards requiring additional effort devoted by the client.

#### **Employee Loss of Confidence**

Based on the stated corporate direction of the organization, the goal was to offshore 70% of systems development work. This fact alone would cause concern among current workers regarding the stability of their role within the organization. In a domestic outsourcing arrangement, it is common for the vendor to transition client employees to their staff, possibly providing greater career opportunities (Weiss and Azaran, 2007). In an offshore arrangement, this situation is simply not possible. The length of the project provided ample opportunity for client personnel to investigate and pursue other opportunities. This was the case that occurred as most of the client personnel did turnover, with little need for replacement. This exodus of knowledge from the organization severely affected the ability of the organization to monitor and manage the vendor.

### **5. CONCLUSION**

This research investigates cultural, communication, and employee confidence issues that may impact the costs of transitioning project knowledge to an offshore vendor. The three hypotheses were supported for both project phases as shown in Table 2, based on data gathered from client project personnel. Space limitations prevent dissemination of the full survey distributed to respondents; the survey and data are available from the authors upon request.

Hypothesis	Supported?
Cultural challenges brought about by integrating two diverse cultures will lead to higher transition costs.	Yes
Language and communication issues between the client and vendor will lead to higher transition costs.	Yes
Employee loss of confidence will bring about higher transition costs.	Yes

Table 2: Summary of Results

Viewed as a subset of total project costs, transition costs represent a piece of total project costs for systems development. If handled incorrectly, project transition shortcomings may result in greater overall costs for the project. It is important that this phase be handled properly or the client risks compounding errors throughout the project as confirmed by the company studied. In reviewing each of the items posited to impact project transition costs, the client did incur additional costs in their project due to cultural, communication, and employee confidence problems.

The costs of offshoring work may ultimately end up greater than choosing a domestic vendor to perform the same work. In a domestic outsourced arrangement, there would be little difference in national culture or communication issues caused by differences in language or style, and employee loss of confidence could be mitigated.

This research should be viewed as a cautionary note for companies seeking to save money by offshoring systems development work.

#### **Limitations and Suggestions for Further Research**

This analysis focuses on the efforts of two of the largest Indian outsourcing vendors involved in the largest offshoring initiative at a major manufacturing company. As a case study, it provides the opportunity to perform a low-level analysis of the dimensions that impacted this offshoring initiative and highlights the factors that impacted this particular project.

This analysis represents one offshore engagement at one client and may not be rep-

representative of offshore outsourcing in general. The results however, including the fact that similar results were experienced with both vendors, tend to confirm previous dimensions discovered with other offshoring arrangements and provide increasing evidence that the anticipated cost savings sought by companies may be outweighed by unanticipated costs.

The authors recommend further investigation to provide additional support for the model developed and believe the primary factor impacting the transition cost of the project is whether standards defined at the outset of the project are realized. Further investigation could focus on other dimensions that may impact the delivery of the system. These could be the impact of technology solutions such as videoconferencing or message boards to reduce the geographic separation between the client and the development team, the experience level of the vendor team, and the experience of the client in offshoring development activities.

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