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SMART GOVERNANCE POLICY: AN OVERVIEW OF THE LOCAL GOVERNMENT PERFORMANCE

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ABSTRACT. *One of the challenges in digital transformation is developing a comprehensive digital ecosystem. This article aims to analyze smart governance policies in improving government efficiency in Indonesia. The number of applications cannot be used as a benchmark in determining the performance of governance implementation. This article uses a qualitative research method with the approach of a systematic literature review. The results of the study found that smart governance policies are oriented to 4 indicators, including community participation, effective governance, public and social services, and political perspectives and strategies. This policy will be successful if implemented collaboratively and integratively. A clear vision and strategy can support the implementation of smart governance. This research also develops various smart governance policy challenges including digital technology infrastructure, organization, policy reform, and collaborative work development.*

Keywords: *Smart Governance, Local Government, Community Participation, Digital Transformation.*

INTRODUCTION

Citizens' everyday lives are being profoundly affected by smart cities. Smart mobility, smart infrastructure, smart government, smart life, smart climate, and smart people are the six core components of a smart city. Several smart city programs have been implemented by governments and organisations around the world over the last few decades. Emerging technology and the internet have moved citizens' transportation, schooling, investment, and other practices from conventional to smart models (F. Liu, Shi, and Chen 2021).

Smart and collaborative government is central to the concept of smart cities. Other definitions of the city pay less attention to community agencies, residents, and other stakeholders than governance-focused publications do. Since its initial (albeit limited) use in the first half of the first decade of the twenty-first century, the concept of smart cities has evolved significantly, integrating ICT, digital uses, and community engagement, as well as managing a complex government structure involving municipal administrations, state bodies, corporations, residents, and communities. (Anand and Navío-Marco 2018).

In the earliest conceptions of a smart city, information and communication technology (ICT) played a crucial role. It is anticipated that three-dimensional alignment, infrastructure, human capital, and Governance will contribute to the ingenuity of a city's policies (Rodríguez-Bolívar 2015). Literature reveals that a smart city can be a city of intelligent coordination in which smart city management tends to rely on collaborative processes and participation from numerous actors. (M. P. R. Bolívar and Meijer 2016; Broccardo, Culasso, and Mauro 2019). In developed countries, ICT plays a crucial role in facilitating knowledge exchange and integration between government institutions and external partners, such as citizens. (Parycek and Viale 2017).

Cohen and Boyd (2013) define Smart City as a comprehensive, integrated approach that increases the efficacy of city operations, improves the quality of life for the local population, and stimulates the local economy. Cohen further defined it Aspect-weighted Smart City environment as follows: Smart City utilizes ICT in an intelligent and efficient manner with a variety of resources, resulting in cost and energy savings as well as a reduction

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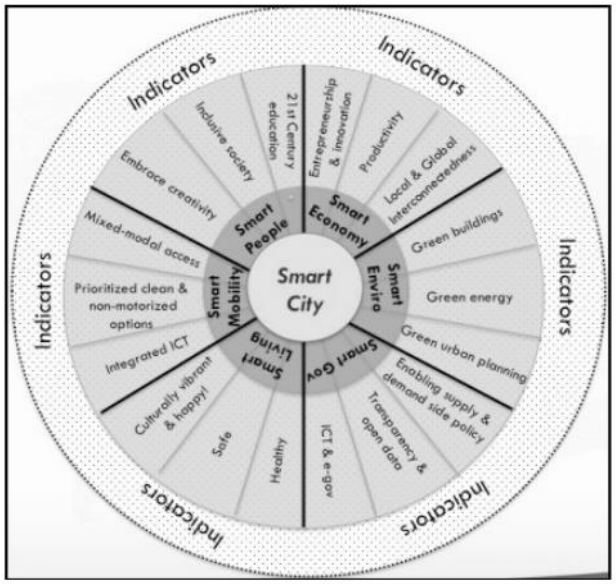
in the environmental footprint of all innovation and economy support.



Source : (Cohen 2013)

Figure 1.1. Dimensions and Indicators of Smart City According to Cohen

The primary objective of Smart Cities is to enhance the quality of life of city residents in proportion to the urban population. Out of the 25 cities designated to administer the smart city program in 2017, the deployment challenges of smart cities still exist in Indonesia. The test was conducted in 15 smart cities considered ready to launch. In light of the introduction of the e-government system, these cities have successfully completed more than fifty-one percent of the smart governance operations. As a crucial aspect, this study demonstrates intelligent governance. (Anindra, Supangkat, and Kosala 2018).

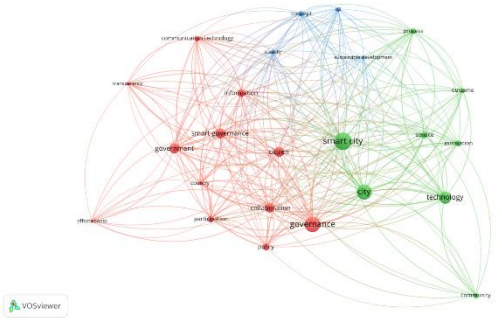
Recently, the philosophy of sustainability has become closely aligned with the narrative of smart cities. Sensor-enabled early warning systems and control room monitoring contribute significantly to the prevention and anticipation of climate change shock impacts. Smart grids and water monitoring systems make possible resource utilization and feedback cycles. Although the operational aspects of smart cities are largely uncontested, there is a need to cast more light on the long-term viability of digital urbanism. (Aurigi and Odendaal 2020). A plethora of technologies are on the market and the field of smart cities is experiencing accelerated expansion. (Lom and Pribyl 2021).

It is possible to implement the smart governance paradigm on a local level in order to formulate, initiate, and implement policies, programs, and solutions for smart cities. It is suggested that a Digital Government Evolution Model be developed, in which the transition is linked to the transition stage, which can range from no governmental implementation to internal government transformation, development that affects relationships between government and non-government stakeholders, and finally transformations based on the national, city, or sectoral government context (Janowski 2015).

Smart City became popular both at the government level central and local government levels. This is because it is getting to the future more people will live in urban so Smart City planning absolutely necessary (Bappenas, 2015). Data obtained from BPS 2014 graph population living in urban areas in 2014 is 48.39% and in 2015 already reached 59.35%, so the rate urban population growth by year 2045 is expected to reach 82.37% (Statistics 2015). According to the World Bank, approximately 70% of the country's population is expected to reside in urban areas by 2045. The public and private sectors must devise ingenious means for people to benefit from this rapid transition so that they do not continue to endure traffic congestion, noise, and dangers resulting from a lack of sustainable development in the nation's current cities. In 2017, the Communication and Technology Ministry launched the "Movement Toward 100 Smart Cities" project in collaboration with the Home Ministry, the Public Works and Housing Ministry, the National Infrastructure Planning Board (Bappenas), the Presidential Chief of Staff, and a number of private organizations.

The concept of a smart city considers how information and communications technology and the Internet of Things can be applied to the secure and efficient administration of municipal infrastructure and resources, such as waste management, transportation networks, and law enforcement.

In this context, there has been substantial support for Indonesia's emergence as a smart nation, particularly in terms of the adoption of relevant technologies and the desire to partake in public-private partnerships to build smart cities.

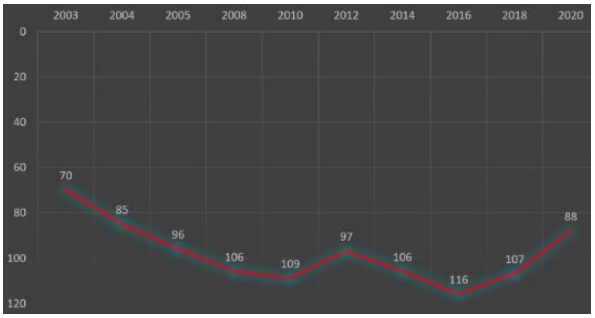


Source: (Processed by the author through VOSviewers, 2022)

Figure 1.2. The Novelty of Research

Before the researcher determines the important research topics, he first conducts a map through 56 international journals that specifically take the theme of smart governance and smart city. The researcher found that there were 3 clusters in the research topic. Smart city is the center or topic most discussed in research. Therefore, researchers in this study will only take the topic of smart governance which is associated with a collaborative process which in its development there are still few journals that conduct studies of these two concepts. So that the literature review in this journal explains, among others, smart city, smart governance, collaborative governance.

According to the United Nation e-Government Survey in 2020, Indonesia was in position 88 with an average score of 0.6612, an increase compared to 2018.



Source: (Survey 2020)

Graph 1.1. Indonesia's e-government Index in the World

The indicators used to measure the e-government index include:

Table 1.1. Index of e-government in Indonesia

No.	Indicators	Value
1.	Online Service Index	0,6284
2.	Telecommunication Infrastructure Index	0,5669
3.	Human Resources Index	0,7325

Source: (Survey 2020)

Based on the data above, it shows that Indonesia's open government index is quite good with an average of 0.75 (with the predicate of very high open Government Development Index). This is also proof that as one of the Southeast Asian Regions, Indonesia can demonstrate a fairly good digital transformation process.

Smart City

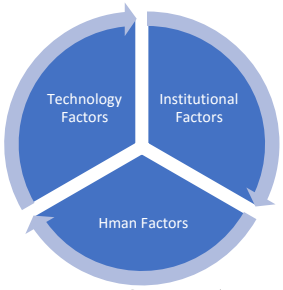
Smart city as one that puts a strong focus on the use of smart computing technologies. They saw today's urban crises as a requirement for a smart city initiative (Washburn and Sindhu 2009). The word "smart city" is the most abstract of the names used, since it incorporates a number of other words for cities. In a smart city, emerging innovations transform into enhanced public facilities for citizens and greater resource use while lowering environmental impacts (Puthal et al. 2021). Understanding people's expectations of planned smart city programs is critical for city planners when operating a smart city (Ji et al. 2021).

Smart cities are a novel scientific field. According to the United Nations, more than half of the global population resides in urban areas (UN, 2011). In addition to the need to foster prosperity and creativity, as well as health and sustainability, local administrations face a number of other challenges. Cities must be both environmentally conscious and culturally vibrant. Additionally, cities must be able to accommodate diverse (ethnic, religious, and socioeconomic) expanding communities. It is argued that intelligent technologies, intelligent collaboration, a highly educated population, and effective institutions are required to meet the

challenges of modern cities. (Meijer and Bolívar 2016).

Table 1.2. The Definitions of Smart City

Utilization of Smart Computing technology to improve the intelligence, integration, and functionality of a city's critical infrastructure components and services, such as city administration, academia, healthcare, public safety, real estate, transportation, and utilities.	(Washburn and Sindhu 2009)
The prevalent belief that cities are economic growth engines necessitates that city politicians and managers focus on enhancing the capacity of the urban economy to solve problems and provide various public goods, rather than attempting to solve all city problems.	(Meijer and Bolívar 2016)
To tap into the city's collective intelligence, connect its several types of infrastructure: the physical infrastructure, the information technology infrastructure, the social infrastructure, and the commercial infrastructure.	(Mohanty, Choppali, and Kougianos 2016).
Strategic concepts aligned with the three core dimensions of smart cities (technology, individuals, and institutions) include integration of infrastructures and technology-mediated programs, social learning for improving human infrastructure, and governance for structural development and community participation.	(Chourabi et al. 2012)
Clarify key smart city conceptual concepts and re-categorize and refine them into three major groups: technology, citizens, and organizations (governance and policy).	(Nam and Pardo 2011).



Source : (Nam and Pardo 2011)

Figure 1.3. The Fundamental Component of Smart City

By combining ICT-based tools with collaborative governance, smart governance enables governments to make better decisions in light of this objective. In this view, smart governance is the utilization of evidence (data, people, and other resources) to enhance decision-making and produce outcomes that meet the requirements of the population. This is essential for technology-intensive projects, such as smart city initiatives. Two of the most crucial success factors for smart-city initiatives are "reshaping administrative structures and procedures across various local government agencies and departments" and "stakeholder engagement in governance." (Alawadhi and J. Scholl 2016; Pereira et al. 2018).

To improve city governance, technological advancements and applications must be tightly coupled with user requirements and governance practices. The central tenet of this paradigm-shifting approach is that smart solutions should begin with the urban problem at hand rather than the'smart,' transitioning from a technology-driven to a demand-driven governance approach that meets the needs of the urban community (Jiang, Geertman, and Witte 2020).

Smart Governance

The term "smart government" is frequently applied to initiatives that "invest in new technologies combined with creative solutions to achieve more flexible and robust government processes and governance infrastructures." (Gil-Garcia, Helbig, and Ojo 2014). Electronic governance is commonly defined as governments utilizing technology to alter themselves, their communications with

people, and their relationships with residents, corporations, non-state actors, and other government instruments, resulting in societal effects (Pereira et al. 2018; Zhou et al. 2020).

Fundamental elements that are mostly divided into two sub-themes, both of which will be explored in two subsections:

1. Policy formulation based on data and evidence.

   Reddick et al. (2015) assert that the use of data to enhance efficiency and decision making is increasingly commonplace in the public sector. Open government data (OGD), which is the aggregation of data created by government agencies and made available to the public, is growing in volume. Public and private sectors alike have benefited from open innovation made possible by open government data projects, which have been at the vanguard of efforts to make government more open, responsive, and accountable (Kim and Eom 2019).

2. Collaborative, transparent, and citizen-centric modes of governance.

The growth of social media, mobile access, and vast and transparent data, according to, is compelling governments to develop a vision of ICT-facilitated governance that is more open, inclusive, and responsive to the needs of the people. The premise underlying transparent data forms is that government records and information belong to the people. In this context, smart governance may be used to address top-down alignment by establishing a consensus process for collaboration that influences successful governance through the allocation of decision-making authority to relevant participants at various phases of policy implementation. (Pereira et al. 2018).

In various institutional, sociological, economic, and technical contexts, smart city architectures are always unique. Due to these gaps, various wise governance conceptualizations and roles have emerged. In Europe, researchers and policymakers have frequently evaluated smart cities using an index structure comprising smart economy, smart people, smart governance, smart transportation, smart environment, and smart lifestyle (Giffinger and Gudrun 2010; Rodríguez-Bolívar 2015). Cities face the immense challenge of achieving stability, growth, social integration, public welfare, and protection(M. P. R. Bolívar and Meijer 2016). In the United States, smart city pilot projects have been initiated to help communities tackle local challenges and improve city services through collaboration (Lin 2018).

According to (Netten et al. 2016), smart government is the Interoperability/Execution of a variety of business processes and systems that enables a seamless exchange of knowledge between government departments and systems to become intuitive in delivering high-quality public services across all government programs and fields of operation. It also refers to a creative combination of new technology and public sector innovation. Set of Elements of Smart Government are openness and decision-making, open exchange and usage of knowledge, engagement and partnership of stakeholders, and the enhancement of government processes and activities, all through the use of smart technology as a facilitator of innovation, sustainability, productivity and livability. The smart government works with the government of the smart city, which oversees and implementing policies through the leverage of ICTs and organizations and the active engagement and cooperation of stakeholders(Chourabi et al. 2012; Criado and Gil-Garcia 2019; Scholl and Alawadhi 2016).

Society is adapted to serve various tasks in order to participate in technological development to enhance the quality of life as a group of individuals who are bound together based on some understanding and linking by the legislation. Therefore, there are several possibilities for technology growth to address the needs of the complexities of contact between individuals in society, one of which is user community management. Smart governance is described by some academics as ICT-based governance that provides a set of technology, persons, strategies, processes, services, social values and knowledge that interact to promote urban governance activities

(Adam Prasetyo et al. 2020; Chourabi et al. 2012).

In existing studies, four types of smart governance conceptualization are:

1) Smart city governance;
2) Effective decision-making processes and their implementation;
3) Smart administration;
4) Smart urban collaboration between various city actors

Bolvar and Meijer (2016) identify several important elements of smart governance, including the availability and use of ICT, external engagement and collaboration to partner, management checks, e-administration, and results. They designed a new model of three critical components: a smart governance implementation strategy, smart governance arrangements, and smart governance outcomes. (M. R. Bolívar 2018).

Recent research in the field of smart governance shows that there are 3 transition processes in city government. First, the government is difficult to change. Second, applying technology in government services as a necessity. Third, there is an essential transformation process in the development of intelligent government administration that involves many partners and stakeholders. (M. P. R. Bolívar and Meijer 2016).

This research seeks to explain smart governance policies in Indonesia which are part of digital transformation policies in the governance sector. In addition, it provides an overview of the one data policy in Indonesia which has implications for local governments (D. Liu and Qi 2021). "Smart governance" describes administrative structures that make use of technological aids. Wise leadership, from a technical perspective, is leadership that incorporates all facets of society into a completely new ecosystem. To put it simply, "smart governance" is the use of computational and cognitive techniques to the management of organizational affairs. (Alawadhi and J. Scholl 2016).

METHOD

This study uses narrative analysis with a systematic literature review approach (Creswell et al., 2007). Researchers collect relevant sources from books, journals and government websites to explore information on smart governance and its application in Indonesia. Literature review is a comprehensive review of previous research on a specific topic to inform the reader of what is known and what is unknown about the topic, to seek rationale from previous research or to generate ideas for additional research. A narrative literature review identifies, evaluates, and interprets all findings on a research topic. Literature review includes descriptions of theories, findings, and other research materials obtained from reference materials to be used as the foundation for research activities.

DISCUSSION

Data and evidence-based policymaking

Smart governance and smart governments, as described by J R Gil-Garcia, Helbig, and Ojo (2014), represent a new direction in electronic governance by integrating information, processes, institutions, and infrastructure through the use of cutting-edge ICT to better serve citizens. As the article states, "sensors, virtualizations, geographic information technologies, social media applications, and other elements could function as a brain to manage not only the government's resources and capabilities, but also the participation of social actors, the physical infrastructure, and the machines and equipment utilizing that infrastructure." (Parycek and Viale 2017).

Digital government transformation in Indonesia is experiencing developments including the following:

Source: (Kominfo 2021).

Figure 1.4. Digital Government Transformation

Based on the picture above, digital government has experienced several developments. First, the concept of developing digital governance begins with efforts to create livable and sustainable cities/regions through innovation (utilizing technology as an enabler and non-IT) and collaboration across sectors. Second, SPBE is a government administration that utilizes information and communication technology to provide integrated services to civil servants, the public, business and the government. Third, encourage the utilization of data for policy making with an accurate, open, integrated and inter-operational data foundation.

2018 will see progress toward open data. The government takes the leading measures in the open data movement (Indrajit 2018):

1. The implementation of the Public Information Openness Law

This disclosure of information encourages community to participate in improve the welfare of the community in social and cultural. Information disclosure public aims to provide guarantees the right for the public to know program policies from the government relating to (Nababan 2020):

Taking decisions concerning the public interest;

a. Encourage public participation in the process decision-making;
b. Increase the role active community in policy making and good management of public bodies;
c. Realizing service delivery good public;
d. Knowing the reason influential policy making to people's lives, especially for get quality information services which is used for improvement in information management

2. The Open Government Initiative (OGI), and

Open Government Indonesia (OGI) is an initiative to encourage open and participatory government to realize innovative solutions for the community. Government openness efforts are carried out through a creative process that collaborates with government and non-government elements such as civil society organizations, academics and development partners.

The priority of government openness can be seen in the following table:

Table 1.3. Open Government Indonesia

No.	Open Government Indonesia National Action Plan
1.	Disclosure of Contracts in the Government Procurement Sector.
2.	Enhancing the efficacy of public service complaint resolution
3.	Governmental development of data governance action plans.
4.	Evaluation of programs for community-based development.
5.	Public service innovation model.
6.	Meeting the needs of persons with disabilities.
7.	Strengthening of information portals related to legal aid.
8.	Expanded access and legal aid services
9.	Inclusion of vulnerable groups and gender

Source: https://ogi.bappenas.go.id/

3. The One Data Indonesia (ODI).

The implementation of Presidential Regulation No.39 of 2020 still faces many challenges. Each component of the implementation of SDI (data planning, data collection, data inspection, data dissemination) has a number of problems. One of the challenges in the data planning component is that priority data has not been determined. Then, in the data collection component, the challenges encountered include the difficulty of integrating data. As for the data inspection component, there are problems that are still difficult to follow the SDI principles, namely the non-compliance with data standards, non-uniform metadata, the absence of a data reference code that results in overlapping and difficult data sharing. Furthermore, the data

dissemination component has challenges in digital infrastructure readiness, namely the construction of an integrated data center and the development of an application that can be used by all central and local government institutions, as well as the challenge of lack of data competence (Factors and Islami 2021).

There are challenges in implementing the One Data Indonesia program at the local level. First, the readiness of infrastructure, for example the readiness of infrastructure for the provision of data centers. Second, there is still the ego-sectoral occurrence of every government agency. Third, the lack of quantity and quality of human resource capacity for data management in the regions. Five significant hurdles to open government and data, namely (Sayogo and Yuli 2018):

a) Data theft and abuse
b) Technical limitations
c) Assuring data reliability
d) Formulating information policy available to control openness
e) Preserving public engagement and passion

To provide a guideline in the development planning, implementation, evaluation, and control of "Indonesian One Data" in pursuance of Article 2 of the Presidential Regulation for central and local institutions, four principles regarding the use of data as references must be determined, e.g. (Putera et al. 2020) :

1) Must meet data standards, particularly the methodology, which includes concepts, definitions, scope, classification, size, units, and assumptions
2) Data must include metadata - structured information that describes the contents and sources of data so that it can be readily identified, used, or re-managed.
3) Must follow data interoperability criteria - the ability of data to be exchanged or shared between interacting systems.
4) must employ reference codes and/or master data in the One Data Portal.

Collaborative open and citizen-centric forms of governance

According to (Barns 2018), emerging concepts in the governance of the smart city era and the impact of these concepts on investment in new city data platforms or interfaces are propelling new city data platform or interface development. Literature supports the notion that there should be many various aspects of smart governance, including engagement in decision-making and the use of internal and external capital to promote creativity and change.

These problems invoke the idea of collaborative governance in accordance with the goals of the recent reform movement known as New Public Governance (NPG), which stresses inclusive and participatory modes of governance to encourage public policymaking for the delivery of public services. In fact, since cooperation between various functional segments and actors (government, industry, academia, non-profit and community groups, and others) contributes to the advancement of city initiatives, a collaborative governance model has been viewed as both a mechanism for promoting smart cities and one of its core elements.

The capacity to build cooperation and alliances is frequently cited as an essential component of smart city administration and a success element in the urban planning and development of smart cities. Citizens and the general public are highlighted as the heart of a successful smart city transformation in which strategic actors transform a city jointly. (Crutzen 2019; Parycek and Viale 2017). Citizen participation, digital integration, collaborative governance, behavioural transformation to ensure that the overall goals of smart city growth are realized, and a benefits-sharing strategy to ensure that people have an equal share in accessing the fruits of urban development are all concepts that should be included in active citizen involvement. The success of the collaboration will help in determining urban sustainability (Tan and Taeihagh 2020; Tomor et al. 2019).

ICT-promoted transformation (internal and within the society)

Several country benchmarking indexes have been proposed with the intention of measuring the level of digital transformation from both a technological and human perspective. The Digital Economy and Society Index (DESI) and the EGovernment Development Index are two of the most prominent (EGDI) (Bousdekis and Kardaras 2020).

There are several problems that the Indonesian government must overcome in order to effectively adopt e-government. The following points are highlighted based on the aforementioned results, utilizing data from the UN E-Government Survey's eight publications (Samuel 2021).

1) Infrastructure Availability

The lack of infrastructure is an important obstacle to the implementation of e-government in Indonesia. According to an analysis of UN E-Government Survey data, the TII index is the lowest of the three variables that indicate the quantity of EGDI in Indonesia.The Digital Divide

The digital gap is linked to the dynamics of the problem in Indonesian society's demographics. Adults are the core demographic for e-government goods. However, on general, young people are more adept at using technology. Furthermore, the degree of education is a factor that determines the implementation of e-government.

2) Disagreements between Society and Government

When it comes to e-governance, the government and society have distinct agendas. The government takes a management stance, emphasizing the communication role of e-government in its implementation. However, e-government is expected to promote contact (two-way communication) with the government. In other words, the advancement of e-government technology does not correspond to the government's command of the technology in issue.

CONCLUSION

The implementation of smart governance in Indonesia is still a dynamic challenge. This refers to the impact of its implementation for the realization of smart cities, especially in the regions. There are 2 sub-themes in smart governance that must be considered, including data and evidence-based policymaking, ICT-encouraged transformation (internal and societal) and ICT-encouraged transformation (internal and societal). The implementation of smart governance policies in the regions still poses many challenges, including infrastructure, data integration and human resources. In realizing smart governance, especially one data, local governments need to develop policies that are oriented towards the commitment of regional heads, collaboration, coordination and synergy between agencies in local government.

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