

## The Perceived Risks of IT Outsourcing: An Exploratory Comparison of Large MNC & SME's

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### Abstract

This paper examines the perceived risk of outsourcing from the perspective of a large, multi-national, multi-business unit corporation (Group I) compared to small businesses within Central Virginia (Group II). In general, the perceived impact of the risk factors was mixed. Group I outsourced operations that had a greater impact on other areas of the corporation. It also was moderately concerned about the issues relating to the specificity of the outsourced assets. Group II was concerned about the lack of expertise within their company for the outsourced operation. It also was moderately concerned about the small number of suppliers available to perform the outsourced operation. Group I was more likely to utilize procedures that should mitigate the risks associated with outsourcing. The anticipated negative impact from outsourcing the IT operations was minimal. Overall, the results showed that Group I perceived a slightly higher chance that a negative outcome would result from outsourcing.

The combined results of the survey showed that Asset Specificity and Degree of Expertise of the client with outsourcing had the greatest significance on the outcome of cost escalation. The outcome of debasement was impacted by the risk factors of Asset Specificity, Degree of Expertise of client with operation as well as the Degree of Expertise of the supplier with outsourcing, and Measurement Problems. Of the Risk Mitigators, Clan Mechanisms showed the strongest correlation with both outcomes, while Mutual Hostaging also was significant to service debasement.

Information Technology (IT) outsourcing has become a popular business trend within companies. Outsourcing will generate an estimated US\$151 billion in revenues for this year, according to research from IDC. Spending in the US will exceed \$81 billion (Fraser, 2003). The Gartner Group estimates global revenues of \$178 billion in 2006 (Aron, 2003). Despite the magnitude of these revenue levels, minimal statistical research on companies' perceived risks of IT outsourcing is available. This paper examines the perceived risk of outsourcing from the perspective of a large, multi-national, multi-business unit corporation (Group I) compared to small businesses within Central Virginia (Group II). The data for this analysis was accumulated using a survey (Bahli, 2002).

### Literature Review

Given the prevalence and the magnitude of IT outsourcing, it is important to understand the potential risks associated with this business function. The benefits of outsourcing are well-documented, such as cost cutting and converting long-term, intangible asset to cash, improved quality, and access to higher levels of technical knowledge, transferring risk to vendors, and an ability to concentrate on core processes. The Forrester Research recently reported that 53% of the firms interviewed stated cost cutting as the motivation for outsourcing, while 40% cited obtaining skills that were unavailable in-house (Winter, 2003). Since the benefits are widely understood, what about the risks associated with the IT function? Earl (1996) pointed out eleven risks associated with outsourcing. Not all of those risks exist with every outsourcing arrangement. In addition, many of the risks can be mitigated. However, companies need to be aware of the potential drawbacks of outsourcing. Given the potential risks, the company needs to understand its requirements (current and future) to accurately assess the impact of outsourcing.

One of the benefits often mentioned regarding outsourcing is the transfer of risk from the customer to the vendor. However, it is clear that not all risks can be transferred. Operational risk, the impact of non-performance of the outsourced function, will always be borne by the customer (Funk, Sloan, Zaret, 2003). The clearest example of operational risk is bankruptcy.

In today's business environment, many customers need to be aware of the financial conditions of their IT vendors. The economic downturn has left many companies on the verge of bankruptcy. Not only are vendors susceptible to bankruptcy themselves, but they can be negatively impacted by their customer's insolvency. EDS for example established a \$101 million reserve in the second quarter of 2002 and an additional \$110 million in the third quarter of 2002, for receivables from the WorldCom bankruptcy (Finkel and Kirpalani, 2003). That same year, EDS pulled out of bidding for a \$1 billion per year contract with Proctor & Gamble, stating too much risk existed in taking over the back office operations (Fox, 2002).

Typically, IT outsourcing contracts are executory (contain material future performance obligations) under Bankruptcy Code, and therefore the bankruptcy trustee can reject or assume the contract (Finkel and Kirpalani, 2003). The courts operate at their own pace so the customer could be exposed to negative economic results if the court doesn't act quickly. Steps can be taken to protect the company. Certainly, the most important step in relation to potential bankruptcy is to understand the financial condition of the vendor. Recent accounting irregularities make this form of protection less certain, but the company needs to ascertain as much financial information as possible.

In addition to operational risks, offshore outsourcing increases risks such as geopolitical, infrastructure, logistical, intellectual property and security (Funk, Sloan, Zaret, 2003). The contract can be a source of protection against many of these risks. The contract should address

the termination procedures including a nullifying clause in the event of bankruptcy as well as establishing retention rights for any intellectual property developed and used by the customer. In addition, the contract should address service-level requirements and provide financial protection in the case of failures. Management “step-in” rights would allow protection in the event of continuing or severe performance issues.

As mentioned above, security issues and protection of intellectual property is becoming a major concern, particularly for companies using offshore vendors. The United States has stringent laws protecting companies from industrial espionage. Many countries that are receiving the outsourced IT jobs do not have (or choose not to enforce) these same laws. Therefore, the companies run the risk of having their intellectual property and trade secrets stolen with little form of retribution available (Fitzgerald, 2003).

While the geopolitical risks associated with offshore outsourcing are mentioned in the context of the country performing the services, the impact on the company here in the US is rarely mentioned. One of the greatest potential risks concerns the sinking morale of the remaining workforce in the US. The company also risks a backlash from the groups of laid-off workers, which are becoming more organized and vocal (Hayes, 2003).

The selection process also contains elements of risks. Results from a survey questionnaire in Australia focusing on IT outsourcing decision-making phases, found that the highest correlation in this process (and thus the greatest area of risk) to be the action phase and the evaluation and monitoring phase (Fink and Shoeib, 2003). The action phase included the selection of an IT outsourcing vendor and development of a functional IT outsourcing contract. The selection process was thought to be the most important of all phases of the decision making process in this survey of Australian Government and non-Government organizations. The proper focus on this phase would be critical success factor in IT outsourcing, while a lack of appropriate attention to this phase would create a considerable risk factor.

Two recent studies indicate dissatisfaction and/or reluctance exists with regard to outsourcing. The management-consulting firm Diamond Cluster International conducted the first survey. It published a Global IT outsourcing study that indicated that none of the senior executives were completely satisfied with their outsourcer (Moon, 2003). Only 23% were more than partially satisfied, 54% were partially satisfied and 23% were dissatisfied with their IT outsourcing relationship. From this study it was determined that the dissatisfaction was a result of ineffective establishment and managing of IT outsourcing relationships. For example, one half of those surveyed reviewed the performance of the outsourcing relationship more than once a month, while 17% said they never visited the outsourcer's premises (Moon, 2003). The high levels of dissatisfaction can be attributed to failing to address the risks associated with setting realistic performance expectations and tracking the performance closely.

The second survey was conducted among Spanish public universities' information systems managers. It indicated that 68.8% of respondents felt reluctant to outsource due to excessive dependence on the provider (Claver, Gonzalez, Gasco, Llopis, 2002). The universities feared that losing basic knowledge or infrastructure to the provider might incapacitate the information technology department. One third of respondents did not clearly see the relation between the benefits of outsourcing and the costs and at the same time were distrustful of the provider's expertise. This survey indicated that there was little concern in several arrears- the potential for security problems that may arise as a result of outsourcing, a provider's ability to adapt to new technologies, and the development of an appropriately detailed contract.

### Survey Design

Bahli (2002) proposed that certain characteristics within the organization, the supplier or the surrounding environment (risk factors / risk mitigation factors) can create a condition (scenario) that could lead to an adverse outcome. Figure 1 below provides a visual summary of the model used in this research (Bahli, 2002, see definitions in Table 1)

The purpose of this research paper is to utilize the survey to collect data from two distinct groups and compare the results. The survey contains a series of questions concerning each aspect of the framework outlined above (Figure 1) to determine whether the risk factor / risk mitigation has an impact on the related scenarios and finally whether the scenarios impact the hypothesized outcome. The questions were adapted from three sources:

1. Previous developed studies
2. A combination of information from separate studies
3. Questions developed specifically for this survey, established through research. (These questions were validated through an interview process with IT managers).

In addition to the original survey questions, the company profile section was enlarged to obtain certain information about the respondents.

### Sample and Methodology

The focus of this survey effort was to compare and contrast the perceptions of the risks of IT outsourcing of a large, multi-national corporation (Group I) to businesses within one region of the country (Group II). The large, multi-national corporation's sample included a variety of diverse, global divisions within the company. 134 surveys were sent to this group. The regional sample covered businesses from the Central Virginia region. This sample represented a variety of businesses with potential respondents numbering 145.

The survey requested responses from companies that had been involved in IT outsourcing within the past five years. If multiple tasks were being outsourced, the respondents were instructed to indicate the task the answers applied.

The surveys were e-mailed in late 2003 with a requested return date. A follow-up e-mail reminder was sent out to the survey sample population approximately one week after the initial e-mail. There were 25 respondents from Group I, resulting in a 19% response rate and 15 respondents from Group II, resulting in a 10% response rate.

### Profile of respondents

Table 2 shows the characteristics of the responding companies. As expected, Group II encompassed a wider variety of characteristics among its responders. Group I's type of industry was more concentrated, with 40% of responses coming from the financial/insurance industry

and 28% from manufacturing. Manufacturing was leading industry from Group II, but it only comprised 33%. Operation of applications and PC management were the most prevalent outsourced operation for Group I, while network management and hardware maintenance were significant for Group II. These are interesting differences with regard to the type of operations being outsourced. However, discerning the reasons for these differences goes beyond the scope of this paper. Approximately 50% of Group II's contracts are open-ended while only 10% of Group I's are open ended. As expected, the number of employees and revenue levels differ significantly between Group I and Group II. Given the nature of the two groups, Group I have a much larger employee level and revenue level than does the regional companies used in Group II.

The survey also solicited responses concerning the necessity to train the vendor in the operations as well as the vendor's assumption of any employees and assets of the company. One striking difference in responses was that Group I tended to provide training to the vendor whereas Group II did not provide it. In addition, the vendors for Group I was more likely to hire the former employees, although the overall likelihood was not high for either group.

## Results

The results of the survey have been compiled in two different ways. The first method consisted of accumulating the responses for each question and performing a statistical. The second method grouped the questions that pertained to each element of the established framework (see Figure 1). Each question was assumed to have the same weight of importance relative to the element being measured (Table 4). In addition, a few of the responses had to be inverted on the scale in order to have the direction of the measurement consistent. For the purposes of descriptive statistical results, the definition of low risk is a mean score between 1 and 2.99; moderate risk is from 3 to 4.99; and high risk is from 5 to 7. The third method grouped all responses together to perform regression analysis on the data to determine which variables were best predictors of the outcome (Table 5). Below is a narrative review of the results, by category.

## Risk Factors

Risk factors refer to the sources of risk or a vulnerability that may lead to an undesirable consequence in outsourcing. The Bahli dissertation isolates nine risk different factors. In general, Group I only perceived relatedness as a high risk factor while asset specificity was a moderate concern. For Group II, expertise of the company with regards to the outsourced operation was the only perceived high risk factor. Relatedness and the small number of suppliers were moderate concerns.

One of Bahli (2002) hypotheses states that the greater the level of specificity of outsourced IT operations, the higher the degree of a lock in situation. There was a moderate lock-in risk regarding asset specificity for Group I, while Group II perceived much less risk in this area. One possible reason for this difference is that a larger corporation would normally require more customization to support its operations than a smaller business.

A small number of suppliers could also represent an increase in risk due to increased lock in. Group I indicated that there were a sufficient number of reputable suppliers, however members of Group II felt that a moderate risk existed due to the lack of suppliers. If the field of potential alternative suppliers is limited, the potential for lock-in increases and thus, risks increase. In this case the bargaining power of the supplier increases.

Uncertainty surrounding an outsourced IT operation may lead to an increased degree of lock-in, costly contractual amendments or unexpected transition and management costs.

Both Group I and Group II responded by expressing a moderately low level of risk. Both groups felt that it was not difficult to predict outsourced requirements, therefore uncertainty was not a major risk.

The levels of expertise the company and the vendor have concerning the actual operation being outsourced as well as the ability to manage the outsourced relationship may also affect risk. The greater the degree of frequency, skill and comfort with an outsourced operation, the less chance there is to experience unexpected transition and management costs. Group I stated that its IT personnel had performed the outsourced operation frequently with great skill and comfort. Group II was not comfortable with their expertise level and thus would experience high risk by not being able to accurately anticipate issues and costs in making the outsourcing transition.

The degree of expertise the company has with managing outsourcing contracts may also impact risk. Once again, the greater the frequency, skill and comfort with managing an outsourced contract, the less chance there is to experience unexpected transition and management costs. Both Group I and Group II felt that they effectively managed outsourcing contracts.

A supplier's expertise may also impact the risk of outsourcing. The evaluation of a supplier's expertise is similar to that of a client's expertise in that frequency, skill, and comfort are evaluated in relation to an operation or managing an outsourced contract.

With the focus on the supplier, both Group I and II felt that the supplier had a high degree of expertise in regards to operations and the outsourcing contracts. As a result, there is less conflict and disagreement between parties and the risk is thought to be minimal.

The degree of interdependence (relatedness) of an outsourced operation with in-house operations or other outsourced operations is another risk factor that may affect transition and management costs. If the level of relatedness is high, these costs may be high. Group I indicated a very high level of relatedness, resulting in a higher perception of risk. Group II expressed a moderate level of risk.

If there are difficulties encountered in the evaluation of an element of exchange in the outsourced relationship (measurement ambiguity), then there is the potential for an increase in the level of disputes and litigation. Items such as the difficulty evaluating and recognizing the effectiveness of an operation or the lack of conformity to rules, procedures or contracts may contribute to these difficulties. Group I believed that there was a lower risk of measurement ambiguity than Group II.

## Risk Mitigation

Risk mitigation refers to methods available to lessen the likelihood of a potential negative scenario developing due to outsourcing. As shown in Figure 1 on page 3, there are several techniques available to limit the risk of outsourcing. The Bahli dissertation categorizes these techniques into seven general groups. In general, the survey results indicate that a large, multi-business unit corporate environment utilizes risk mitigation methods more often than smaller companies. In addition, the application of these methods across business lines within the large corporation is more predictable than in smaller companies.

Surprisingly, the Group II indicated a slightly higher propensity toward the usage of multi-vendors (dual sourcing) for the outsourced services. However, neither respondent group showed an over-abundance of vendors available for use since the average number of vendors was less than three for both groups.

Neither group perceived a strong interdependence (mutual hostages) with the outsourcing vendor. Group I showed a higher reliance on this technique along with a smaller level of volatility. Group II expressed a wider range of responses concerning the importance of interdependence, but the overall average was lower. This result is understandable given the typical nature of smaller businesses in relation to their vendors. Normally, a small business is not going to be mutually indispensable to its customers and vice versa.

Both groups tended to base contract renewals on current performance levels (sequential contracting). In fact, this category is the second most prevalent risk mitigation factor used by both groups. The high level of favorable responses is not a surprise given that good business practices should dictate the utilization of this method of control. The breakdown between the two groups continues to indicate that the large corporation relies more heavily on the mitigation method and the response variance from each division within the corporation is less volatile.

Clan mechanism, which deals with common values and goals, recorded the highest level of favorable responses for mitigation factors from all groups. Group II fared slightly better than Group I. This result can be attributed to the nature of a big corporation, which has its own dominant corporate culture, versus a smaller company that would tend to look for vendors with similar ideals. Examining the variation on some of the detail questions reveals that Group I expressed more confidence in its ability to build an effective team with its vendor. This result seems consistent with the notion that a larger corporation has more resources and technical expertise concerning working with outsourced functions.

Group I relied more heavily upon technical experts during the negotiation and writing of the contract as well as during the transition period. Surprisingly, this reliance was only moderate even for the large corporation. Group I showed minimal usage of technical experts during the establishment of the outsourced operation. Again, resources and familiarity with the process (and the importance of the contract) probably impacted Group I's results.

Dispute resolution is not perceived as an important factor in minimizing risk. Group I places more importance on this method, but even Group I places it at a low level of importance. For Group II, techniques such as arbitration don't appear to be critical.

Contract flexibility is one of the more important aspects of the current outsourcing contracts for both groups of respondents. Again, Group I showed more flexibility in its contract price and early termination, but this attribute was important to the Group II companies as well.

## Scenarios

There are several aspects of an outsourcing relationship that have the potential for leading to a negative perception of risk. The Bahli dissertation categorizes these into four basic scenarios. In general, the survey results seem to indicate that the large, multi-business unit corporate environment has a slightly more volatile relationship with its outsourced vendors than that experienced by smaller companies. For Group I, three of the four scenarios fell in the moderate risk category.

The lock-in scenario is the degree to which the firm feels that it has limited alternatives to continuing business with the current outsourcing vendor. Group I exhibited a slightly higher perception of risk. For Group II lock-in represented the highest average perception of risk score. This is most notably the case when considering the degree of importance that the firm perceives its outsourcing vendor and the services it provides. This is an indication that the vendor is a key contributor and an absence of its services would be a riskier proposition for the large corporation than for the central Virginia companies.

The presence or occurrence of costly contractual amendments scenario is not perceived as a high risk to either Group I or Group II. In both cases the perception of risk was ranked as being very low.

The transition and management costs scenario is an indication of unfavorable or unexpected costs when transitioning services to the vendor and for continued maintenance of the relationship with that vendor. This scenario represented the second highest average perception of risk for Group I, while the scenario was Group II's lowest. The degree of separation was particularly strong when considering transition costs experienced to what was expected. The difference in scores may be indicative of the difference in size and scope of the services being transitioned to the vendor. Keep in mind that although this risk showed a greater variation between the groups, on a relative scale the variation was minimal. Group I's results barely fell into the moderate risk category.

The disputes and litigation scenario is a measure of the volume of disagreements and conflicts experienced by the firm with the outsource vendor. There was again a difference between the two survey groups, as Group I exhibited its highest average perceived risk. The most negative response for the large corporation came in answer to a question concerning whether several issues were debated between the firm and its supplier. This result again may be attributable to the size, scope, and resultant complexity of the services being outsourced.

In addition, it may be tied back to the lock-in questions regarding the importance of the outsourcer's service, suggesting that a higher degree of important services result in more scrutiny and management.

## Actual Outcomes

Actual outcomes refer to the success or failure of the outsourced services when compared with the performance of these services prior to outsourcing. The Bahli dissertation refers to two specific outcomes. In general, the survey results seem to indicate that a large, multi-



business unit corporate environment perceives a higher risk to performance degradation when outsourcing as compared to the central Virginia companies. This outcome may be a result of the large complex nature of the outsource activity performed for the large corporation as opposed to the central Virginia companies.

Cost escalation is a measure of risk for which an increase of costs has been experienced since outsourcing the operation. This outcome is a key measurement since many companies cite cost savings as a central reasoning for outsourcing. Group I and Group II registered low average perceived risk scores for cost escalation. The large corporation score was not significantly higher. This seems to indicate that for both groups cost escalation was not a significant result of outsourcing. Service debasement is a measure of risk for which a reduction in performance of service has been experienced since outsourcing the operation. Group I exhibited its highest average risk perception score while Group II exhibited their lowest average score for this actual outcome. While the score for the large corporation was relatively low it does illustrate an elevated level of risk when compared with the SME companies.

### Regression Analysis

A series of regression tests were performed in an effort to find the best predictors for each of the two main risk outcomes, cost escalation and service debasement (Table 5).

Listed in the order of significance, Transition and Management costs (R-Sq 66.8%), Lock-In (R-Sq 53.5%), and Costly Contractual Amendment (R-Sq 37.4%) best predicted Cost Escalation in simple regression tests. These results suggest that a firm taking pro-active action to reduce exposure to these specific scenarios can at the same time reduce the risk for experiencing Cost Escalation with the IT outsourcing arrangement.

Listed in the order of significance, Disputes and Litigation (R-Sq 35.0%), Transition and Management Costs (R-Sq 28.9%), and Costly Contractual Amendments (R-Sq 20.0%) best predicted Service Debasement in simple regression tests. These results suggest that a firm taking pro-active action to reduce exposure to these specific scenarios can at the same time reduce the risk for experiencing Service Debasement with the IT outsourcing arrangement. The fact that Cost Contractual Amendments were identified as a top predictor for both risk outcomes makes a strong case that firms should work to define a contract that will not require such modifications after the transition has been completed.

### Conclusions and Direction for Future Research

The survey results included responses from management and IT professionals from business units of a large multi-national corporation and 15 small to medium sized companies. The descriptive statistics generally indicated that there was a low to moderate perception of the risk of IT outsourcing for both groups within the research framework. There was only moderate difference (<1.6 points on a 7 point scale) between responses from both groups with the exception of one risk factor – “degree of expertise of the client with operations” where the difference was greater than 4 points. Each group had one risk factor that registered very high.

Group I considered “relatedness” to be a high risk factor (6.14). They may consider the degree of interdependence of the outsourced operations a high risk factor due to the transition and management costs, both visible and hidden costs. This group should focus on best practices in risk mitigation to address this risk factor.

Group II considered the degree of expertise of client with operations to be a high risk factor (6.45). Group II’s expertise response may be the result of their focus on moving into technology or a level of technology that they currently do not employ. Their reason to outsource may have been to implement technology because they do not have the necessary internal expertise.

The regression analysis to determine best predictors of risk outcomes also indicates only a limited correlation among factors in the research framework. Even though the number of respondents provided marginal indications of the perception of risk, a greater number of survey responses would allow for a more indicative interpretation of results and additional segmented comparisons. Future measuring, monitoring and reporting of the perceived risks of IT outsourcing would make a great contribution to improving the outsourcing relationship and organizational success in outsourcing.

Items for further research include:

- Survey the size and scope of outsource operations and perform regression analysis against all high/medium/low risk scores
- Gather sufficient surveys to perform regression analysis between age of outsource operations and all high/medium/low risk scores
- Gather sufficient surveys to perform regression analysis between types of outsource operations and all high/medium/low risk scores
- Concentrate a survey on the two areas where the perception of risk was higher (relatedness and degree of client expertise on outsourced operation). Limiting the length of the survey should increase the response rate

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**Table 1: Definition of Terms in Risk Model Framework**

<b>Risk Factor</b>	source of risk, vulnerability that lead to undesirable consequence
<b>Asset Specificity</b>	an asset that cannot be redeployed without sacrificing its productive value if the contract is to be interrupted or prematurely terminated
<b>Small number of suppliers</b>	unavailability of sufficient number of reputable and trustworthy IT suppliers in the market
<b>Uncertainty</b>	lack of information imposed by phenomena that are hard to predict
<b>Degree of expertise of client with operations</b>	client's frequency, skill and comfort with outsourced operation
<b>Degree of expertise of client with outsourcing</b>	client's frequency, skill and comfort with managing an outsource contract
<b>Degree of expertise of supplier with operations</b>	supplier's frequency, skill and comfort with outsourced operation
<b>Degree of expertise of supplier with outsourcing</b>	supplier's frequency, skill and comfort with managing an outsource contract
<b>Relatedness</b>	degree of interdependence of outsourced operation with in-house operations or other outsourced operations
<b>Measurement Problems</b>	difficulties encountered in the evaluation of an element of exchange (measurement ambiguity).
<b>Risk Mitigation</b>	source that limits risk
<b>Dual Sourcing</b>	utilization of more than one supplier
<b>Mutual Hostaging</b>	interdependence of client and supplier to each others' business
<b>Sequential Contracting</b>	a split of work to be done in many sequential steps
<b>Clan Mechanisms</b>	ability to influence behavior through informal means (e.g. shared goals, values and norms)
<b>External Expertise</b>	presence of external technical and legal expertise consulted before and during transition
<b>Dispute Resolution</b>	methods used to resolve disputes
<b>Contract Flexibility</b>	ability to adjust contract for unanticipated relevant future contingencies
<b>Scenario</b>	undesirable consequence or effect of the risk factor
<b>Lock-in</b>	state where client cannot exit a relationship without incurring a loss
<b>Costly Contractual Amendments</b>	costs incurred to alter, redraft or change a contract
<b>Transition and Management Costs</b>	unexpected costs related to the transition to supplier and subsequent management costs
<b>Disputes and Litigation</b>	conflicts that arise during the contract
<b>Actual Outcome</b>	negative results of the scenario
<b>Cost Escalation</b>	inflated costs due to outsourcing, such as cost of developing and maintaining relationship, monitoring the service and guarding against opportunism
<b>Service Debasement</b>	decrease in level of service

Source: (Bahli, 2002)

Table 2

Type of Industry	Number of Respondents	
	Group I	Group II
Information (Communications,Publishing)	1	1
Retail		2
Finance & Insurance	10	1
Real Estate & Rental/Leasing		1
Manufacturing	7	5
Wholesale Trade		4
Other	7	1
Most Important Outsourced Operation	Number of Respondents	
	Group I	Group II
Operation of Applications	6	2
PC Management	4	
Help Desk	3	
Operation of System Maintenance	3	
Operation of Operating System	2	1
Network Management	2	4
Production Scheduling	1	
Hardware Maintenance	1	4
CPU Operation	1	
Security Management	1	
System Integration	1	2
Disaster Recovery		1
Training		1
Contract Duration	Number of Respondents	
	Group I	Group II
1 year	8	5
2 years	1	
3 years	7	2
4 years	1	
5 years	2	
6 years	3	
10 years	1	
Open	2	6
Years Outsourcing Operation	Number of Respondents	
	Group I	Group II
< 1 year	1	
1 year	2	
2 years	5	2
3 years	7	3
4 years	1	2
5 years	2	1
6 years	4	1
7 years	1	
13 years	1	
No response	1	
Number of Employees	Number of Respondents	
	Group I	Group II
1-9		3
10-24		5
25-49		1
50-99		1
200-499		5
500 and above	25	

Table 3: Comparison of Key Statistics

Group I - Results from a large, multi-national corporation									
Group II - Results from SME's									
	Median		Mean		Standard Deviation		Skewness		
	Group I	Group II	Group I	Group II	Group I	Group II	Group I	Group II	
<b>Risk Factors</b>									
Asset Specificity	2	2	3.858	2.697	3.845	2.158	5.553	2.727	
Small No. of Suppliers	2	5	2.653	3.933	1.878	2.349	0.923	(0.190)	
Uncertainty	3	3	3.089	3.320	1.562	1.876	0.670	0.353	
Degree of Expertise of:									
Client with operations	6	1	2.197	6.455	1.561	0.795	1.688	(2.631)	
Client with outsourcing	4	4	4.092	4.600	1.877	1.610	(0.300)	0.338	
Supplier with operations	6	7	2.647	2.061	1.883	1.853	1.167	1.945	
Supplier with outsourcing	6	7	2.618	2.031	1.684	2.008	1.287	1.791	
Relatedness	7	6	6.140	4.584	1.390	2.359	(2.000)	(0.360)	
Measurement Problems	4	3	3.183	3.335	1.849	1.999	0.543	0.502	
<b>Risk Mitigation</b>									
Dual Sourcing (# of vendors)	2	1.5	2.160	2.429	1.179	1.651	0.660	0.506	
Mutual Hostaging	3	3	4.757	4.800	1.849	2.262	(0.407)	(0.628)	
Sequential Contracting	5	5	3.373	3.444	2.039	2.232	0.635	0.580	
Clan Mechanisms	6	6	2.713	2.693	1.582	1.417	0.948	0.415	
External Expertise	4	1	3.986	5.477	2.458	2.118	0.103	(0.970)	
Dispute Resolution	3	2	5.032	5.466	1.981	1.489	(0.665)	(0.525)	
Contract Flexibility	5	3.5	3.540	4.467	2.185	2.228	0.372	(0.279)	
<b>Scenarios</b>									
Lock-in	3	2	3.230	2.592	1.955	1.825	0.344	0.890	
Costly Contractual Amendments	1	1	1.969	1.983	1.453	1.432	1.247	1.678	
Transition/Management Costs	3	1	3.380	1.817	1.857	1.186	0.102	1.882	
Disputes and Litigation	3	1	3.533	1.952	1.905	1.529	0.062	1.458	
<b>Actual Outcome</b>									
Cost Escalation	2	1	2.790	1.797	1.981	1.111	0.934	1.200	
Service Debasement	2	1	2.430	1.950	1.695	1.320	0.935	1.375	

Table 4: Regression Analysis

	Estimated Coefficient	p-value
<b>Risk Factors Influencing Cost Escalation</b>		
Asset Specificity	<b>0.5588</b>	<b>0.075</b>
Small number of suppliers	0.0235	0.905
Uncertainty	0.3526	0.231
Degree of expertise of client with operations	-0.1382	0.415
<b>Degree of expertise of client with outsourcing</b>	<b>0.3111</b>	<b>0.053</b>
Degree of expertise of suppliers with operations	0.2211	0.406
Degree of expertise of suppliers with outsourcing	-0.0292	0.897
Relatedness	-0.1898	0.424
Measurement Problems	-0.4384	0.477
<b>Risk Mitigation Influencing Cost Escalation</b>		
Dual Sourcing	-0.2007	0.246
Mutual Hostaging	-0.0886	0.595
Sequential Contracting	-0.0347	0.889



<b>Clan Mechanisms</b>	<b>0.7410</b>	<b>0.011</b>
External Expertise	0.0331	0.846
Dispute Resolution	0.2085	0.241
Contract Flexibility	-0.3056	0.106
<b>Risk Factors Influencing Service Debasement</b>		
<b>Asset Specificity</b>	<b>0.3349</b>	<b>0.100</b>
Small number of suppliers	0.0868	0.514
Uncertainty	0.2140	0.280
<b>Degree of expertise of client with operations</b>	<b>-0.2403</b>	<b>0.042</b>
Degree of expertise of client with outsourcing	0.0113	0.914
Degree of expertise of supplier with operations	0.1781	0.323
Degree of expertise of supplier with outsourcing	0.0661	0.666
Relatedness	-0.1063	0.507
<b>Measurement Problems</b>	<b>0.7951</b>	<b>0.061</b>
<b>Risk Mitigation Influencing Service Debasement</b>		
<b>Dual Sourcing</b>	<b>0.3476</b>	<b>0.012</b>
<b>Mutual Hostaging</b>	<b>-0.2387</b>	<b>0.070</b>
Sequential Contracting	0.0391	0.838
<b>Clan Mechanism</b>	<b>0.4220</b>	<b>0.055</b>
External Expertise	-0.1159	0.380
Dispute Resolution	0.0326	0.810
Contract Flexibility	-0.1335	0.352

Table 5: Best Fit Regression Predictors of Risk Outcomes

	<b>p-value</b>	<b>R-Sq (adj.)</b>
<b>Type of Scenario of Predictor of Cost Escalation</b>		
Transition and Management Costs	0.000	66.8%
Lock-In	0.000	53.5%
Costly Contractual Amendments	0.000	37.4%
<b>Type of Scenario as Predictor of Service Debasement</b>		
Disputes and Litigation	0.000	35.0%
Transition and Management Costs	0.000	28.9%
Costly Contractual Amendments	0.000	20.0%

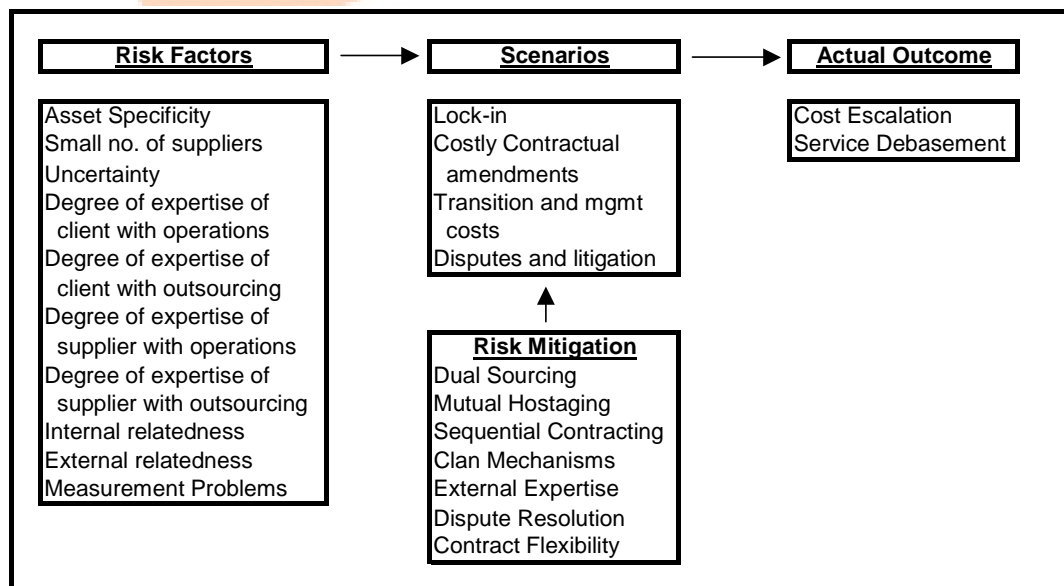


Figure 1: Risk Assessment: A Research Framework