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Citizen Engagement in Open Data Movement in Indonesia:Challanges and Impacts

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Abtract—This article examines the involvement of citizens in Open Data (OD) movement. OD, as information that can be freely accessed by anyone, and for use, reuse, and redistribution by anyone, aims to make citizens can actively participate in processing it for their own interests and to participate in governance of government. "For Improved Governance & Citizen Engagement" is one of the principles of Open Data which is an idea that reflects the paradigm of New Public Services (NPS) or New Public Governance (NPG) which emphasizes the importance of citizen involvement in public administration. Based on Open Data Barometer report, Indonesia has a level of readiness that is good enough to implement data disclosure, among other Southeast Asian countries. Indonesia has started this project since 2012 with a pilot project in three regional governments namely DKI Jakarta Province, Bojonegoro Regency, and Bandung Municipality. The research was based on the issue that OD in its implementation has not been running effectively due to various obstacles, for example, according to a report from UKP4 (Presidential Work Unit for Development Supervision and Control, now called KSP/Presidential Staff Office): the coordination mechanism is unclear, non-optimal communication, many doors for data requests, and no data harmonization mechanism. Based on these problems central government encouraged regional governments to implement OD with four strategic stages that must be done, namely: early engagement, capacity development, implementing Open Government Data, and sustaining stages. This article describes those four stages and how citizens get involved at every stage, and the chalanges and impacts of this movement.

Keywords: Open Data, Citizen Engagement, Public Information Disclosure.

I. INTRODUCTION

In the era of Penta Helix, the colaboration of five elements, which consists of the government, society or community, academics, entrepreneurs, and the media, is strengthened to build a power in development of a country. The acceleration of development cannot be done by one party. As the common English expression, the more the merrier, the more people the better everything will be.

The principle of "For Improved Governance & Citizen Engagement" signifies the revival of social capital emerged by Open Data movement. It means that citizens play an important role in advocating and helping to make public institutions more transparent, accountable and effective, as well as contributing innovative solutions to complex development challenges. This paper will concentrate on the important role of citizens and their partnership with public officials in the pursuit of Open Data goals.

In its implementation OD has not been running smoothly due to various obstacles. For example according to OKFN in the report of The State of Government Data in 2017 "GODI 2016/17 identifies three critical obstacles [1] preventing open data use: data is hard to find; not user-friendly; and not openly licensed" [2]. Meanwhile according to UKP4 (Presidential Work Unit for Development Supervision and Control, now called KSP/Presidential Staff Office) conditions that hinder the implementation of OD in Indonesia include: the coordination mechanism was unclear, non-optimal communication, many doors for data requests, and no data harmonization mechanism [3].

First of all, coordination has not been going well because coordination procedures has not been described clearly enough between the responsible institutions. Coordination was needed in statistical activities (instrument design, sampling, data collection, and data validation), dissemination of results and use of data, data management, and training and human resource capacity building.

Second, Communication that is not optimal. This has implications for the lack of optimal communication between the institutions responsible for statistical activities and geospatial information and the institutions responsible for the substance of the data collected (ie, work units in Ministries and Institutions). This results in different perceptions, analytical methods or methodologies and data collection procedures (such as definitions, classifications, units or sampling frames) that are used between ministries/institutions so as to produce inconsistent data.

Third, Many doors for data requests. Data cames out without a one gate mechanism, but exited from various gates in the Ministries and Institutions, thus allowing different data in each of them. This results in data that has not been verified or agreed upon.

Fourth, data harmonization mechanism does not exist. There was no mechanism for harmonizing between parties when there are data differences in different ministries or institutions.

This makes it difficult to build consensus related to data that is used as a common reference. Harmonization is increasingly difficult because of the ego of each institution. Meanwhile, based on research findings on OD innovation management within the framework of Public Information Disclosure in Bandung Municipality the ineffectiveness of Open Data was because the implementation has not been optimally integrated in Public Information Services [3]. This has implications for the mechanism of coordination and communication that is not firm and not smooth between sectors who responsible for OD implementation. This uncertainty results in dissenting opinions on the selection and display of published data (information dissemination).

Based on these problems central government encouraged regional governments to implement OD with four strategic stages that must be done, namely: early engagement,

capacity development and OD implementation, and sustaining stages. For the pilot project the three regional governments were appointed, namely DKI Jakarta Province, Bojonegoro Regency, and Bandung Municipality. This article describes those four stages and how citizens get involved at every stage.

A. The Concept of Citizen Engagement and Open Data

The use of the terms participation and engagement are sometimes interchangeably. But, there are real differences in some situations. In a common understanding, engagement is a form of active participation. According to OECD Damodaran & Olphert there are three stage model of public engagement, namely: information, consultation, and active participation [4]. First stage is information. It means a one-way relation in which government produces and delivers information for use by citizens. Second stage, consultation is a two-way relation in which citizens provide feedback to government. Active participation as the third stage means a relation based on partnership with government, in which citizens actively engage in the decision and policy-making process. Therefore in the context of OD it seems that "citizens engagement" is an appropriate term.

OD aims to make citizens can actively participate in processing government data for their own interests and to participate in governance. In public Administration perspective this phenomena leads to New Public Service. But, each analyst is free to argue about the paradigm of public administration that is being run by Indonesia, whether Old Public Administration, New Public Management, or New Public Service with various indicators. Some could argue that Indonesia is believed to have entered the era of the New Public Services (NPS), which has democratized its public services [5]. Because the Indonesian public administration is considered to have entered into the third paradigm, namely Administration by public, public involvement must start from the formulation of policies to the level of implementation. While Osborne (2013) states that currently the world has entered the era of New Public Governance [6]

If you look at its history, the Act of Public Information Disclosure (or Freedom of Information FOI Law is an embodiment of Administration by the public because it was born on public initiation, and in the process of its formulation was guarded by the public [3]. This is reflected in the objectives of the FOI Law showing that the government has focused its efforts on serving and empowering citizens as "the owner of the boat" [7], namely: guaranteeing citizens' rights to know public policy making plans, public decision making processes, public policy programs, and reasons for making public decisions; encourage and increase public participation in the process of public policy making and good management of public bodies.

Pollock (2006) defines “data is open if anyone is free to use, reuse, and redistribute it – subject only, at most, to the requirement to attribute and/or share-alike” [8]. OD in the context of One Data is the format of the data suggested in its presentation with the aim that the public can not only access but also participate in processing it with the aim of creating new innovations that benefit the community and better government management. Then One Data is the presentation of credible data through one portal (One Gate) as a foundation for public policy formulation [9]. OD can be available and freely downloaded on the website because it is accompanied by an open license that allows commercial and non-commercial parties to use and distribute without restrictions (Stagars 2016).Furthermore OKFN provides the following OD scope details:

1. Availability and Access: data must be available as a whole and should be downloaded via the internet (efficiency). Data must also be available in a form suitable for modification.
2. Re-use and Redistribution: data must be provided with conditions that allow reuse and redistribution including mixing with other datasets.
3. Universal Participation: everyone must be able to use, reuse and distribute - there should be no discrimination against people or groups. No restrictions on use for certain purposes or fields (for example only in education).

The definition also emphasizes interoperability. What this means is the ability to operate or mix different datasets. Interoperability shows the ability of the system to work together (inter-operate). Interoperability is important because it allows different components to work together. The ability to componentize and 'put together' components is important for building large and complex systems. The essence of "commons" data (or code) is that one piece of "open" material contained in it can be freely mixed with other "open" material.

Interoperability is the key to realizing the practical and main benefits of "openness", namely: dramatically increasing the ability to combine different datasets together and thus to develop more and better products and services. The key is that when opening data, the focus is on non-personal data, that is data that does not contain information about a particular individual. Likewise for certain types of government data, there are restrictions for example for reasons of national security.There are six principles in the Open Data Charter declared by each committed government [10], namely:

1. Open by default

This relates to how the government operates and how to interact with citizens. Usually the public must request the specific information they want from the government. But now with the program "open by default" all the information must be announced / published without being asked. On the one hand the government still needs to maintain the confidentiality of data which must be kept closed, for example for security reasons or data protection. In accessing, processing and disseminating OD, citizens must also feel confident that open data will not jeopardize their privacy rights.

2. Timely and Comprehensive

Open data is only valuable if it is still relevant. Getting information published quickly and comprehensively is

very important for its success. As much as possible the government should provide data in its original form and not be modified.

3. Can be accessed and can be used (Accessible and Usable)

Data must be ensured that it is easy to read and easy to find. Portal is one way to achieve this. But it is also important to think about the user experience of those who access the data, including the file formats provided. Data must be free of charge, with an open license.

4. Comparable and Interoperable

Data has a multiplier effect. The more good quality datasets that are accessed, and the easier it is to talk to each other (interoperable), the more potential value can be obtained from it. Data standards agreed upon play an important role in making this happen.

5. For Improved Governance & Citizen Engagement

Open data has the capacity to allow citizens (and other governments) to have a better idea of what officials and politicians are doing. This transparency can improve public services and help governments to be responsible.

6. For For Inclusive Development and Innovation

Open data can help spur economic development inclusive. For example, greater data access can make agriculture more efficient, or can be used to tackle climate change. Open data is not only because it wants to improve government performance, but also outside it can make money through open data.

Although this article emphasizes the fifth principle, "For Improved Governance & Citizen Engagement", all these principles are interrelated to one another. All of them becomes an inseparable unity.

B. Early Engagement

One of the keys suggested by OKFN (Open Knowledge Foundation) when opening data is "early and frequent engagement" [1]. Prospective OD users and potential re-users (citizens, entrepreneurs, or OD developers) should be involved as early and as often as possible. So when they reuse the service, it will be more relevant. For that aim the government had encouraged NGOs, private sectors, and communities to contribute in OD movement in local government, including in socializing the OD Movement and its benefits [3].

After the declaration of OD commitement, Government conducted some activities as follow up, that is cooperating with data user communities to organize activities that lead to Open Data involving the community. The Government acknowledged that the involvement of the citizens, especially young people, is very significant not only in introducing OD but also guiding its implementation.

Here is the Phase of Initial Involvement "as a strategic activity undertaken to implement One Data and OD: case of Bandung Municipality

Table 1 Socialization Activity or "Early Engagement" Stage of OD

No	Events	Parties involved
1.	Conference of Bandung *OD Summit and Challenge* (Boscha)	Partner organizers: Code for Bandung, West Java Incorporated and Bank Indonesia West Java Province
2.	Workshop and Competition of Bandung Scrap-A-Thon 2015 with topic: "*Better Data: Towards Bandung Transparent, Accountable, & Innovative Manucipality*".	Partner organizers: Code for Bandung Community, SEATTI (South East Asia Technology and Transparency Initiative), Hivos Foundation, MAVC (Making All Your Voices Count), and Codepolitan. Participants: students, experts, practitioners, the general public.
3.	Launching Data Portal of Bandung Manucipality: http://databandung.go.id, as a series of OD socialization as well as a series of events of International Anti-Corruption Day 2015	Partners organizers: Corruption Eradication Commission (KPK)
4.	Socialization and FGD of OD Implementation in Bandung Manucipality (collecting inputs related to the implementation of OD and Roadmap OD Bandung)	Partner organizers: Code for Bandung. Partners speakers: Department of Communication, Informatics and Public Relations (*Diskominfomas*) DKI Jakarta Province
5.	*Explore Bandung OD* (XBot): The use of Bandung Municipality Data (seminar, workshop and competition	Partner organizers: Data Science Indonesia (DSI) Participants: students and youth community

Source: Compiled from Bandung OD Activity Report 2016-2017

Most of organizers or volunteers in those events are college students. According to chief of Code For Bandung, most of them are non IT students. The socialization activities started from the Bandung OD Summit and Challenge (Boscha) project, an open application and application development conference aimed at bringing together and enhancing collaboration among stakeholders in

the OD ecosystem in Bandung [3]. This event is held on 21 and 28 February 2015, in the framework of the international OD day. The manucipality of Bandung is one of 112 countries in the world that organizes a series of events related to international OD.

This conference is collaboration between the Government of Bandung municipality with the community Code for Bandung, West Java Incorporated and Bank Indonesia West Java Province. The event, held in Bank Indonesia Provincial Representative Office of West Java Province, aims to encourage the participation of all stakeholders and encourage innovation in accelerating problem solving in Bandung, and as a step toward open government that is transparent, accountable and innovative.

The socialization activities started from the Bandung project Open Data Summit and Challenge (Boscha), which is an open application development and application conference that aims to unite and enhance inter-stakeholder collaboration in the Open Data ecosystem in Bandung. This activity is held during the eight days, in the framework of the international Open Data day. The manucipality of Bandung is one of 112 countries in the world that organizes a series of events related to international open data.

This conference is a collaboration between the Government of Bandung Manucipality and the community of Code for Bandung, West Java Incorporated and Bank Indonesia, West Java Province. The activity held in the Bank Indonesia West Java Provincial Representative Building aims to encourage the participation of all stakeholders and encourage innovation in accelerating problem solving in the manucipality of Bandung, and as a step towards transparent, accountable and innovative open government.

The second activity was Bandung Scrap-A-Thon 2015 with the theme "Better Data: Towards Bandung Transparent, Accountable, & Innovative Manucipality". The activity which lasted two days was a collaboration between the Bandung Information Communication Office

and the Code for Bandung. The event was divided into two parts, namely pre-event and main event. Pre event is a workshop and discussion about the concept of Open Data and its benefits. This activity is held openly which allows the participation of all people.

Afterwards, the main activity in the form of a data scrapping competition was held, namely changing the data format owned by the Bandung Manucipality Government in accordance with the Open Data principle that was feasible to be used openly and repeatedly. The competition was attended by participants from diverse backgrounds ranging from students, experts, practitioners, to the general public who wanted to actively participate and care for the development of the manucipality of Bandung. This event is a collaboration between the Bandung Manucipality Government and various institutions such as SEATTI (South East Asia Technology and Transparency Initiative), the Hivos Foundation, MAVC (Making All Your Voices Count), and various media partners, one of which is Codepolitan.

The third activity in the OD socialization series as well as the 2015 International Anticorruption Day series was the Bandung Manucipality Data Portal Launching http://databandung.go.id on December 11, 2015. The website is an official Open Data portal that can be accessed by all people about all kinds information relating to the Manucipality of Bandung. All data contained in the data portal is data from all Departement of Device Work Units (*SKPD*) through information data managers. The usual data is changed to open in the Comma Separated Values (CSV) format.

Next is the socialization and FGD activities of Bandung Open Data Implementation held in March 2016. The event involved speakers from various backgrounds such as Code for Bandung, representatives of the DKI Jakarta Province's Office of Communication, Information and Public Relations (*Diskominfomas*), and Bandung *Diskominfo* Secretary . The aim is to capture input related to the implementation of the Open Data and Open Data Roadmap in the Manucipality of Bandung, improve the process of data collection and dissemination, encourage the use of data in the decision-making process, and encourage community participation in the implementation of OD in Bandung.

Next is the Explore Bandung Open Data (XBot) project. Educational activities in the field of data science that raise the theme of the use of Bandung Manucipality data consist of seminars, workshops and competitions. The event which took place on December 2 - 6, 2016 was held in collaboration with Data Science Indonesia (DSI) with the Bandung Manucipality Communication and Information Service. The speakers presented were experts in their fields who reviewed the themes of Data Analysis, Cleaning Data, and Data Mining and Data Visualization. 200 participants were students and the community of young people. The target is the use of Bandung Manucipality data contained in the Bandung Open Data portal at the data.bandung.go.id link.

Second, workshops and seminars on "Data Discovery", namely activities organized by Bandung Departemen of Communication and Information Services to teach Regional Apparatus how to process data. This event lasts for two days. The things taught are: inventory data and data cleaning, data analysis, and data visualization.

Inventory data is an activity in the context of mapping and identifying data at each Regional Work Unit (SKPD). At the same time there was also an outreach/roadshow of OD programs to the Integrated Licensing Service Agency (*BPPT, Badan Pelayanan Perizinan Terpadu*) and the General Government of the Bandung Municipality. The purpose of the socialization is so that policy holders understand the program and how OD works.

C. Capacity Development and OD Implementation

Noordegraaf (2015) asserted that public service needs well-trained and motivated professionals working for clients (professionalism). OD as one of new public services needs those kind of professionals. At this second stage the team of penta helix should work hand in hand in the development of human and non human resources in public organizations in understanding and implementing OD in their institutions.

In relation to the issue of Human Resorces and leadership in changing, Valle (1999), as quoted by Osborne and Brown (2005: 93), argues that the real work of new leaders in public organizations is to prepare members of their organizations to overcome, and adjust changes in mission, environment and/or direction. As a result, the leader's efforts must focus on 'development, as the main core competency of the organization, adaptive organizational culture'. The emerging model of change is in line with the conceptualization of the urgency of 'future public services'.

Organizational human resources must be prepared to accept changes that occur within and outside the organization through various activities such as socialization, FGD, and workshops. Human resources in government organizations, especially civil servants, who are appointed to certain positions sometimes have no educational background or skills in accordance with their duties and/or functions. For example the head of the department of information and documentation management in Bandung municipality government held by a physician.

According to Peter and Hull (1969) based on the "Peter Principle", the more people are promoted in higher positions, the lower the level of competence. This is because the first appointment in a position is based on the competency requirements of the position concerned, and then the competency becomes no longer suitable when occupying a new or higher position. Therefore there is a tendency for public agencies to recruit experts in IT and OD with contract workers because of the limitations of the Civil Servants formation.

Meanwhile *Pedasi* (abreviation of *Petugas Data and Informasi*, or Data and Information Officer) of Bandung Municipality, who is also civil servants, as the front-runner of Data and Information Official (*PPID, Pejabat Pengelola Informasi dan Dokumentasi*) in *SKPD* has a variety of educational backgrounds ranging from high school graduates, to postgarduates, and diverse disciplinary backgrounds as well. This is a strong reason for conducting socialization or training both through FGDs and workshops [3].

There are two internal introductory activities that have been held, namely: first, the Socialization activities and FGD of OD implementation in an effort to introduce and implement OD in government organization. This activity presents all Data and Information Officers (*Pedasi*) as participants. The speakers came from the community of observers and OD consultants, as well as the Central and West Java Provincial Information Commission.

Second, workshops and seminars on "Data Discovery Workshop" (Data Discovery Workshop), which is an activity organized by department of communication and informatics to teach Regional Apparatus how to process data. This event lasted for two days. The things taught are: data inventory and data cleaning, data analysis, and data visualization.

Inventory data is an activity in the framework of mapping and identifying data on each Regional Work Unit (*SKPD*). At the same time, an OD program/roadshow program was conducted to the Integrated Licensing Services Agency (BPPT) and the Manucipality Secretariat General Government. The purpose of the socialization is so that policy holders understand the program and how OD works.

In change management, there are provisions to make adjustments to existing structures so that they are compatible with the demands of change brought by new elements in the organization. This is also confirmed by the following Pugh

Through the One Data and Open Data programs with supportive applications, they have assisted local and central governments in obtaining a single, accurate data. For example, data on the number and classification of poverty that initially differed between the Social Service and the Central Statistics Agency, but with the One Data portal there is now only one and reliable data on poverty.

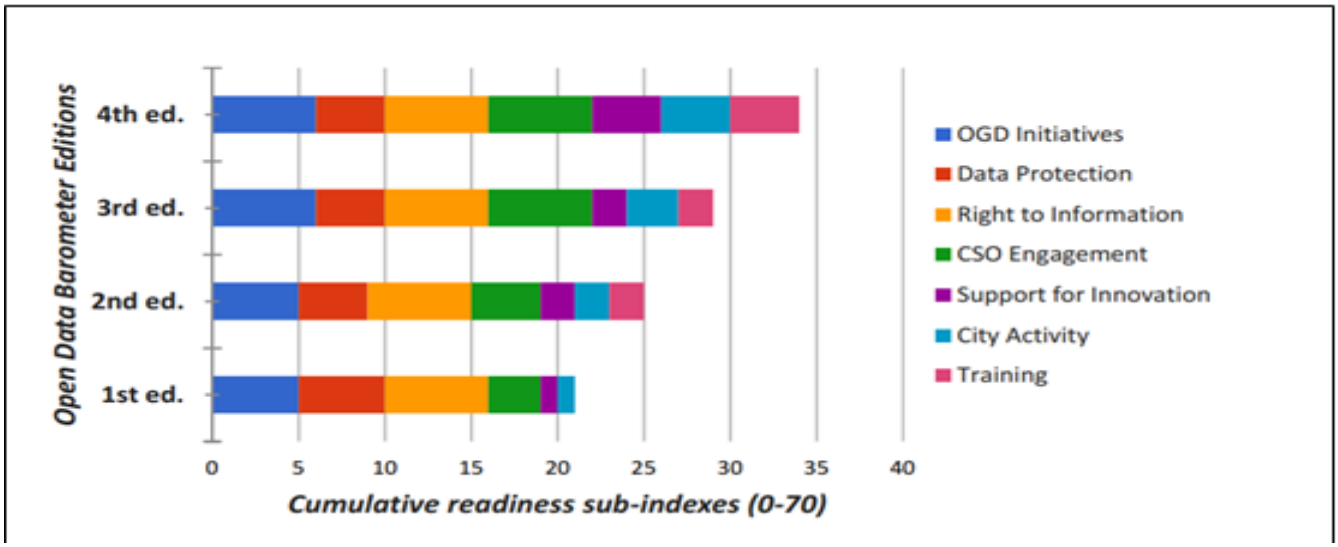
Through Open Data, the public can also access reliable information on various issues. The following is an example of the appearance of OD in the manucipality of Bandung.

FIGURE 1
Display of Open Data of Bandung Manucipality on April 19, 2019.
Source: Bandung Manucipality Open Data Site, 2019

This Figure shows information about the amount of data that was successfully uploaded as of April 19, 2019, namely as many as 1500 datasets, while the target until 2018 is as many as 4000 datasets (based on the Bandung Manucipality OD Roadmap 2016-2018). Of course, this achievement is still far from expected [11].

Glenn Maail (2018) from OD Lab Jakarta reported for OD Barometer that in 2017 OD in Indonesia is improving, but progress remains slow [12]. This can be seen from the indicators, for example this country is ranked 7th of 12 in Region, and 3rd of 7 in ASEAN (), and 5th of 27 in lower middle-income countries category. But, there was significant improvement in the readiness and impact score as described below :

FIGURE 2
Readiness Evolution of Indonesia Count
Source: Maail, OD Barometer: Country Focus: Indonesia (2017: 3)



As Open Data Lab Jakarta adressed there are number of country low points that should be conciderded as chalanges, such as the private sector awareness remains low, and lack of progress in the publication of key datasets, not to mention the impact of Economic and Social Inclusion remains elusive. Beside that low points, the country also has strength points such as consistently among top 5 low-middle income countries, strong engagement by civil society, and Consistent government action, including local government, to support culture of innovation (e.g. competitions, grants) [12]. Based on this Open Data Barometer report, Indonesia has a level of readiness that is good enough to implement data disclosure, among other Southeast Asian countries. This is due to the availability of laws and government regulations that create an environment or atmosphere for open data in the future. However, the lack of concrete actions or movements implementing this law prevented Indonesia from achieving optimal results.

In politics, through the use of digital platforms, citizens get involved in direct democracy tools and built of a new relationship with public administration. Among them is *Perludem* (stand for *Perkumpulan untuk Pemilu dan Demokrasi*), the Association for Elections and Democracy. According to this NGO Indonesia has the largest and most complicated one-day election system in the world. But the documentation system was still weak at that time. With the conditions at that time, Perludem decided to change the data from the General Election Commission's website, which was mostly PDF documents, into an open format that could be processed and used by the community.

However, providing free, open and easily accessible data does not directly make it used actively. So to encourage the use of data that has been made open, the *KPU* (*Komisi Pemilihan Umum*, the General Election Commissions) and *Perludem* make various competitions for technical players in the election and app makers to help monitor the election process. Using available data, several sites and applications are created to help see the profile and track record of the candidates and monitor the results of the vote. The use of election data then brings change. In 2015, *KPU* established a regulation requiring election results to be available in an open format (Perludem 2015)

For that effort The Open Government Partnership (OGP) summit gave an award to Perludem Indonesia for their initiative to build Election APIs (Application Programming Interface for election data) in 2014. Perludem set aside hundreds of other initiatives from around the world because they were considered successful in making programs that provide significant public impact from OD. The Perludem initiative is seen as encouraging public participation, increasing the effectiveness of government functions, and providing services with a high social dimension,

Currently the application of open data is one of the vital elements in realizing an area to be predicated as smart city. This is the reason why the Bandung manucipality, among two other region appointed as OD pilot project, decided to commit in this program, as reported by the OECD.

> *One of the conditions for making smart city strategies inclusive is to ensure that digital technologies can be used by everyone. This will require not only access to such technologies, but a population that knows how to use them and is aware of their benefits. In the Manucipality of Bandung, digital technologies have great potential for success, since 60%of the population is below 40 (Manucipality of Bandung, 2015a).* (OECD, 2016: 102)

CONCLUSION

Through the principle of "For Improved Governance & Citizen Engagement", the revival of social capital emerged by Open Data movement through four strategic stages where citizen get involved, namely: early engagement, capacity development, implementing Open Government Data, and sustaining stages. The citizen plays an important role in advocating and helping to make public institutions more transparent, accountable and effective, as well as contributing innovative solutions to complex development challenges. With open data, the local and center government will directly or indirectly get many benefits, such as transparency and democratic control. The authorities must be transparent about what they are doing and what they are going to do. In this case, the authority must have the courage to realize data sharing, involve third parties, and use appropriate data. Open data allows all parties to equally access and supervise all public data.

There are many things that are still homework for the government in implementing data disclosure. Starting from technology penetration, as well as the fulfillment of user needs for government data.

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