

# Electronic Government: The Level of Implementation in the State of Pahang

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## ABSTRACT

E-government is the use of information communication technology in delivering public service via internet. The Organisation for Economic Cooperation and Development believes that information infrastructures are expected to stimulate economic growth, increase productivity, create jobs and improve the quality of life, and that has been the focus of Malaysian government in upgrading the quality of the citizens' lives. Since e-government at the state level is equally important to ensure the overall success of Malaysian e-government apart from the federal level, this research has been conducted in Pahang, one of the states in Malaysia, to determine the extent of e-government implemented based on the United Nation E-Government Maturity Stage Model. The study covers the aspects of e-government maturity stage, infrastructure, and website quality. A total of 340 responses were received (77.3% response rate) and the results showed that e-government maturity level in Pahang was at the minimal level of the third stage of the UN-DEPA maturity model, which was the interactive stage.

**Keywords:** E-government; United Nation E-Government Maturity Stage Model.

## I. INTRODUCTION

The web phenomenon has changed the overall culture of how the citizens deal with the government. This triggers the government's awareness in realizing the importance of information and communication technology (ICT) to improve the delivery of its information and services to the citizens and businesses alike; thus, making the quest to improve

service delivery via ICT has become an important agenda for most governments around the world.

Early conceptions of e-government had largely focused on electronic service delivery as the key feature of the phenomenon (Grant & Chau, 2006). E-government definition ranges from narrowly focused to broader ones where the narrowly focused definition stresses on using ICT tools particularly the internet to delivery more efficient and effective government services. The broad-based view on the other hand emphasises e-government as the effort taken in transforming government and governance. It is the outcome of Information Technology's (IT) power and capabilities to deliver services provided by the government at local, municipal, state and national levels.

E-government offers additional channels of interaction among governments, businesses, and citizens separately or collectively. Individual citizen may interact with the government electronically by filing the income tax documents online or pay for land taxes online. This makes e-government more complex as it involves other parties apart from the government bodies themselves, such as the banks and the income tax and revenue office. Hence, any e-government effort must meet the needs of a diverse set of users who come from diverse background.

In 2009, 448 federal portals/websites and 714 state government's portals/websites were assessed by MDeC. In the Online Services Assessment, a total of 329 portals and websites were evaluated. These portals and websites were derived from the "services" section in myGov portal. 162 agencies were grouped under federal government category while 167 under the state government category (MDeC, 2009). In the assessment, Pahang was ranked at no. 36, a drop of

16 notches and a further 308 from the overall participants. This indirectly indicates that the state government needs to improve its e-government practices in meeting the ever demanding citizens' needs.

This study focuses on the state of Pahang e-government user's satisfaction level. It is aimed to determine implementation level of e-government in the state based on the United Nation Maturity Stage Model and also conducted in the context of the current e-government maturity stage.

## II. LITERATURE REVIEW

### A. Malaysian ICT Policy Targets

With the GTP and ETP as the nation transformation agendas, the targets set are aligned with the direction and aspiration of the stakeholders. There are six (6) Public Sector ICT policy targets which are (1) ninety percent of the government services will be available online by 2015; (2) by 2011, 70% of intra-government letters, memos, invitations, circulars and meeting minutes online as well as ninety percent of meeting invitations will be online by 2012; (3) inculcating information sharing and interoperability to be fully achieved in 2015; (4) Cross Agency Collaboration Towards Seamless Services through Service Intelligence System to be established by 2012; (5) Government Shared Services through the implementation of Government Integrated Telecommunication Network by 2011; (6) Skills and Expertise Internalization of Public Sector ICT Personnel.

### B. Pahang State E-Government

There are 32 departments in the state of Pahang however only 16 departments are directly under its administration. Pahang is projected to receive foreign direct investment (FDI) worth RM6 billion via Tanjong Agas Oil and Gas and Maritime Industrial Park launched on 18 Feb 2009 (Berita Harian, 2009) and the ECER project launched in 2008 for the agricultural based development project. These projects will require a good public service delivery system which will ensure a smooth running of information exchange processes between investors and the state government

MDeC report on Malaysian Government Websites/Portals Assessment (MGWPA) showed that Pahang state government websites scored unsatisfactorily where the majority of the websites scored below fifty percent and only two websites achieved 3-star. In the overall comparison to the other states, Pahang only managed to be ranked at number nine out of the fourteen states (MDeC Report, 2009). With the expected FDI, Pahang state government should offer better online service to the public and investors.

### C. E-Government Maturity Model as a Tool to Determine the Road Ahead

A maturity model approach is used to identify the stages of e-government implementation level based on its IT adoption. It provides researchers with guidance to gain control of the processes for developing and maintaining e-government services and how to evolve towards a culture of excellence in providing and managing e-government. In its simplest form, a maturity model is an enumeration of attributes for a sequence of maturity levels. No well-developed maturity models for e-government exist thus far; the best available models are simple, but still useful for understanding some key facts about e-government (Windley, 2002). As part of the enthusiasm on information technology adoption in governments, best practices and maturity models are being developed and applied to monitor government to be on the right track in e-government implementation.

Muir and Oppenheim (2002) suggest e-government tends to design and launch online services based on their understanding of what citizens need, surprisingly without actually measuring what increases citizens' willingness to adopt web-enabled services. The term maturity signals the state of growth as a continuous increase from lower to higher phases, and these stages represent the level of e-government development based on the content and services delivery available via official websites (UN & ASPA, 2002). Similarly, the technological and organisational complexities increase as e-government grows from lower to higher phases (Layne & Lee, 2001; Gartner, 2000). This suggests the fact that though higher stages of e-government may be desirable, they are difficult to attain. However, there is no agreement yet in the literature regarding the

number of phases in which e-government should go through from its immaturity to maturity stage (Irani, et al., 2006). It is equally important to ascertain the relationship between e-government maturity stages to user's satisfaction level. It is also stated that in order to achieve higher levels of e-government maturity, organisations must focus on improvements in customer relationship management, organisational capability, enterprise architecture, and security and privacy (MDeC, 2009).

Malaysian e-government maturity model however, emphasises more on e-government process rather than the evolution of the website suggested by Layne and Lee (2001) or Heeks (2005). The Malaysia's four-level maturity model comprises of creating, building the foundation, managing the vision and lastly, providing sustained delivery of e-government digital services. Similar to the World Bank maturity model, Malaysia's maturity model stops at the delivery stage without moving on to the integration of online service as a one-stop centre. Since it focuses more on developing the e-government process rather than measuring the extent of online services provided, the UN model is seemed to be more suitable for the study as it measures the extent of e-government service implemented to suit the current needs of the public for a more user-friendly service.

### III. METHODOLOGY

The methods for data collection were the content and document analyses of the current stage of Pahang state e-government implementation based on UN-DEPA (2002) maturity model. Since the government websites evaluated were those of the state government, therefore, the chosen unit of analysis was the individuals working as administrative staff at the District and Land Offices at eleven districts in Pahang. They were the District Officer, Assistant District Officers, Administrative Officers, Executive Officers, Chief Clerks and all levels of the Administrative Assistants. They were chosen because they live in Pahang and as government employees, they are familiar with the ICT system (as e-government internal as well as external users). The sampling frame for this study was the name list of staff working at the state Land and District offices. Based on Comrey and Lee (1992), it was decided that this study will have between 300 to 500 samples in order to generalize the

findings. This study applied the random sampling technique.

The measuring scale used in this study was nominal scale based on UN-DEPA (2002) e-government maturity model. A descriptive statistics involving the transforming of raw data into a form was carried out. The raw data of the demographics were transferred into percentages presented in the form of table. A descriptive analysis in the form of univariate was conducted on the data from the website content analysis and the document analysis. They were then tabulated and transformed into a bar-graph.

### IV. FINDINGS

Two attributes that answered this research question were the content analyses of the MGWPA 2007 and 2009 reports and website content analysis. The findings were then compared to the UN maturity stage model to determine the current level.

#### A. Content Analysis of the Malaysian Government Website/Portals Assessment Report in Determining the State e-Government Maturity Level

Four hundred and forty questionnaires were distributed by hand to the samples. Out of these, only 340 were usable for further analysis. From the analysis five state government websites were awarded 3-star, three 2-star, and two 1-star rating while six a non-accessible status. The 2009 assessment on the other hand, reported five 3-star, three 2-star and seven non-accessible status. 2009 recorded more non-accessible websites compared to 2007. Table 1 shows the comparison of the ranking of Pahang state government websites

Based on Table 1, the highest score was awarded to the Public Works Department with 52, followed by the Public Service Commission (50) and the State Secretariat (45). The report also ranked Pahang state secretariat at no. 20 in 2007 and 36 in 2009. In the overall ranking of the 2009 assessment among the states of Malaysia, Pahang was ranked at no. 132. This ranking was based on the ranking of its State Secretariat Office as the gateway to Pahang state e-government application. Pahang was not included in the online service evaluation assessment due to its failure to meet the online requirement criteria. The criteria under the online service were Citizen

Interaction, Citizen Insight Generation, Citizen Services, Citizen Support and Content Management. MGWPA reported that Pahang e-government offered online services that public were not up to the standard required by MDeC, MAMPU and MOSTI. Based on this finding, it can be concluded that the level of Pahang state e-government online services was at the minimal level hence the exclusion from MDeC's e-government online service assessment. Therefore, on the whole Pahang state government websites overall performance had declined in 2009 compared to 2007, due to more non-accessible websites in 2009. According to the report, among the reasons for this was wrong URL link, error in the system, no specific link (URL), wrong URL or no URL at all. It could

also be due to technical glitches where the links were not updated by the IT personnel.

## B. Website Content Analysis Based on MAMPU Guidelines as an Attribute to the State e-Government Maturity Level

The analysis was conducted based on MAMPU general circular (2006) consisting of 38 items that were divided into three sections. This analysis was important because it provided the indication of the website compliance to the government requirements. The numbers shown in the columns in Tables 1 and 2 indicate the websites for each state department directly under the state government administration.

Table below shows the type of Pahang online services offered to the citizen in comparison to the top ranking website.

**Table 1: Pahang state government website ranking comparison (2007 and 2009)**

| No. | Websites                      | 2009  |      |      | 2007  |      |      |
|-----|-------------------------------|-------|------|------|-------|------|------|
|     |                               | Score | Star | Rank | Score | Star | Rank |
| 1.  | Pahang Public Works (JKR)     | 52    | 3    | 29   | 35    | 2    | 59   |
| 2.  | Public Service Commission     | 50    | 3    | 33   | N/A   | N/A  | N/A  |
| 3.  | State Secretariat Office      | 45    | 3    | 36   | 55    | 3    | 20   |
| 4.  | Forestry Department           | 43    | 3    | 38   | 43    | 3    | 31   |
| 5.  | Social Welfare Department     | 42    | 3    | 39   | 9     | 1    | 62   |
| 6.  | Mufti Office                  | 36    | 2    | 43   | N/A   | N/A  | N/A  |
| 7.  | Islamic Religious Affairs     | 35    | 2    | 46   | N/A   | N/A  | N/A  |
| 8.  | Shariah Judiciary Department  | 32    | 2    | 49   | N/A   | N/A  | N/A  |
| 9.  | Agriculture Department        | N/A   | N/A  | N/A  | 23    | 2    | 50   |
| 10. | Veterinary Service Department | N/A   | N/A  | N/A  | 45    | 3    | 29   |
| 11. | Land and Mines Department     | N/A   | N/A  | N/A  | 51    | 3    | 23   |
| 12. | Town and Rural Planning Dept  | NA    | N/A  | N/A  | 44    | 3    | 30   |
| 13. | KDYMM Sultan Office           | N/A   | N/A  | N/A  | 25    | 2    | 52   |
| 14. | Water Works Department        | N/A   | N/A  | N/A  | 14    | 1    | 58   |
| 15. | Irrigation and Drainage Dept  | N/A   | N/A  | N/A  | N/A   | N/A  | N/A  |
| 16/ | Finance and Treasury Dept.    | N/A   | N/A  | N/A  | N/A   | N/A  | N/A  |

(Note: Malaysia E-government Portals/Websites Assessment (2009))

**Table 2: Type of Pahang online services offered to the citizen in comparison to the top ranking website**

| A  | Main Criteria Of Website (Mampu Guidelines)       | Selangor GOV | 8 |   |   |   |   |   |   |   |
|----|---|--------------|---|---|---|---|---|---|---|---|
|    |   |              | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1  | "LAMAN WEB RASMI" statement                       | √            | √ | √ | √ | √ | √ | √ | √ | √ |
| 2  | State Government Crest                            | √            | √ | √ | √ | √ | √ | √ | √ | √ |
| 3  | Official logo                                     | √            | √ | - | √ | √ | √ | √ | √ | √ |
| 4  | Statements about the agency                       | √            | √ | √ | √ | √ | √ | √ | √ | √ |
| 5  | Agency's policy                                   | √            | √ | √ | √ | √ | √ | √ | √ | √ |
| 6  | Client Charter                                    | √            | √ | √ | √ | √ | √ | √ | √ | √ |
| 7  | List of Services                                  | √            | √ | - | - | - | - | - | - | - |
| 8  | Contact Information i.e. tel. no, fax, email add. | √            | √ | - | √ | √ | √ | √ | √ | √ |
| 9  | FAQ   | √            | √ | - | - | √ | - | - | √ | √ |
| 10 | Disclaimer  | √            | √ | √ | √ | √ | √ | √ | √ | √ |
| 11 | Privacy statement                                 | √            | √ | √ | √ | √ | √ | √ | √ | √ |
| 12 | Security policy                                   | √            | √ | √ | √ | √ | √ | √ | √ | √ |
| 13 | Feedback facilities for users                     | √            | √ | - | - | - | √ | - | - | - |
| 14 | Expiry function                                   | √            | - | - | - | - | - | - | - | - |

|          |   |    |    |   |   |   |   |   |   |   |
|----------|---|----|----|---|---|---|---|---|---|---|
| 15       | Downloads   | √  | √  | √ | √ | √ | √ | √ | √ | √ |
| 16       | Bilingual   | 8  | 2  | 1 | 2 | 1 | - | - | 1 | 1 |
| 17       | Links   | √  | √  | - | √ | √ | √ | - | √ | √ |
| 18       | MSC Logo  | √  | √  | - | √ | √ | √ | - | √ | √ |
| 19       | Site Map  | √  | √  | √ | √ | √ | √ | √ | √ | √ |
| 20       | Use of .my.Gov domain                                       | √  | √  | √ | - | - | √ | √ | - | - |
| 21       | Copyright statement   | √  | √  | √ | √ | √ | √ | √ | √ | √ |
| <b>B</b> | <b>ADDITIONAL CRITERIA</b>                                  |    |    |   |   |   |   |   |   |   |
| 1.       | Video clip  | √  | -  | - | - | - | - | - | - | - |
| 2.       | Audio clip  | √  | -  | - | - | - | - | - | - | - |
| 3        | Support link  | √  | -  | - | - | - | - | - | - | - |
| 4        | 'Cookies' support   | √  | -  | - | - | - | - | - | - | - |
| 5        | WWW Consortium (W3C) facilities                             | √  | √  | - | - | - | - | - | - | - |
| <b>C</b> | <b>ADDITIONAL FUNCTIONS</b>                                 |    |    |   |   |   |   |   |   |   |
| 1        | 'Darjah Kebesaran' website                                  | √  | -  | - | - | - | √ | - | - | - |
| 2        | Community Service   | √  | -  | - | - | - | √ | - | - | - |
| 3        | Convention Video Arch.                                      | √  | -  | - | - | - | √ | - | - | - |
| 4        | Links to newspapers   | √  | -  | - | - | - | √ | - | - | - |
| 5        | General Info (e.g. Health, state, investment, tourism, etc) | √  | -  | - | - | - | √ | - | - | - |
| 6        | Additional Links to other services                          | 14 | 22 | - | 6 | 9 | 8 | 5 | 7 | 4 |
| 7        | Service Quality poll  | √  | √  | - | √ | - | - | - | √ | √ |
| 8.       | Visitors counter  | √  | √  | - | √ | √ | √ | √ | √ | √ |
| 9.       | Announcement  | √  | √  | √ | - | √ | √ | √ | - | √ |
| 10       | TV  | √  | -  | - | - | - | √ | - | - | - |
| 11.      | Flickr, Twitter, Facebook                                   | √  | -  | - | - | - | - | - | - | - |
| 12       | One-Stop Crisis Centre                                      | √  | -  | - | - | - | - | - | - | - |

**Legend for Table 2**

|   |   |
|---|---|
| 1 | <i>Pahang State Secretariat</i>               |
| 2 | <i>Pahang Treasury and Finance Department</i> |
| 3 | <i>State Public Service Commission</i>        |
| 4 | <i>State Public Works Department</i>          |
| 5 | <i>State Forestry Department</i>              |
| 6 | <i>State Veterinarian Service Department</i>  |
| 7 | <i>State Agriculture Department</i>           |
| 8 | <i>State Land and Mines Department</i>        |

Tables 1 and 2 show the criteria provided by MAMPU as the guidelines for all government agencies. These guidelines were given to ensure government agencies compliance with a standardised set of criteria. The website which conformed to the criteria stipulated by MAMPU was marked with “√” while a “-” (hyphen) indicating non compliance. Tables 1 and 2 show that most of the websites had fulfilled the first part of the guidelines which is Section A, but all of the websites failed to conform to Sections B and C.

## VI. DISCUSSION

Pahang e-government is more towards the third stage of the UN-DEPA maturity model. 16 websites analysed had 100% fulfilled the first-stage requirement that is the existence of static information of a website, 68.8% were at the second stage as they had the characteristics of constant and consistent updating of the information posted on the website. 81.3% were at the third stage as the websites had a

certain level of interaction. Even though they had reached this level of interactivity, the service however, was only for downloading of forms such as complaint, suggestions, enactment, and several other related forms. Unfortunately, the forms could not be submitted online. Instead they had to be printed out, filled in and sent via hand or postal mail. Furthermore, only 23.1% of the websites had fulfilled the criteria listed in the MAMPU guidelines. Online criteria such as job, license or other application forms were not provided by many websites. One department offered an online job application, while another offered an online renewal of license. In addition, two departments offered an online tender application feature; however, the tender form cannot be submitted online. The other 76.9% did not have such features at all.

One possible explanation to this was the webmaster's lack of awareness or commitment towards the job requirements or responsibilities (Wade and Parent, 2002) to develop a citizen-centric online delivery service to serve the needs of the 'rakyat' (Wang et al., 2005). However, this will not be an issue, if the top management at the respective departments provide strong supports and encouragement to them. The top management supports are seen crucial as they could be in the form of budget, training and awareness to the webmaster's needs and requirements (Reffat, 2006).

Lastly, only 7.7% of the 16 websites reached the final stage of the maturity model.

E-government gives citizens the choice to access the government information and services at their expense anytime, anywhere. This in the end increases the usage of electronics and information technology (for example Kumar et al., 2007; Titah & Barki, 2006). As e-government online service delivery system initiatives are expected to increase, Pahang state government must also move forward in providing a higher level e-government practice to allow citizens to seek public services at their own convenience and not just when the government office is opened (8:00am-5:00pm) (West, 2002). With the current development of infrastructure and facilities citizens are increasingly expecting government units to perform like commercial entities (Norshidah et al., 2007; Reffat, 2006) thus, government should provide citizens with personalised services; make all information and services available from a single integrated source.

Through a single access point (one-stop portal), citizens can communicate their expectations and needs to the government more effectively and efficiently, hence, reinforcing their participation in the local community life (Reffat, 2006). It is extremely important to address these expectations in order to improve relationship between public agencies and citizens (Grönlund, 2005).

## VII. CONCLUSION

Pahang state government should take into consideration all aspects of e-government, namely; critical success factors, risks, obstacles, reliability, success and maturity level to work and improve its e-government so that it will lead to a comprehensive successful electronic government (Abhicandani and Horan, 2006) in fulfilling the NEM second pillar and also the GTP as the federal government has invested huge funding in promoting e government as well as meeting the objectives of MSC Malaysia Pahang. These reasons should provide the public sector the

basis to keep up with the current maturity level of the top ranking public websites if not the private sector itself.

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