Smart Governance in Indonesian Village Towards SDGs Achievement

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Abstract
After the Covid-19 pandemic, there has been an increase in digital technology in the community, both in terms of its utilization and intensity. Digital Indonesia 2022 data released by We Are Social with Kepios shows an increase of 1 percent or 2.1 million internet users in January 2022 compared to January 2021 with increasingly diverse internet usage variations. Digital transformation not only occurs in urban but also in rural areas. BPS data shows that the growth of internet users in villages is greater than in cities in 2020. This changing habit from the community encourages village governments to transform services and village development through smart governance. This research aims to describe the role of smart governance in supporting the achievement of sustainable development goals. This research was conducted by descriptive analysis using various works of literature as data. The study found that good governance encourages the creation of digital databases in villages. This database is important in achieving the 17 goals of the SDGs, especially goals 16 and 17. To realize smart governance that can contribute to the achievement of SDGs, there are 4 key factors, such as openness of village government, village community services, and community participation in village governance.

Keywords: SDGs, Smart governance, Village

INTRODUCTION
The COVID-19 pandemic that has occurred since 2020 has become one of the driving forces for increasing the use of digital technology to meet people's needs. This statement is based on data that during the COVID-19 pandemic, there was an increase in the number of internet users in Indonesia and the variety of internet services used.

Figure 1 shows an increase in the number of internet users in Indonesia in 2021. Considering that the data submitted is data as of January every year, this indicates that the increase in the number of internet users has begun in 2020. The increase in the number of internet users is partly due to the policy of limiting interactions in society as an effort to eradicate the pandemic.

The existence of restrictions on social interaction has led to an increase in the use of digital technology in more diverse forms. The data submitted by

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We Are Social together with Kepios through Digital Indonesia 2020 and 2021 shows that there are various forms of using digital technology, especially mobile phones as an alternative to meeting needs as shown in Table 1.

Figure 1. Internet users in Indonesia
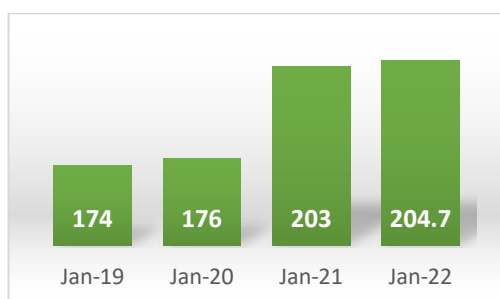
Source: Digital Indonesia 2022

Table 1. Use of mobile phones

Use mobile apps by category	2020	2021
Chat apps	96	96,5
Social networking apps	96	96,3
Entertainment and video apps	83	86,2
Music apps	56	40,4
Game apps	59	60,2
Shopping apps	55	78,2
Map apps	75	77,6
Banking and financial services apps	33	39,2
Health, fitness, and nutrition apps	20	23,4
Dating and friendship apps	9	10,9

Source: Digital Indonesia 2020 & 2021

The data in the table shows an increase in the use of technology in other activities that were previously dominated by communication and social media applications. The largest increase in the number of application usage was seen in shopping applications and followed by banking and financial applications. This shows that in meeting their needs during the pandemic, people use various digital platforms as a solution to the limitations of social interaction outside the home.

The increase in the use of digital technology during the pandemic is a response to the government's preventive efforts in overcoming the spread of the epidemic which has an impact on the decline in the quality of other public services and weakens the economy (Limanseto, 2021; ADB, 2021). The use of digital technology through e-commerce, social media, and other digital platforms is very important for the community in meeting their needs and for sellers to be able to run their businesses without having physical contact between sellers and buyers (Gu & Wang, 2020).

This digital transformation process does not only occur in urban areas but also occurs in rural areas of Indonesia. Data released by BPS shows the increase in household internet users in rural areas is higher than in urban areas as shown in Table 2.

Table 2. Increasing the number of Internet user households in Indonesia

Region	2019	2020
Urban	5,49	3,24
Rural	9,34	5,95
Urban + Rural	7,53	4,43

Source: BPS

Table 2 shows that the increasing number of households using the Internet in Indonesia mostly come from rural areas. This indicates that digitalization is part of the village's development efforts.

Various forms of digitalization efforts or the use of digital technology have been carried out in villages in

Indonesia. And as previously explained, this effort has accelerated during the Covid-19 Pandemic. The digitization that occurs is not only related to the economic sector but also occurs in the government sector and public services. The implementation of smart governance during the COVID-19 pandemic has increased, especially in the intensity of the need for higher public information and the use of various applications in terms of public services (Rachmawati et al., 2021).

Many villages in Indonesia have utilized digital technology in the administration of government. This digital-based government service leads to the implementation of the smart governance concept.

Smart governance itself is the use of ICT in the policy formulation process that not only involves the government but also community participation (Chun, Adam, & Noveck, 2018). Smart governance is also interpreted as a human effort to form effective and more open (transparent) governance by utilizing all functions of information and communication technology (Meijer and Bolívar, 2016). Smart governance within the smart city framework is seen as a sociotechnical approach that combines the potential of technology and collaboration between government and society to address development problems based on sustainability principles (Holland, 2015; Tomor et al., 2019).

The implementation of smart governance involves various institutions, including organizations, businesses, academics, and the community at the national to local levels (Girardi and Temporelli, 2017). The development of smart governance is supported by internal aspects, namely trust, commitment, and common goals, and external aspects, namely collaboration and cooperation (Ooms et al., 2020).

Numerous studies have discussed IT integration into rural development and economic activities (Mishbah et al., 2018) The government has a role to provide a service platform that is not limited to government services but also services that can encourage business investment (Mukti et al., 2021).

Given that Indonesia's current development approach refers to the achievement of the SDGs targets, it is necessary to ensure that the smart governance developed by village governments in Indonesia is not only a situational effort as a solution to government services during the pandemic. Digital technology and interconnectedness, which are the supporting elements for smart governance, are important instruments in implementing the Sustainable Development Goals. Access to information and communication technology as well as affordable internet access is one of the 2030 Development Goals Agenda (United Nations General Assembly, 2015).

Several studies show that empirical evidence of the impact of smart governance is still very rare, especially with sustainable development (Tomor et al., 2019). However, conceptually, previous studies found the potential and close relationship of smart governance with sustainable development (Kanie et al., 2019; Adamowicz and Zwolińska-Ligaj, 2020).

The purpose of the SDGs itself places governance as one of the important pillars in achieving the SDGs. Therefore, this study will examine in more depth the concept of smart governance through its indicators and examine the potential of smart governance to contribute to the achievement of sustainable development.

RESEARCH METHOD

Following needs and character as well as for answer focus study so research this use a qualitative method with descriptive analysis approach. The process of getting the data is done through observation, FGD including interviews, documentation, and supported by a literature review to get a description of how smart governance can contribute to achievement development sustainable.

The data search was carried out in 2021. FGDs and interviews were conducted on 4 villages that were selected purposively with the criteria that they already had/implemented good practices in implementing smart governance indicators in the village. The results of interviews, observations, and documentation were then analyzed together with a literature review to get an overview of the implementation of smart governance and its potential in supporting the achievement of sustainable development.

RESULTS AND DISCUSSION

Smart Governance

The results of a review of several works of literature, Bolivar and Meijer (2015) conclude that although there is no standard agreement regarding the definition of smart governance, at least there are similarities between each definition presented in various pieces of literature. The similarity is that the definition of smart governance will include elements (i) the use of technology (smart ICT); (ii) an organized process (smart collaboration, participation, smart internal administration, smart decision making, and smart administration); (iii) aspired outcomes (high school outcomes).

Smart governance is one of the pillars that make up a smart city, which was initiated by Griffinger and Haindl (2010). Smart governance includes aspects of political participation, public services, and administrative functions (Griffinger, et al. 2007). In the concept of smart governance, Griffinger and Haindl explain that smart governance has the characteristics of participation with constituent factors including participation in decision-making, public and social services, transparent governance, and political strategies & perspectives.

A similar concept but using different terms in the smart city concept was initiated by Cohen (2014). Cohen uses the term smart government which consists of 3 working areas and 8 indicators as follows:

Working Area	Indicator
Online services	Online procedures
	Electronic Benefits Payments
Infrastructure	Broadband coverage
	Sensor coverage
	Integrated health and safety operations
Open Government	Open data
	Open apps
	Privacy

Although smart governance has its explanation as described above, the good governance approach still needs to be considered in the implementation of smart governance. Referring to UNDP's principles of good governance, several principles of good governance can be applied to village governance. Namely:

a. Transparency in governance
b. Community participation in governance
c. Accountability or accountability of the village government in the administration of government
d. Law enforcement
e. The responsiveness of the village government in responding to community aspirations and existing problems
f. Justice
g. Effectiveness and efficiency
h. Orientation to deliberation and consensus
i. Strategic Vision in Governance

Lopes (2017) mentions smart governance as a form of implementation of good governance must be open (transparent), accountable, collaborative (involving whole holder interests), encourage engagement participation community, and be technology-based (e-government).

In another study, Widyastuti et al. (2021) state that there are at least four main work areas of smart governance, namely government services, online-based government services, government transparency, and community participation. In this case, the existence of past and present data is important to predict future conditions so that appropriate data-based policies and decisions can be formulated.

Mutiara et al. (2018) stated that smart governance can be realized if there is transparent governance and open data for the community. This is also supported by David et al. (2015) who explain that smart governance as part of a smart city should be able to create a transparent city.

Government innovation in improving public services through digitalization has challenges, especially in reaching the entire community, there are some groups such as the elderly, and people with very low income may not be able to access digital services so it needs special attention and treatment from the village government (Larsson K.K., 2021).

The adaptation of governance to the era of digitalization raises challenges not only in the social conditions of the community and the relationship between the government and other stakeholders such as between the government and the private sector. Challenges in the implementation of e-governance are also related to various policy areas and geographical conditions

of the region so in terms of evaluation, appropriate instruments are needed (Umbach, G., & Tkalec, I. 2022).

Digitalization in public services influences the interaction between the village government and the community, but it is also related to changes in the skills that must be possessed by the village government to changes and developments in digital technology such as operating digital applications, around data and security (Lindgren, I et al., 2019). Therefore, there is a need for supervision related to data security and ethics in implementing smart governance practices in the village. There is a change in the interaction between the government and the community so it is necessary to socialize or increase public literacy as well as special ethics. In addition, there are also several implications of increasing digitalization in public services for accountability which emphasizes equality and inclusiveness from digitalization (Agostino et al, 2022).

Smart Governance Practices in Villages in Indonesia

The implementation of smart governance practices in villages in Indonesia has been developed by several villages. The implementation of smart governance in villages is not uniform but varies in each village because it adapts to the needs of each village.

Based on the results of data findings in 4 villages that implement smart governance practices in Indonesia include:

1. Srimulyo Village, Kab. Bantul, Province of the Special Region of Yogyakarta

Srimulyo Village is one of the 75 (seventy-five) villages that support Bantul Regency, DIY to join the Movement Towards Smart City Phase II in Indonesia. One of the implementations of the movement toward Bantul Smart City is supporting "PTSP-based Licensing Services (One Stop Services)", which was initiated by the Ministry of Communication and Information Technology of the Republic of Indonesia in 2018.

The implementation of smart governance in Srimulyo Village can be seen in employee management, government transparency, government administration processes, and community services. Good employee management begins with the village apparatus recruitment process which is carried out openly to avoid fraud and conflicts of interest in the recruitment process. The government apparatus of Srimulyo Village was chosen from local village children who have good educational backgrounds so that they can follow technological developments in the development process in the village.

To improve the quality of services that will be provided to the community, village officials receive training and education about the character. In addition, village officials are required to use fingerprints in the attendance recap process as a form of maintaining discipline.

In terms of government transparency, there is a village website which is a means for villages to publish

programs and activities carried out. In addition, there are differences between larger areas such as districts where transparency can be driven by political competition, in villages the human resources of the village government and the will to increase professionalism administratively transparency is practiced (Bearfield, D. A., & Bowman, A. O. M., 2017). Srimulyo Village is also developing a community aspiration service application. In this application, the community can submit complaints, complaints, aspirations or suggestions for programs, activities, or services in the village.

The government administration process in Srimulyo Village has also been carried out by utilizing digital technology. All village apparatus data and government administrative processes such as the correspondence process are carried out digitally. In addition, Srimulyo Village has also used various applications developed by the central government such as Sideka, SIKS-NG, and others.

The use of digital technology is very clear in services to rural communities. This is because there are several applications developed by the village to facilitate the implementation of services to the community. Such as administrative services that facilitate the application process for the administration of citizen letters, land services based on spatial data as a solution to land dispute cases, as well as early warning system services for flooding in villages. In addition, the village has a database of villagers in digital form so that they can support better services.

2. East Duda Village, Karangasem Regency, Bali Province

Duda Timur Village has a slogan of a smart village and has used digital technology in the implementation of government activities in the village. Smart governance in this village focuses on government services and transparency. To facilitate smart governance, this village developed an Android-based interactive website and smart village application.

Statistics show that mobile device users spend time surfing mobile apps and the web, so improving public services accessibility is important to reach all people (Park, E., Han, et.al., 2019). Several services that can be accessed by the community through the Duda Timur Village interactive website include population administration services (from the application process to the schedule for document collection), residents' spatial data, citizen report portals, village geography (including tourist sites, culinary delights, and others), government contacts. village, news, and gallery of village activities. More complete service features can be accessed by villagers through the Android-based village sm@rt application. In addition to the services listed on the website, this application also includes transparency of village activities and an early warning system related to the dangers that exist in the village.

To support this digital-based service, the village has completely digitalized citizen data, such as blood type. This aims to facilitate access to blood between residents when needed. The village also has data on children

under five who underwent immunization as a form of concern for public health.

3. Kesambirampak Village, Situbondo Regency, East Java Province=

Kesambirampak Village has a Smart Rampak program (Kesambirampak Ready Delivery Service), namely information technology-based services including population administration, government administration, help centers, to village websites. The initiation of this program emerged from the Village Development Agency (BPD) in 2018.

In terms of administrative services to the public, this program is not limited to special applications or websites. However, the community can take advantage of various communication applications owned by the community to apply for administrative services to the village.

In terms of government services, this program not only facilitates the administrative process of correspondence, but the village can also carry out transparency in program implementation and budget use through the village website. The village government is also equipped with a village apparatus administrative recording system which is a forum for evaluating the performance of the village apparatus.

This program also presents various data needed by the community such as village maps based on spatial data, village law products, publication of village potentials (superior products and tourism), and a help center for residents

who want to convey their aspirations to the village.

The transformation process carried out by Kesambirampak Village is not only limited to the digitization process. However, digital data owned by the village can be analyzed through the system. The results of this analysis are used as village considerations in the process of policy formulation and decision-making.

4. Punggul Village, Badung Regency, Bali Province

The development of smart governance in Punggul Village is a form of village support for the superior program of Badung Regency which encourages increased use of information and communication technology in the administration of government and public services.

In practice, Punggul Village develops village websites that have various features. Broadly speaking, these features function for transparency in the implementation of government, employee management, and community services. Transparency in the implementation of government can be seen in the publication of activities and programs carried out by the village government. Not only that but in a closed system, this transparency is also part of the evaluation and monitoring of programs and finances from the BPD, which is facilitated through a separate feature.

Employee performance management is also carried out using the dashboard. Thus the village head can monitor the performance of the position of the village apparatus in real-time. In

terms of services to the community provided in the dashboard are not only related to administrative services but also various other basic services such as health, and security to land. The village government also has a digitized population database so that this digital-based service process can run well.

The examples of smart governance implementation that have been carried out in the villages above, there are similarities in terms of targets to be achieved, application objectives, or forms of implementation. Existing smart governance practices supported by the previously described concepts can be formulated as indicators of village smart governance in Indonesia.

These indicators of village smart governance in Indonesia support the four key factors of smart governance in villages in Indonesia. The key factors and indicators referred to are as follows:

a. The openness of village government

Openness is an important part of implementing Smart Governance as a form of realization of Good Governance. Transparency in government is manifested in the decision-making process and policies that are in accordance with existing regulations and the availability of information that can be easily accessed (Mutiara et al. 2018; Johannessenn & Berntzen, 2018).

Transparency provides opportunities for citizens to be able to take part in the administration of government. With transparency, citizens can contribute and evaluate the decision-making process so that it becomes a driver of community participation in

government (Mutiara, 2018; Farikhah, 2019).

Based on the above results and the practice of smart governance in the village, the openness of the village government in supporting smart governance can be demonstrated by indicators of tor as following:

i. Transparency program and usage information budget village
ii. Transparency of the mechanism or SOP for the implementation of community services
iii. Availability of basic village data digitally
iv. Availability of applications that support monitoring and evaluation of village programs and budgets.
v. Information on the development of village development

b. Village community service

Good public service as a form of smart governance implementation will be able to encourage the achievement of the four SDGs pillars and realize all the pillars of both smart villages and smart cities (Razek, 2021). The breadth of the forms of services provided by the village government to the community makes it necessary to limit the context of services classified in smart governance to avoid overlapping implications with other segments such as the smart living side, people, or the economy. Village community services in smart governance are limited to administrative services provided by the village to the community, both general administrative services and administration related to the population.

Effective community service in the village begins with the existence of

village big data which is an instrument to differentiate government from the usual way and smart government. The implementation of big data in public services is able to realize effective services in less time, at a cheaper cost, and smaller potential for mistakes (Sarker & Hossin, 2018).

c. Community Participation in Village Governance

Community participation in village governance is part of a form of smart governance as a form of community response to good governance (Schware and Deane, 2003; Engelbert et al., 2014). The implementation of smart governance that optimizes ICT as a means of communication with the community is considered capable of encouraging the contribution of the community and the private sector in the development and government process (Maheswari & Janssen, 2014).

Community participation in question is at least visible in the:
  i. Village development planning
  ii. Political participation
  iii. Participation in various village activities or programs

Community participation is also an important factor in realizing smart governance. Communities as beneficiaries of government programs have the opportunity to determine what they need and their ability to contribute or be involved in any government decision-making. With the implementation of smart governance using ICT, it is possible to discuss two directives from the community and the government regarding public issues

(Linders, 2019; Ellison N and Hardey M, 2014; Sobaci MZ and Karkin N, 2013).

d. Effectiveness and efficiency of programs and services

Smart governance is expected to be able to encourage more effective programs or services in achieving more efficient program targets and community services. According to Razek (2021), good governance is indicated by an efficient program. The effectiveness and efficiency of smart village governance can be seen if:
  i. Implement service operational standards
  ii. Availability of public complaint service
  iii. Availability of employee performance management applications
  iv. Availability of village digital service user data

A. Smart Governance's Contribution to achieving sustainable development targets

Village governance has a significant role in ensuring the success of development efforts in the village. Especially in supporting the achievement of sustainable development goals, governance has a strategic role. Razek (2021) states that without effective governance, sustainability will be difficult to achieve.

Like how the village has the right database that can be used as the basis for formulating policies and programs that will be carried out by the village. Thus, of course, smart governance has contributed to the achievement of

sustainable development goals which are becoming mainstream development today.

The contribution of smart governance in villages in supporting the achievement of the SDGs can be seen through the key factors and indicators of smart governance in villages in Indonesia which are the result of an analysis of the practices and concepts of smart governance. The contributions in question are as follows:

Openness of village government
The supporting indicators for the openness factor of village governance are in line with the indicators that make up Goal 16 of the Sustainable Development Goals (SDGs). The implementation of smart governance supports the realization of an accountable and transparent village government. In the long term, it is expected to be able to reduce the number of corruption in government (Giuliodori et al., 2022).

Keping (2018) mentions that transparency in supporting sustainable development refers to publicity information politics. All citizens have the right to information about related state policies with the importance alone, including activity legislature, manufacture policies, terms law, enforcement policy, budget administration, spending public, and information political related other. The more tall degrees of transparency, the more good governance is high.

Village community service
Public services becomes important aspect in realizing good governance and

achieving SDGs goals. Public services gives an opportunity for the Public to get rights and needs base service on goods public, service public, and/ or service administration provided (Winarno and Endang, 2019).

In implementing community services, village governments that have implemented smart governance have a complete and real-time digital database. The availability of this data is considered capable of being an effective approach to encouraging the achievement of the SDGs (Maizunati, 2018; Del Hoyo, 2021). This is in line with the target for the availability of quality data in Goal 17 of the SDGs. Furthermore, the actual data can be used by the village in analyzing the socio-economic conditions of the community and formulating various policies that can support the achievement of almost all of the SDGs.

Village community services, especially in relation to population administration services, have contributed at least to target 16.9 of Goal 16 and target 17.19 of Goal 17 of the SDGs.

Community participation in village governance
Community participation described in the SDGs has a measurement level at the City/District level. However, in the district, community participation starts from the village. So that the form of community participation in the administration of village governance is considered to be in line with Goal 11 SDGs and 17 SDGs (Giuliodori et al., 2022).

Community participation is very much needed in supporting the

achievement of the SDGs because the achievement of the SDGs cannot be imposed only on some parties, but requires contributions from many parties, including the community (Maizunati, 2018).

The same thing was also expressed by Rahman, 2016 who stated that the participation Public has an important role in planning development because push implementation in accordance with the needs of society. Through participation community, can obtain information about the village's public needs as well as the Public will run and appreciate the development village if opted in in the planning process development carried out, because this is right democratic from Public in the planning process development village.

Program effectiveness and efficiency
The implementation of services to the community in accordance with existing standards is in line with Goal 12 of the SDGs. The implication of an effective and efficient service is the realization of community satisfaction in line with Goal 16.

The identification results above show that several SDGs goals are in line and can be encouraged through the implementation of smart governance in the village. In general, the implementation of smart governance is able to support the achievement of SDG 11. However, SDG 11 explains sustainable cities. In the context of Indonesia, a district as an area equivalent to a city has a village as the smallest unit of government area. In this case, the achievement of SDGs at the

district level will not be realized properly without good implementation of the SDGs at the village level. Thus, it is concluded that the realization of SDG 11 can be driven by the implementation of smart governance at the village level.

In addition to SDG 11, SDG 16 and SDG 17 are the 2 SDG goals that have the most alignment with smart governance as shown in the results of the analysis.

CONCLUSION
Refers to the principles of good governance, including transparency, participation, and accountability. Many villages in Indonesia have implemented smart governance to improve public services. The COVID-19 pandemic has encouraged more innovation in the use of digital technology in public services.

Based on good practices in implementing smart governance in Indonesian villages, it is supported by four key factors, such as transparency of village government, village community services, community participation in village government, and effectiveness and efficiency of programs and services. Thus, smart governance practices have a role and potential in supporting the sustainable development of SDGs in goals 16, and 17. Although it does not cover the entirety of each of the SDGs, smart governance has the potential to achieve all sustainable development goals.

In the future, villages that have implemented smart governance practices can inspire other villages and develop village governance innovations. Villages that implement smart governance will have good data quality,

transparency, effectiveness, and efficient services. Comprehensive village mapping is needed and support from all stakeholders, both communities and other stakeholders, in terms of regulations, infrastructure, and human resources. The implementation of smart governance is expected to reduce the existence of overlapping, ineffective, and inefficient platforms or applications.

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