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Evaluating of Open and One Data in Digital Government Services Implementation: A Literature Study

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Abstract. The Digital Government Open and One Data is a concept where citizens have the right to access open and one data services, information, and practices generated by the government. This concept has driven many countries to implement Open and One Government Data (O2GD). It is critically to assess the implementation of Open and One Government Data to make this implementation better in the future and meet the goal, which gives citizens free access to public data without restriction. This paper conducted by systematic literature review. This study focused on investigating the domains used to evaluate the implementation of O2GD. This study using literature review methods from the digital library in 2014-2020. The result of the study shows that there are seven main dimensions to evaluate the implementation of O2GD which are quality of data, benefit, public value, data infrastructures, people and organization, policy and regulation, application and services.

Keyword: Digital Government, Open Government, One Data, Services Implementation.

1. Introduction

Nowadays, with the digital innovation of technology, most countries all over the world adjust to open themselves by implementing Open and One Government Data (O2GD)[1], [2]. The point of Open and One Government Data (O2GD) is that the public or citizen has the right to access data, information transparency, one-stop services, and practices generated by the government. Answering to the recognition of the rights of peoples, governments across the world have embraced the principle of OOG, including five key components: openness, participation, one-stop services, integrated and collaboration. The digital government requires Open Data (OD) as a precondition and enabler[3]. The open implementation government drives many countries to implement Open and One Government data (O2GD). The Open and One Government Data (O2GD) movement is a worldwide phenomenon[4]. An Open and One Government data is to enable citizens and allow them to have public data services for free without restriction[5]. O2GD has become key rules to our information technology-based society. O2GD can improve the government's trust, accountability and transparency by enabling higher citizen engagement and monitoring data effectively and efficiently[6].

The success of O2GD hinges on its public services availability, quality of data, security policy, and platform functions [2]. To know whether the implementation of O2GD successful or not, it is needed to assess it with assessment model[5]. Besides that, Brito, et all[7] also stated the significant investments made both by the governments of many countries and by broader society for the development of O2GD initiatives make it necessary to evaluate them systematically in order to understand better and evaluation the various types of value they generate, as well as to identify the requires improvements for increasing this value. Nevertheless, until now, the open and one data evaluation framework is still developing in various literature[8] and the approaches to the problem in literature lack of a comprehensive conceptual framework[9]. This study conducted with a systematic



review method. The paper is structured as follows section 2 showed theoretical background, section 3 showed methodology, section 4 showed the result, and section 5 is the conclusion of this study.

2. Material and Methods

2.1. Open and One Government

Based on OECD, Open and One Government [10] is transparent from government actions, access to service and information from government, as well as government responsiveness towards new ideas, requests, and needs. Ojeda [11], defined open and one data as the strategy that countries are taking to restore the trust of citizens in public institutions and eradicate scourges as lethal as corruption, social exclusion, the base of poverty, and the weakness of the state.

2.2. Open Data

The open data (OD) are publicly available datasets published under an open license, allowing everyone to freely use, modify, and share them for any purpose [12]. In [13] explained that OD is machine-readable data that can be used, reused, and redistributed by anyone, anytime and anywhere.

2.3. One Government Data

One and open data concept is a working philosophy that enables citizens to have integrated into public data without any restriction and one-stop public administration [10]. The citizens can freely use, store, redistribute, and integrate data that is generated by public institutions [5]. Parycek, et al (2013) stated O2GD in itself not only the publication date but also include citizen's engagement to improve government performance and mechanism for monitoring. O2GD will show an important future role to make administration more open and accountable, reducing costs while increasing effectiveness, fuel the economic system while equalizing public imbalances. UN Public Administration Programme describes O2GD as a process where governments produce and maintain vast amounts of data. Except for personal data and data that is sensitive for national security, most of the government data can be opened for public reuse following O2GD principles.

3. Result and Discussion

3.1 Systematic Review

This research is conducted with a systematic literature review method adopted from Kitchenham Method [14]. A systematic review is a means of identifying, evaluating and interpreting all available research relevant to a particular research question, or topic area, or phenomenon of interest [11].

3.2 Research Question

The objectives of this study are to investigate what domains mostly used to evaluate or assess the implementation of Open and One Government Data. Therefore, our research question is what domains or dimensions, criteria or indicators used to evaluate the implementation of Open and One Government Data?

3.3 Article Selection Process

The procedures we undertake to select article are: define keywords, define inclusion and exclusion criteria, define digital libraries and search defined keywords, filtering article from abstract, and filtering from full text. In order to answer the research question, we decided to search an article from four digital libraries, namely are Science Direct, ACM Digital Library, IEEE Xplore and Proquest. The process of searching and selecting articles from digital libraries shown in figure 1 as follows:

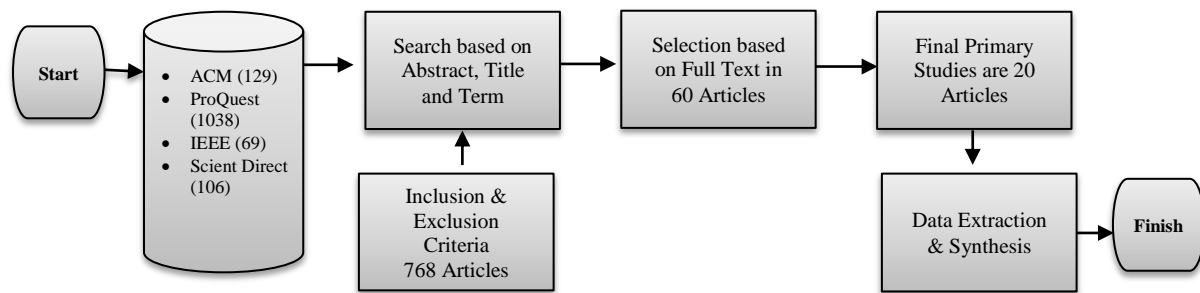


Figure 1. Search and Selection Protocol

The inclusion criteria to search article from digital libraries are the article must be published from the year 2014 to 2020 and presented in English. While, the exclusion criteria are not presented in English and not discussed measurement, evaluation, or evaluate Open and One Government data.

The following are the keywords population we used to search article:

1. "Evaluate open and one government data."
2. "Open and one government data evaluation."
3. "Open and one government data."
4. "Open and one government data evaluation" and "Implementation."

The search term constructed above was searching all words contain with the term in abstract, title, and keywords. To narrow down the searching result, we use the term "OR" and "And" using the advanced searching option.

1) Article Selection

The article selection process included selection abstract, title, and keyword at first. After removing all double article, article which not discussed evaluating Open and One Government data implementation, not presented in English, and cannot answer the research question, we conducted article selection based on full text, and we got 20 final articles used to synthesise as shown in figure 1.

2) Study Characteristics

After completing all selection process, then we do study characteristics. As show in Table 1, the study characteristics are including the type of paper, the context of the evaluation of Open and One Government data, and publication year.

Table 1. Type of Publications

Data Extraction	Distributions	Number
Type of paper	Conference Proceedings	10
	Journal Article	8
Context of Open and One Government Data	Evaluation of One Data	15
	Evaluation of Open Data	15
Publication year	2014	4
	2015	2
	2016	4
	2017	3
	2018	4
	2019	2
	2020	1

3) Dimension On Evaluation

This section discusses the results obtained from the selected 20 primary studies. It concluded that most researchers conducted quality data research to evaluate implementation of O2GD. The analysis focuses on answering the research question about the dimension used to evaluate O2GD. The analysis was done by investigating dimension and indicator or criteria used by the researcher. Figure 2 shows the results of an individual study which contains list of dimension and indicator used to evaluate the implementation of O2GD.

In figure 2 described data extraction from 20 primary studies using systematic review protocol. The result of data extraction dan synthesis are seven dimensions of O2GD are included: Data Quality, Benefit, Public Value, Data Infrastructures, People and Organization, Policy & Regulation, Application & Services. Majority of dimension from the primary study of five articles disclosed dimensions of data quality as the first and most mentions dimension, four articles describing the Application & Services dimension, four articles showing Policies & Regulations, four articles showing Data Infrastructure, two articles defining Public Value, and the last article of the main study defining the Benefit aspect or dimensions in O2DG.

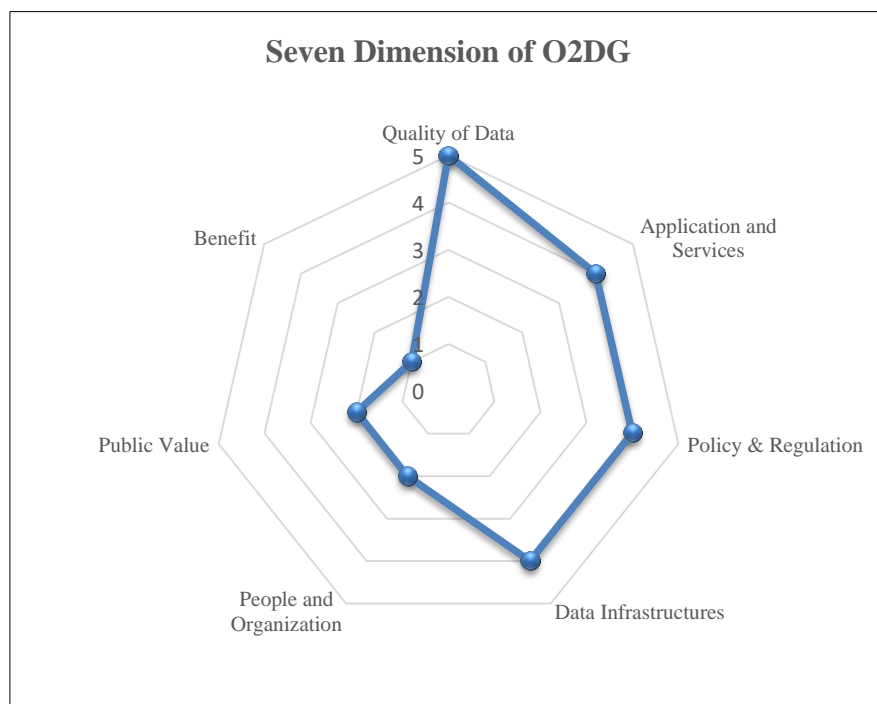


Figure 2. Seven Dimensions from Primary Study in O2DG.

4. Discussion of The Result

According to the systematic review that has been done, the evaluation or assessment of the implementation of Open and One Government Data covers many aspects. The most widely conducted is about data quality. Besides that, the evaluation also conducted user acceptance, benefit perceived and also data openness and transparency. Many models, aspects, dimensions and indicators used to evaluate the implementation of O2GD, as showed in Table 1. These aspects, dimensions and indicators can be synthesized and simplified by categorizing the same indicator used in the model. The result of synthesizing and simplifying shown in Table 2. Moreover, there are seven dimensions have identified in this study, namely: Data Quality [6],[9],[15],[16], Benefit[17], Public Value [2],[18],

Data Infrastructures [19], [20], People and Organization [21], [12], [22] and the last one is Policy & Regulation [2], [16]. Each dimension has the criteria, as mentioned in the criteria's in Table 2.

Table 2. Synthesis of Dimension and Criteria To Evaluate O2GD

Dimension	Criteria
Data Quality [6], [9], [15], [16]	Accessibility, Compliance, Accuracy, Completeness, Consistency, Precision, Correctness, Credibility, Understandability, Expiration/Timely, Primary, License-free, Non-Discriminatory, Machine Processable, Non-Proprietary, Granularity, Accountability, Contact Information.
Benefit [17]	Perceive Usefulness, Perceive Of Use, Intention To Use, Demographic, Usability, Personal Impression, User Satisfaction, Needs, Value Realized, Economic Benefit, Organizational Benefit.
Public Value [2],[18]	Accountability , Transparency, Citizen Participation, Equity in accessibility, Trust, Self-development, Quality of life, Environment sustainability, Future behavior
Data Infrastructures [19], [20]	Data Provision Capabilities, Data search and download capabilities, Ease of use, Support for achieving provider level objectives, User-level feedback capabilities, Provider-level feedback capabilities, Performance, Data processing capabilities, Support for achieving user level objectives, Data upload capabilities, Technology Infrastructure, Security, Enterprise Architecture, Value and Useful.
People and Organization [21], [12], [22]	Personal capabilities, Participation, User, Organization and Knowledge Sharing
Policy & Regulation [2], [16]	Policy and Plan, Law and Regulation

5. Conclusions and Future Work

The goal of Open and One Government consists of five aspects, namely are transparency, collaboration, one-stop services, integrated and participation of citizens. O2GD has been a worldwide phenomenon and has implemented in many countries. It is important to evaluate the implementation of O2GD. The objective of the evaluation result is to make a better improvement in the future.

In this study, we give an overview of the dimensions and aspects evaluated related to the implementation of O2GD. The result of this study shows that there are seven main dimensions to evaluate the implementation of O2GD, which are quality of data, benefit, public value, data infrastructures, people and organization, policy and regulation, application and services. This study suggests conducting empirical research to validate the correlation between the dimension of the result in this study.

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