

ARTICLE

Open Government Index in Local Government During the Period of the COVID-19 Pandemic

Tiara Khairunnisa^{1*}, Achmad Nurmandi¹, Titin Purwaningsih¹, Mohammad Jafar Loilatu¹, and Annisa Ghina Savira²

¹Department of Government Affairs and Administration, Jusuf Kalla School Government, Universitas Muhammadiyah Yogyakarta, Yogyakarta, Indonesia

²Department of Internationaler Studiengang Politikmanagement, Hochschule Bremen, Bremen, Germany

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ABSTRACT

Identification that has been carried out in studies of open data government and e-government has been widely described from various perspectives. This study aims to examine how the government applies open government data. This study analyzed the existing open government of local government in Indonesia during the COVID-19 period, providing information to test the transparency of existing local governments. This study adopts the Benchmark Model Evaluating Data Openness theory and E-Gov assessment using a quantitative approach by dividing several categories and assessment variables. The open government analysis assessment uses a score of 1-5, and a web assessment with a score of 100. From this calculation, it is found that the five provinces with increased cases have high OGD scores. The results are plotted based on the spread of COVID-19 throughout Indonesia, as determined by reviewing and surveying the provincial government's COVID-19 website. West Java (89.87), East Java (89.87), Jakarta (88.75), Central Java (88.37), and Yogyakarta (88.37) all had high and nearly balanced total scores (84.87). The increased assessment results are supported by infrastructure and good management, and the five areas are "metropolitan" areas with good quality technology and information.

A. INTRODUCTION

Open government data has been a global phenomenon in recent years, resulting in policy innovation in the public sector (Park & Gil-Garcia, 2022). It is anticipated that open data would provide not just economic (efficiency) and social (democratic ideals) benefits, but also improved forms of policy decision-making through data analytics and knowledge-sharing capabilities for diverse public and commercial stakeholders (Ansari et al., 2022). Governments worldwide are responding to the open government movement by launching the Open Government Data (OGD) initiative. They are motivated by the promise to generate economic and social value (Nikiforova, 2021; Purwanto et al., 2017). On the other hand, the success of OGD efforts will be realized only when OGD is used and generates public value in the governance process (Bachtiar et al., 2020).

* Corresponding Author

Email : tiarakhairunnisa1607@gmail.com

The concept of open government began to develop after Obama promised to create transparency and connect democracy (Ruijter et al., 2017); the idea became Obama's task to shape the United States, primarily through government agencies (Ruvalcaba-Gomez et al., 2018). Obama promised an open government like never before (White House, 2015). Many countries adopted the idea of open government and established transparent administrative services. To Gascó-Hernández et al. (2018) view, the open government aims to encourage government transparency and provide information to the public about government policies and programs. In addition, some of the main reasons for the need for transparency are activities in direct contact with the community. Since Obama promoted the concept of open government in the last two decades, there have been many implementations of an open government system.

Grimmelikhuijsen & Feeney (2017) to create an open government, the government needs to have guidelines for building an open government by identifying challenges to take the proper steps. Open government as information or open government data (OGD). OGD is the government's way of providing information to create transparency in government governance (Donald Shao & Saxena, 2019; Saxena, 2018). By utilizing ICT, the government has great potential to realize e-government in public services (Mpinganjira, 2015). The government can use technology to provide services to the community (Adjei-Bamfo et al., 2020). That means that open government can be realized through an integrated portal that allows citizens to do business with the government without having to meet face-to-face, ultimately resulting in quality, convenience, and effective services, as well as cost reduction (Hernández-Bolaños & Rodríguez-Díaz, 2016; Knox & Janenova, 2019). Therefore the two concepts do not have different meanings but have the same goal (Oltra & Verdú, 2020; Rodríguez et al., 2020).

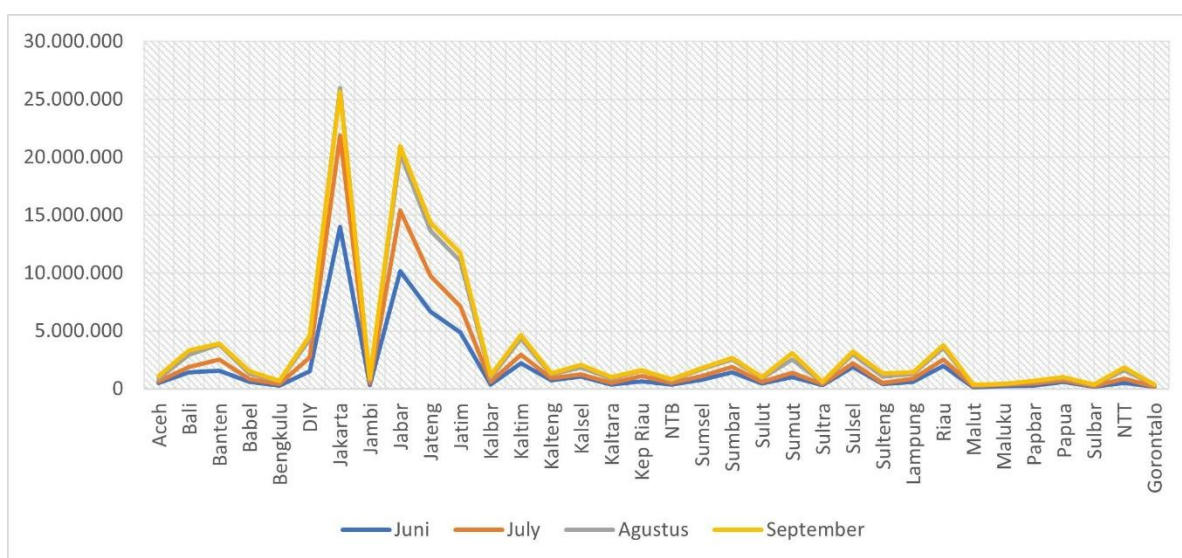
Open government research is developing fast, particularly in emerging nations. Open government entails using technology to enhance access to and delivery of government services for the benefit of citizens, the private sector, and government employees at the local, municipal, regional, and national levels and to strengthen support for public policy (Minardi, 2020; Singh et al., 2020). Indonesia is one of the countries that place a high priority on transparent government. In recent years this idea has been developed such as; sharing information through open government data (Purwanto et al., 2020), improving e-government (Sabani et al., 2018), transparency (Arsalan et al., 2019), ICT infrastructure (Alderete, 2018), and systems electronic-based government (I Made Sukarsa et al., 2020).

In 2014, the Indonesian government launched the Indonesian data portal (data.go.id). This webpage intends to expand the accessibility of Indonesian government data. However, government agency data are frequently inconsistent. This gap causes misunderstanding among policymakers and the general public who seek to use the data (Rahmatika et al., 2019). Open government facilitates government services and community contact, especially during pandemics (Criado & Guevara-Gómez, 2021). The pandemic situation requires various government policies to disseminate information quickly. In addition, recent research has examined open data in Indonesia via innovative city websites (Mahesa et al., 2019; Sutanta et al., 2016), highlighting that local government information systems are distinct. A United Nations evaluation shows Indonesia has the lowest e-government index ranking (United Nations, 2020).

COVID-19 in Indonesia demands government transparency, but not all information is open. COVID-19 in Indonesia has become a public concern due to opaque policies and a lack of real-time information. There is a significant difference between the central and local governments providing inaccurate information, and this causes the data provided by local governments invalid. According to Nikiforova & McBride (2021), the difference in data creates perceptions about the function of open government so that the government and the public cannot choose the right website or application to find information. Referring to the view Wirtz & Birkmeyer

(2015), open government in its administration must prioritize transparency, participation, and collaboration.

In addition, the differences in data occur between central and local governments, and the local governments have different policies in dealing with COVID-19. For this reason, access to information is essential. However, accompanied by the government's readiness to provide information, in a survey (United Nations, 2020), during the pandemic, the government has used the website to provide information and services for COVID-19. The existence of information disclosure is also supported by the development of the COVID-19 condition that is developing and has several striking cycles. The National COVID-19 Task Force noted that at least Indonesia had reached its highest wave twice in 2020-2021. The first wave occurred from the end of 2020 to April 2021; growth occurred from June 2021-September 2021, see figure 1.



(Source. covid19.go.id)

Figure 1. COVID-19 Cases for the Period June-September 2021

The second wave is the highest phase of increasing the number of COVID-19 cases in Indonesia. Figure 1 shows that from June-September, Jakarta, West Java, Central Java, East Java, and Yogyakarta became the regions with the highest five-highest distribution case rates, reaching more than 25,000 cases in August and September 2021. In this phase, the restrictions imposed by the government have become more improved community mobility. In addition, the dissemination of information related to the pandemic has increased rapidly. The Reuters Institute judged that of the 100% of respondents who took part in the survey in 2021, more than 45% found hoax news about the COVID-19 pandemic in the Asian region (Rizaty, 2022). In line with this, the Indonesian Ministry of Communication and Informatics (Kominfo) noted that the most extensive spread of hoaxes occurred during 2021, especially regarding COVID-19 in the second phase. Throughout 2021, Kominfo closed access to 565,229 negative content and debunked 1,773 cases (Saptoyo, 2022).

Restrictions on activities among the public during COVID-19 make the dissemination of information a must, especially for the government. On the other hand, the data on decision-making by local governments, given the increase and the demographics in each region, are different. The identification carried out in open data governance and e-government studies has been described from various perspectives, so this paper examines how the government applies open government data. The research aims to investigate an open government in Indonesia, focusing on the five regions with the highest growth in cases in Indonesia during the COVID-19 period in giving information and assessing transparency through the supply

of public information via the COVID-19 website. This investigation focuses on the public's perception of data and website quality.

B. LITERATURE REVIEW.

Building Open Government Data in Local Government

Open government data is part of the institutional work to create efficiency (Eroglu, 2018). Conceptually, open government data is part of e-government that encourages better work levels of institutions (De Blasio & Selva, 2018). According to Millard et al. (2018), the application of open government is to eliminate the gap between injustice in obtaining public services by providing information to the public and creating a connected environment (Golub & Lund, 2021). Meanwhile, in a different view Altayar (2018), the application of open government data aims to show the existence of government institutions. The overall goal of implementing open government is part of the implementation of e-government (Kassen, 2019), conceptually and theoretically, open government is an effort to create an electronic-based government system or transparent e-government.

According to Meijer & Bekkers (2015), open government and e-government a functionalistic perspectives where ICT can play a role and be managed so that its function is not questioned and can encourage public services (Manoharan & Ingrams, 2018). Implementing e-government can build interaction with the public at every level of public organizations. In addition, Kim et al. (2016) argue that e-government is a new prototype to go beyond the old model with a new vision and strategy that adapts to rapid changes. That way, e-government can influence users by providing quality information services and transactions through websites, applications, and other supporting information systems (Rehman et al., 2016). Government institutions must understand and redesign institutional e-government functions by looking at information communication and ICT technology at every level of the organization so that, according to Mensah & Adams (2020), public institutions show significant capacity and improvement in services.

According to Gascó-Hernández et al. (2018), open government is not only a transitional government but a service; this assumption views service changes and system integration as needed. Currently, the quality of service is measured by the amount of information the government shares (Manoharan et al., 2022). A comparable amount of information shows the transparency of government information. But institutions that are too large make the dissemination of information slow because of different data set models (Saxena, 2017). According to Attard et al. (2015), there are several problems: First, technical problems that the government often faces, such as; data format, data description, metadata, data coverage, and data capacity. Second, policy; data policy, privacy regulation, and data protection. Third, organization, organizational structure and organizational performance. Therefore, clear policies are needed, especially in determining work standards in e-government, to build an open and democratic system of government (De Blasio & Sorice, 2016).

Srimuang et al. (2018), in building open data government needs to pay attention to several criteria for the assessment system; this system aims to measure the quality and services the government provides. Scholars have identified a suitable data model to verify and share (Ruijter et al., 2020). According to Criado et al. (2018), it is necessary to test open government portals and systems so that services become mature and perfect. But the main problem that is often faced is the difference in understanding, and use of the system for governments at every level, so open government data does not work well (Moles, 2021). One part of open government is the provision of digital website tools (De Blasio & Sorice, 2016), with indicators grouped in the three macro-areas of e-government, open data, transparency, participation, and

collaboration. However, this can change from the indicators that have been determined because the government's consideration of the data varies (Kubler et al., 2018), so Kubler et al. (2018) assess that building and implementing open government data will differ in quality between each government.

C. METHOD

Thompson et al. (2020) have conducted a web assessment of the OGD from a qualitative approach to determine how the government is transparent and innovative. However, he considers the method applied only to one institution. This study uses website analysis referring to several recent studies (Bearfield & Bowman, 2017; Lv & Ma, 2019; Paksi et al., 2021) and open government database practice (Manoharan et al., 2022). The approach used in this study is quantitative by dividing several categories and assessment variables (table 1).

Technic Analytic

Assessment in open government analysis uses a scoring from 1-5, web assessment with a weighting value of up to 100, see table 1. This analysis uses a score 1-5 score 1 = not / very bad, score 2 = incomplete/bad, score 3 = quite complete/moderate, score 4 = incomplete/good, and score 5 = complete / very good (Putra & Swastika, 2016). The weighting of this value is then calculated using a quantitative formula. See table 1.

Table 1. Dimensions Assessment of Open Government Data

Category	Variable Assessment	Scoring
Data set	website identity; name, logo website address; contact, email, website manager domain; secured/unsecured	15
Transparency	institution profile; organization, agency information public information; regulation and policy COVID-19 information; new case, vaccine, health information government statistical information; planning, budgeting and activity	25
Openness	download file (pdf/doc/etc.) easy access multimedia; video, image, procurement Website design; easy to understand mobile apps budgeting transparency Web services open applications from IE, Mozilla, Opera and chrome	25
Participation	institutional contact is working fine discussion forum complaint service facility social media communication webchat via website website accesses ≥ 300	20
Collaboration	websites linked to central government/institution website linked to local government/institution website linked to a private organization website linked to the college	15
Total		100

Source: Adopted by Putra & Swastika (2016)

Analytic Formula

Formula for calculating each variable:

$$Vi = \frac{\sum Xi}{Yi} \times Z$$

Testing the open government framework

$$Total\ Score = \sum_i^n Vi \times 20\%$$

Information:
 Vi = Variable
 ∑Xi = Total Value
 Yi = Total of questionnaire items
 Z = Variable Weight

Sources: Adopted by Putra & Swastika (2016)

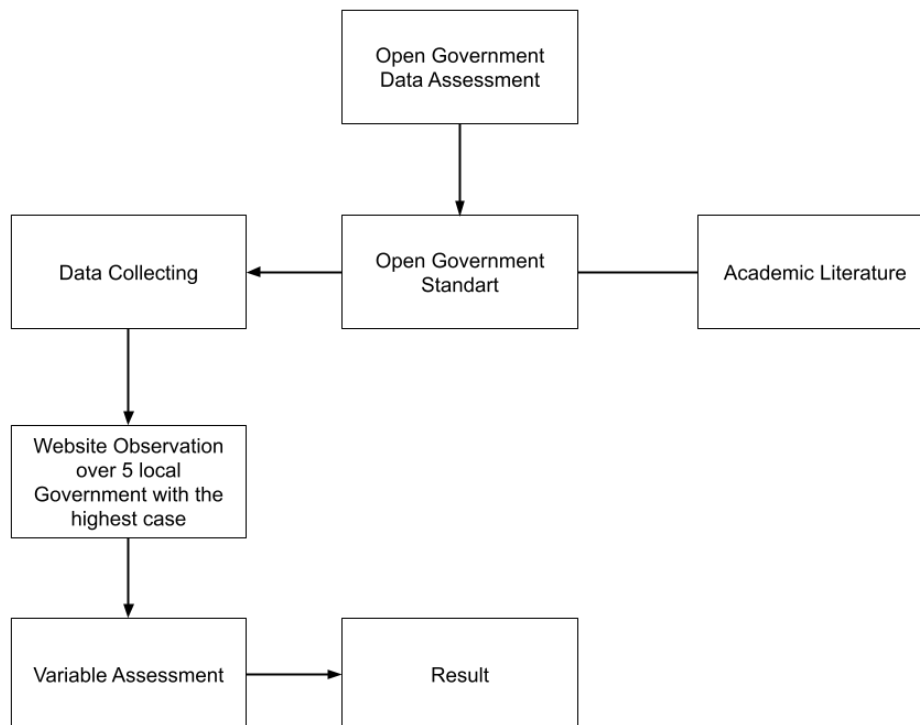
Data Sources

Table 2. Official Website Provincial Government

No	Official Website	Region	Information
1	https://corona.jogjaprov.go.id/	Yogyakarta	The official website of the Local government contains specific information regarding COVID-19. This province has the highest average rate of increase in cases between June 2021-September 2021, which is 1,000,000 inhabitants
2	https://corona.jakarta.go.id/id	Jakarta	
3	https://corona.jatengprov.go.id/	Central Java	
4	https://pikobar.jabarpov.go.id/	West Java	
5	https://infocovid19.jatimprov.go.id/	East Java	

Source: Adopted by the Official Website of the Local Government

Framework Assessment Analysis

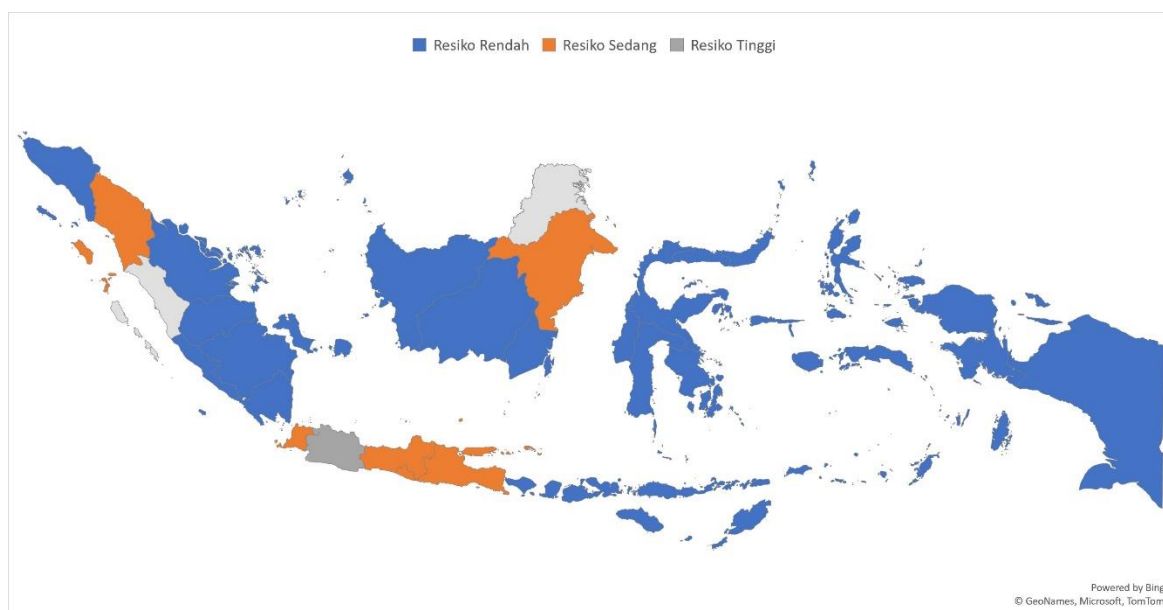


(Source: Adopted by Putra & Swastika (2016))

Figure 2. The Framework of the Web Assessment Analysis

D. RESULT AND DISCUSSION

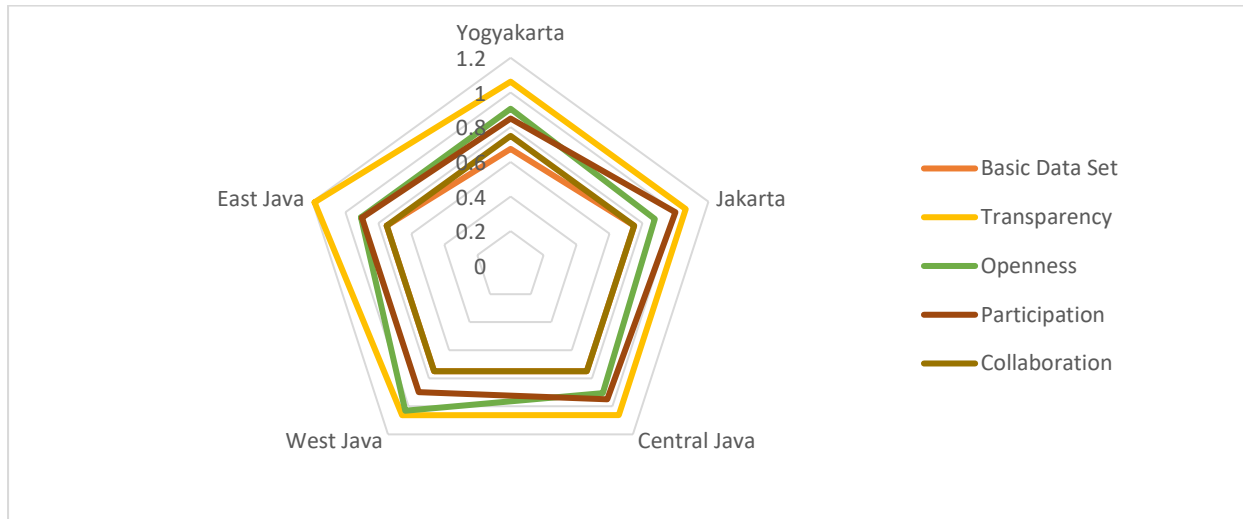
The COVID-19 that emerged in Indonesia began in March 2020 and has fluctuated in case of numbers every cycle. The Indonesian COVID-19 idea unit noted that Indonesia had entered the COVID-19 crisis. The number of COVID-19 cases in Indonesia reached 4,174,216 million people on 14 September 2021; the highest increase in cases was on the island of Java due to the dense population and high mobility (Fitra, 2021). COVID-19 cases penetrated this figure. The five provinces with the highest COVID-19 cases from June 2021 to September 2021 are DKI Jakarta, DIY, Central Java, West Java, and East Java. The five islands with high populations and mobility have increased COVID-19 cases in Indonesia, see Figure 2.



(Source: covid19.go.id (Update by June-September 2021))

Figure 3. Risk Map of COVID-19 Indonesia

Information during a pandemic is essential to create transparency and measure the government's ability to deal with COVID-19 (Fadhal et al., 2021; Muis, 2020). This argument is based on the government's ability to mitigate disasters and provide information. This research addresses an essential aspect of the Indonesian local government OGD. First is the ability of local governments to provide information quickly and accurately on handling covid-19. The OGD covid-19 explained the provincial government's active response to dealing with covid-19-this ability of information submitted in real-time and openly during the covid-19 outbreak in June-September 2021. Provincial governments have criteria for coping with COVID-19, from policies, regulations, mitigation, and treatment.



(Source: Data Acquisition by Author, 2022)

Figure 4. Open Data Areas with the Highest Increase in Cases

Table 3. The Value of Open Government Data in the Highest Case

Provinces	Total score	Data Set	Transparency	Openness	Participation	Collaboration
West Java	89.87	0.75	1.06	1.03	0.90	0.75
East Java	89.87	0.75	1.19	0.91	0.90	0.75
Jakarta	88.75	0.75	1.06	0.87	1.00	0.75
Central Java	88.37	0.75	1.06	0.91	0.95	0.75
Yogyakarta	84.87	0.67	1.06	0.91	0.85	0.75

Source: Data Acquisition by Author, 2022

Figure 3 shows the provinces with available information on dealing the in dealing COVID-19. Yogyakarta, Jakarta, Central Java, West Java, and East Java are the five regions that implement OGD, and this can be seen from the five existing assessment indicators. Table 3, regarding the Yogyakarta data set with a low score of 0.67, East Java transparency 1.18, Openness West Java 1, Participation Jakarta 1. the value of the collaboration of the five regions has the same score. Meanwhile, from the total scoring, the five scores did not differ much; 89.87 East Java and West Java, 88.75 Jakarta, 88.37 Central Java, and 84.87 Yogyakarta.

Web assessment of the local government platform shows that; local governments with high case growth are more open in providing information. According to [Ponce & Ponce Rodriguez \(2020\)](#), this is based on policies and guidelines, meaning that regions with high case growth have the right policies while collaborating with third parties in providing information ([López-López et al., 2018](#); [Ruvalcaba-Gomez & Renteria, 2020](#)). These five provinces have high-quality information supported by the available infrastructure. Regarding infrastructure quality, the five regions include areas with many "metropolitan" cities and are part of the centre of the Indonesian economy ([Ananda, 2021](#)). According to BPS Indonesia, in 2018, the five provinces became regions with an ICT Development Index (IP-TIK) above the standard, even above the national IP-TIK ([Vladimir, 2018](#)). Unsurprisingly, the five regions have good facilities and infrastructure regarding information technology. This fact is in line with research ([Khosrowjerdi, 2022](#); [Shayganmehr & Montazer, 2019](#); [Singh et al., 2020](#)) that the community will not enjoy the benefits of digital innovation as long as they do not have access to adequate information and communication technology infrastructure and tools.

In addition, [Mensah \(2020\)](#), public organizations can provide public services; five provinces with high cases can answer this problem. The implementation of OGD is seen in figure 3 from the intensity of information submitted by the provincial government website. COVID-19 requires the government to provide health information, the spread of COVID-19 efforts to prevent the transmission of COVID-19. [Attard et al. \(2015\)](#) view this as a form of a technical obstacle based on the ability of local governments to manage information.

The quality of the website as a good information dissemination platform in these five provinces is one of the bridges between the community and the government in providing real-time services in the form of information on the development of COVID-19 cases. It becomes important considering the number of cases that occur is very high, as well as to suppress panic in the community, which will impact the emergence of crises in various other fields. Research from [Munawar \(2021\)](#) explained that the popularity of the internet and social media as pandemic information often occurs in tandem with disease outbreaks. Therefore, using the benefits of information technology is very important to increase the transparency of information about pandemics, reduce public panic, and increase public trust in the government in taking steps to combat the Pandemic ([Lovari et al., 2020](#); [Yiannakoulias et al., 2020](#)).

Government transparency will benefit more if the public can build a constructive democracy in dealing with public issues. The availability of information disclosure is one way for the government to find solutions by communicating the problems in the government environment ([Kelibay et al., 2020](#); [Kurnia et al., 2018](#)). One approach to achieving this is to increase public literacy and understanding of governance issues. Suppose the public and the government do not have an adequate literacy level. In that case, government openness will only become a tool for political manoeuvring or the spread of hoaxes, which are very influential in the COVID-19 era ([Soegiono & Prakasita, 2019](#)).

The literacy level in various regions related to COVID-19 mostly comes from social media and online news. According to a report by [Prestanta et al. \(2021\)](#), most of the Z generation (11-25 years) in big cities refer more to social media in seeking Information about COVID-19. In contrast, the Baby Boomers generation (57-75 years) referred to the press media in reporting COVID-19, most of which were taken from official websites of national and regional governments ([Xue et al., 2020](#)). From this, the quality of the information the local government provides indirectly becomes one of the essential keys of information that the wider community absorbs. Widespread news about COVID-19 that spreads impacts a person's psychology, ranging from anxiety in socializing to fear of germs and death ([Depoux et al., 2020](#)). According to Australia's Black Dog Institute, 10-15% of people worldwide are affected by mental health during the COVID-19 pandemic will even last a long time ([Savage, 2020](#)).

The web assessment analysis using the OGD shows that the spread of COVID-19 affects the implementation of the OGD during the COVID-19 period. In general, areas with a high rate of increase in cases provide good information to their people, which can be seen on the official government platform. The quality of the information provided is supported by various aspects and impacts many things, especially during the pandemic.

E. CONCLUSION

An analysis of the website assessment from the perspective of the OGD revealed that the spread of COVID-19 impacted the implementation of the OGD during the period of COVID-19. Analysis of the website assessment from the perspective of the OGD revealed that the spread of COVID-19 had an impact on the conduct of the OGD during the COVID-19 period. The assessment looked at the five provinces with the highest case growth rates, all with high OGD scores. The findings are plotted based on the spread of COVID-19 throughout Indonesia by reviewing and surveying the provincial government's website about COVID-19; In general, the five categories had high and almost balanced total scores, namely West Java (89.87), East Java

(89.87), Jakarta (88.75), Central Java (88.37), and Yogyakarta (84.87). In other words, the government platform already provides information that meets open government requirements. The availability of infrastructure and good government management supports the quality of the existing OGD.

We recommend collaboration across the open data ecosystem; various stakeholders must collaborate to facilitate regulation to improve the quality of the information provided to the community. Second, the public needs skilled resources to engage with open data to ensure that the public is aware of and positively accepts open data initiatives, thereby triggering the public to be more participatory in government information. Finally, the published data must be sorted out to inform policy responses; this wasn't always the case at the beginning of the pandemic crisis. This research has limitations that focuses on the five official platforms of local governments with the highest cases during the second phase of the COVID-19 pandemic, so it is important to examine deeper data sources for future research.

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Contributorship.

All authors contributed significantly to the study's design, development, and execution and the publication's conception, writing, and final revision. The final manuscript has been agreed upon and approved by all writers.

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