THE STATE OF OPEN GOVERNMENT DATA IMPLEMENTATION IN MALAYSIA GOVERNMENT AGENCIES

NOOR HAZWANI MOHAMAD PUAD[1*], MOHD ADAM SUHAIMI[2], HUSNAYATI HUSSIN[3], NAJHAN MUHAMAD IBRAHIM[4]

[1234]*Department of Information System, International Islamic University of Malaysia, Kuala Lumpur, Malaysia*

*Corresponding author: hazwanipuad@gmail.com

ABSTRACT: The Malaysian Administrative Modernization and Management Planning Unit (MAMPU) aims to enhance the quality of datasets published on the portal towards the year 2022. Various activities have been conducted by MAMPU to raise the publics' awareness of OGD. This paper consists of a preliminary study where the authors focus on exploring the current state of OGD implementation in Malaysia and the issues surrounding it. The methods involved are interviews and documents research. According to this preliminary study, the current issues in OGD implementation are data sharing readiness, high impact and high value data insufficiency, laws, and regulations. These findings are taken from the perspective of the key players of OGD project in Malaysia and help to provide insights for the authors' future research.

KEY WORDS:　Pandemic; Digitalisation; Energy Services; integrated enterprise risk management [IERM]; Business model; Business Model Canvas [BMC].

1.　INTRODUCTION

Open government data (OGD) refers to the data accumulated by the government agencies through various methods such as a survey, census or private sector which later will be published through open data portal. On May 9, 2013, President Barrack Obama signed a memorandum that allows data from the government to be available to the public (White House, 2014). Making the government information available without any restrictions are expected to increase transparency and strengthen the trust between the government and its citizens, thus, will lead to better economic growth (Ruijer, Grimmerikhuijsen & Meijer, 2017; Gonzalez-Zapata & Heeks, 2015; Worthy, 2015; Zhang, Puron-Cid & Gil-Garcia, 2015).

Since the inception of the OGD initiatives, resistance by certain government agencies to OGD-driven transparency has become one of the major impediments to achieve a complete success (Zuiderwijk et. al, 2012). This is viewed as a barrier that must be overcome in order for OGD to reach its full potential. Other issues such as technical difficulties, policy or legal restrictions, financial problem and cultural inappropriate are among those barriers which limit the implementation of OGD in

certain countries (Attaed, Orlandi, Scerri & Auer, 2015). Another issue is the readiness in terms of technical and human capacity, security, and privacy, and lastly shortage of resources (Velhulst & Young, 2016).

Malaysia commenced its OGD initiative in 2014, as part of the big data initiative spearheaded by the central agency known as the Malaysia Administrative and Modernization Planning Unit (MAMPU). This initiative is part of the Digital Economy Transformation Program which was launched to align with the Malaysian government's national agenda. The primary goal of this program is to transition Malaysia to the digital economy. To that end, the big data has been identified as a key player in the 11th Malaysia Plan (Asia, 2014). MAMPU manages the open data portal which currently has over 12,000 datasets published.

The objective of this paper is twofold, to explore the current state of OGD implementation in Malaysia and the issues surrounding it. Although Malaysia has started their OGD initiatives since 2014, research on OGD is still scarce generally and very limited in number in the context of Malaysia. Despite the number of datasets uploaded is increasing, not many are known about its use and impact. As a result, this study attempts to fill this gap by attempting to comprehend the current state of OGD in Malaysia as well as the challenges that must be overcome in order for OGD to reach its full potential. The study was guided by the following research questions:

- What are the challenges faced by the government agencies in implementing OGD in Malaysia?

- How are those challenges being handled?

2. LITERATURE REVIEW

2.1. Open Government Data: Overview

Open government data (OGD) is the government data that has been collected and processed which can be accessed by public without any restriction (Zainal, Hussin & Nazri, 2019; Kalampokis, Tambouris, & Tarabanis, 2011). The USA and the World Bank were the first to launch their open data portal in 2009, followed by 20 other countries such as Austria, Brazil, Canada, Finland, Ireland, Japan, Italy, etc. (Mokobombang, Gutierrez & Petrova, 2019). Previous literatures have emphasized that the expectation of potential benefits from OGD has become a major factor in the decision to implement it (Liang, Liang, Li & Zhang, 2018; Jetzek, 2016; Susha, Gronlund & Janssen, 2015).

There are two related initiatives under the open government, namely open government data (OGD) and right to information (RTI). Both movements are under Freedom of Information (FOI) to improve government's transparency and accountability and at the same time improve citizen engagement which leads to better economic growth (Cruz & Lee, 2019; Afful-Dadzie & Afful-Dadzie, 2017). Aside from that, there are four (4) major factors associated with the government's decision to open their data to the public. The factors are (1) transparency and accountability, (2) citizen engagement, (3), innovation and economic growth, and (4) public value (Janssen, Yannis, & Anneke, 2012). The more data that is made available to the public, the more value can be produced to generate various types of knowledge (Ryan, Dane, & Beth, 2020; Janssen, Yannis, & Anneke, 2012).

Despite all the benefits received from the OGD implementation, there are also challenges and shortcomings that go along with it. Problems related to data quality, data format and their accessibility are the most common ones (Algemili, 2016; Zuiderwijk et. al, 2012). Other issue discovered is the use of unstructured data that is unsuitable to be used for Linked Open Data (LOD) (Wieczorkowski, 2019). This problem brings difficulties to the users. The researcher also found that the method used for OGD sharing is different between countries although most of them are using similar guidelines. Other shortcomings such as data granularity and the government readiness towards the OGD implementation were also mentioned by several researchers (Ahmad, 2020; Wang & Shepherd, 2020; Mustapa, Nasaruddin, & Hamid, 2019).

2.2. Open Government Data in Malaysia

Malaysia's performance in multiple global OGD evaluations has become a concern among the government agencies especially MAMPU. The results on these evaluations reflect on the country's achievement to show their readiness towards digital revolution. Table 1 shows Malaysia's ranking in different types of evaluations.

Table 1: Ranking of open government data evaluations (selected random Asian countries)

ODB 2016 (/115)		GODI 2016/2017 (/94)		ODIN 2020 (/187)		OBI 2019 (/118)	
5	Korea	1	Taiwan	1	Singapore	10	Philippines
22	Philippines	17	Singapore	6	Philippines	18	Indonesia
38	Indonesia	51	Thailand	11	Indonesia	29	South Korea
53	Malaysia	53	Philippines	23	Malaysia	30	Thailand
53	Thailand	61	Bangladesh	28	Vietnam	50	Afghanistan
74	Saudi Arabia	87	Malaysia	36	Thailand	55	Malaysia

Source: Ahmad (2020), Web Foundation (2017), Open Knowledge Foundation (2016), Open Data Watch (2020), International Budget Partnership (2020)

The OGD evaluations included in the table are Open Data Barometer (ODB), Global Open Data Index (GODI), Open Data Inventory (ODIN) and Open Budget Index (OBI). Based on the results, Malaysia was behind the Philippines, Singapore, and Indonesia, as well as many other developing countries. The Open Data Barometer (ODB) ranking is determined by three (3) criteria: (1) the government readiness for open data, (2) implementation to fulfil open data, and (3) the impact of open data on society (Web Foundation, 2018). Malaysia gained 53, 20, and 19 marks for the three criteria respectively. The second assessment is the Global Open Data Index (GODI), which measures the openness of government data in accordance with the open data definition (Open Knowledge Foundation, 2016). All data published must be accessible, and allowed to be shared by anyone and everyone without any restrictions. Malaysia ranked eighth from the bottom out of 94 places in the 2016/2017 GODI.

The third evaluation is Open Data Inventory (ODIN). This evaluation is designed to evaluate the coverage and openness of data published on the National Statistics Offices (NSO) website, Open Data Watch (2020). The data published in NSO must include twenty different categories to receive a perfect score. The categories are

divided into three (3) contexts which are (1) social statistics, (2) economic and financial statistics, and (3) environment statistics. Malaysia ranked 23rd out of 187 countries in the evaluation. The last evaluation is Open Budget Index (OBI) where the objective is to monitor the government spending using public resources, International Budget Partnership (2020). The scores are given in terms of budget transparency score. A score of 61 (out of 100) or higher indicates that a country is likely to publish enough material to support informed public debate on the budget. Malaysia received only 47 out of 100 scores for this evaluation and this shows that there is limited information published on the government expenditure.

On the other hand, according to Ahmad (2020), the OGD implementation in Malaysia is considered unsatisfactory among most of the researchers in Malaysia specifically related to the data published through open data portal. Most researchers agree that the data provided by the government are lacking in terms of completeness, timeliness, and granularity. These findings are aligned with another research by Mustapa, Nasaruddin, & Hamid (2019) where the researchers found data granularity as one of the issues in the OGD implementation among the public sectors. The three areas mentioned above, namely the data granularity, data timeliness and data completeness are the areas that need to be improved by the government to realize the full potential of OGD.

2.3. Research on Open Government Data in Malaysia

To the best of researchers' knowledge, there are very limited number of research done on the OGD implementation in the context of Malaysia. Table 2 shows the existing OGD study in the context of Malaysia.

Table 2: Review of open government literature and their main themes

Main Themes	Title	Authors
Challenges and issues in implementing OGD	Open Government Data: Principles, Benefits and Evaluations	Ahmad (2020)
	Exploring the Issues of Open Government Data Implementation in Malaysian Public Sectors	Mustapa, Nasaruddin, & Hamid (2019)
OGD usage and benefits	Open Government Data: Principles, Benefits and Evaluations	Ahmad (2020)
	Open Government Data Use by Malaysian Researchers	Zainal et. al (2019)
Policymaking	Infodemic in Malaysia: Scale, Scope and Policy Responses.	Harris & Farlina (2020)
OGD model and framework	Towards a Research Model of Post-adoption of Open Government Data in Malaysia's Public Sector	Mustapa, Nasaruddin & Hamid (2020

A Trust-Based Conceptual Framework on Open Government Data Potential Use	Zainal, Hussin & Nazri (2018)

3. METHODOLOGY

This study employs a semi-structured interview as a data collection method. The researchers conducted a face-to-face interview with the OGD project enabler at Malaysia Administrative Modernization and Management Planning Unit (MAMPU). The interviewees are responsible in the development of the OGD project in Malaysia. Through the semi-structured interview technique, the researchers were able to adapt their questioning to the respondent's understanding of the topic under discussion. The aims of this study were explained before the interview started. The researchers were able to probe and clarify responses in relation to the dimensions of the research topic because the questions were not fixed. The interview lasted between 30 and 40 minutes. With the interviewees' permissions, the interview was also digitally recorded. The interview transcription was later analyzed using the thematic analysis where the findings are divided into three (3) different categories as discussed in the next section.

4. FINDINGS AND DISCUSSIONS

The findings from the semi-structured interview are divided into three (3) categories, namely (1) challenges and barriers, (2) roles of MAMPU, and (3) OGD initiatives and then compared with the findings from the previous studies related to OGD.

4.1. Challenges and Barriers

4.1.1. Challenges faced in getting and preparing data for OGD implementation

The government agencies' readiness has been mentioned as one of the challenges in the OGD implementation. This issue appears when some of the agencies are doubtful about showing all those data to the public. They are also uncertain about how the OGD initiative can bring benefits to society. Moreover, they are having difficulties to meet the requirement set by MAMPU regarding the format and the types of data that can be published. This finding is parallel with Mustapa, Nasaruddin & Hamid (2019) who stated that being required to participate in the OGD initiative is an additional burden on top of their existing responsibilities. This is due to the fact that they must revise the data in accordance with the guidelines prior to the publishing process. All data published must meet the purposes which enable the public to use, reuse, and redistribute.

High impact and high value data are data that have potential to generate economic growth, give benefits to different types of business owner from small to medium size enterprises (SMEs), assist in generating revenues, and able to be combined with other datasets (Directive, 2014). Lack of valuable data occurred when the data published are not detailed enough for the users that require the data such as entrepreneurs. For example, an entrepreneur does not have to hire any market survey services to open a new business at a new location if the data published under census are detailed. OGD should be able to help entrepreneurs in

reducing the cost of running a business and shorten the gap between large organizations and SMEs.

Another issue discovered from the interview is data quality. The issue of data quality has always been the main concern since the initiatives of OGD in Malaysia started. Data quality in this context refers to the format and completeness of the data published. Despite there is a clear directive from the government that the agencies should follow the data quality criteria from the World Consortium, the quality of the datasets is still unsatisfactory. In this regard, currently MAMPU is focusing on improving the data quality instead of the quantity. Towards 2025, MAMPU is targeting to excel in publishing high impact and high value data. This issue is consistent with Beno, Figi, Umbrich & Polleres (2017) which the researchers found data quality as one of the biggest barriers in the OGD implementation. A lot of the data published are not machine-readable, thus, to use, reuse and redistribute the data are extremely difficult for the users.

4.1.2. Barriers to sharing data among government agencies

The regulations and acts barriers are related to the existing policies on data sharing and licenses. Many agencies are still uncertain regarding the type of data that can be published. There are two types of regulations and acts regarding data sharing in Malaysia, namely Personal Data Protection Act (PDPA) and Official Secrecy Act (OSA). PDPA provides protection in terms of the collection, use, and disclosure of personal data specifically in private sectors and does not apply in the government agencies. For the government agencies, most of their data are restricted under OSA, but not all the data. According to Mustapa, Nasaruddin & Hamid (2019), due to the confusion between these two acts, many government agencies are unsure about the categories of data that can be published.

4.1.3. Challenges faced in maintaining data quality

To maintain the quality of the data published in the portal, a regular monitoring by the responsible person is necessary. As Malaysia is moving towards digitalization, MAMPU has initiated various types of programs that require each of the government agencies to take part. This has become an issue as there are not enough manpower to handle these initiatives specifically. Therefore, in this OGD case, the person in charge mostly needs to juggle between tasks. The regular monitoring by a directed person is crucial to ensure that the data published are well structured, clean, and timely. This is also important to ensure all data published comply with proper open data policies.

4.2. Roles of MAMPU

The Malaysian Administrative Modernization and Management Planning Unit (MAMPU) is the key player for the OGD initiatives in Malaysia. In 2014, MAMPU, in collaboration with Malaysia Digital Economy Corporation (MDEC) successfully launched the open data portal *(data.gov.my).* This portal is a platform to exchange data among the government agencies. Two major roles in the OGD project are data champion and data stewards. Data champions involve the senior officers of ministries/PSUK with the position of Chief Information Officer (CIO). They are responsible to ensure that the OGD initiatives are successfully implemented at the ministry/PSUK level. Meanwhile, data stewards involve the senior officers of

ministries/PSUK. They are responsible to upload the datasets before they are approved by the open data administrators at MAMPU.

MAMPU also developed *Perlaksanaan Data Terbuka Sektor Awam Pekeliling Am Bil. 1/2015* to ensure a successful implementation of OGD. This guideline consists of instructions, regulations and guidelines that must be obliged by the government agencies. Furthermore, all those guidelines provided are intended to improve the quality of the datasets published on the portal. All data published should include economic, social and environment that give positive impacts towards society.

Other than that, MAMPU is responsible in providing a training and coaching session for data stewards from each ministry. Since 2015, MAMPU has been conducting various engagement sessions to increase awareness and understanding regarding the OGD implementation among them. This training also aims to sharpen the stewards' skills in producing high quality data, thus enhancing the government service delivery system. In 2018, a total of six (6) engagement sessions, 61 coaching sessions and ten (10) meet and greet sessions have been conducted. All these sessions involved data champions and data stewards from each ministry and PSUK.

4.3. OGD Initiatives

MAMPU conducted various programs and competitions to bring awareness about OGD among the citizens. The program that received the most attention was the Open Data Hackhaton Program. The Open Data Hackathon Program is an annual event organized by MAMPU since 2015. It serves as a platform for the development of creative, high quality, and innovative applications / data products that will affect the delivery of public services and the lives of citizens. This competition is open to all Malaysians either individually or in groups and no entry fee is charged. The applications / data products must be developed using the open datasets available in the Open Data Portal (www.data.gov.my) in addition to using data from other sources. Cash prizes and certificates of appreciation are awarded for each winner category. In 2019, all Ministries were required to participate in the Open Data Hackathon Competition in order to promote the use of open data in the development of innovative applications / products.

Another initiative taken was the development of open data guidelines. As mentioned above, the guidelines consist of certain regulations that must be followed by the government agencies in implementing the government ICT services development. The guidelines also provide clear roles and responsibilities of the parties responsible for managing, administering, and implementing the development of the government ICT services. The government agencies are required to comply with the established acts, policies, and regulations to ensure confidentiality, integrity, and availability of government information using digital technology.

In 2019, MAMPU collaborated with Hacks/Hackers Kuala Lumpur and Google Malaysia to organize the 2019 Malaysia Open Data User Group (MODUG). MODUG was organized as a platform to share knowledge and exchange of ideas to further strengthen the implementation of open data. MODUG is a vehicle to obtain feedback from the community and citizens on the type of data they need from the

government. This program brings together the data owners, such as the government agencies (supply) and the data users (demand) which comprise the community, reporters, academia, non-governmental organizations (NGOs), start-up companies and the media.

4.4. Table of Summary of the Findings

Table 3: Summary of the findings

	Context	Challenges and Barriers
Challenges and Barriers	Challenges Faced in Getting and Preparing Data for OGD Implementation	• Readiness • Lack of high impact and high value data • Data Quality
	Barriers to Sharing Data Among Government Agencies	• Regulation and act
	Challenges Faced in Maintaining Data Quality	• Regular monitor
Roles of MAMPU	Roles of MAMPU in OGD Implementation	• Provide open data platform • Ensuring data quality • Provide guidelines on data sharing • Provide training and coaching session
OGD Initiatives	Initiatives	• Hackhaton • Create Open Data Guidelines • Malaysia Open Data User Group (MODUG)

5. CONCLUSION

This study is developed to understand the status of OGD implementation in Malaysia, and the issues surrounding it. The challenges and barriers found include the readiness, lack of high impact and high value data, data quality, regulations and acts, and regular monitoring. Other findings discovered from this study are the roles of MAMPU and the initiatives taken in the OGD implementation. MAMPU is responsible to provide an open data platform, ensure data quality, and provide guidelines and coaching sessions for both data champions and data stewards. There are many initiatives taken by the government to ensure the successful implementation of OGD such as conducting Hackhaton, creating Open Data Guidelines, and conducting Malaysia Open Data User Group (MODUG). Due to the lack of empirical insights, this study acknowledges the limitation of being able to generalize the findings. Therefore, the future task is to conduct an empirical investigation among the government agencies, the data provider in Malaysia.

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