

Inherent Risks in ICT Outsourcing Projects

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Abstract: - The mounting competition and global economic recession faced by organizations have made Information Communications Technology (ICT) outsourcing an attractive management tool in order to cut expenses in non-core activities, particularly in overheads of Information Technology (IT) departments. With decision to outsource, there would also be a number of risks associated with it. Therefore, it is important for a decision maker to be aware of these risks before making the decision to outsource. The aims of this research are to determine the ICT services that are currently being outsourced and to describe the risks inherent in ICT outsourcing from the Malaysian public sector perspective. The primary data for this research was collected by means of a questionnaire survey conducted among Malaysian public sector organizations. The findings from the research showed that network services is the most common ICT services activity that is being outsourced and that outsourcers who do not comply with contract has the most influence on ICT outsourcing inherent risks. Through the findings, public sector organizations would be able to identify the most common ICT services outsourced and analyse the inherent risks. In so doing, the potential impact of failure can be anticipated and dealt with accordingly.

Keywords: - Outsource; Inherent Risk; Risk Identification; Risk Factors; Risk Ranking

1 Introduction

Malaysia has developed a multi billion Ringgit Malaysia (RM) Information Communications Technology (ICT) industry through the Multimedia Super Corridor (MSC). MSC is a National IT Agenda that was formulated in 1996. It provides the framework for the orderly development of the country into an information and knowledge-based society by the year 2020. Under the 9th Malaysia Plan, the Malaysian government will allocate a total of RM12.9 billion on ICT [3]. This amount is almost doubled that from the previous allocation of RM7.8 billion.

Since outsourcing ICT has received much attention and has become a widespread worldwide phenomenon both in the private and public sectors [5], Malaysia has the opportunity to become a key player in the global outsourcing arena, but it needs to position itself correctly or it will lose that opportunity. This is shown by the study

conducted on global outsourcing that currently ranked Malaysia third (after India and China) in global standing ahead of other prominent Asian destinations [22]. However, Malaysia's well-developed infrastructure, attractive business environment and strong government support makes it a rising alternative to India and China [11]. Malaysia's increasing prominence as the global choice for shared services and outsourcing hotbed has been in no small part due to its engaging government policies and efforts in offering a world-class environment and attractive incentives through the MSC [15].

The objective of this paper is to present empirical findings on the ICT services that are commonly being outsourced and the inherent risks in ICT outsourcing projects, primarily focusing on public sector organizations. The findings will provide important inputs for researchers researching ICT outsourcing risk management and for organizations, a better

understanding of what needs to be anticipated when conducting outsourcing.

2 ICT Outsourcing and Inherent Risk

ICT outsourcing can be carried out in many combinations depending on the component of services scope that is outsourced and the responsibilities attached to the outsourced contract. Different authors describe ICT outsourcing arrangements differently. Mainly, there are four types of ICT outsourcing categories; total outsourcing, insourcing, selective sourcing and strategic alliance/joint venture [6].

Outsourcing is a significant investment that will, by necessity, affect the organization's bottom line, culture, risk profile, customer relationship, flexibility and day-to-day operation. Therefore, quality of the services, relationship between parties, laws and legislation and cost should be taken into consideration in outsourcing activities. At the same time, consideration should also be given to complex risks such as reliability/service ability, availability, contractual obligation and security [10].

The global revenues for ICT outsourcing is estimated to grow at a rapid rate. A survey of 1200 companies conducted by the Outsourcing Institute indicated that 50% of all companies with information technology (IT) budgets of USD5 million or more are either outsourcing or evaluating the option. The ICT outsourcing industry revenue was USD194 billion in 1999 and grew to USD531 billion in 2002 as reported by Dataquest [24]. It is also estimated that USD500 billion or RM1.9 trillion global industries will be created by 2008 [23].

The growth of ITO (Information Technology Outsourcing) can be seen in Malaysia as Malaysia is considered as an attractive location for offshore outsourcing contracts due to its strong infrastructure and multilingual skills [9]. Once organizations realize the benefits of outsourcing for its IT operations, there will be more organizations expected to embrace outsourcing. Many companies in Malaysia are forced to focus on

their core businesses and outsource other operations due to the current volatile global economy. For example, Computer Systems Advisors (M) Berhad (CSA Malaysia) has invested RM8 million to build an advanced call centre and a data centre, and expanded its training centre for its ICT outsourcing division [12].

For effective implementation of ICT outsourcing, Linder [13] stated that managing risk explicitly is one of the critical success factors. Reed [18] agreed that it is important to perform active risk management throughout all stages of the outsourcing lifecycle. However, the first step in a good risk management program is to identify the risks and produce a list of risks that have the potential to prevent the ITO from delivering on time, within budget and to an acceptable level of quality. Identifying risks is the process of developing an understanding of the potential unsatisfactory outcomes associated with a particular project [20].

There are many risks in ICT outsourcing that have been identified from previous literature. However, academic research regarding the public sector outsourcing in Malaysia is very limited. Most of the past researches were international-based focusing on the perspective of global outsourcing and offshoring, specifically in private sector context. Therefore, it is necessary to identify the inherent risks which are of utmost importance in order to increase the ICT outsourcing implementation success in Malaysia's public sector.

3 Research Methodology

An empirical study using a combination of questionnaire survey and interview was applied in this research. The interview sessions were conducted only when requested by respondents. Both primary and secondary data were used in order to achieve this objective. Based on secondary data, risks inherent in ICT outsourcing were collected from previous research mostly conducted in Kuwait, Spain and United States of America (USA). These inherent risks were used in this

research to determine whether similar risks exist in the Malaysian public sector.

4 Research Model

The research model in Figure 1 is built based on the combination of several past literatures instead of a single research model. The research model discusses the inherent risks in ICT outsourcing.

The twelve inherent risks are irreversibility of decision [4,8], ability to operate new system [1,19], lack of legacy and new system integration [2,19], lack of experience managing the outsourcing relationship [16], excessive dependence on outsourcer [4,14,18], the lack of outsourcer staff experience [4,7,8,21], the outsourcer not complying with the contract [4,8], the hidden costs in outsourcing contract [1,4,8], unclear cost-benefit relationship [1], security (data confidentiality) [1,4,8], the loss of IT expertise [17], and the opposition of internal staff [4,8].

Based on the twelve inherent risks, the research has formed the following hypotheses:

- H1: ICT outsourcing inherent the irreversibility of outsourcing decision risk
- H2: ICT outsourcing inherent the ability to operate new system risk
- H3: ICT outsourcing inherent the lack of legacy and new system integration risk
- H4: ICT outsourcing inherent the lack of experience managing the outsourcing relationship risk
- H5: ICT outsourcing inherent the excessive dependence on outsourcer risk
- H6: ICT outsourcing inherent the lack of outsourcer staff experience risk
- H7: ICT outsourcing inherent the outsourcer not complying with the contract risk
- H8: ICT outsourcing inherent the hidden costs in outsourcing contract risk
- H9: ICT outsourcing inherent the unclear cost-benefit relationship risk
- H10: ICT outsourcing inherent the security (data confidentiality) risk
- H11: ICT outsourcing inherent the loss of IT expertise risk
- H12: ICT outsourcing inherent the opposition of internal staff risk

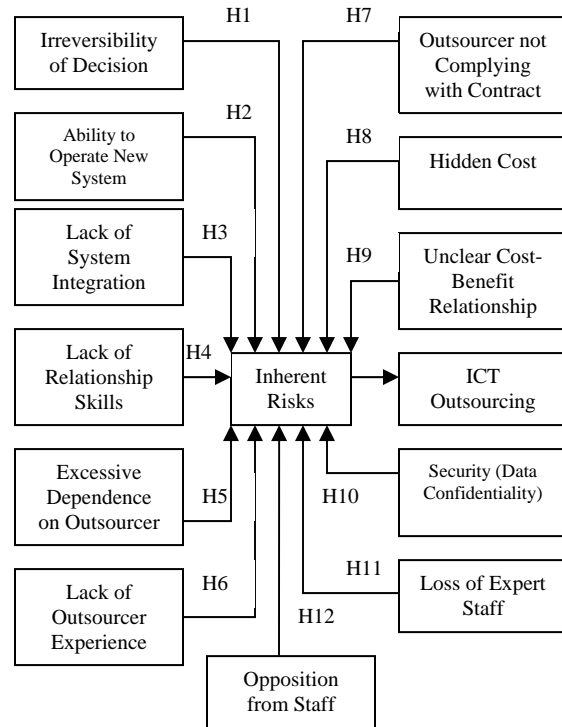


Figure 1 Research Model on ICT Outsourcing Inherent Risks

5 Findings and Results

The survey questionnaire and interview captured background data of respondents profile as well as their project profile. This section discusses the types of ICT services being outsourced in Malaysian public sector, the risks inherent in ICT outsourcing and also the hypotheses results.

5.1 Demographic profile

Demographic characteristics examined were organization name, respondents' position, organization status and age. 250 sets of questionnaires were distributed by hand or by email to federal and state government agencies. Only 190 sets of questionnaires were returned.

When analysing the respondents' responses, it was noted that 6.0 percent of the respondents were IT/IS managers while the rest were senior IT/IS officers. The majority of the respondents (67.9 percent) were from federal government agencies with 32.1 percent from state government agencies. The highest

response was received from organizations established for more than 20 years (53.7 percent) with those between 16 to 20 years at 8.4 percent, between 11 to 15 years at 10.5 percent, between 6 to 10 years at 10 percent, and between 1 to 5 years at 17.4 percent.

5.2 Reliability Test

Cronbach's Alpha Coefficient was used to test the survey items' reliability in this study. A coefficient value which is closer to value '1' is desired. Since all measured items in Table 1 had a reliability of more than 0.7, the scales for these constructs were deemed to exhibit an adequate reliability.

Table 1 Reliability Test

	Item	Cronbach's alpha	N
ICT Services	11	0.953	190
Inherent Risks	12	0.870	190

Note: Item – Number of variables

N – Total number of respondents

5.3 Results of ICT Services being Outsourced

The highest mean in Table 2 represents the most outsourced ICT service while the lowest mean represents the least important ICT service used in public sector organizations. Network services, surprisingly, is the most outsourced ICT services activity from the study. Meanwhile, previous studies conducted in Spanish public universities and firms [4,8] found that network services tend to be ranked lower among the ICT outsourced services. This contradiction may be due to the influence of the size of the organization studied whereby Malaysian public sector organizations are larger than public universities and firms covered in previous studies. As noted earlier in this research, under the 9th Malaysia Plan, a major portion of ICT allocation is on the computerization of government ministries and agencies with focus largely on supply and maintenance of computers and Internet access. This means that public sector organizations have moved forward to computerize more work processes rather than keeping to traditional paper-based work. When more computers are used and better Internet access are being provided, these lead to the needs of

network services in order to connect large numbers of computers. These network services are being outsourced largely due to the complexity of the tasks and the large number of tasks that need to be performed. Among the important things related to the network service are the security and the speed of the network within the organization.

Table 2 Ranking of ICT Services being Outsourced

No.	ICT Services	Mean	Std. Deviation
1	Network services	61.1579	28.21585
2	Programming	59.9512	27.61648
3	Software maintenance	59.8305	26.31931
4	Hardware maintenance	57.0000	26.98787
5	System implementation	56.8786	26.27948
6	System operation	55.7723	32.00090
7	Application analysis	54.3440	24.84601
8	E-business solution	53.2763	27.29474
9	Security	50.6585	29.44621
10	Support end users	50.2846	26.71419
11	Staff/user training	49.2639	28.19115

Other surprise findings are programming, software maintenance, hardware maintenance, security and support to end users services depict almost similar levels of outsourced services with previous studies conducted in Spanish public universities and firms, even though the studies are conducted in different countries and on different industries. Staff or user training tends to be the lowest outsourced activity in this research. The assumption made here is that public sector organizations have the expertise and facilities to conduct training and hence, this service was done internally.

5.4 Results of Hypotheses Testing

Pearson's Correlation Coefficient analysis was used to test whether there was positive relationship between ICT outsourcing and inherent risks. In order to test these hypotheses, the value of Pearson's correlation coefficient was calculated. Weak relationship is indicated by a value of less than 0.5, value between 0.5 to 0.7 indicate moderate relationship while a strong relationship has a value higher than 0.7.

Table 3 Association between Outsourcing and Inherent Risks

Hyp	Pearson Coeff.	Sig.	Result
H1	0.724	.000*	High +ve relationship
H2	0.527	.000*	Moderate +ve relationship
H3	0.626	.000*	Moderate +ve relationship
H4	0.562	.000*	Moderate +ve relationship
H5	0.654	.000*	Moderate +ve relationship
H6	0.712	.000*	High +ve relationship
H7	0.748	.000*	High +ve relationship
H8	0.691	.000*	Moderate +ve relationship
H9	0.682	.000*	Moderate +ve relationship
H10	0.490	.000*	Weak +ve relationship
H11	0.632	.000*	Moderate +ve relationship
H12	0.495	.000*	Weak +ve relationship

*Significance at 0.05 levels

Results in Table 3 show that all the hypotheses (H1 to H12) were accepted where $p\text{-value} < 0.05$. The results however, indicated that H1, H6 and H7 have strong and positive relationships. Based on the result of hypothesis H1, the assumption is that public sector organizations may have experienced some loss when conducting ICT outsourcing due to irreversibility of outsourcing decision. Such a situation could happen when an organization is unable to ensure similar conditions before and after outsourcing. The possibility of some reversibility factor in ICT outsourcing decisions may need to be considered for public sector organizations.

Based on hypothesis H6 which was accepted, public sector organizations may have experienced situations where the results of outsourced activities are not as expected due to the lack of outsourcer staff experience in performing those activities. Even if some of the outsourcer had expertise in certain fields of ICT, there is no guarantee that they can handle a large outsourcing contract such as those from Malaysian public sector organizations where projects are large-scale, diverse in nature and highly complex.

The result of hypothesis H7 indicated that public sector organizations may have experienced outsourcing results whereby the scope specified in the contract is not met. This could be due to the limited number of viable outsourcers in the market and high switching costs for the organizations if outsourcers did not perform. Many organizations in public

sector seem to have experienced outsourcer termination or interruption of contracts before all contractual tasks are completed and as a result the organizations lose part of their investment on the contracts.

Surprisingly, hypothesis H10 has the weakest positive relationship. Apparently, the criticality of data confidentiality may not have been amply stressed by public sectors when they outsource their ICT activities. Information security should be an important issue in ICT outsourcing. The need for audit and control of data is of utmost importance because confidential and sensitive information about citizens are handled by many public sector organizations.

In general, based on the hypotheses, Table 3 shows that even though some of the inherent risks are important, overall influence of the inherent risks to outsourcing activities is only moderate. Nevertheless, this result is consistent with previous literature, where ICT outsourcing has positive relationship with inherent risks.

6 Conclusion

The main objectives of this study are to determine the ICT services that are currently being outsourced and to describe the risks inherent in ICT outsourcing. Pertaining to the most common services being outsourced, network services was ranked the highest with outsourcers not complying with contracts being the most significant risk factor in ICT outsourcing. It is critical that organizations understand how to manage the risks that can contribute to ICT outsourcing failure.

With effective risk management, the prime focus should be on planning to avoid future problems rather than solving the current problems. Moreover, by recognising and addressing inherent risks, organizations will gain a competitive advantage in the longer term.

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