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Analysis of Selected Country of OSI Performance: How Malaysia Can Improve the UN Ranking

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Abstract

The online services index is one of three components of the United Nations e-government development index. It attempts to capture a country's performance in a single internationally-comparable value using a four-stage model of online service maturity. The summary of selected countries that had overtaken Malaysia in the past 10 years had been analyst. These countries (UAE, Serbia, Malta, Spain and Saudi Arabia) have the most drastic changes to their online services that overtook Malaysia in the last 10 years. This study had found gaps and areas for improvement while gaining insights from international best practices that have enabled other governments to surge ahead. The result shows that multiple languages, transaction, social media Tools, Link to Ministries, download document, facilities to check insurances coverage, single citizen log in before accessing facilities by ministry, notification of official event/new thru text and video, display statistics for visitor, provide ebook reader, display map of ministry office for visitor point of reference, provide opinion by citizen to different ministry, provide e-participation, place to display ministry publication list, smart phone application and follow up application electronically were found to effect OSI performance these five countries.

Keywords: E-Government; Ranking; United nation; Digital index; OSI.

1. Introduction

In the era of the digital economy, Malaysia's public sector is migrating towards a digital government to ensure a holistic national digital transformation (Deka *et al.*, 2012). In 2015, Malaysia's Digital Government has started to move towards what can be referred to as e-Gov 3.0 where the use of online services in the public sector has taken an upward trend geared towards generating economic and other opportunities by driving the public towards greater participation in the digital realm (Rizqa *et al.*, 2016). During the initial phase e-Government implementation in Malaysia, businesses and citizens accessed government websites for the purpose of obtaining information (Jeff *et al.*, 2014; Jungtinių, 2014; MAMPU and Dan, 2017).

Today, the government has progressed to digital transformation where public sector online services came with the ability to conduct transactions in a Government-to-Citizen (G2C) manner (Bhattacharya *et al.*, 2012; Jonathan *et al.*, 2014; Norris and Reddick, 2013). However, Malaysia's standing from the international best practices in the online services in the last decade has not been encouraging. In terms of the online services Index (OSI), Malaysia was ranked 42 out of 193 federal governments surveyed in the UN e-Government Development Index, 2016 (Table 1.1). Of particular concern was the consecutive decline in the performance of the OSI since 2010 from 16th position in 2010, to 20th in 2012, 33rd in 2014, and the latest down to 42nd in 2016 (UN E-Government Survey, 2016).

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Table-1.1. Malaysia's EGDI and OSI Ranking

Year	EGDI_ Rank	EGDI	OSI_ Rank	OSI	OSI_ Change	EGDI_ Change
2005	43	0.57057	40	0.57692		-1
2008	34	0.6063	18	0.67558	22	9
2010	32	0.61014	16	0.63174	2	2
2012	40	0.67031	20	0.79084	-4	-8
2014	52	0.61152	33	0.67716	-13	-12
2016	60	0.61749	42	0.71739	-9	-8

This study therefore attempts to identify gaps and areas for improvement while gaining insights from international best practices that have enabled other governments to surge ahead. In particular it will be interesting to see what those countries that by-passed Malaysia in the last 10 years are doing that have enabled them to offer much superior e-Government services. The enhancement of digital government is reliant on the online services provided by the public sector since they represent the touch point between the government and the people. The top ranked digital governments on the UN's list such as the UK, Australia, Singapore, Canada and Finland (top-5) provide online services that meet the demands and expectations of their respective citizens and business users (UN E-Government Survey, 2016).

2. Literature Review

E-government has been an emerging trend in recent decades, inviting interest from policy makers, bureaucrats, citizens, and public administration researchers (Al-Khouri, 2012; Alshomrani, 2012; Fesenko and Fesenko, 2016; Jonathan *et al.*, 2014; Kalampokis *et al.*, 2011; Keretho *et al.*, 2015; Nguyen, 2014; Rana *et al.*, 2012; Rorissa *et al.*, 2011; Verkijika and De Wet, 2018; Villaseñor-García and Puron-Cid, 2017) E-government has a significant impact on the performance of public sector as a result continuous growth has been seen in the e-governments development around the world since last two decades. The development of e-government services increases the performance of the public sector by using ICT to deliver information to citizens, businesses, and public agencies (Irani and Ghoneim, 2007).

2.1. Defining e-Government

To initiate this comparative analysis on e-governments in Russia and China, it is imperative to define what it is. There are several definitions of e-government that are prevalent: Some are presented by government and consultancy firms, while others are published in academic articles (Goel, Dwivedi, & Sherry, 2012). Authors will review these definitions and the distinctions between them.

The World Bank defines e-government as:

. . . the use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. The resulting benefits can be less corruption, increased transparency, greater conve- nience, revenue growth, and/or cost reductions.

("Definition of E-government, 2007)

Grant and Chau (2005) present another definition of e-government, stressing its technological functions:

A broad-based transformation initiative enabled by levering the capabilities of information and communication technology: (1) to develop and deliver high quality, seamless, and integrated public services; (2) to enable effective constituent relationship management; and (3) to support the economic and social development goals.

2.2. Performance and Ranking

The technique for determining the steps to be taken in analysis and compare Malaysia online e-government services with Spain, Saudi Arabia, Malta, Serbia and UAE is the gap. A well-defined structured approach is required to make assessment and suggests recommendations for future Digital Services in Malaysia that could address the problems related to the decline in the country's online services ranking.

According to Jonathan *et al.* (2014), investigates the e-government position in Nigeria and compares it with that of South Korea. The study used the e-Government survey reports carried out by the UN for the period covering 2008 to 2014. The results present lessons learnt from South Korea and the measures Nigeria needs to put in place in order to improve their ranking in the periodic review.

While Cooley (2017), in his article track and analyse inception and evolution of e-government systems in Russia and China. Authors also utilized the UN e-government survey to compare various dimensions of e-government over eleven years. The findings indicate that although both countries achieved high levels of e-government development,

marked by a high level of availability and integration of e-government services, both Russia and China came short of reaching e-democracy, the highest level of e-government, which inherently promotes e-participation

Another article discussed about E-government development scenario in Saudi Arabia and compares it with the USA. The study is based on the e-government survey reports conducted by the United Nations between 2003 and 2010. From the experience of USA e-government, this report gave some critical remarks related to Saudi Arabia e-government. This study also gave suggestions and counter measures to improve e-government in Saudi Arabia (Alshomrani, 2012).

Other article examines the development of e-government in Romania and compares it with the other EU countries. The indicators comparison is based on the seven e-government survey reports performed by the United Nations between 2003 and 2014 on 193 countries. The conceptual framework of the survey expresses a holistic view of the e-government development index (EGDI) and has three main dimensions: online services availability, telecommunication infrastructure, and human resource capacity. The UN global e-government ranking was intended to offer a performance rating of national governments relative to one another. Romania is ranked as a high-EGDI (between 0.5 and 0.75) country in 2014 worldwide with and EGDI value of 0.56315. Otherwise, among the EU countries, Romania is one of the low-ranked countries regarding the e-government development index in all the seven surveys. There are many opportunities for high-EGDI and middle-EGDI countries to continue e-government development. Considering EU strategies, investments in IT infrastructure, in education, and continuous transformation in online public services, there can be a considerable improvement of e-government in Romania and the other EU countries as well. Keywords: (Otniel and Claudiu, 2015).

While Rorissa *et al.* (2011) in their paper, explain the strengths and limitations of six frameworks for computing e-Government indexes are assessed using both hypothetical data and data collected from 582 e-Government websites sponsored by 53 African countries. The frameworks compared include West's (2007a) foundational work and several variations designed to address its limitations. The alternative frameworks respond, in part, to the need for continuous assessment and reconsideration of generally recognized and regularly used frameworks.

According to past studies, there are several approaches for evaluation of e-government services in the literature. However this paper conducted an analysis to compare Malaysia online e-government services with Spain, Saudi Arabia, Malta, Serbia and UAE.

Martin Lněnička, Bulgaria, Malta and Poland are the other Member States with quite similar values. The most successful EU Member States were Cluster 1 in 2008, Cluster 1 in 2010 and Cluster 2 in 2012, and Denmark in 2014.

Renata and Martin (2016), in the context of the financial instruments of EU regional policy or the Digital Agenda, the groups of EU Member States with measured similarities in the clusters may be used to set new objectives and requirements for this funding period in terms of quality, openness and completeness.

3. Methodolgy

The OSI is calculated in light of the aggregate number of focuses scored by the nation (crude) less the most minimal aggregate conceivable focuses scored by a nation partitioned by the scope of aggregate score esteems for all nations (ie the most noteworthy less the least conceivable score). Contrasting the three primary EGDI segments as said in the previous, the OSI positioning is the best achieved by Malaysia, trailed by TII and HCI. Based on UN ranking, list of countries scores using R programming was set and five countries were selected that by-passed Malaysia over the most recent 10 years.

Figure-3.1. The four stages of online service development
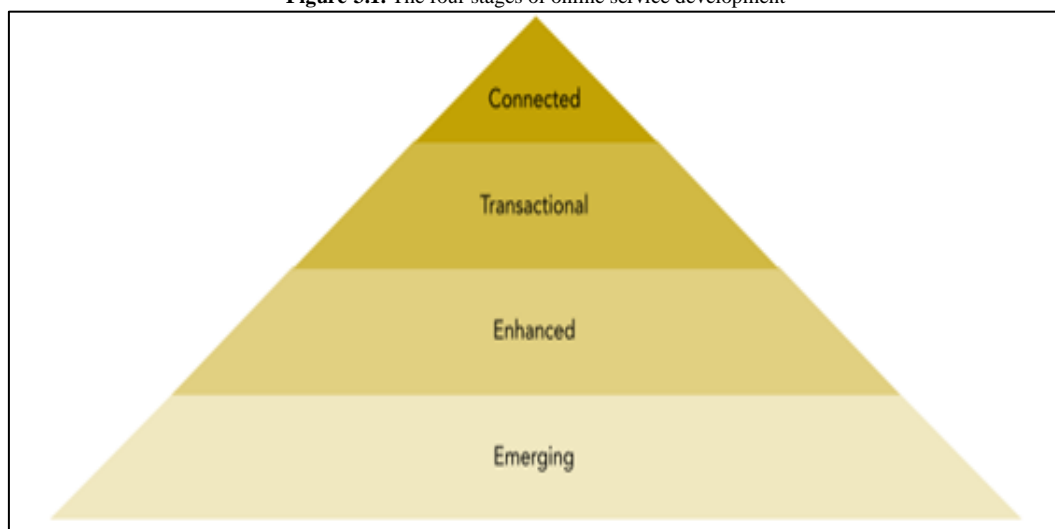
The analysis (Table 3.1) was conducted by examination to differentiate Malaysia online e-citizen driven associations and Spain, Saudi Arabia, Malta, Serbia and UAE. The examinations are coordinated differently using four stages of online service development (Alshomrani, 2012; Fesenko and Fesenko, 2016; Irani and Ghoneim,

2007; Jonathan *et al.,* 2014; Jungtiniŭ, 2014; Marane, 2012) (Figure 3.1) with five ministries; Ministry of Education, Ministry of Human Resource, Ministry of Health, Ministry of Finance and Ministry of Agriculture. Steps for website evaluation for this research was conducted as below:

(i) The 5 ministries were identified based on the assessment made by the UN in evaluating the UN-EGDI.

(ii) The R codes used is just a simple transformation from excel to csv files for each year of evaluation from 2005 till 2016.

(iii) Out of the 35 countries that overtook Malaysia in the past 10 years, researchers identified the most significant positive change in their ranking. The top 5 of these countries selected, ie these are the countries that have the most drastic changes to their online services that overtook Malaysia in the last 10 yrs. The reason is researchers believe that these countries have made significant improvement to their online services which Malaysia can emulate.

4. Analysis/Findings

To arrive at a set of Online Service Index values, qualified researchers from School of Computing, UUM in the field of computing assessed each selected country's national website in the native language, including the national portal, e-services portal and e-participation portal, as well as the websites of the related ministries of education, labour, social services, health, finance and environment as applicable.

The criteria used for measuring OSI were found to effect OSI performance for selected countries (Malta, Saudi Arabia, Serbia, Spanish and UAE) then analysed from the four stages of online service development (emerging, enhanced, transactional and connected). Five research members were requested to provide information for every country regarding their website addresses (URL) for different government ministries and the national portal(s). Information was also requested with regards to open government data, e-participation and the designated authority in charge of e-government policies.

One of the essential decisions for researchers when undertaking this Survey is to identify the specific site(s) to review as the national government site for each country. Regardless of the sophistication of e-government in a specific country, the priority for users is to find a clear indication as to which of the many potentially available government sites could be deemed as the "official" national government site in a sense, the gateway or starting point for national users. Not only is this fairly easy to do a simple, clear statement at the chosen website is sufficient to start but it is also an important step towards providing government information and services to the public in an integrated, usable and and easy-to-find manner

Table-3.1. The differentiate Malaysia online e-citizen driven associations and Spain, Saudi Arabia, Malta, Serbia and UAE

Stage 1	Stage 2	Stage 3	Stage 4
Basic & limited information. **The e-government online presence comprises:** **- a web page and /or an official website;** **-links to ministries/departments of education, health, social welfare, labor and finance may/may not exist;** **-links to regional/local government may/may not exist;** **Some archived information such as:** **-the head of states' message or** **-a document such as the constitution may be available on line,** **Most information remains static with the fewest options for citizens remains static with the fewest options for citizens.**	**The government provides:** **-**public policy and -governance sources of current; and **archived information, such as:** -policies, laws and regulation, reports, newsletters, and downloadable databases. The user can: -search for a document and there is a - help feature and -a site map provided. -A larger selection of public policy documents such as an e-government strategy, policy briefs on specific education or health issues. **Though more sophisticated, the interaction is still primarily Unidirectional with information flowing essentially from government to the citizen.**	**Allows two-way interaction between the citizen and his/her government**. - It includes options for paying taxes; applying for ID cards, birth certificates/passports, license renewals and other similar C2G interactions by allowing him/her to submit these online 24/7. **The citizens are able to** -pay for relevant public services, such as motor vehicle violation, taxes, fees for postal services through their credit, bank or debit card. **Providers of goods and services are able to** - bid online for public contacts via secure links.	**An integration of G2G, G2C and C2G (and reverse) interactions.** **The government encourages** -participatory deliberative decision-making and - is willing and able to involve the society in a two way open dialogue. **Through interactive features such as** -the web comment form, and innovative online consultation mechanisms, -the government actively solicits citizens' views on public policy, law making, and -democratic participatory decision making

5. Conclusion

This study had found gaps and areas for improvement while gaining insights from international best practices that have enabled other governments to surge ahead. In particular the study found how Malaysia can improve UN raking through investigating what those countries that by-passed Malaysia in the last 10 years are doing that have enabled them to offer much superior e-Government services. The criteria used for measuring OSI were found to

effect OSI performance for selected countries (Malta, Saudi Arabia, Serbia, Spanish and UAE) then analysed from the four stages of online service development (emerging, enhanced, transactional and connected).

As result, this paper suggests recommendations for future Digital Services implementation that could address the problems related to the decline in the country's online services ranking by making comparisons among selected countries that by-passed Malaysia in the last 10 years. Unique features were identified in the countries' official websites and portals that contribute significantly to the UN OSI evaluation criteria and contribute on how Malaysia can improve UN ranking:

i) Single citizen log in before accessing facilities by ministry
ii) Facilities to check insurances coverage
iii) Provide opinion by citizen to different ministry
iv) Provide E-participation
v) Place to display Ministry publication list
vi) Smart Phone application
vii) Notification of official event/new through text and video
viii) Display statistic for visitor
ix) Provide e-book reader
x) Display map of ministry office for visitor point of reference
xi) Follow up application electronically
xii) Money transaction

It is hope that these features can be included in the agencies' websites to improve their overall digital services and in turn addressed the shortcomings associated with Malaysia's decline in the OSI ranking.

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