

# Evaluation Of Smart Village Open Data To Realise Digital Village In Malang Regency

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## Abstract.

*Government policies that focus on Open Government Data (OGD) often aim to encourage the provision of interoperable public data to any user, including the lay citizen, through online portals. However, these OGD portals are mostly not updated and the portals do not yet contain data needed by the public such as performance reports, financial reports, activity reports, and other data. This condition occurs in many village governments in Malang District. Researchers focused on evaluating open data in village governments by measuring the principles of open data. Researchers collected data using interviews and observations. Researchers found that the public information disclosure score in Putukrejo village government was 55%. Putukrejo village government's public information disclosure has not been maximised because many elements have not been fulfilled such as data files that have not been uploaded including village regulations, financial reports, and other village documents; timeliness in news updates is also still not optimal; and interactive services and complaints.*

**Keywords:** Evaluation, Smart Village, Open Data, and Digital Villalge.

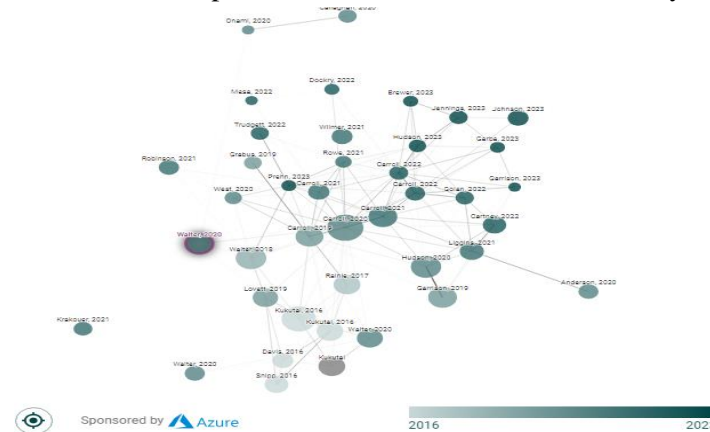
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## I. INTRODUCTION

Data is an important element in decision-making. In addition to data, good decision-making is based on quality data, evidence and knowledge (West et al., 2020). Data is also used in the field of planning. However, the data used as planning data is usually incomplete, not up-to-date, of low quality, and fragmented (Yiannakoulis et al., 2020). Based on the literature review, government data were identified as having five critical problems, namely data inconsistency, irrelevance, low data quality, data mistrust, and data controlled outside data users (Rainie et al., 2017). These critical issues are also related to quality dimensions including accuracy, completeness, and consistency (De Juana-Espinosa & Luján-Mora, 2020). These three dimensions are fundamental measurements of data quality. In addition, Fan and Geerts (Karamanou et al., 2023) added the importance of a specific data dimension, namely data currency. To realise the mentioned data quality, data innovation is needed. Data innovation in government is currently in the form of Open Data. Open Data is data that is freely used, modified, and redistributed by anyone and for any purpose (Simonofski et al., 2022). This definition is also in line with the World Bank. Open data is data freely available online, in machine-readable format and covered by a legal license that allows anyone to use and re-use it for any purpose, including for commercial purposes (Grabus & Greenberg, 2019). Open means free to use, reuse, and redistribute (Davis, 2016; Yap & Yu, 2016). Why open data is important or why it should be open. Open is defined as interoperability. Interoperability refers to the ability of different systems and organisations to interoperate (Bonina & Eaton, 2020). Open Government Data has a broad impact on the life of the state. Open data does not only have social and governmental impacts. Furthermore, open data has an economic impact both directly and indirectly.

Kampeener (2023) revealed that based on top-down modelling, it has an impact of 1-2% of the Gross Domestic Product (GDP) of countries in Africa. Bottom-up modelling identified impacted sectors including Agriculture, transport and logistics, public procurement, and geospatial data. In Europe (Bureau of Communications Research, 2016) open data accounts for \$500 million-\$25 billion per year. Tang and Jiang (2021) mentioned open data has an impact on macro and microeconomics. The value of EU data is estimated to impact potential economic growth of up to EUR 739 billion in 2020 (4% of EU GDP) (Davis, 2016; Yap & Yu, 2016). This reinforces the success of the economic impact of open data in Malang District. There is a very significant increase in local revenue (PAD) (Islami, 2021). In addition, economic success is also demonstrated by turning flooded areas into income-generating starfruit agro-tourism. Building open data is

not simple, it takes a lot of effort, hard work, and commitment from all parties involved. Factors that influence open data performance include aspects of Policy environment and context, Policy content (input), Performance indicators (output), and Public value (impact) (Simonofski et al., 2022). Moreover, the important determinants proposed by Smith (2016) are stakeholder intention (60.4%) and staff behaviour (54.2%). The dominant role of institutions implementing open data greatly influences the success of Open Government Data initiatives (Manongga & Sunarto, 2018). However, behind the dominance of institutions implementing open data, there is one component that connects each other, namely collaboration.



**Fig 1.** Distribution of open data research

In Indonesia, open data has been implemented since 2014. However, not all villages as the lowest level of government have implemented it. The success of open data in Malang Regency can be applied in Malang District. Open data is directed at developing the marketing of tourist objects. This research focuses on the evaluation of open data in villages in Malang District. The researcher chose one of the villages, namely Putukrejo village, where this village is developing open data in relation to creating a digital village. Based on the background of the research problem, the researcher focuses on how to evaluate open data in village governments in Malang Regency. The open data evaluation model can be a model for evaluating open data at other village government levels.

## II. METHODS

This research uses a qualitative approach. The researcher analysed the open data evaluation model of the village government in Malang Regency. The choice of research location is adjusted to the objectives and research problems (Satori, 2010: 56). The author determines the appropriate research location, namely Malang Regency with a village analysis unit, namely Putukrejo village, Gondanglegi sub-district. Putukrejo village has the tourism potential of Sumber Sira, which has the distinctiveness of community-based tourism development. This research uses two approaches to evaluate the application of Open data with a case study in Putukrejo village. First, in-depth interviews with a number of key figures in the organisational structure of the Putukrejo Village Government. Second, in-depth observations of the portals of local government organisations (OPDs) in Putukrejo village government.

### A. Interviews

Interviews were conducted with resource persons, namely stakeholders in the Putukrejo village government, consisting of 4 people, namely the head of planning, the village secretary, the head of welfare, and the head of general affairs. Researchers collected data through direct interviews with village government staff in the field of planning and who created the village website. In addition, we also interviewed the head of the Village-Owned Enterprises and the community who participated in the development of village tourism. Researchers observed the websites of villages in Malang Regency. It is known that each village government is currently provided with a village website, but it is not necessarily used by the village government. Malang Regency has 378 villages. If they have a whole website and the website information is updated, then tourism in Malang Regency can grow bigger. With qualitative data analysis techniques, the researchers carried out the stages of data collection, data condensation, data presentation and then drew conclusions. The interview technique used was an open-ended interview that allowed the interviewees to explain their perceptions and

perspectives on the implementation of Open Data. The eight principles of Open Data became the entry point in this in-depth interview. The equipment used was recording media that had asked permission from the interviewees beforehand.



Source: Researcher, 2023

**Fig 2.** Organisational Structure of the Putukrejo Village Government

### B. Observation of Village Government Portals

There are 378 village governments in Malang Regency. Observations made on village government portals were carried out randomly and only five websites were selected as samples.

### C. Evaluation Phase

The evaluation mechanism is as follows:

- 1) Data collection
- 2) Coding of interview data
- 3) Coding village government portal observation data
- 4) Synchronisation of interview and observation results
- 5) Conclusion.

**Table 1.** Scoring of Open Data Indicators

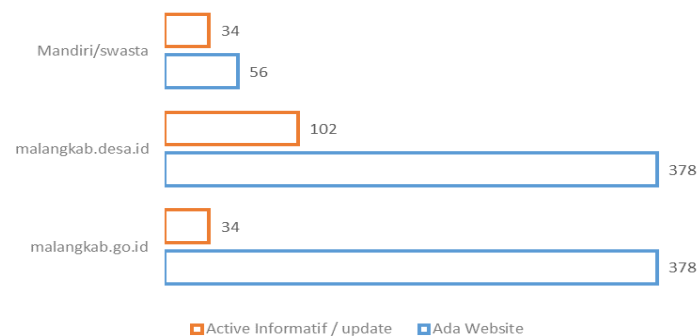
SKOR	RERATA INDIKATOR (DALAM %)
5	> 80%
4	>60-80%
3	>40-60%
2	>20-40%
1	0-20%

## III. RESULT AND DISSCUSSION

Open government data, also known as OGD, is a government initiative in organising open government in the field of information disclosure, data and can be reused by users. The Open Government Data (OGD) ecosystem consists of public, private and non-profit actors that play a specific role in the availability and use of publicly accessible government information. A healthy OGD ecosystem will influence the effectiveness of OGD goals. OGD can have a positive impact on democracy, policy effectiveness and economic development (Reggi & Dawes, 2022). In this social media era, village governments have been competing for data transparency through many platforms. The hope is that the published village potential will bring many benefits. The website is one of the benchmarks for village government publications. The types of information are in the form of activity news, village profiles, planning, finance, village regulations, and village potential. Malang Regency as a district that manages many tourist destinations has realised this. Malang District, through the Communication and Informatics Office, has created 378 village websites (Bag PDE, 2019).

The launch of this website was led directly by the Head of the Electronic Data Management Section Ferry Hari Agung, ST. MT. and the tutor was Erda Chandra W. The other staff were divided into three teams. The website launching was held on 30 May 2016, or about seven years ago. Each village's website operator also received three days of training in website data entry. Researchers reviewed 378 websites in

Malang District. One village has three websites. The village website from the Communication and Informatics Office of Malang Regency is malangkab.go.id; the village website from the Ministry of Villages is malangkab.desa.id; and the village website is either privately owned or self-made. The following data was collected from observations of village websites.



Source: Author, 2023

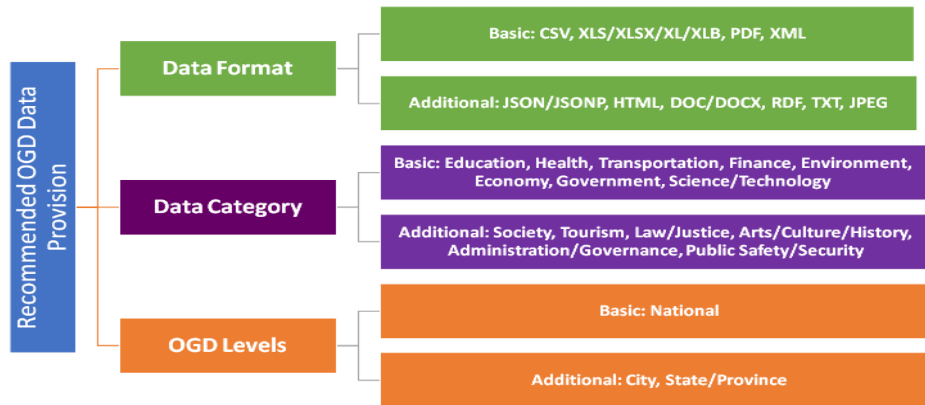
**Fig 3.** Number of Village Websites in Malang Regency

The data above shows that one village can have three websites with different sources. However, the implementation of data updating is not sustainable. Of the 378 village websites, only 34 websites update the malang.go.id website. As for the website from the Ministry of Villages, out of 378 websites, only 102 villages actively share their information through the malangkab.desa.id website. There are villages that choose to use a personal website, or create their own website. There are many considerations on which website to use. The website from the communication and information office of Malang Regency is a gift. This includes village websites from the Ministry of Villages. Top-down programmes have a psychological effect on non-compliance. Village governments feel they do not need the website. The impact of this top-down programme is the neglect of the village website. On the other hand, the basis for providing a website is based on the absolute necessity of the current digital era. Every village government needs a website for transparency of its policies, programmes, activities, and budgets. However, not all village governments understand this. For example, the village that the researcher observed below chose to build a website independently. Researchers explored further the development of the website in Putukrejo Village, Malang Regency. Putukrejo Village has a website operator admin as well as a planning department. The Putukrejo village government stated that it does not use the website from the Malang Regional government because the website is less user friendly and if there are technical problems, the operator must go to the office. This makes website operators a little reluctant to use. Moreover, the website of the Malang District Communication and Information Office is often erroneous. The Putukrejo Village website operator admin stated that many villages do not want to use a website with the malangkab.go.id domain.

"I built my own village website because if I use the go.id domain website, it often crashes. And I can't fix it quickly, because I have to go to the office, contact the office, and the response is long. So I use my own website".

The village operator's statement was also supported by the village secretary, who said that the village website from the ministry also experienced similar problems. Putukrejo Village independently built the website. This is supported by human resources who understand websites/coding programming languages. There are two staff who understand how to build a website. The experience and knowledge of staff greatly affects the willingness to update website data. This is in line with Islami (2021), many critical success factors for implementing village websites are human resources. Village governments that have superior resources in the field of technology and high integrity will provide powerful website performance and vice versa. In the research of Zhao et al. (2022), the key factors of government data mechanisms include staff knowledge. If staff do not understand the website, the website will be less updated. If examined more deeply, the village website as a means of data transparency that is reused by the community has principles that must be adhered to. Researchers analysed the Putukrejo village website to determine the extent to which open data principles are applied. The OECD OURdata Index assesses government efforts to implement open data in three

important areas - Openness, Usability, and Reuse of government data. According to OEDC (Tang & Jiang, 2021) good data is data that can be reused by users. The recommendations for data provision according to OECD are as follows.



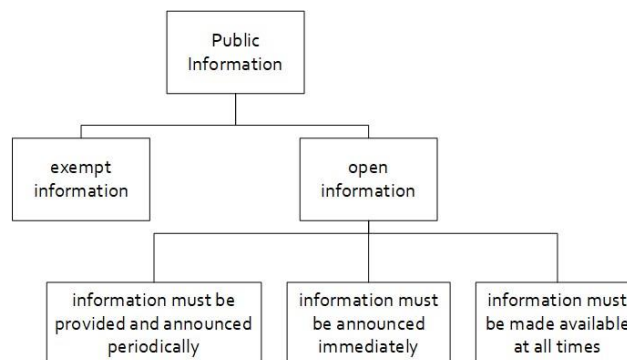
**Fig 4.** Recommendations for Data Provisioning in the OGD

Data provision in OGD based on data format is CSV, XLSX, XL, PDF, XML. The data format can be added JSON, HTML, DOC, RDF, TXT and JPEG. Data categories that can be presented are education, health, transport, finance, environment, economy, government, technology. Additional categories are social, tourism, law, culture, administration, public security. Meanwhile, OGD has a national, city, and provincial level. Based on the details of data provision, the evaluation of Open Data in Malang District, represented by Putukrejo Village, can be seen in the following table.

**Table 2.** Evaluation of Open Data in Malang District (Putukrejo Village Study)

No.	Evaluation Components	Description	Information
1.	Data Format	-	<a href="http://putukrejo.com/">http://putukrejo.com/</a>
2.	Data category	government	Putukrejo village government
3.	OGD levels	Village	Putukrejo village government

Putukrejo Village already has a village website with the url address <https://www.putukrejo.com/>. The Putukrejo website was built by the village government staff, namely M. Nizar Zulmi, the head of Planning. The limited budget for website procurement does not discourage the publication of government data. The website was built independently by the planning staff. Currently, it is still limited to news publication. From the results of data collection through interviews and observations of village government portals, the data can be analysed as follows. Interviewees' perceptions of the meaning of the principle of completeness in data and information management can be summarised as follows. The types of information managed by the village government consist of: (1) open information, (2) exempt information. Open information is further classified into three categories, namely: (1) public information that must be provided and announced periodically, (2) public information that must be announced immediately, and (3) public information that must be available at all times. Figure 4 shows the classification of information managed by the village government.



*Source: Interviewee, 2023*

**Fig 5.** Classification of Public Information



The Putukrejo village government illustrates that not all information is shared with the community through the website. Many community meetings are used as places of transparency, such as RT/RW gatherings, religious events such as yasinan and tahlilal, as well as village events that invite residents. The Putukrejo village government divides information into two parts: open public information and exempt public information. Open public information is divided into three elements: mandatory information announced periodically through the website; mandatory information announced incidentally; and mandatory information provided at all times. Exempt information includes detailed personal information of staff, information on the village's natural resources, information that may interfere with the public interest, and information that may create community divisions.

**Table 3.** Indikator Prinsip Open Data

Open Data Principles	Indicator	Putukrejo Village Website	Score
Full details	Porfil Detailed Information	Putukrejo Village Government profile has not been updated. There is a village apparatus profile	4
	Activity information	Activity articles updated until August 2023	
	Activity Realisation Information	Available in the infographic on the realisation of the village budget.	
	Financial statement information	No financial report	
	Summary of Information Accessed by the Public	Available. APBDes 2023	
	Summary information on regulations, decisions, and/or policies	None	
	Information on the rights and procedures for obtaining Public Information	None	
	Information on procedures for complaints of abuse of authority	None	
Primary	Information on early warning procedures and emergency evacuation procedures	None	5
	Owned and uploaded in the portal	Available.	
Ontime	Unmodified, except for financial information is the total activity, not detailed	Available in Infografis	3
	Application deadline 1-2 with 7-day extension	On time, but some activities have not been uploaded regularly	
Accessible	Periodic open information every 6 months		3
	Offline	None	
Can be processed multiplatform	Online	Available.	2
	Pdf	None	
	Csv	None	
Non-Discriminatory	Web Service	None	4
	Application procedure	Available.	
	Upload Procedure	Available.	
Non-ownership/Non-exclusive	Dispute Procedure	Available.	2
	Exempt Information Verification Procedure	None	
	Exempt Information Verification Procedure	None	
	Procedure for Verification of Open Information Requested Immediately	None	
Licence-free	Procedure for Verification of Open Information uploaded at any time	None	2
	Use of legal software	None	
Average score			3,125

Based on eight Open Data principles, First is data completeness. According to the interviewees, complete information is open information that must be provided periodically, immediately and at any time. The principle of completeness is based on UU KIP No. 14 of 2008. In general, the principle of complete information must at least include the origin of the document, the date of the document, the name of the document, the responsible official, and the content of the document. The Putukrejo village website has provided informative data including news content, time, reporter, and place. The existing profile is the profile of the village apparatus. Information on activities is also still updated until August 2023. Other information available is an infographic of the APBDes 2023 and the realisation of the APBDes. However,

other documents are not yet available, such as information on regulations, rights and obligations of public information, procedures for complaints and others. **Second**, Primary means that the source of data and information or documents uploaded must be clear and direct without modification, except for financial reports published in total numbers without detailed data. The Putukrejo website already provides an infographic of the APBDes. **Third**, Timeliness is timeliness in terms of uploading information periodically, immediately and at any time. Documents that are uploaded periodically are once every 6 months. In addition, timeliness is also seen in terms of the deadline between citizen requests and the time of provision or uploading of the intended documents, which is a minimum of 1 day and a maximum of 7 days. Timely, but some activities have not been uploaded regularly. There is no digital-based service yet. The website only presents informative data or news of activities. The Putukrejo Village website is informative, with no transactions or digital services.

**Fourth**, accessible. The principle of accessible data and information means that every citizen can read, request or download documents through the portals provided, both village government portals freely within 24 hours a day. Data requests can be made online or offline. Online using email or WhatsApp. While offline, data requests come directly to the village government. On the website, there is no pdf or excel extension data upload. **Fifth**, Multiplatform Processing. Uploaded documents can be used and downloaded by residents themselves in pdf, csv or web service formats. The Putukrejo Village website has no documents uploaded to the website, so the community cannot download documents. **Sixth**, Non-Discriminatory. Anyone in the community can request information online or offline by including their identity and stating the reason for requesting the document. The mechanism is explained transparently through the village government's website so that the community is well informed. **Seventh**, the principle of non-exclusiveness. According to the interviewees, non-exclusivity means that every document uploaded or downloaded has the same mechanism and is fair and open. This is to avoid the superiority of stakeholder officials. The Putukrejo village government is open to anyone who wants village data, either by coming directly to the village office or by requesting it online. The village government does not discriminate in the treatment of data requests because there are already standard operational procedures related to village government data requests.

**Eighth**, the Licence-Free Principle. All documents that are open data can be downloaded without exception with the default pdf format so that they are not bound by any licence. Especially for offline document requests, officers will provide copies of documents, and if needed, copies of relatively large documents are subject to reasonable fees. Putukrejo village government uses digital file copies to be distributed to data requesters. The eight principles of open data in Putukrejo Village Government have been evaluated. The researcher then determined a score based on the eight indicators based on the results of interviews and observations. The classification of indicator scores has been communicated with the resource persons. Based on the results of interviews and observations, Putukrejo Village's openness of government data achieved a score of 3.125 or 55%. Public information disclosure of the Putukrejo village government has not been maximised because many elements have not been fulfilled such as data files that have not been uploaded including village regulations, financial reports, and other village documents; timeliness in news updates is also still not optimal; and interactive services and complaints.

#### IV. CONCLUSION

The implementation of public information disclosure in Malang Regency through the website is not optimal. It is known that the use of the website has not shown updated information. Many village government websites do not use the website of the communication and information office. The score for the principle of openness of village government data reached 55%. Adherence to the principle and spirit of open data and information implementation is fully supported by all stakeholders. The variety of document formats has not been fully met by all village governments. Case Study Putukrejo village government website is still not interoperable. Another aspect that has not received attention is the security of the data uploaded on each village government's website.

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