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Economic Issues In Information Systems Implementation In Local Government

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*Governments invest huge amounts of money in planning, procuring and implementing ICTs to automate public administration processes. Yet project failures occur which adversely affects the citizens who are also tax payers. Thus, the objective of this study was to determine the issues that hinder the successful implementation of information systems in a local government entity. Qualitative method was employed and data were collected through repeated interviews for content and pattern analyses. The economic issue was one of the four main themes that emerged when data saturation has been reached. The sub-issues or patterns that fall under this theme were: s*trategic planning, budgeting, timeframe and scheduling, contracts, and external consultants and outsourcing. *Identification of these issues would allow for a better comprehension and planning of any information systems in a government entity. The sub-issues can be converted to key indicators to ensure project success within the economic parameters and subsequently, reap the return of investment.*

Field of Research: Management

Keywords: economic issues, IS implementation, local government, qualitative, triangulation

1. Introduction

As in previous annual budgetary allocations, the Malaysian government's consistently stresses the inclusion of ICT to leverage the Digital Era and generate more income to the country. Furthermore, the vital development of the Internet offers increasing opportunity for the Knowledge Economy as well as the productivity and performance of civil servants through e-government services. The offering of services online to the Malaysian public requires careful planning and implementation of ICT. Planning for ICT is crucial in order to reduce the costs of internal and external operational procedures and processes in government organizations but implementing the blueprints is another matter. According to Heeks (2006), a good plan does not necessarily lead to the successful implementation of ICT projects. In fact, Heeks (2006) reported that aside from political issues, economic matters too hinder the successful implementation of any e-government projects. Hence, this research was conducted to determine this issue.

Suffice is to say, in order to realize an electronically driven government in the local government organizations, an in-depth understanding of the specific issues that hinder the successful planning and implementation of ICT must be identified. It is also essential

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for the establishment of appropriate principals and effective approaches with regard to the management of ICTs in an organization. In fact, in the implementation of an e-government initiative, many issues and challenges were pre-established through brainstorming sessions with various experts from both the industry as well as the public sectors. Inter-related issues such as those pertaining to information security, establishment of a comprehensive, widespread and affordable telecommunications infrastructure as well as adequate education and training were raised and noted (Karim, 1999 & 2003; Karim & Khalid, 2003). Each individual issue is important in its own context as well as producing multiple impacts which affect the organization and implementation of ICTs (Cooper and Zmud, 1990). However, these issues must be segregated accordingly into thematic patterns. Subsequently, effective planning and management of ICT can take place when a more comprehensive understanding of the myriad of issues is achieved (Ward, 1995).

In the area of ICT, a good portion of the research conducted prior to this study tended to focus primarily on private sector systems and was based on what Ward (1995) termed "supply-side" issues, or those issues related to how ICT based systems can be made to work effectively, economically, and in the end deliver the expected benefits. In this case the issues were those which surround the cost to benefit ratios of specific ICTs and were usually earmarked for singular applications or projects. While these issues are certainly very important, they are not the be-all and end-all of ICT implementation leading towards e-government offerings (Beaumaster, 1999). Henceforth, this study will identify and address the economic issues that the local government or local councils' ICT officers or managers face when attempting to implement and later adopt e-government in their organizations. Subsequently, the focus of this study is on ICT implementation process, where the emergent economic issues were diligently analyzed and properly categorized. Through a complete review of the spectrum of issues, greater success can be achieved in this relatively 'un-chartered territory' to a developing nation like Malaysia and particularly so for the Selangor local government. Nevertheless, it is important to note that the state of Selangor was chosen among the rest of the 13 states in Malaysia because of her developed-state status. In fact, Selangor is the only state declared as being developed based on several criteria as set by the state government. Two of the most important criteria are economic wealth and population density.

2. Research Objectives

The objectives of this research were to identify and examine the issues or problems which are specific to the Selangor local government with regard to ICT implementation in their municipality as well as to distinguish a comprehensive view of the overriding barriers and/or facilitators associated with ICT implementation. This includes ICT planning, procurement and implementation processes. For this case study, the concept of local government will consists of all the twelve municipalities within the state of Selangor, Malaysia as shown in Table 1.0.

Table 1.0 – The sample size, the 12 Selangor Local Governments

	LOCAL COUNCILS (12)
1.	Shah Alam City Council
2.	Petaling Jaya City Council
3.	Subang Jaya Municipal Council
4.	Ampang Jaya Municipal Council
5.	Klang Municipal Council
6.	Kajang Municipal Council
7.	Selayang Municipal Council
8.	Sepang Municipal Council
9.	Kuala Langat District Council
10.	Hulu Selangor District Council
11.	Kuala Selangor District Council
12.	Sabak Bernam District Council

3. Literature Review

In the last 20 years, Malaysia has experienced a remarkable growth in the economy. The GNP per capita has risen from US$1,710 in 1981 to US$4,284 in 1997 (Abdullah Ahmad Badawi, 2004). One consequence of this rapid growth of the Malaysian economy is that, the rise in the level of affluence of the local population has created increasing demands for public goods and services. People not only want to consume what is being provided to them but they also care for the quality of the public goods and services. As one of the three tiers of government, the local government plays a crucial role in providing public goods and services that are specific to the localities. However, the performance and governance of local governments have been subjected to various criticisms based on the increasing number of complaints and dissatisfaction from the public regarding provision of public goods and the poor services rendered to the citizens, thus, suggesting the inefficiency of the local governments. This calls for the local government to be more responsive in meeting citizens' needs and being able to deliver their functions effectively. As the public at large is concerned about quality services and the greater role expected from local governments, the need to evaluate the performance of local governments is essential. This is particularly so in the Information Era, where e-government offerings are the norms for most governments of the world. ICT is the foundation for e-government, thus, the implementation of ICT projects by the local government is an important issue to be addressed by the respective state governments in Malaysia. Recently, the current Prime Minister of Malaysia launched the Government Transformation Program where federal ministries' functions are measured according to a set key performance indicators.

Henceforth, the Malaysian local governments are classified into three groups: city council for city centers, municipality for large towns and district offices for small sub-urban areas. As of 2007, there are a total of 142 local government authorities in Malaysia (Nor Aliah, 2007). They are formed and regulated by the respective state legislation and subordinate to the respective state governments (ILBS, 2003). The Local Government Act of 1976 provides local authorities in Malaysia with a very

comprehensive set of functions and responsibilities. The major function of the local governments is to provide public goods and services that are specific to the citizens. Local public services that are undertaken by them on behalf of the respective state governments include both mandatory and discretionary functions (ILBS, 2003). The mandatory functions include all critical functions such as refuse collection, maintenance of minor drainage, sewerage treatment, road maintenance, street lighting and activities pertaining to public health. Discretionary functions include all development function such as providing amenities, recreational parks, housing and commercial activities, markets, sports facilities and community centers (ILBS, 2003). The sources of revenue for local governments mainly come from state specific grants that include road maintenance grant, economic development grant, and property tax (ILBS, 2003).

In contrast, information and communication technologies (ICTs) in private organizations are crucial factors in assuring the competitive advantage and eventual profitability of the firm (Theiruf, 1994). Nevertheless, ICTs are just as important in the public sector, but for different reasons. At the local level, there is the expectation that ICTs will help make the organization more responsive to the needs of the public as well as being more efficient and productive. This is not to say that private organizations are not interested in responsiveness, efficiency, and productivity for indeed they are, but mainly to the extent that these objectives lead ultimately to profitability as the bottom line (Hackney and McBride, 1995; Beaumaster, 2002; Garson, 2004; Heeks, 2006; Steiner, 1979).

Consequently, the Malaysian government like many other governments in developing countries realizes the importance of shaping the nation's ICT development by embarking on a number of measures to ensure that ICTs play a vital role in its society and economic environment. High on the government's lists of priorities is the need to further enhance the public service delivery systems. This is evidenced in the tabling of the Ninth Malaysia Plan (9MP) 2006-2010 where ICT will be leveraged to enhance access to and delivery of government services (Ninth Malaysia Plan, 2006:42). Based on Malaysia's Vision 2020, one key initiative aimed at fast tracking Malaysia into the Information Age is the Multimedia Super Corridor (MSC).

Briefly, the MSC was conceptualized in 1996, and has since grown into a thriving dynamic ICT hub, hosting more than 900 multinationals, foreign-owned and home-grown Malaysian companies focused on multimedia and communications products, solutions, services and; research and development (Ibrahim & Goh, 1999). With the establishment of this unique corridor, Malaysia has continued to attract leading ICT companies of the world to locate their industries in the MSC and undertake research, develop new products and technologies and export from this base (Ibrahim & Goh, 1999). Moreover, the MSC is also an ideal growth environment for Malaysian ICT small and medium enterprises (SMEs) to transform themselves into world-class companies. Furthermore, the MSC Malaysia welcomes countries to use its highly advanced infrastructural facilities as a global test-bed for ICT applications and a hub for their regional operations in Asia (Ibrahim & Goh, 1999).

Nevertheless, with the MSC aside, it is crucial to be familiar with the concerted efforts undertaken by Malaysia to provide a stronger platform for the country's transition towards a knowledge-based economy. As previously tabled in the 8th Malaysia Plan 2000-2005, the Ninth Malaysia Plan (2006-2010) will also promote ICT as the strategic driver to support and contribute to the growth of the economy as well as enhance the quality of life of the population. Substantial investments have been made and will be made to provide for the communications infrastructure to increase accessibility and to improve the requisite institutional and legal environment. Increasing emphasis will be placed on raising the level of ICT usage in the various sectors of the economy, between urban and rural areas and, among different segments of society (Ninth Malaysia Plan, 2006-2010:133).

For the Ninth Malaysia Plan (2006-2010), advancements in the global digital environment are expected to have a significant impact of positioning Malaysia as a competitive K-based economy. With ICT as a key determinant in the development process of moving the economy up the value chain, efforts will be intensified to normalize the ever-present or ubiquitous access to ICT services and facilities. The government has targeted that the pervasive ICT environment will enable Malaysians to have more equitable access to, and participation in the new and emerging K-driven economic opportunities. Furthermore, measures will be undertaken to enhance ICT-related skills and competencies as well as the infrastructure and info-structure expansion (Ninth Malaysia Plan, 2006-2010:133).

With the above explanations and elaborations, this research – in a broader context - was the first attempt to undertake the systematic study of ICT project implementation in a selected local government of Malaysia. Four key variables emerged from this research, but only one variable will be the main focus of this paper, that is, the political issues that hinder the successful implementation of ICT projects. Thus, the rest of the paper will provide a brief overview of the methodology, the findings and finally, the implications and conclusion.

4. Methodology

This is a qualitative, case-study research. The justification for the adoption of the qualitative research method is further augmented as this study uses the perceptions of a distinct group of respondents - the ICT Officers to identify and establish the series of issues that impedes the successful implementation of ICT in their respective local government organization. Moreover, a qualitative study was undertaken as there is a need to identify the issues that are most problematic to the Selangor local government ICT managers when implementing ICT projects. This problem is further aggravated by inadequate theory (local content) to explain the phenomenon surrounding local governments' ICT implementation and a proper framework to act as a guide to counter the threats of implementation failure. This is evidenced in the literature reviewed; therefore, this study is considered the first of its kind in Malaysia. Also, Strauss and Corbin (1990) claimed that qualitative methods can be used to better understand any phenomenon about which little is yet known, and this is particularly so in the context of

the local governments of Selangor, Malaysia. Furthermore, qualitative research will allow descriptive and in-depth information to be gleaned from this study where such information may be difficult to convey quantitatively. Other considerations decided for the adoption of qualitative research were the use of natural setting as the source of data where the researcher was physically present at all the local government ICT departments to interview the ICT managers within the comfort of their 'home grounds'; and, the most crucial point is where the findings were reported descriptively in order to illustrate the emergent issues (Merriam, 2002; Stangor, 2004; Myers & Avison, 2002).

Nonetheless, the case-study method was determined to be especially appropriate and useful for this research since the purpose was to gather pertinent information on issues in ICT implementation (Paré, 2002; Myers & Avison, 2002; Gillham, 2000). Also, as postulated by Neuman (2003) and, Myers and Avison (2002), a case-study research allows the researcher to examine many in-depth features of a few cases over a duration of time. Or, according to Eisenhardt (1989:536), "*the serendipitous findings in a theory-testing study suggest the need for a new perspective as case studies does not rely on previous literature or prior empirical evidence*".

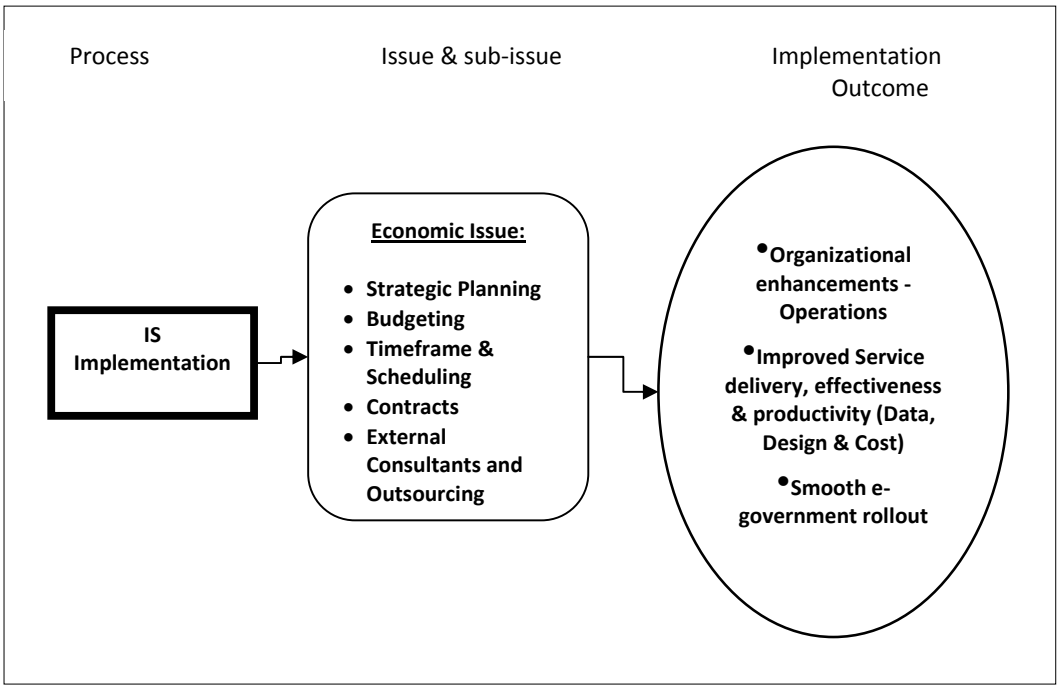
In addition, the methodological approach proposed by Eisenhardt (1989) for building theories from case study research. Naturally, other concepts and key ideas from the work of Yin (1994) on case study research and, Miles and Huberman (1994) on qualitative data analysis were also included. Yet, it is important to note here that Eisenhardt's (1989) processes would provide the necessary rigor to justify the findings from this research. However, Paré (2002) also cautioned that only appropriate processes from Eisenhardt's (1889) roadmap should be followed, ignored or modified to suit this study. Hence, the first phase involved a pilot study of five local government entities. Structured interviews from the replication of a study by Beaumaster (1999) guided the initial gathering of data. The interviews were tape-recorded and immediately analyzed to determine common patterns and themes. This procedure also led to a revised and a more focused, unstructured interview guide which was used for the next phase of data gathering. Subsequently, the second phase involved interviewing all the local governments identified. Repeated interviews, telephone calls and e-mail were also done to verify the information given as well as to ensure that rich, in-depth data are collected. Data gathering and analyses ended when marginal improvement became small or in other words, data saturation has been reached.

5. Findings/Discussion

Based on the qualitative analyses, the economic issue was ranked third amongst the four mainstream themes. The sub-issues that hinder the successful implementation of IS projects in the Selangor local government are shown in (Figure 1.0). Among the sub-issues under this theme are strategic planning, budgeting, timeframes and scheduling, contracts and, external consultants and outsourcing. Strategic planning in information systems project implementation is crucial because the best of plans can go awry when it comes to actual implementation especially in the public sector. Bureaucracy can be

blamed for the glitches in time, scheduling and budgeting but this can be avoided if proper planning and justifications are done.

Figure 1.0 – Framework on the Economic Issues in IS Implementation



Furthermore, the economic issues are obviously impacted by the lack of a formal, strategic plan for ICT/IS by the individual municipality itself. The direction for all IS projects planned by each municipality is not fixed, that is, they do not have the autonomy to confirm all the projects that they've planned. Interferences and directives by either the state ICT Center or the federal/central governments are common occurrences. This situation is aggravated by each municipality not having its own formal plan to cater for its specific needs. Lack of a plan or use of a plan meant that the municipality provides little or no concrete directions for the acquisition and later, implementation of IS within that municipality. Considering the nature of ICT and the problems which users and officers face, it stands to reason that the lack of a formal plan merely aggravates an already difficult bureaucratic situation especially if it involves fiscal budgeting issues.

Next is the fiscal or budgeting issues; these are particularly problematic to the planning process from a number of standpoints. To begin, ICT/IS project implementation generate a variety of expenses. At the outset their purchase can prove to be quite expensive, often out of the range of small municipalities. All the local government ICT officers commented on the small budget allocation given to them even though their

costing in their annual strategic plans showed otherwise. Some of the comments on this issue are:

> *"They want to computerize the municipality, yet when it comes to the budget allocation for IT, it is like asking for the moon. There are so many reasons given to deny the IT allocation. Perhaps the top management see the IT budget as taking a huge chunk from the annual municipality's finances. They feel like IT is a huge investment …. it is very difficult to get any allocation for IT as the cost is high. Therefore, we have to ask for some allocation from the State ICT Center."*
>
> - Local Government A
>
> *" .. in terms of ICT implementation at this municipality, we did have problems at first, especially with the budget constraint. Over here, the maximum amount is RM 300,000 per year which is simply not enough."*
>
> - Local Government B
>
> *"The main problem that we are usually faced with is getting more ICT budget."*
>
> - Local Government C
>
> *"For the past two years since I worked here, we do have budget problems especially with (computer) maintenance"*
>
> - Local Government D
>
> *"So far, yes, we have been facing budget problems every year. We have strategically planned for certain amount to be put aside for emergencies, but there's no guarantee that we will get that allocation should we ask for it. That's a big problem for us."*
>
> - Local Government E
>
> *"The budget allocation for ICT here depends on the importance of the system that they want implemented. If we concentrate on the cost of the system alone, like our Accounting Information Systems, then a huge chunk is taken from our budget leaving nothing for other ICT needs like maintenance…."*
>
> - Local Government F
>
> *"… the cost for upgrading the computers and systems here is not enough"*
>
> - Local Government G

"For a scope (ICT) of this size, it depends on how much money we are given. If the plan is on a big scale, and there's no budget for it, then it is just a waste of our time and effort."

- Local Government H

"Budget? Annual budget? I think they are all the same (for local governments). We get our revenue from the taxes, licenses, fines, rental…Frankly, most local governments have budget deficits but it all boils down to good ICT planning and strategy. We also have a problem with the budget as well, because sometimes the top level management, they don't really understand, saying that IT means money."

- Local Government I

"The budget allocation for this local government is made to cover two years. When I was transferred here, the budget was already allocated. Whatever plans I had, had to be shelved because there was not enough allocation, so I have to wait next year to ask for more money…"

- Local Government J

Relating budget issues with ICT planning, it is no surprise that the lack of a customized ICT plan and model for local government is also perceived as the most problematic by the respondents. This outcome is similar to Gichoya's (2005) findings. While it is certainly true that no framework for local government ICT implementation is available, a general one would provide a guide for the municipalities from which to start without having to reinvent the wheel. If nothing else, such a framework would provide a viable place from which to ask the right questions about needs, processes and possible problems leading to ICT implementation in the municipality. As such, the ripple effect from these deficits is the non-affirmation of contracts with external consultants – the vendors and suppliers. Documentation of formalized plans and contracts inadvertently reflect on weak leadership thus, at the end of the day, it is the strategic plan that provides the framework for understanding and addressing the complex issues in a particular organizational context. However, in the case of the Selangor local governments, although the annual strategic plans were well detailed, the accompanying budgets requested were seldom approved.

Consequently, if there is not enough allocation, procuring or acquiring the ICT hardware and software is made difficult for these local governments to attain their goals. Hence, this necessitates acquiring technology over an extended timeline, which in turn creates a whole host of compatibility, upgradeability and standardization issues. In addition, expenses accumulate due to the very nature of the ICTs and their learning curve. Time is a very important factor in project implementation, therefore, the top management should see the need for expediting matters that are of utmost importance. Anyway, the

last two issues in the economic category are contracts and external consultants or vendors. These two issues are heavily dependent on the local government's annual budget. There are municipalities who have ongoing contracts with the consultants or vendors. Another form of contracts is the hiring of temporary staffs. As mentioned in the technological category, there are advantages and disadvantages of doing so. On one hand, the local governments have the manpower to be responsible for the ICT unit, but on the economic side, the emolument would be reduced as certain staff's compensation and benefits package are excluded for the staffs on contracts. This issue will be discussed in the following chapter.

It is important to note here that not all local governments can afford to outsource for ICT expertise, expensive hardware or systems. This is especially true for the district councils whose ICT budget is less than three hundred thousand ringgit (Appendix 6). The need for external consultants would depend on the requirements and level of ICT expertise in the local government. If they do not have that particular expertise, then there is a need to hire outside expertise. The decision to do this would depend on the organization's budget allocation and strategic planning. Otherwise, the local government would have to start training their staffs in that area of expertise to save costs.

6. Conclusion

Economic issues emerged as the third-ranked, most important theme that hinders the successful implementation of information systems project in the Selangor local government. Procurement and implementation of ICTs are expensive particularly at the third tier of government, the local government level. Sub-issues that fall under this theme include strategic planning, budgeting, timeframe and scheduling, contracts, external consultants and outsourcing. Furthermore, ICT/IS implementation also carries with it varying degrees of post implementation lag times necessary for training and "depreciation" of the equipment. Scheduling difficulties are expounded by the rapidly changing technology and external interventions, which would come full circle and come back to budgeting problems. With these in mind, it is crucial that local government ICT/IS administrators critically strategize their ICT/IS plan as other problematic concerns such as operating costs, investment costs, and the possible/achieved benefits of technologies require proper definition and measurement.

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