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THE INFLUENCE OF ORGANIZATIONAL FACTORS ON INFORMATION SYSTEMS SUCCESS IN E-GOVERNMENT AGENCIES IN MALAYSIA

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ABSTRACT

Information system success continues to be a subject of interest among IS researchers. The literature nevertheless offers limited understanding in regard to organizational factors influencing IS success particularly in public sector organizations. Using perceptual measures, this study aims to investigate the influence of organizational factors on IS success in selected public sector agencies in Malaysia. Data was gathered from 201 users from four central agencies located at the central administration complex in Putrajaya. Based on related studies in the literature, six organizational factors and four IS success dimensions were used in designing the framework for this study. The framework is used to investigate the relationship between the identified organizational factors and IS success dimensions within the scope of the selected e-government agencies. The organizational factors are top management support, decision-making structure, management style, managerial IT knowledge, goal alignment, and resources allocation, whereas the IS success dimensions include systems quality, information quality, perceived usefulness, and user satisfaction. The study found that all the organizational factors are significantly correlated with the four IS success dimensions under investigation. Further analyses reveal that goal alignment is the highest predictor of IS success, followed by management style and centralization of decision-making structure. Least expected was the top management support factor which appear to be the weakest predictor of IS success and its influence on IS success is insignificant. The study concludes that the findings are generally consistent with previous studies. On a specific note related to goal alignment, the public sector agencies can be seen experiencing a similar impact to that of their private counterparts in terms of IS strategy alignment, though they still generally subscribe to the traditional and centralized decision-making structure.

Keywords: e-government, electronic government, IS success, organizational factors, information system success factors

1. INTRODUCTION

The increased use of information systems has led to several changes in the workflow of both private and public sectors. To date, the private sector's use of information systems for achieving strategic advantages, and gaining financial and business benefits far outweighs that of its public counterpart.

Despite lagging behind its private counterpart, there have been signs indicating that the public sector's conservative approach to using information systems has begun to change. The traditional information systems are gradually being replaced by modern systems with more sophisticated software and hardware applications. Furthermore, the advent of communication technologies such as the Internet in the environment have resulted in better inter and intra agency collaboration in the public sector. These developments have apparently forced governments to re-evaluate and re-assess their information systems effectiveness.

For over two decades, information systems (IS) success was the primary focus in IS literature (Vanlommel & DeBrabander, 1975; Hamilton and Chervany, 1980). One of the highly significant contributions in the literature was the study done by DeLone and McLean (1992) which resulted in a proposed information systems success model. This model had since become instrumental towards contributing to a universal model, which many employed when looking at information systems performance. Further attempts have been made to produce enhanced models (for example Seddon & Kiew, 1994; Rai et al., 2002). In validating their proposed IS success model, Rai et al. (2002) made use of six dimensions namely system use, system quality, user satisfaction, information quality, individual impact, and organizational impact. The model had since been updated in 2003 to allow application in the e-commerce context. The authors also pointed out that there was a huge gap in the earlier IS studies which many researchers seemed to overlook. One such gap is the lack of understanding of the impact of the organizational dimension.

In the context of the Malaysian pre-electronic government, the impact of organizational factors on IS success is least understood. One of the early studies indicates that organizational factors are one of the most important issues to be looked into when implementing computer-based information systems in Malaysian government agencies (Mohd-Yusof, 2005).

Obviously, there is still a lack of empirical studies that integrate organizational factors and IS success particularly in Malaysia. As the Malaysian government continues to provide huge IT investments for its designated e-government agencies, the need to understand the antecedent factors of IS success including organizational factors becomes more important. This study attempts to provide a better understanding of the impact of organizational factors on IS success in the Malaysian electronic government (e-government) agencies.

2. BACKGROUND – THE MALAYSIAN E-GOVERNMENT INITIATIVES

The 1990s saw the Malaysian government making major provisions for automating agencies primarily involved in revenue collection (Mohammad, 2003). This development continued to progress steadily since the mid 1990s with the wider adoption of new technologies by the Malaysian public sector agencies as observed by Mohamed (1998). The steady progression was believed to be largely driven by Malaysia's strategic frameworks the National IT Agenda (NITA) and the Multimedia Super Corridor (MSC), which guide the transformation process of the nation into a knowledge-based society.

With the commencement of NITA, a number of government agencies have been designated as e-government agencies. Their primary role was to lead the implementation of e-government applications in Malaysia. Since the launch of NITA and MSC, there have been a few empirical studies on Malaysian e-government initiatives (Mohamed, 2006). Some attempts were made to understand information systems success and factors contributing to them (Mohamed et al., 2006a; 2006b). Mohamed et al. (2006a) applied the DeLone and McLean (2003) up-stream model of information systems success to evaluate the effectiveness

of e-government applications from the end users' perspective in selected e-government agencies. While there was evidence to suggest that the e-government applications were generally successful, some variability existed in the perceived relative success of each application. One obvious gap, however, was the lack of consideration for external variables.

In a related study, Mohamed et al. (2006b) explored the role of enabling change factors in information systems success implementation of e-government applications. Enabling change factors refer to the capability of organizations to bring about desired changes in terms of possessing the appropriate mechanisms like human skills, tool, technology and methodology. Enabling change factors consisted of organizational support for change, project-planning process and proactive technological orientation. Mohamed et al. (2006b) concluded that there was a link between enabling change factors and information systems success in Malaysian e-government agencies. This study sets out to examine the organizational factors that affect e-government agencies and to understand their linkage with information systems success.

3. RESEARCH FRAMEWORK AND HYPOTHESES

The impact of the organizational dimension on IS success has continued to be researched using multiple perspectives. Some of the researches have used different terminologies including contexts, variables, and factors when referring to organizational dimension. Lu & Wang (1997) for example, used management style as a measure of organizational context. Saunders & Jones (1992) identified organizational variables as mission, size, goals, top management support, IS executive hierarchical placement, maturity of IS function, size of IS function, management philosophy/style, evaluator perspective, culture, and IS budget size. In addition, Ang et al. (2001) identified organizational factors that influence IT usage as organizational structure, organizational size, managerial IT knowledge, top management support, financial resources, goal alignment and budgeting method.

Based on a comprehensive list of organizational factors from related studies (Miller and Doyle, 1987; Grover, 1993, King & Sabherwal, 1992; Tallon et al., 2000 and Ang et al., 2001), six organizational factors that influence IS success are identified to be used in this study. The six factors are decision-making structure, top management support, goal alignment, managerial IT knowledge, management style, and resources allocation.

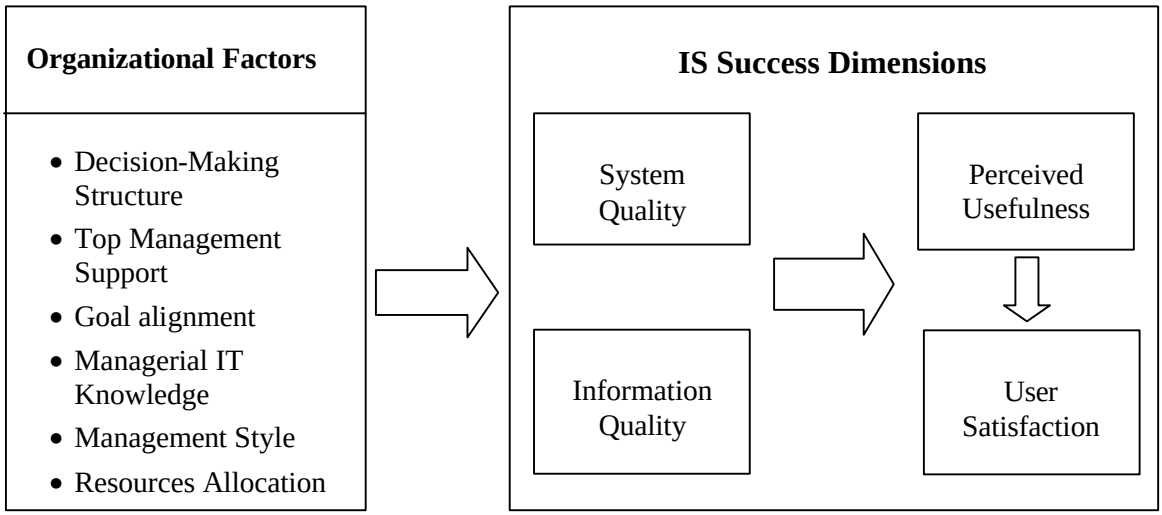

Figure 1. Research Framework

Besides the above six factors, specific reference to the up-stream portion of DeLone & McLean's (1992) model is made in developing the research framework used in this study. This framework is shown in Figure 1. The framework shows the position of the identified organizational factors, and the four IS success dimensions namely system quality, perceived usefulness, information quality, and user satisfaction. Based on this framework, six hypotheses were developed.

3.1 Decision-Making Structure

Decision-making structure is defined as the type of control or delegation of decision-making authority throughout the organization and the extent of participation by organizational members in decision-making pertaining to IT/IS (Hage & Aiken, 1969). Previous studies have found that decentralized decision-making is one of the strongest facilitators for the adoption of Customer-based inter-organizational system (CIOS) (Grover, 1993) and IT system in large and complex organizations (Boynton et al., 1994).

On the other hand, other studies have indicated that highly centralized organizational design can result in better management effectiveness for end user computing (Brown & Bostrom, 1994) and is likely to produce more successful strategic information systems applications (King & Sabherwal, 1992). These arguments suggest that decision-making structure is a factor that would influence IS success. Thus, we arrive at the first hypothesis.

H1 *Decision making structure is significantly associated with the IS success dimensions.*

3.2 Top Management Support

Top management support is conceptualized as the involvement and participation of the executive or top-level management of the organization in IT/IS activities (Jarvenpaa & Ives, 1991). It is not surprising to discover that top management support has been one of the most widely discussed organizational factors in several IT/IS success studies. For example, top management support has been investigated in several studies linking its influence on IT/IS use (Jarvenpaa & Ives, 1991; Boynton et al., 1994; Ang et al., 2001); IT/IS adoption (Grover,1993); CBIS implementation (Mohd-Yusof, 1999); strategic use of IS (King & Teo,1996); IS success (Igbaria et al., 1997) and other related IS studies.

In addition King & Teo (1996) clearly pointed out that top management support facilitated the successful deployment of strategic IS applications, while lack of top management support inhibited the strategic use of IT/IS. Grover (1993) had earlier asserted that support factors have the most predictive ability in CIOS adoption. Both studies provided further evidence to support Jarvenpaa & Ives (1991) whose study was focused on the role of executive support in relation to progressive use of IT.

From the point of view of end-users, Igbaria et al. (1996) found the importance of organizational support on most of the factors investigated – perceived usefulness, perceived complexity, social pressure, perceived fun and system usage. Using a structural equation modeling Igbaria et al., (1997) concluded that management support has positive direct effects on the perceived usefulness and perceived ease of use factors on personal computing adoption in small firms.

With particular reference to the public sector in Malaysia, at least one study has shown that a strong role of central direction is necessary in order for Malaysia to progress to a more advanced stage of e-government (Abdullah et al., 2005). Moreover, Ang et al. (2001) examined IT usage in 47 Malaysian public sector agencies to support total quality management (TQM). Top management support for IT applications was found to be one of the

highest predictor of IT usage in this study. Those findings further substantiate the argument that top management support has significant influence on IS success. Thus, we develop hypothesis 2 as follows.

H2 *Top management support is significantly and positively associated with the IS success dimensions.*

3.3 Goal Alignment

Goal alignment involves the linking together of the business goals and the corporate IT goals. According to Saunders and Jones (1992), to promote the achievement of organizational goals the IS plans must be tied to the overall organizational plans. The research interest focusing on goal or strategy alignment continues to grow among researchers and practitioners in both public and private sectors (Ahlan, 2005; Tallon et al., 2000; Watson et al., 1997; King & Teo, 1996; and Swain et al., 1995).

In the Malaysian private sector context, Ahlan (2005) in his study of the Malaysian banking industry found that inadequate strategy alignment may lead to highly problematic IT implementations. Some of the strategy alignment inadequacies identified in that study include lack of organization wide strategy, lack of authority in strategy formulations, top management not well exposed to viable technology in formulating long term IT goals, and unclear strategic direction to steer technology deployment.

With particular reference to the Malaysian public sector, Ang et al. (2001) investigated the impact of organizational factors together with other factors on the IT usage. In that study they found that goal alignment is the second strongest predictor of IT usage in the public sector organizations. Based on the above arguments, we reached the third hypothesis.

H3 *Goal Alignment is significantly and positively associated with the IS success dimensions.*

3.4 Managerial IT Knowledge

Managerial IT knowledge refers to senior management experience and knowledge concerning information technology. Earlier studies show that the managerial IT knowledge can be attributed to the background of the managers, their experience and awareness in IT/IS activities, their recognition towards IT/IS potentials, as well as their ability to plan strategically (Jarvenpaa & Ives, 1991; Boynton et al., 1994; Ang et al., 2001).

In the Malaysian public sector, Mohamed (1998) in her study has specifically highlighted the pressing need for the public sector IS/IT personnel skills to be relevant to the sector's transformation requirements. This is in accordance with Jarvenpaa & Ives (1991) who argue that executives with relevant skills and knowledge background tend to be more productive, more proactive, more participative in IT/IS projects, and have more favorable views of IT.

Studies have also found that managerial IT knowledge has an impact on IT utilization. Boynton et al. (1994) investigated the influence of IT management practice on IT use in large organizations. They asserted that managerial IT knowledge directly and positively influence the extent of IT use in an organization. They have used managerial IT knowledge construct to reflect – firstly, the knowledge IT managers have on strategic business issues and – secondly,

the knowledge line managers have on potential opportunities of IT/IS to improve firm's productivity.

Furthermore, their findings showed that managerial IT knowledge was an important factor in promoting high levels of IT use within business units. Though focusing on private sector organizations, the finding is anticipated to be applicable to public sector organizations as well. Thus, it can be assumed that public managers must have sufficient and adequate knowledge and skills in IT/IS to ensure its success by having the ability to recognize the potential of IT/IS projects in meeting business objectives This study, therefore, proposes that managerial IT knowledge is one of the factors necessary to influence IS success, hence leading to the formulation of the fourth hypothesis.

H4 *Managerial IT knowledge is significantly and positively associated with the IS success dimensions.*

3.5 Management Style

Management style deals with the way in which management tends to influence, coordinate, and direct people's activities towards a group's objectives (Aldag & Sterns, 1991; Robbins, 1994). It had been pointed out by Lu & Wang (1997) that many studies have categorized management into people-oriented and task-oriented styles. People-oriented managers emphasize inter-personal relationship and are concerned with mutual trust, friendship, respect and warmth. On the other hand, task-oriented managers tend to focus more on task aspect of jobs and deals with defining and organizing tasks for goal attainment.

In their study, Lu & Wang (1997) investigated the relationship between management styles with user participation and systems success over MIS growth stages. Their findings produced mixed results. On one hand they found that management styles were related to system success differently over the MIS growth stages. For example, at the development stage and the maturity stage, both people-oriented and task-oriented styles had a positive significant relationship with system success. On the other hand both styles have no effect on system success at the initiation stage. They argued that at the initiation stage, computers are being introduced to the organization and users must learn the new technology on their own. This, in turn ended up creating dissatisfaction among the users.

One of the important components of management style is the leadership style. Lu & Wang's study (1997) seems to support the major finding in Igbaria et al.'s study (1990) on the relationship between leadership style and user satisfaction. Both studies found that leadership style and system success are correlated significantly and positively. However, the authors argued that more issues need to be explored involving the many styles of management and leadership. It is strongly believed that management style may influence IS success, and thus, we develop the fifth hypothesis.

H5 *Management style is significantly associated with the IS success dimensions.*

3.6 Resources Allocation

The final hypothesis is concerned with allocating resources. Resources may be categorized into money, people, and time. According to Ein-Dor & Segev (1978), resources include money, people and time that are required to successfully complete a project. Resources lead to a better organizational commitment and also overcome organizational obstacles (Beath,

1991; Tait & Vessey, 1988). Sufficient resources also lead to organizational implementation success and project implementation success (Wixom & Watson, 2001).

Ein-Dor & Segev (1978) and Wixom & Watson (2001) have found a significant relationship between resources and IT project implementation. They observed that having sufficient funds, appropriate people and enough time have had a positive effect on a project's outcome. Based on the above arguments, this study suggests that resources allocated to IT projects may have important impacts on IS success. Thus, we develop the sixth hypothesis.

H6 *Resources Allocation is significantly and positively associated with the IS success dimensions.*

4. METHODOLOGY

4.1 Population and Sample

The population of this study consists of employees of the electronic government agencies in the central administrative complex in Putrajaya. Since 1995, the federal government has implemented a number of e-government projects on a pilot basis. Four agencies were selected in this study by virtue of being pioneer agencies in implementing the e-government applications. Pilot e-government applications were implemented in these four agencies with each one specializing in different types of e-government systems. These applications include the human resource management system (HRMIS), general office environment system (GOE), and project management systems (PMS).

The sampling process started by identifying the sampling frame based on the current lists of employees working in the four selected agencies. Using the stratified random sampling method the sample was drawn from among the employees based on their position level. Only employees who use information system in their work were included in the samples. A total of 450 respondents were selected from the sampling frame comprising the four agencies. In deciding the sample size, the table of Krejcie & Morgan (1970) was used as a guide. The table provides simplified sample size decision in order to ensure a good decision model.

4.2 Measures

This study used perceptual measures to capture data on IS success and organizational factors (see Appendix 1). Perceptual measures are acceptable measures in most survey research. In most cases, a six-point Likert-scale was used to represent the responses of the respondents. The forced-choice scale was adopted in this study to overcome the problem of 'not sure' or 'don't know' responses (Zikmund, 2003). The forced-choice scale was also used to overcome the problem of too many neutral responses which are common among Asian people when given the option to choose.

Based on DeLone & McLean's (1992) recommendations, this study adapted measurement items from related studies of IS success. In measuring the IS success dimensions – system quality, information quality, perceived usefulness, and user satisfaction – this study heavily drew upon and adapted constructs used in related studies of IS success (Doll & Tokzadeh, 1998; Davis, 1989; Seddon & Yip, 1992; Seddon & Kiew, 1994).

Firstly, five items from Doll & Tokzadeh (1988) and Davis (1989) were used to operationalize system quality. Secondly, nine items from Doll & Tokzadeh (1988) were used

to operationalize information quality. Doll & Tokzadeh's instruments were acceptable measures and had been validated by other researchers (Seddon & Kiew, 1994). Thirdly, four items from Seddon & Yip (1992) were used to operationalize overall satisfaction towards the system. Finally, items from Davis (1989) were used to measure perceived usefulness. Davis's instrument had been widely used by researchers and hence his instrument was a valid and acceptable measure for the perceived usefulness construct.

Besides the above items, demographic factors (age, gender, educational level, job level, departmental level, length of service), frequency of computer use, types of computer trainings attended were also measured. Frequency of computer use for four different types of information systems (office automation, financial IS, human resource IS and decision support system) were measured using scales developed from 1=never to 6=always. Respondents were also asked to response to either 'yes' or 'no' for the type of the trainings or courses attended.

As for the organizational factors, a single item measure was used for each factor. Using a six-point Likert scale ranging from 1=strongly disagree to 6=strongly agree. Measures were adapted from Ang et al. (2001) and Lu & Wang (1997).

4.3 Data Collection Method

A self-administered questionnaire was used to measure the factors under investigation. Prior to the actual distribution of the questionnaire, a pre-test and pilot study were conducted to ensure the consistency and clarity of the questions asked which resulted in the questionnaires being refined and rephrased accordingly. The questionnaires were also translated to the native language Malay Language to cater for the lower job level group such as the clerical and the administrative support staff who were less conversant in English.

The modified questionnaires were then distributed to the employees of the four selected electronic government agencies. The agencies were the Malaysian Administrative Modernization and Management Planning Unit (MAMPU), the Public Services Department (PSD), the Road Transport Department (RTD), and the Implementation Coordination Unit (ICU under the Prime Minister's Department). A total of 450 questionnaires were distributed, and 201 were returned giving a response rate of 45%. The majority of the respondents occupy executive or higher-level positions (59.1%). The users' background ranges from diverse functional areas including Administrative, Finance and Human resource (38.7%), IT related functions (37.7%) and other areas (23.6%).

The results of the reliability tests are shown in Table 1. The results showed that the value of Cronbach's Alpha for all constructs is higher than 0.9. This suggests that the questionnaire and its constructs are reliable for the intended study.

Construct	Items in Scale	Cronbach's Alpha
Perceived Usefulness	6	0.96
System Quality	5	0.92
Information Quality	9	0.94
User Satisfaction	4	0.94
Organizational Factors	6	0.90

Table 1: Construct and Reliability Tests

5. RESULTS AND DISCUSSIONS

5.1 Respondents' Profile

Approximately two thirds of the respondents (62.4%) were between 20-39 years old, followed by 37.6%, who were more than 40 years old. Slightly more than half of the respondents (55.8%) were female. The majority of the respondents (66.8%) had a Diploma certificate or higher, followed by those (33.2%) having a lower educational background. The higher educational background of the respondents reflects that the respondents are either at least competent in IT or are IT literate since taking an ICT course is one of the requirements for graduation in most colleges in Malaysia and abroad.

The majority of the respondents (59.1%) belong to the executive ranks or hold higher posts. The proportion in this rank includes professionals, middle-level managers and top-level managers from various fields. Only 4.5% of the respondents within this rank are from the top management level. These are the directors and deputy directors of the various departments in their respective agencies. The low percentage represents the typical picture in any government agency, where the high level managers are those who made the decisions pertaining to the policies and administration of the concerned agencies. The support staff (40.9%) made up the rest of the respondents. These are respondents who worked in the administrative and technical support services in the selected agencies.

More than half of the respondents (60.9%) had served the government for at least six years and this number includes 21% who had served the government for more than twenty years. The remaining numbers (39.1%) had served the government for five years or less. These figures indicate that the majority of the respondents had served the government for considerable length of time lending credence in their evaluations of the e-government applications used in their respective agencies.

5.2 IS Success Factors

Table 2 shows the association among the four IS success dimensions employed in the study, perceived usefulness, information quality, system quality and user satisfaction. Using correlation analysis, the four variables are found to be significantly correlated with one another. The findings are consistent with previous studies on relationship between the four IS success factors (Seddon & Kiew 1994, Rai et al., 2002, Hussein et al. 2003). The findings further suggest that the higher the satisfaction towards the individual components of a system – system friendliness, accuracy, content and format of the output of the system – the higher the overall satisfaction towards the system. Furthermore, a more favorable perception of the systems usefulness (in terms of improved task efficiency, improved job effectiveness, increased job productivity and improved job performance) results in greater satisfaction of the systems. In general, the findings indicate that the users are satisfied with the information systems used in their job.

Items	Perceived Usefulness	Information Quality	System Quality	User Satisfaction
Perceived Usefulness	1.000			
Information Quality	.788**	1.000		
System Quality	.750**	.677**	1.000	
User Satisfaction	.705**	.669**	.619**	1.000

Table 2: Correlation Analysis Between IS Success Factors

5.3 Organizational Factors and IS Success

As discussed earlier the main objective of this study is to investigate the contributing factors of organizational attributes on IS success. Based on previous studies, six organizational factors have been identified to be included in this study. The factors concerned are decision-making structure, managerial IT knowledge, top management support, financial resources, investment quality, goal alignment and management style. A summated scale of IS success was calculated by averaging the mean of the four IS success dimensions of the study. The result of the correlation analysis is summarized in Table 3 below.

Items	Perceived Usefulness	Information Quality	System Quality	User IS Satisfaction	IS Success
Decision Making Structure	.413**	.481**	.448**	.534**	.531**
Managerial IT Knowledge	.387**	.475**	.413**	.494**	.508**
Top management support	.513**	.531**	.463**	.540**	.585**
Financial Resource	.479**	.521**	.413**	.525**	.537**
Goal Alignment	.608**	.626**	.523**	.586**	.665**
Management Style	.601**	.517**	.520**	.553**	.663**

** Correlation is significant at the 0.01 level (2-tailed)

Table 3: Correlation Analysis between Organizational Variables and IS Success, Dimensions

The result shows that the organizational factors are significantly correlated with the IS success factors and the IS success summated value (see Table 3). The result of the correlation analysis therefore, supported all the hypothesized relationships developed in this study.

The results support hypothesis H1 which indicates that there is a positive significant relationship between centralized decision making structures and IS success. This finding is consistent with other studies (Grover, 1993; Boynton, 1994). Thus, it can be suggested that the decision-making structure has significant impact on system success. With the centralized structure the result also seems to suggest that public sector organizations tend to subscribe to the traditional form of decision-making structure. Furthermore, the common practice in the Malaysian public sector is that decisions are normally made at the strategic level of the organization.

The second hypothesis H2 was also supported by the results of the analysis, indicating that a higher level top management support significantly relates to a higher degree of satisfaction in system quality, information quality, system quality and overall user satisfaction. This result is consistent with other related studies (Boynton et al., 1994; Ang et al., 2001; Grover,1993; Mohd-Yusof, 1998; King & Teo, 1996; Igbaria et al., 1997; King & Teo, 1996 and Igbaria et al., 1996).

The result validates the assertion that top management plays a very important role in supporting IS activities and eventually facilitates success in organizations including public organization. More importantly, commitment and support from the top officials are most likely to encourage better IS usage among employees. Any form of support from top management may help employees to overcome resistance and facilitate acceptance of new IS applications adoption, implementation or utilization. In the context of the Malaysian e-government project implementation, part of the top management support includes requiring the top government officials to attend IT related courses. Thus, this scenario justifies the outcome of the results.

The results also supported hypothesis H3, indicating that higher level goal alignment practices correlate to higher levels of perception towards the four dimensions of the IS success. This is congruent with the studies done by Swain et al. (1995), Watson et al. (1997), King & Teo (1996), and Tallon et al. (2000). The current commitment and practices by the Malaysian government in leading Malaysia to become an informative and knowledge-based nation has helped public managers to realign and refine the strategic role of IS in their respective agencies. These practices include the new policy set by the Malaysian government, which require agencies to adopt the ICT blueprint encompassing the ICT strategic roles of the Malaysian public sector.

Hypothesis H4 was also supported by the analysis which indicates that managerial IT knowledge is significantly and positively related with IS success dimensions. This finding is also consistent with studies by Ives & Jarvepaa (1991), Boynton et al. (1994), and Ang et al. (2001). The outcome of the analysis provides further evidence to imply that managers who clearly recognized IS/IT potentials in enhancing productivity have the tendency to promote IS success in their organization.

The results also support hypothesis H5 which indicates that management style is highly correlated with system quality, information quality, perceived usefulness and user satisfaction. In this study, the analysis reveals that people-oriented management style is more prevalent than task-oriented management style. The outcome may be due to the individual level of analysis, where users are more comfortable towards a people-oriented style with managers giving emphasis on inter-personal relationships. Further explanation may be drawn from looking at the Malaysian public sector work environment where inter-personal relationship is commonly embedded in the organization culture.

The results also support the final hypothesis H6 indicating positive significant relationship between resource allocation and system quality, information quality, perceived usefulness and user satisfaction. The results provide evidence to suggest that adequate resources, including financial, staff and time are important criteria in determining IS success. Organizations with adequate fund and manpower resources tend to have better chance to succeed in implementing their IS goals and objectives. In this case, the Malaysian government had allocated a huge amount of funds to support national ICT projects. This funding was allocated following the strategic national agenda called The Malaysian National IT Agenda (NITA) formulated in 1996, among its objective is to turn the country into a knowledge-based society.

5.4 IS Success Predictors

Further analyses on the data using stepwise multiple regression analysis, resulted in the goal alignment being identified as the highest predictor of IS success, followed by management style and centralization of decision making structure (see Table 4). Apparently, the result supports findings from previous studies on strategic alignment (Swain et.al., 1995; Watson et al., 1997; Tallon et al., 2000; and Ang et.al., 2001). It is evident that current organizations are concerned with their IT strategy alignment and their business goals. Thus, the results hold true for both the private and public sectors. Both types of organizations perceived that by aligning IT and business goals, the organizations can ensure user satisfaction and eventually IS success.

The second contributor of organizational factors on IS success in this study is the management style. This finding supports Igbaria & Nachman (1990) on the impact of leadership style on end-user satisfaction. Furthermore, this study also found that people-oriented style was more prevalent than a task-oriented style. This particular finding partially

supports Lu & Wang's (1997) study on the significance of both people-oriented and task-oriented styles in the development stage, and the maturity stage of system success. This suggests that at the earlier stages of MIS growth, managers tend to adopt people-oriented style in order to provide more warmth, cooperation and support to their staff in utilizing new systems i.e. in this context the new e-government system applications.

ANOVA [d]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	43.783	1	43.783	151.854	.000[a]
	Residual	56.223	195	.288		
	Total	100.006	196			
2	Regression	49.839	2	24.920	96.368	.000[b]
	Residual	50.166	194	.259		
	Total	100.006	196			
3	Regression	53.068	3	17.689	72.736	.000[c]
	Residual	46.938	193	.243		
	Total	100.006	196			

a. Predictors: (Constant), Goal Alignment

b. Predictors: (Constant), Goal Alignment,Management Style

c. Predictors: (Constant),Goal Alignment, Management Style, Centralization

d. Dependent Variable: SUCCESS

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.309	.203		11.382	.000
	Goal Alignment	.532	.043	.662	12.323	.000
2	(Constant)	1.796	.219		8.184	.000
	Goal Alignment	.346	.056	.430	6.158	.000
	Management Style	.279	.058	.338	4.840	.000
3	(Constant)	1.528	.225		6.790	.000
	Goal Alignment	.289	.057	.360	5.110	.000
	Management Style	.235	.057	.284	4.103	.000
	Centralization	.162	.044	.213	3.644	.000

a. Dependent Variable: SUCCESS

Table 4: Stepwise Regression Analysis of Organizational Factors on IS success

Finally, the third contributor of organizational factors on IS success in this study is found to be the centralized decision-making structure. This study has provided an interesting finding where there is clear indication that the public agencies still adopt the traditional and centralized decision-making structure which has significantly facilitated IS success. This is contrary to a number of studies done in the private sector (Miller and Doyle, 1987; Zain, 1994; and Grover, 1993) which found that there was significant relationship between 'decentralized' decision-making and IS success dimensions. One possible reason could be due to the nature of the organization structure in the public sector where strategic decisions are made at the top of the hierarchical structure. Another possible explanation might be

achieved by looking at the strategic decision-making model as adopted by the public sector organizations' business units. Participation and representation by business unit leaders in strategic planning and budgeting leads to better coordination and management. The participation of key stakeholders in centralized decision-making in public sector organization also leads to better collaboration, communication and coordination.

6. CONCLUSIONS

The aim of this study is to investigate the relationship between organizational factors and IS success dimensions in relation to the Malaysian e-government environment. The findings of this study provide a clear indication that organizational factors are, indeed, highly significant in ensuring successful information systems adoption particularly in the context of the public service sector. In addition, this study also reaffirms Mohd-Yusofs' (2005) assertion as to the importance of organizational factors in the similar sector. Ostensibly, the study allows for the enhancement of the theoretical contributions made by De Lone & McLean (2003) on IS success by addressing the gaps on the need for identifying IS success contributing factors. With the identification of the organizational factors, future researchers may validate these relational contributions by testing them in a different environment.

As highly anticipated, goal alignment, which is comprised of the alignment of IS strategy and business objectives, was found to be the most influential contributor of organizational factors on IS success. This provides a clear indication that IS strategic role has gained as much interest among the public sector managers as among private sector managers. The strategic role taken by the government, for instance, through the development of National ICT Agenda (NITA), as well as the dedicated role of Modernization and Management Planning Unit MAMPU in overlooking the e-government strategic agenda, may have reflected the high contribution of goal alignment in the Malaysian e-government context.

Theoretically, this study contributes significantly to the identification of organizational factors that may lead to IS success, by enhancing the model pioneered and revised by DeLone and McLean (2003). On the other hand, the evidences should also assist managers from both public and private sectors, in implementing as well as improving the existing systems through the organizational factors identified. When attempting to ensure its IS success, an organization must ensure IS strategy and business objectives are aligned, the managers are well trained and equipped with IT knowledge and strategy, top management are involved in all activities pertaining to IT/IS use and implementation organization wide, and resources such as time, money, and manpower are sufficiently and properly allocated. However, recommendations based on centralized IT structure and people-centered management style may only be made applicable in the context of public sector organizations.

This study has its own limitations due to methodological bias and limited scope. Methodologically, perceptual types of data are not objective and may be subject to bias or low validity. Whatever the users perceived may not reflect what is going on in the organization. They may be reflecting on what is socially expected for them to perceive. In terms of scope, this study is confined to organizational factors in their relation to IS success. The limited number of constructs examined may also be seen as a confounding factor in understanding IS success. Therefore, similar studies may need to focus more on other factors such as individual, technological and external factors in influencing success. Future research should also look into the empirical studies on net benefits of IS success as proposed in the Seddon (1997) and DeLone & McLean (2003) models. Other limitations include the sampling frame where the survey was only based on four selected agencies. Further studies

should include more public agencies as well as private sectors in different locations and settings.

7. REFERENCES

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8. APPENDIX 1 - QUESTIONNAIRE ITEM

		strongly disagree *strongly agree*
System Quality		
1.	The systems are easy to use.	1 2 3 4 5 6
2.	The systems are user friendly.	1 2 3 4 5 6
3.	The systems are easy to learn.	1 2 3 4 5 6
4.	I find it easy to get the systems to do what I want to do.	1 2 3 4 5 6
5.	It is easy for me to become skilful at using the systems.	1 2 3 4 5 6
Information Quality		
1.	The output presented in a useful format.	1 2 3 4 5 6
2.	I am satisfied with the accuracy of the system.	1 2 3 4 5 6
3.	The information is clear.	1 2 3 4 5 6
4.	The systems are accurate.	1 2 3 4 5 6
5.	The systems provide sufficient information.	1 2 3 4 5 6
6.	The systems provide up-to-date information.	1 2 3 4 5 6
7.	I get the information I need in time.	1 2 3 4 5 6
8.	The systems provide the precise information I need.	1 2 3 4 5 6
9.	The information contents meet my needs.	1 2 3 4 5 6
Perceived Usefulness		
1.	Using the systems in my job enables me to accomplish my task more quickly.	1 2 3 4 5 6
2.	Using the systems improves my job performance.	1 2 3 4 5 6
3.	Using the systems in my job increase my productivity.	1 2 3 4 5 6
4.	Using the systems makes it easier to do my job.	1 2 3 4 5 6
5.	Using the systems enhances my effectiveness in the job.	1 2 3 4 5 6
6.	Overall, I find the systems useful to my job.	1 2 3 4 5 6
Overall Satisfaction		
1.	The systems are adequate to meet the information processing needs of my area of responsibility.	1 2 3 4 5 6
2.	The systems are efficient.	1 2 3 4 5 6
3.	The systems are effective.	1 2 3 4 5 6
4.	Overall, I am satisfied with the systems.	1 2 3 4 5 6
Organizational Factors		
1.	Decision making is highly centralized	1 2 3 4 5 6
2.	Our managers highly recognize the potential of IS to enhance productivity.	1 2 3 4 5 6
3.	Our top management provides strong support for IS application.	1 2 3 4 5 6
4.	Resources allocated to IT projects are sufficient.	1 2 3 4 5 6
5.	Our IT strategy and business objectives are aligned	1 2 3 4 5 6
6.	Our top management encourages employees to take responsibility in organizing our work	1 2 3 4 5 6