OUTSOURCING OF IT SERVICES: MALAYSIA'S SCENARIO

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ABSTRACT

This paper highlights the findings of a study carried out on Information Technology outsourcing (ITO) experience of eighty three Malaysian companies. ITO is by no means new in Malaysia as some companies indicated that they have been outsourcing for at least ten years. This study provides an insight of ITO practices in Malaysia. The study examines the level of ITO, IT services that are most often outsourced, types of ITO arrangements, and the motivations behind the use of this option. It was discovered that the most commonly outsourced IT services are those related to application and software developments and a majority of the companies practice the partial outsourcing approach. In addition, the study also illustrated, that a higher proportion of the companies are outsourcing their IT services to local vendors.

Keywords: *IT Outsourcing, Outsourcing Trends, Outsourcing Practices, Malaysia, IT Outsourcing Factors.*

INTRODUCTION

For some time now, we have come to acknowledge that Information Technology (IT) is the engine that drives modern organization. Over the last decade, one of the more widespread developments in meeting an organization's IT needs is the practice of outsourcing. Outsourcing has emerged as a financially viable and proactive manner (Pinnacle Systems Inc., 2003) of doing business and has been found to be an effective strategy for gaining and maintaining competitive advantage when it is executed as part of an overall program to build a high-performance IT organization (Lankford and Parsa, 1999).

The global ITO revenues have been growing at a rapid rate (Lacity and Wilcocks, 2001). The Outsourcing Institute's survey of 1200 companies (2002) indicated that 50% of all companies with IT budgets of USD5 million or more were either outsourcing or evaluating the option at the time. They also reported that one-twelfth of US dollars spent in 1995 flowed through an outsourcing contract and that this proportion was rising fast (http://www.outsourcing.com). International Data Corporation noted that global ITO spending stood at USD40 billion in 1996, reaching USD71 billion in 2003, effectively achieving a growth rate of 12.2% per annum (IDC, 1999). Dataquest was less modest in its calculations and reported that ITO industry revenue was more in the range of USD194 billion in 1999 and grew to the USD531 billion level in 2002 (Young, 2000). Dataquest analysts now estimate that ITO services totaling USD500 billion or RM1.9 trillion will be transacted by 2008 (The Star, 2005).

ITO is also growing in Malaysia as Malaysia is seen as an attractive location for offshore outsourcing contracts due to our strong infrastructure and our multilingual skills (IDC Malaysia, 2003). The local ITO market was expected to grow by 17.7% to USD107.80 million (RM410 million) in 2003, from USD92 million a year earlier. More companies are expected to embrace outsourcing once they realize the benefits of outsourcing their IT operations. With the current volatile global economy, many companies in Malaysia are forced to focus on their core businesses and outsource other operations (Lee, 2003).

As outsourcing is gaining momentum in Malaysia, it is only fitting that research be conducted in order to fully understand the dynamics of this trend. This study provides an insight of ITO practices in Malaysia. Specifically, the study examines the level of ITO, duration of ITO, IT services that are most often outsourced, types of ITO arrangements, and the motivations behind the use of this option.

This paper is organized into six sections including the Introduction. A review of the literature pertaining to ITO is presented in Section Two while in Section Three the methodology deployed in the research is explained. Section Four highlights the research findings and Section Five concludes the paper by presenting the limitations of the study and the possibilities of future research.

REVIEW OF LITERATURE

Review of the literature in the area indicated that not much work has been carried out in Malaysia. Hence past research conducted elsewhere is reviewed and discussed here. It is then used as a framework to study the Malaysian scenario.

IT outsourcing (ITO) is defined as the process of procuring services or products from sources that are external to the organization (Lankford and Parsa, 1999). As far as service is concerned, this usually involves the transfer of operational control to the suppliers. Thus, ITO is a practice of transferring IT assets, leases, staff, and management responsibility for delivery of services from internal IT departments to third-party vendors

(Lacity and Hirschheim, 2000), in effect, fully transferring or delegating an organization's facility management function to an external firm. Lacity and Hirschheim (1995) are of the view that the outsourcing phenomenon evolves from two trends. Firstly, IT is evolving into utility thus it is easy to obtain good services from specialized vendors and the economies of scale enjoyed by specific vendors has pushed prices lower. Many IT firms around the globe have setup facilities to offer a broad range of ITO services ranging from IT infrastructure, data center, helpdesk, web hosting, application development and management. Secondly, there is a distinct bandwagon effect that started with the early success of the Eastman Kodak company (Lacity and Hirschheim, 1993). Forrester Research Inc (Computerworld, 2004) estimated that the ITO business was worth about USD4 billion in year 2000 and will grow to USD136 billion and provide 3.3 million jobs by the year 2015.

The downturn of economy has amplified the importance of cost management, leading companies to make cost savings their number one objective in an outsourcing agreement (Computerworld, 2003; McFarland and Nolan 1995). In addition to this, other significant factors such as technological competency, focusing on core competency, shortage of IT resources and economy climates are accelerating the growth of the outsourcing market (Lee, 2003).

IT outsourcing can be carried out in many forms, depending on the scope of services delegated to the external party and the responsibilities listed in the outsourcing contract. Different authors describe ITO arrangements or options differently. Lacity and Hirschheim (1995) offer taxonomy of sourcing decision options and have classified IT outsourcing into three categories: total outsourcing, total insourcing and selective sourcing. Total outsourcing is the decision to transfer more than 80% of IT assets, leases, staff, and management responsibility for delivery of IS products and services to an external party (Apte et al., 1997; Chaudhury et al., 1995; Cheon et al., 1995) while total insourcing is the decision to retain the management and provision of more than 80% of the IS budget internally after evaluating the IS services market. On the other hand, selective sourcing is the decision to source selected IS functions from external provider(s) while still providing between 20% and 80% of the IS budget internally. This strategy may include single or multiple vendors. The use of percentages of IT budget as differentiating total from selective decisions is consistent with the studies done by Willcocks and Fitzgerald (1994) which shows that selective sourcing usually takes up between 25 to 40% of the formal IT budget.

The second most pressing question in the discussion on outsourcing is that of what tasks companies normally outsource. Organizations generally operate their IS environment on a customized basis, buying standard equipment, system and application software, and assembling them to provide infrastructure that fits their unique needs. Interest in outsourcing resurfaced in the early 1990s, not for contract programming and specific processing services, but for network and telecommunication management, distributed systems integration, application development, and systems operations (Lee et al., 2003). IT personnel were shifted from the customer to the vendor, with some

vendors purchasing customers' mainframe hardware and managing client services onsite. System integration was another popular outsourcing segment in the 1990s and involved highly complex technology, including network management and telecommunications, along with associated education and training. According to Lacity and Hirschheim (2000), some components of the IT services that can be outsourced include disaster recovery, client/server and personal computing, mainframe and midrange, network, end-user/PC support, helpdesk, project management, application systems development, business application support and maintenance, systems architecture and procurement.

Realizing the benefits of outsourcing, the Central Bank of Malaysia (Bank Negara) has been pushing local banks to seek outsourcing partners to handle non-critical functions of the business. As a result, Bank Bumiputra-Commerce Bank (BCB) has become the first bank in Malaysia to outsource its IT functions to Electronic Data Systems (EDS) with a ten year contract worth USD250 million. This was the largest outsourcing deal to have been transacted in Malaysia (ITWorld, 2002) until Malayan Banking Berhad (Maybank) outsourced their IT tasks to Computer Science (CSC) in a 10-year deal valued at RM342 million. CSC will take over the management of the bank's mainframe computers, mid-range computers, desktop PCs as well as the bank's help desk and network infrastructure in Malaysia and Singapore. It will provide the services mostly via its affiliates Computer Systems Advisers (CSA) Berhad and CSA Automated. As part of the deal, CSC and its affiliates will eventually absorb about 320 bank employees (Perez, 2003). In addition, the Maybank data center has been outsourced to Hewlett-Packard (Madhavan, 2003).

The overall outsourcing market in Malaysia remains strong and EDS is leading the pack with its estimated outsourcing revenue for 2003 sitting at USD50 million (RM190 million); HeiTech Padu Berhad is a distant second with an estimated revenue of USD14 million (RM53.2 million) in 2003; In third place is Hewlett-Packard which netted approximately USD10.5 million (RM39.9 million) in the same year (Madhavan, 2003). Looking at things to come, Accenture Malaysia is optimistic about securing three to four outsourcing contracts from local financial institutions valued between USD260 and USD400 million (Lee, 2003).

METHODOLOGY

This section describes the sampling method, research instrument, data collection procedures and analysis used in the study.

The data for the study was collected using the survey approach whereby questionnaires were distributed to two hundred companies. The companies were selected randomly from the Bursa Malaysia website. The questionnaire was distributed by mail, e-mail and in some cases, by hand to the heads of IT departments within the selected organizations or to senior managers with IT responsibilities. Some flexibility was adopted

in the mode of delivery and acceptance of returned questionnaires in accordance with the preferences of the respondents so as to maximize the rate of return. Altogether eighty three questionnaires were collected after a period of three months. Fifty of the questionnaires were returned by mail, thirty by e-mail and another three were filled out by the researchers by means of a telephone interview of the key IT personnel.

The questionnaire was divided into three sections. Section 1 consisted of questions on the characteristics of the company including total employee, IT staff and revenue its local IT budget and the component of ITO. In Section 2, information on the IT components that are outsourced is collected along with the company's vendor preferences. There are a total of eleven questions in this section, each using a categorical scale comprising six options. Each of these questions comes with a brief explanation to ensure uniformity in understanding among the respondents. The components of IT services listed in the questionnaire are consistent with that of studies done by prior researchers of the phenomenon in UK and US companies (Wilcocks and Lacity, 1998; Lacity and Hirschheim, 2000). Finally in Section 3, respondents are required to state their reasons for outsourcing their IT. There are twenty eight (28) questions covering possible reasons why organizations would outsource their IT services. The items were adopted from previous studies such as Lacity and Hirschheim (1994), Willcocks, Lacity and Fitzgerald (1995), Lacity and Hirschheim (2000) among others.

All data collected from the respondents was coded and analyzed using SPSS (Release 10.0.1). As the main objective of the study is to provide an initial insight to IT outsourcing practices in Malaysian companies, the data collected was analyzed using frequency and cross-tabulations statistical methods. A factor analysis however, was used to determine the factors that motivate companies to outsource their IT services.

There were many problems encountered in the process of gathering data via mail. Some potential respondents declined to participate due to data confidentiality and the rest simply failed to respond after reminder phone calls were made. In some cases, responses were accepted after the closing date following our phone calls of appeal. As is common in survey research, some incomplete responses were received and we contacted any such respondents who had provided their personal contact information to verify their data. Inevitably, some responses remained incomplete and had to be rejected.

FINDINGS OF THE STUDY

The results of the study are discussed in this section.

Demographic Profile of Respondents

As mentioned above, a total of 83 respondents returned the questionnaires, effectively giving us a 41.5% response rate. Sixty percent (60.2%) of the returned questionnaires

were filled in by Chief Information Officers while 4% was completed by Marketing and Operations Managers. The remaining respondents listed themselves in the "Others" category and did not specify their job titles.

A majority (69.9%) of the respondents listed revenues of more than RM20 million (Table 1). In keeping with the large revenues, 42.2% of these companies have IT budgets (Table 1) upward of RM5 million. A further 10% had IT budgets falling between RM2 to RM5 million. These companies are representative of corporations that are typically able to invest and reap the benefits of major IT applications. In relation to the proportion of their IT budgets that go towards outsourced projects, 30% of our respondents indicated that they spent between RM100,000 and RM500,000 for IT outsourcing, with 19% professing to have spent between RM500, 000 and RM1 million in the previous year. This indicates that the IT outsourcing budget is still a relatively small proportion of the overall IT budget.

Table 1: Revenue, IT Budget and ITO Budget

Companies Revenue	Frequency	Percent (%)
RM1- RM5 mil	3	3.6
RM5 – RM10 mil	4	4.8
RM10 - RM15 mil	11	13.3
RM15 - RM20 mil	7	8.4
> RM20 mil	58	69.9
Total	83	100.0

IT Budget	Frequency	Percent (%)
< RM 100K	3	3.6
RM100K - RM500K	13	15.7
RM500K - RM1 mil	9	10.8
RM1 – RM2 mil	8	9.6
RM2 – RM5 mil	15	18.1
> RM5 mil	35	42.2
Total	83	100.0

IT Outsourcing Budget	Frequency	Percent (%)
< RM 100K	9	10.8
RM100K - RM500K	24	28.9
RM500K - RM1 mil	16	19.3
RM1 – RM2 mil	10	12.0
RM2 – RM5 mil	15	18.1
> RM5 mil	9	10.8
Total	83	100.0

Level of ITO

Table 2 lists the level of ITO in the companies studied in accordance to Lacity and Hirschheim's (1995) categorization. It was found that most companies (91.6%) carry out selective outsourcing which is consistent with Lacity and Willcocks's (2001) findings. The remaining 2% and 6% outsourced all their IT operations or relied totally on internal IT operations respectively.

Table 2: Level of Outsourcing

Type	Frequency	Percentage (%)
Total Outsourcing	2	2.4
Selective Outsourcing	76	91.6
Total Insourcing	5	6
Total	83	100.0

Duration of ITO

As illustrated in Table 3 below, 93% of the respondent companies have been outsourcing components of their IT related activates for more than one year, clearly indicating that IT outsourcing practices have become quite prevalent in Malaysia. Twelve companies have been outsourcing for the last ten years, leading us to posit that they must be gaining significant advantages through such outsourcing arrangements. However, this view is tempered by the fact that outsourcing agreements may be tying them to specific arrangements over significant lengths of time and preventing them from acquiring IT resources from other vendors or reintegrating these IT services into their into their internal operations.

Table 3: Outsourcing Period

Duration of ITO	Frequency	Percent (%)
< 1 yr	6	7.2
1 - 3 yrs	21	25.3
3 - 5 yrs	17	20.5
5 - 7 yrs	13	15.7
7 - 10 yrs	14	16.9
> 10 yrs	12	14.5
Total	83	100.0

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Types of ITO Services

The types of IT services which are outsourced by the companies are summarized in Table 4. The original data collected in the study is regrouped into 3 levels: none, partial and full outsourcing.

Table 4: Types of IT Services and Frequency of Outsourcing

Services	None	%	Partial	%	Full	%	Total	%
Disaster Recovery	46	55.4	25	30.1	12	14.5	83	100.0
Client Server	35	42.2	33	39.8	15	18.1	83	100.0
Midrange & mainframe	48	57.8	21	25.3	14	16.9	83	100.0
Network	34	41	33	39.8	16	19.3	83	100.0
End User PC	33	39.8	24	28.9	26	31.3	83	100.0
Helpdesk	33	39.8	30	36.1	20	24.1	83	100.0
Project Management	49	59	24	28.9	10	12	83	100.0
System Development	23	27.7	42	50.6	18	21.7	83	100.0
Application Maintenance	32	38.6	36	43.4	15	18.1	83	100.0
System Architecture	57	68.7	12	14.5	14	16.9	83	100.0
Procurement	65	78.3	11	13.3	7	8.4	83	100.0

We found that the outsourcing of systems and application development is most common among the surveyed companies. Systems development is being partially outsourced in 50.6% of the companies while another 21.7% fully outsource the function. Similarly, application support and maintenance is partially outsourced in 43.4% of the companies and fully outsourced in 18.1%, indicating that 61.5% of companies outsource this type of IT function. The high percentage of outsourcing for both these services could be due to the implementation of new IT projects or due to the maintenance involved in high

profile IT applications such as the ERP systems. A further 60.2% of respondents outsourced their end-user PC operations like break-fix and end-user programming, with the same percentage also outsourcing their helpdesks. The majority of respondents (57.9%) have also outsourced client servers.

On the other hand, most companies (57.8%) do not outsource midrange computing and mainframe functions. Of particular interest is the fact that 41% of the respondents do not outsource their network services to vendors (network covers both local area network -LAN- and wide area network -WAN-). Project management is outsourced only 41.9% of the time while system architecture and IT procurement is outsourced in just 31.4% and 21.7% of respondent companies respectively. Disaster recovery is outsourced by 44.6% of respondents but a majority of the respondents (55.4%) do not protect their IT investment by outsourcing their disaster recovery. The study further found that IT outsourcing services are being provided by both the local and foreign vendors. In general, the results do not particularly indicate any preference in terms of IT arrangement: selection of vendors (Table 5).

ITO Arrangement

From the data collected, it appears that Malaysian companies tend to outsource more to local vendors than the foreign ones for almost all types of services. However, the difference in percentages varies. For example, the difference in percentages for disaster recovery and client server was between 30 to 40 % but for midrange and mainframe computers it was only 9% (Table 5).

Table 5: Analysis of Origin of Outsourcing Vendor for IT Services

Services	Local	%	Foreign	%	Mix	%	Total responses	%
Disaster Recovery	24	64.8	13	35.2	0	0	37	100.0
Client Server	32	66.7	16	33.3	0	0	48	100.0
Midrange & mainframe	19	54.3	16	45.7	0	0	35	100.0
Network	31	63.3	11	22.4	7	14.3	49	100.0
End User PC	43	83	3	6	4	8	50	100.0
Helpdesk	41	82	4	8	5	10	50	100.0
Project Management	28	82.3	3	8.8	3	8.8	34	100.0

(continued)

Services	Local	%	Foreign	%	Mix	%	Total responses	%
System Development	38	63.3	10	16.6	12	20	60	100.0
Application Maintenance	32	62.7	10	16.4	9	14.8	51	100.0
System Architecture	19	73.1	7	26.9	0	0	26	100.0
Procurement	18	100	0	0	0	0	18	100.0

* Based on actual results

Local vendors particularly stand out when it comes to end-user PC support (83%) and helpdesk services (82%). Local vendors won 82.3% of project management contracts, largely because government-linked companies have to award contracts to local vendors. Local vendors also come up tops in terms of system architecture with 73.1% getting these contracts. Most significantly, local companies won all (100%) available contracts to procure IT equipment. Although the results in Table 5 shows that local vendors are more sought after for all the services, it must be highlighted here that for some services, for example, disaster recovery, about a third of the contracts were awarded to foreign vendors. The rest went to competent local vendors like Solsis, Basis Bay and CRF. Interestingly, local vendors won majority of the systems development (63.3%) and applications support and maintenance (73.1%) outsourcing contracts. Foreign vendors also do about a third of outsourced client server work and have won just under half the midrange and mainframe contracts. HP and IBM achieved some winning outsourcing contracts in this area. Since Malaysia does not have the technology to produce its own midrange or mainframe, local partners of foreign computer companies like Mesiniaga and Sunway tend to have the upper hand over entirely local outfits.

Reasons for IT Outsourcing

Factor analysis was carried out to identify crucial outsourcing determinants (28 items) and the extent of their significance. The factors were generated using the Factor Analysis function in SPSS as shown in Table 6 and extracted using the Principle Component Analysis. Rotation was done using the orthogonal approach and the rotation method. This resulted in 4 factor loadings. A factor loading of 0.6 was used to select items.

Table 6: Rotated Component Matrix

Item	Component			
	1	2	3	4
Obtain necessary skilled IT resources qualified to keep pace with business growth	0.763			
Accelerate development and time-to-market cycles	0.751			
Stay technically up-to-date with technology changes	0.733			
Overcome difficulty in recruiting knowledgeable staff	0.728			
Develop strategic relationship with world-class technology vendors	0.716			
Improve overall organization efficiency		0.717		
Improve IT Performance and Reliability		0.747		
Flexible IS cost to allow management to adjust cost of IS service		0.771		
Predictability of cost through fixed cost contract		0.779		
Reduce IT Overhead		0.608		
Customers can determine their IT priorities			0.7	
Reduce IT Risk			0.612	
Improve response time			0.711	
Company strategy to outsource non-core activities			0.6	
Eliminate IT Staff management and training			0.795	
Improve accounting treatment			0.909	
Access to different skills and technology				0.606
Obtain technology edge over competitor				0.638
Business contingency and continuity capabilities				0.6
Reduce Risk of unscheduled downtime				0.618
Tailor IT solution to business				0.764
Complement internal IT performance				0.667
Improve Cash Flow				0.652
Improve customer satisfaction				0.627

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization

It can be generalized that Factor 1 is related to *skilled IT resources* which includes skilled IT resources; accelerate development and time-to-market cycles; staying up-to-date with technology changes; overcoming difficulties in recruiting knowledgeable staff; and developing strategic relationship with world-class technology vendors. Factor 2 is related to *cost and performance* which includes the desire to improve overall organization efficiency; improve IT performance and reliability; and reduce fixed costs. The predictability of cost through fixed cost contracts had the highest factor loading of 0.779.

Factor 3 represents *IT management* with "improving accounting treatment" receiving the highest factor loading at 0.909. Factor 3 includes reducing IT risk, improving response times and eliminating IT staff management and training whereas Factor 4 represents *enabling business with IT technologies*. The item with the highest factor loading was "tailoring IT solutions to business" with 0.764. Factor 4 also includes accessing different skills and technologies, obtaining competitive edge over competitors, reducing the risk of unscheduled downtime, tailoring IT solution to business users, complementing the performance of internal IT departments, improving cash flow and improving customer satisfaction.

These findings are consistent with the review of literature discussed earlier (for example, Lacity and Wilcocks, 2001; McCarthy, 1996; and Lee, 2003). Nevertheless, 4 items were omitted as their scores were below 6. The items are: access to infrequently used services like system upgrades, optimize use of in-house IT resources, reduce management burden while retaining decision-making control and reduce capital expenses.

CONCLUSION

The data collected from the study shows several facts. First, we found that ITO is not new in Malaysia. Many companies have reaped the benefit of outsourcing their IT activities for quite some time and they seem to be satisfied enough with the benefits to continue to do so. More and more companies in Malaysia are adopting ITO and they tend to partially transfer operations to external vendors without relinquishing full control.

The trends identified in the study indicate strong growth potential for local IT companies. Malaysian firms are getting more accustomed to the idea and that can only mean better business for the indigenous start-ups. A recent study on 100 organizations in the Asia Pacific region showed that 95% of them have engaged in business process outsourcing (BPO) and ITO (The Star, 2005). With their growing base of experience, Malaysian IT providers would be in a good position to expand their off-shore outsourcing business outside of the peninsula.

On the down side, however, existing employees engaged in IT work within large corporations may face the prospect of having their departments handed over to external

vendors. Existing IT staff may be required to leave an organization or join the external firm, in some cases for less favorable benefits and salaries. In such cases, feelings of resentment towards their previous employers are known to affect the productivity and work ethic of disgruntled staff (Computerworld, 2004).

Among the Malaysian companies studied, the primary motivation for IT outsourcing is the access to skilled IT personnel and the desire to stay updated with latest technologies. IT outsourcers are seen to have access to the expertise of highly skilled personnel. More significantly however, companies prefer the predictability of fixed rate and fixed time-frame outsourcing contracts to maintaining existing departments and their often highly-paid employee's indefinitely (Computerworld, 2004; Lacity and Hirschheim, 1995; McFarland and Nolan, 1995). With ITO, business planning becomes somewhat easier and lower fixed overhead costs can be reported. With ITO, organizations would be better able to account for its spending and make fair justification to the overall financial performance. Finally, organizations that outsource have access to tailor-made IT solutions made specifically for their business operations. Indeed the competitive advantages and prospects for improved business performance are well known and corporations rarely can afford to ignore such trends.

This study provides an insight to the ITO activities that have been going on in Malaysia. With the findings, it is hoped that more Malaysian companies will embark on ITO to reap the benefits that have been so clearly listed in the literature.

Useful areas of future research would include the correlations between company demographics (size and industry etc) and specific outsourcing characteristics (IT services outsourced, extent of IT outsourcing, profile of IT vendors). The vendor-client relationship in the Malaysian context would also make for a fruitful study that would be of great interest to both IT companies and their clients.

Like all studies, this too has its limitations. The survey respondent's hail from local companies listed on the Bursa Malaysia and these do not represent the whole spectrum of Malaysian corporations. Malaysia has many thriving SMEs and large businesses that may have different attitudes towards ITO in view of different costs and conditions. This study serves as a basis for conducting future studies in outsourcing area in Malaysia, as there is no previous study done on this area in Malaysia. Thus it is limited in its terms of theoretical grounding.

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