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Smart Government-Based Governance through Digital Transformation of Public Services: Experience of Surabaya City Government, Indonesia

Gatut Priowidodo*, Inri Inggrit Indrayani & Astri Yogatama

Department of Communication Science, Petra Christian University, Surabaya, Indonesia

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Abstract

This research aims to explore Smart Governance in local government institutions. The literature review shows that some models have been developed to explain Smart Government. However, systematic research on Smart Government through the Digital Transformation of Public Services still needs to be developed. This research used a qualitative approach with a phenomenographic method. Phenomenography focuses on three things. First, it focuses on interest. Second, it is content-oriented. Third, it describes the conceptions of various aspects of their reality. Data collection through direct observation and interviews with bureaucratic officials (Head of Service), stakeholders, academics, and online service users. The stages of data analysis include three aspects, namely interpreting data (structure and meaning of data) and data categorization/coding (variations in understanding and empirical manner), as well as formulating results (identification of conception and outcome space) and making research reports. The findings of this research show that Smart or M-Government is an Essential Necessity: The evolution toward intelligent government in the digital era is no longer a choice but a historical necessity. The convergence of technological advancements in internet-based information technology and the increasing public demands for top-tier services has made competent government imperative. The city has also made strides in digital transformation, achieving digital people, platforms, processes, public services, and workspaces, accompanied by ten sub-components. This comprehensive approach to digital governance ensures that nearly all public services, including healthcare, education, and infrastructure, are accessible via digital platforms. Surabaya's commitment to diverse digital service platforms reinforces the city's dedication to staying abreast of digital technological advancements.

Keywords: Accountable; Digital Transformational; Smart Government; Public Participation; Phenomenography

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*Corresponding author:
E-mail: gatpri@petra.ac.id

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INTRODUCTION

The concept of Information Technology Based Government, better known as SMART Government (Intelligent Information Technology Based Government), has become a necessity in this modern era. SMART Government is a strategic approach that utilizes information and communication technology to increase efficiency, transparency, and public involvement in government. In a more detailed context, SMART here does not only mean smart, but is an acronym for Social, Mobile, Analytics, Radical openness, and Trust (Petrov & Officer, 2014) Simply put, smart governance is a government system whose governance is based on complex social situations using reliable data sources to develop successful public policies and advance social goals (Sarker et al., 2018). Meanwhile, the Sustainable Development Goals (SDG) or Sustainable Development Goals set by the UN are global guidelines for achieving sustainable development until 2030. One of the key aspects in achieving this goal is effective and inclusive governance, which requires close collaboration between government, society, and the private sector.

The city of Surabaya, Indonesia, as an important industry, trade, and educational center, is an ideal environment to understand SMART Government implementation and SDG governance. The experience of the Surabaya City Government in formulating Smart Government-Based Governance through Digital Transformation of Public Services can provide valuable insights. This research problem focuses on how appropriate Digital Transformation of Public Services can help the Surabaya City Government achieve its smart government while considering existing challenges and opportunities.

This research will not only make a significant contribution to the academic understanding of SMART Government and digital transformation of public service but also provide practical guidance for other city governments in Indonesia and around the world to improve governance in the digital era that is environmentally friendly.

So far SMART Government research has focused on the implementation of SMART Government in local contexts in various cities throughout the world (Kim & Kim, 2021),(Muñoz et al., 2022);(Aditya et al., 2023). However, there is a lack of literature on how the

implementation of SMART Government relates to achieving the digital transformation of cities in developing countries such as Indonesia.

Literature Review SMART Government (SG)

Social media, mobile, analytics, radical transparency, and trust make up the acronym SMART. The government must provide services through digital channels. Specifically, SMART consists of the following:

- Social: not only highly personalized and citizen-friendly service delivery but also allowing citizens and civil society to create with Government, especially via social media and crowdsourcing tools.
- Mobile: Using the latest mobile technologies to deliver information and service, and get contributions from citizens, wherever and whenever they want- by Apps, SMS, Social Media, and Web-on-the-move-using mobile networks and cloud computing at the back-end.
- Analytics: Using big data analytics, sensors, and context-aware services to drive policy action and to individualize communication and transactions.
- Radical-openness: “Open by Default” and “Open by Design” transform Accountability and Transparency and engage citizens in co-creation, as well as enable businesses to use data for innovative new services.
- Trust: Effective Cyber security so that services are resilient, available, and protection in privacy

Source : (Petrov & Officer, 2014)

The goal is to enable everyone to be creative and engaged through the use of networks, data storage, and mobile technologies to deliver directly connected public services ((Melhem, 2012). To put it simply, smart governance is a kind of government where public policies are developed through the use of dependable data sources (Sarker et al., 2018). Much research concentrates on public services and smart government (Muñoz et al., 2022; Malodia et al., 2021), but there are currently few that link the two concepts of digital transformation and SDGs

These four factors must be taken into account to attain the SDGs through SMART Government. Alignment with Goals: Communication strategies help to guarantee

that policies, especially those implemented within the framework of SMART Government, are in keeping with the greater overarching goals of sustainable development, as articulated in the Sustainable Development Goals (SDGs) (Giuliodori et al., 2023)

Involvement of stakeholders: Communication promotes cooperation toward the SDGs by enabling engagement with a range of stakeholders, including as people, businesses, and non-governmental organizations (Meuleman, 2021).

Accountability and Transparency: Establishing confidence and trust with the public requires transparent communication that makes public projects accessible and accountable to the public (Giuliodori et al., 2023).

Resource Mobilization: Projects for sustainable development can be carried out when SG and SDG efforts are effectively publicized since they attract financing and other resources (Meuleman, 2021).

Innovation and Adaptability: Clear lines

of communication promote creative thinking and constructive criticism, which helps governments modify their policies to meet changing sustainable development concerns (Sucupira Furtado et al., 2023).

Digital Transformation

What is digital transformation? It means the process of integrating digital technology into every aspect of a business and radically altering how you run and provide value to clients is known as "digital transformation." Organizations must constantly experiment, challenge the established quo, and learn to accept failure as part of this cultural shift.

The digital transformation itself is a stage in digital government. Digital government has four stages, namely the digital stage, transformation stage, engagement stage, and contextualization stage. (Janowski, 2015).

STAGE	APPLICATION CONTEXT	CHARACTERIZATION		
		Internal government transformation	Transformation affects external relationships	Transformation is context-specific
Digitization	Technology in government	no	no	no
Transformation	Technology impacting government organization	yes	no	no
Engagement	Technology impacting government stakeholders	yes	yes	no
Contextualization	Technology impacting sectors and communities	yes	yes	yes

Figure 1: Digital Government Evolution Model

Digital transformation in public services is a concrete manifestation of the implementation

of the SMART government. As shown in the figure below:



Figure 2: Public Service and Smart Government (Secretariat of Government, 2015)

In practice, the public service component is the most dominant, because it benefits the community directly.

The UN Economic and Social Council formulated three main principles of SDG governance, namely Effectiveness, Accountability, and Inclusiveness.

Sustainable Development Goals (SDG) Governance

Principles	
Effectiveness	Competence, Sound policymaking Collaboration
Accountability	Accountability Integrity Transparency Independent oversight
Inclusiveness	Leaving no one behind Non-discrimination Participation Subsidiarity Intergenerational equity

Source: (Committee of Experts on Public Administration (CEPA), 2018)

These three principles can at least be guiding instruments for realizing a government based on SDGs Governance. Where its implementation includes four important pillars, namely the Social Development Pillar, the Economic Development Pillar, the Environmental Development Pillar, and the Legal and Governance Development Pillar (Murphy, 2012),(Mensah, 2019). These four pillars complement each other. Specifically, the fourth pillar is related to the SDGs goals which

emphasize the importance of security, justice, and effective institutions. This pillar supports inclusive and equitable development, as well as ensuring transparent and accountable governance.

At the level of implementation of governance, there are three styles, namely hierarchy governance, network governance, and market governance. (Meuleman, 2021).

Governance Style	Example of Typical Features of the Styles
Hierarchical governance	Rationality, reliability, stability, legitimacy, justice, accountability, risk-averse, government-centered, centralized, planning and design, authoritative, instructions, one-way communication, dependency, subordinates, obedience, rules-based, command, and control
Network governance	Partnerships, collaborative learning, co-creation for innovation, informal arrangements, trust-based, harmony, communication as dialogue, process management, diplomacy, mutual dependence, mutual gains approach, consensus, voluntary agreements, covenant
Market governance	Rationality, cost-driven, flexible, competition as a driver for innovation, price, marketing, decentralized, bottom-up, individualist, autonomy, self-determination, empowering, services, contracts, incentives, awards, and other market-based instruments

Source : (Meuleman, 2021)

RESEARCH METHODS

Within the constructivist/interpretive paradigm, this study employed a qualitative methodology. Qualitative research outlines particular steps that need to be taken to link ideas with facts. Constructivist or interpretive paradigms, on the other hand, place more emphasis on the subjective interpretation of unique experiences. This study's design made use of phenomenography. Data collection, the structure and meaning of phenomena (conceptualized differently), understanding variations (various concepts vary), conceptual identification in an empirical manner, and outcome space were the operations that were carried out.

The goal of phenomenography design is to characterize and distinguish between various qualitative experiences of particular components of reality. The informant's idea or understanding is understood to be derived from their experience or understanding. There are differences in each person's comprehension or experience. Since every person interprets the world differently, it is only normal for there to be differences in conceptions. (Marton, 2004; Priowidodo, 2013) Interviews were used as a data collecting method, with questions centered on the informants' varied experiences with the occurrences encountered. The 17 research subjects—11 informants from 5 local government agencies—were purposefully chosen. They included (3) the Surabaya Chamber of Commerce and Industry (Kadin. Surabaya), and (3) users representing the application SSW (Surabaya Single Window).

Regarding the minimum number of samples required for the constructive interpretation of the qualitative paradigm, there is no agreement. If saturation is reached, the validity of the data collection can still be explained. Some other qualitative research had a smaller number of informants, such as 10 (Aveling et al., 2015), 6 to 10 (Malterud et al., 2016).

Open-ended phenomenography questions were used in conjunction with a semi-structured interview process. The informant felt comfortable being videotaped from the outset of the conversation with a polite greeting. To guarantee that the answers are accurate, the informant promptly confirms those that need explanation. (Priowidodo, 2019).

A comprehensive transcript of the interview was made and kept on a flash drive. When transcriptions were still uncertain, transcripts were gathered and reexamined. Once it was deemed finished, the researcher read it again to look for changes in the idea that would facilitate mind mapping. As a variant of the new conception, each modification of the informant's notion was assigned a marker. Both similar and dissimilar thoughts were grouped appropriately.

To categorize the conception of experience, a phenomenography analysis was conducted by engaging with the informant independently and repeatedly reviewing the transcript. NVIVO 14 software was utilized as a qualitative analysis tool to aid in the analysis process.

RESULTS AND DISCUSSION

The findings of this research cover two aspects, namely Smart Government-Based Governance and Digital Transformation of Public Service. Conceptually, these two aspects are differentiated but in their implementation, they complement each other. Smart Government-Based Governance is modern governance that optimizes advances in information technology.

While Digital Transformation of Public Service is a form of service characterized by fast, practical, transparent, and accountable, the public with digital literacy awareness has access to control over public service activities carried out by the Surabaya City Government.

Smart Government-Based Governance

The four aspects of Smart Government Social, Mobile, Analytics, Radical openness, and

Trust are interpreted differently by each stakeholder. This proves that the picture or expectation related to SMART government is not a single and easily understood concept. The (S) social component can be seen from four sub-components namely authority, sanction, and actors. Likewise (M) mobile consists of four sub-components as well, namely safety, friendly, time, and open access. Analytic consists of three sub-components informational, inspirational, and accurate. While Radical openness consists of three sub-components of autonomy, open knowledge, and creativity and Trust consists of sub-components of reciprocity, transparency, and understanding. More details can be observed in the visualization below:

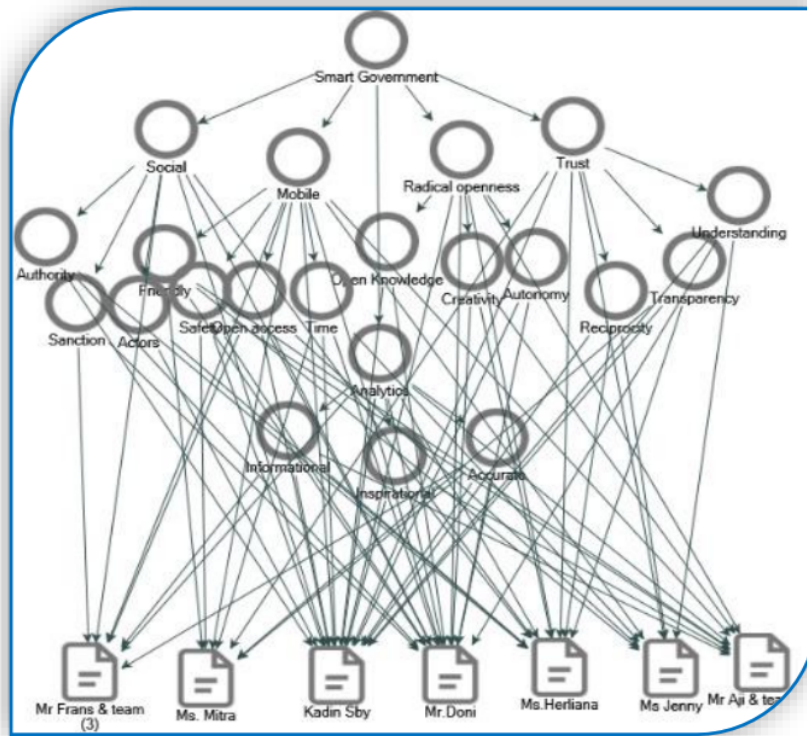


Figure 3: The four aspects of Smart Government

Visualization is clearer if the informant is not shown in full.

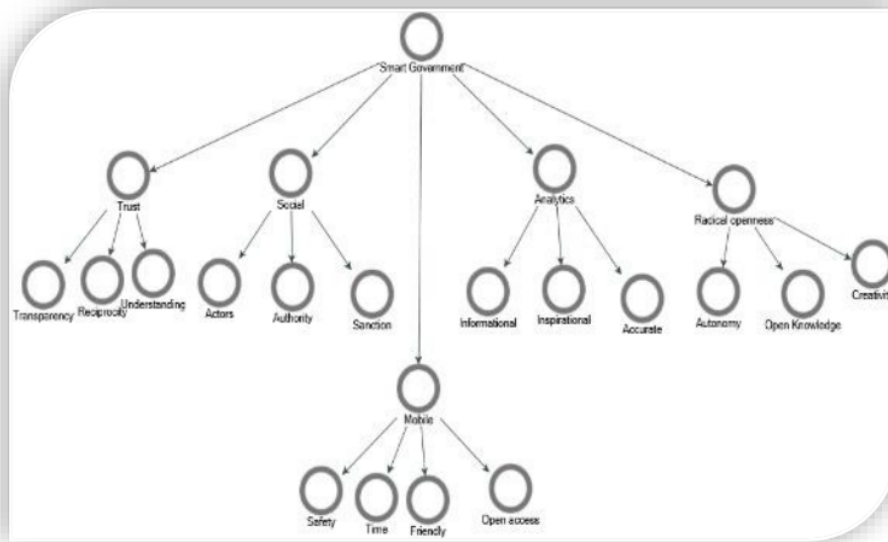


Figure 4: The main visualization of Smart Government's aspect

Component (S) social does not stand alone. This component can be elaborated into three sub-components, namely authority, sanction, and actors. Each informant, based on their interests, has a different understanding. This means that social terminology has an interpretation based on the involvement of each actor. Social can be given the understanding that social activities in digital-based government become an area that has authority. If the community commits an offense, they will receive a penalty, fine, or sanction. On the other hand, if the community actively participates, they will receive rewards or compensation. As explained by one of the informants as follows:

Because the response was good, we (the city government) compensated. So we register at what time, the estimated attendance of the first service hour is visited by the Health Office.

Including how long it takes until he finishes receiving the medicine, if the patient is served late, the City Government provides compensation of IDR 50 thousand per patient/hour.

This fact illustrates that the government has a good preparation for the Implementation

of Smart government, (M) mobile consists of four sub-components as well, namely safety, friendliness, time, and open access. That means governance in the digital era must be easily accessible. Data is open to the public. People do not feel difficult if they have business with the government. The government is no longer an employer but a servant. The government has a close relationship with citizens because these two parties, namely the government and citizens, are friends. As quoted from one informant thus:

"Every Friday, from 1 to 3 o'clock, we open it called "Sahabat Keluarga". Sambat Warga, which is directly at the Mayor, used to be called Sahabat Keluarga. It was an activity where residents could meet directly with the Mayor every Saturday at City Hall. Now it is in the urban village or the sub-district through Zoom. So residents are not direct. In the Kelurahan, they want to complain about the jammed water. So later from the village, enter it into the Wargaku application.

Analytic consists of three sub-components informational, inspirational and accurate. The analytic component emphasizes that all input from the community must be

analyzed. All incoming input must be analyzed properly to produce unambiguous information. That is why each government agency must be able to handle information according to their respective fields. It cannot give all tasks to the Communication and Information Office (Kominfo) alone. An informant emphasized this in more detail:

"... In Surabaya, based on Perwali 68, the term PD Mandiri TiK was formed. Where PD Mandiri TIK means Independent application and Independent infrastructure. They are allowed to develop applications and infrastructure independently. But still, coordinate with us at Kominfo as the ICT coordinator in Surabaya City Government..."

Managing information in a big city like Surabaya is certainly not easy. It needs cooperation and collaboration from each department. The Communication and Information Office plays the role of coordinator so that each agency issues information that is synchronized with the policies issued by the city government.

Radical openness consists of three sub-components autonomy, open knowledge, and

creativity. This fourth component emphasizes that digital information-based public services must be creative and autonomous. Government agencies that often work to carry out routine tasks cannot continue. The city government must have a spirit of creativity and open knowledge. The city government must be open to criticism, ideas, or whatever.

The trust consists of sub-components of reciprocity, transparency, and understanding. Especially for the trust component, it emphasizes good understanding from the public. Public service features must persuade them that even though public services are provided virtually and digitally, the quality is the same as face-to-face public services.

Digital Transformation of Public Service

The implementation of digital transformation in Surabaya city government is realized in four forms, namely digital people, digital platform and process, digital public service, and digital workspace. Furthermore, it can be observed through the visualization below:

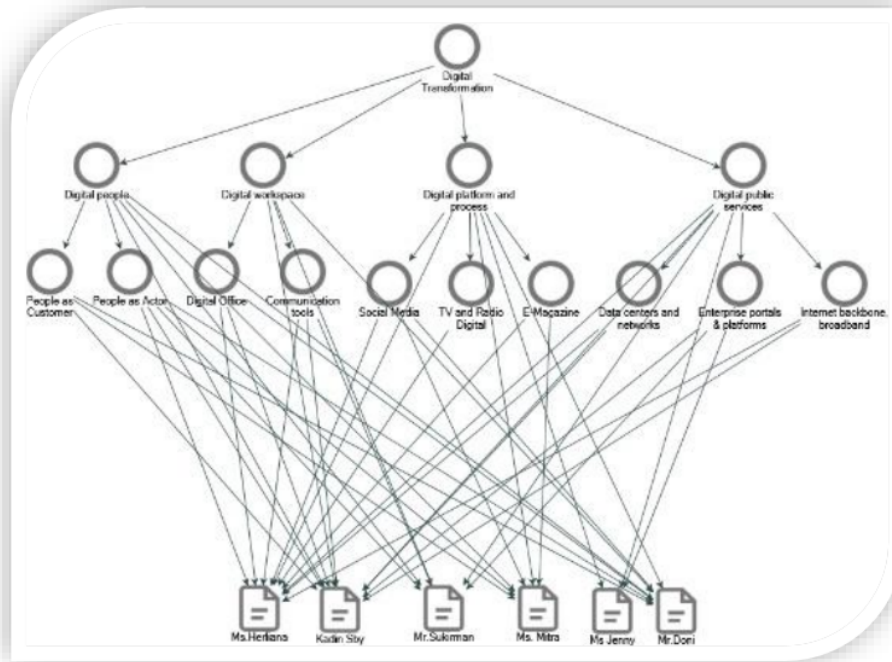


Figure 5: The implementation of digital transformation of public service

Visualization without informant:

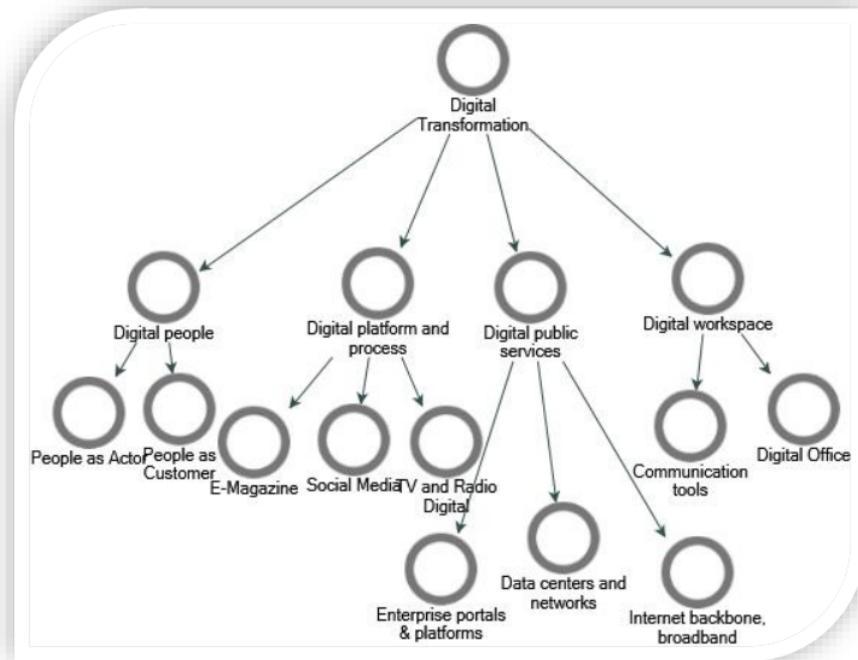


Figure 6: The main digital transformation of public service

The practice of digital transformation that encourages changes in all contexts of life, not only business but also public services carried out by the government, requires very serious efforts. The time needed to shift conventional service patterns to digital is not short. As explained by this informant:

"So e-government in Surabaya City started in 2003. When the mayor, Mrs. Rismaharini, was still the head of the Bina Program, the first was the procurement of goods and services. So there is how to make the auction or MPR transparent, yes, LPSE LPSE was the first forerunner of what is now in Indonesia so Surabaya LPSE was pulled to the Central Government"

As for the success of a public service, apart from government officials who are required to have information technology-based skills, the community as users must also have the skills to utilize it. In the early 2000s, when the internet network was not as massively developed as it is now, of course, everything had to be done in stages. Which sub-components to prioritize is difficult to explain. Where to start is also unclear. Because when

in the field, this transformation is Complementary. Other aspects complement deficiencies in this aspect. There is no standardized pattern. The public also needs to be educated so that they can use the application. As explained by this informant:

"For now, Surabaya people are not fully aware. The community has begun to move forward to be aware of all public services provided by the city government because in addition to providing public services, we also provide education to the community, for example, if managed by Kominfo there is a BLC (Broadband Learning Center)

Where we provide training related to ICT (Information & Communication Technology) for free to the people of Surabaya. There are 53 BLC locations throughout the city of Surabaya"

The main goal of digital transformation is to make services faster, more transparent, and accountable. If the public gives feedback, then the government is obliged to respond for future improvements.

So for public complaints to the Public Relations in Surabaya City Government, we open all

channels, namely through applications through social and websites. Then for each sub-district we have Forkompinda groups and there is a Mayor in it.

Forkom groups in each sub-district are very active. If there are complaints from residents, especially the Head of the Neighborhood Association (RT), the city government responds very quickly. That is a concrete form, that through any media, the government wants to show that this digital era, gives options to the government to serve the public better.

Discussion

Smart government in this digital age is not an option but a historical imperative. Modernization of public service governance is not only in line with advances in internet-based information technology but the public or people as users also demand the best services from the government. This fact is in line with the explanation that SMART government is the utilization of mobile devices, such as smartphones, tablets, and pads. Although still in its infancy, M-Government seems to have a significant impact on the creation of various complex plans and instruments for E-Government initiatives, as well as on the tasks and responsibilities associated with them (Al-Obthani et al., 2018).

Especially if we understand together that internet users in Indonesia continue to increase from year to year. The Indonesian Internet Service Providers (APJII) noted that internet penetration in Indonesia has reached 78.19 percent in 2023 or penetrated 215,626,156 people from a total population of 275,773,901 people. Such numbers provide a strong indication that the practice of Smart government or m-government must be implemented by the government in Indonesia both in the city and regency areas.

If you pay attention to the five main components of Smart government (social, mobile, analytics, radical transparency, and trust) Surabaya City Government within 20 years (2003-2023) has gradually succeeded in implementing digital-based government practices. Even the five main components in the field can be elaborated into 16 complementary sub-components. That means the benefits of Smart government can be directly felt by the public.

In the context of digital transformation, the Surabaya city government has slowly but surely succeeded in realizing the four main components of digital transformation, namely digital people, digital platforms and processes, digital public services and digital workspaces which are equipped with 10 sub-components. Realizing digital people is also not an easy matter. The Surabaya City Government is directly involved in technical training so that its citizens have the awareness and technical skills to use the digital platform provided by the city government.

Almost all public services such as health, education, and infrastructure have digital platforms that can be accessed by the public. For example, the Surabaya Single Window (SSW) Alfa, e-Peken, and WargaKu licensing applications. Citizens can obtain Community Complaint Services, Population Administration (Adminduk), Licensing and non-licensing, Health, Public Service Kiosks, Community Social Services, Economic Empowerment Services, Information and Documentation Management Officer (PPID) Services, Vaccine Certificate Wadul Services, Social Aid Proposal Services, Financial Corner Services, and e-Housing Services.

Even if citizens still have difficulty accessing digital public services, the city government provides a special mall to facilitate citizens dealing with the government called the Public Service Mall (MPP). In this mall, if citizens want to develop digital entrepreneurship, the city government has also prepared a digital workspace. City residents can start a start-up business by building a digital community.

The Surabaya city government's good practices in initiating various digital service platforms emphasize a strong commitment that the city government cannot be left behind with the advancement of digital-based information technology.

CONCLUSION

Smart or M-Government as an Essential Necessity: The evolution toward smart government in the digital era is no longer a choice but a historical necessity. The convergence of technological advancements in internet-based information technology and the increasing demands of the public for top-tier services has made smart government

imperative. The utilization of mobile devices like smartphones, tablets, and pads is integral to SMART government initiatives. Although in its early stages, M-Government showcases significant impacts on the development of intricate plans, instruments, and responsibilities associated with E-Government initiatives.

Surabaya's Exemplary Progress in Smart Governance: Over the past 20 years (2003-2023), Surabaya's local government has gradually and successfully implemented digital-based governance practices. The city's progression aligns with the five main components of smart government: social, mobile, analytics, radical transparency, and trust. Furthermore, these components have been expanded into 16 complementary sub-components, directly benefiting the public. The city has also made strides in digital transformation, achieving digital people, platforms, processes, public services, and workspaces, accompanied by 10 sub-components. This comprehensive approach to digital governance ensures nearly all public services, including healthcare, education, and infrastructure, are accessible via digital platforms. Surabaya's commitment to diverse digital service platforms reinforces the city's dedication to staying abreast of digital technological advancements.

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