



Evaluation of Smart Governance Implementation In Supporting SDGs In Semarang City Indonesia

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Abstract

Semarang City is one of the cities in Indonesia that implements smart city, Semarang smart city itself has been initiated since 2013 with a memorandum of understanding (MoU) with PT. Telkom by installing 2,300 public wifi points. One important aspect in the implementation of Semarang smart city is smart governance which is related to public services, bureaucracy and policies which are indirectly related to the 16th sustainable development goal, namely resilient and accountable institutions. The purpose of this study is to evaluate the implementation of smart governance in supporting SDGs in Semarang City, in this study using a qualitative method by referring to the indicators of Permen PANRB No. 5 of 2018 concerning SPBE evaluation guidelines. In addition, researchers also submit indicators to the 16th goal of SDGs, namely resilient and accountable institutions. The results of the study show that the implementation of smart governance in supporting SDGS-16 has been implemented well due to the improvement of the government accountability system (SAKIP), having a good bureaucratic reform index value, openness of public information, public satisfaction with users of public services and a good level of compliance with the implementation of public service laws.

Keywords: Smart Governance, SDGs, Semarang City

1. Introduction

The era of the industrial revolution 4.0 is marked by the advancement of information technology which is a depiction of the advancement of technology used in all elements including in local government. The implementation of electronic governance aims to utilize information technology to improve communication between the government, society, private sector and parties who have an interest in government services so that they are fast, precise and transparent. In Indonesia, Presidential Regulation of the Republic of Indonesia Number 95 of 2018 concerning the Electronic-Based Government System (PERPRES 2018) has been issued. The purpose of this electronic-based government system is that the government utilizes information and communication technology to provide good services to the community.

Based on these regulations, the concept of a smart city was born as a form of innovation by local governments that must face complex public problems. A smart city is an intelligent city that aims to understand the situation further, and take action on the problem Supangkat in (Hartati & Wahid, 2020)The purpose of a smart city is to create a city that is safe, comfortable for its people and strengthen the city's competitiveness in terms of the economy. Thus, it can be explained that the

purpose of a smart city is to support the city in the social (security), economic (competitiveness) and environmental (comfort) dimensions. Thus, a smart city is believed to be a new concept or innovation that can be the right step in unraveling and solving problems in increasingly developing areas, especially in urban areas Supangkat in (Anindra et al., 2018). Based on the smart city concept, it is hoped that it can make sustainable development goals (SDGs) a success, especially SDG goal 16, namely strengthening transparent and accountable institutions, because there is a positive relationship between the level of electronic government (e-government) and the level of sustainable development (sustainable development goals) (Salsabila, 2020).

Based on The IESE Business School 2020, a research school in Spain that has selected the 10 best smart cities from 174 cities in the world. They assessed it through an index called the Cities in Motion Index (CIMI) using 66 indicators, that the first smart city ranking was achieved by the City of London with a score of 100, then followed by the City of New York with a score of 95.73 and followed by Paris with a score of 85.50. Meanwhile, the City of Jakarta is ranked 133 out of 174 cities with a score of 42.26, still below Kuala Lumpur (Malaysia) which is ranked 83, Bangkok (Thailand) which is ranked 112, and Ho Chi Minh (Vietnam) which is ranked 127.

Thus, there are things that need to be improved by Indonesia in terms of implementing smart cities, in Indonesia itself, the city of Jakarta is ranked in Southeast Asia, while other big cities in Indonesia have not been able to enter the ranks of Bangkok, Hanoi, Ho Chi Minh. Semarang City Based on the evaluation results of the Ministry of Communication and Information, the Ministry of Home Affairs, the Ministry of PUPR, Bappenas and the Presidential Staff Office, is ranked 2nd below Bandung City, with Yogyakarta City ranked 3rd. However, in 2022, the Ministry of Communication and Information held a seminar and exhibition of the Movement Towards Smart Cities (Smart City) entitled "Recover Together, Recover Stronger" in Jakarta, taking place on November 30-December 1, 2022. The activity was attended by representatives from 141 districts in order to evaluate the implementation of the 2022 Smart City program, giving awards to 6 Smart City Categories, namely; Smart Governance (Bandung City), Smart Branding (Surakarta City), Smart Economy (Semarang City), Smart Society (Yogyakarta City), Smart Living (Demak Regency), and Smart Environment (Mediun City).

Based on the data, the smart economy aspect is better than other aspects such as smart living, smart society, smart people and smart governance in the implementation of Semarang smart city. Smart governance is the spearhead of smart city, because Smart city starts with smart governance. Without smart governance, it is impossible to realize Smart city Scytl in (Wahyuni et al., 2021),, so smart governance planning must refer to the Smart city concept and the concept of governance planning which has been widely developed by using various existing frameworks (Annisah, 2017).

The three main aspects of smart governance are (a) the use of information and communication technology in government, (b) realizing transparency and openness of data, and (c) formulating policies according to the needs of citizens (Jakarta Smart City, 2018). The implementation of the main aspects of smart governance still faces various obstacles, namely human resources, therefore human resources are one of the important factors in the success of smart governance (Shabrinawati & Yulastuti, 2020). The problem of implementing smart governance is indicated to have an impact on strengthening strong and accountable institutions in accordance with the 16th goal of the SDGs, because it is related to the weakness of institutions in creating a peaceful and inclusive society for sustainable development, providing access to justice for all, building effective, accountable, and inclusive institutions, at all levels. The UN E-Government Survey in 2018 stated that by optimizing e-government work, an increase in the number of community participation in decision-

making will occur. This increase will help develop sustainable development, increase local community innovation, make it inclusive and safe. So, when the community plays an active role in the use of e-government, it will help develop policies to achieve the SDGs. Furthermore, according to (Armando & Escuela, 2023) the need for a socio-technical approach is not just a technical perspective approach to achieve SDGs goal 16. Therefore, the importance of community participation, government openness, and having joint initiatives is the key to encouraging the formation of more inclusive and solid institutions.

Therefore, the importance of implementing good smart governance to support the strengthening of Semarang City Government institutions is due to one of the points of the 16th SDGs goal/target, namely strong, accountable and transparent institutions and public access to information. SDGs research has been widely conducted in several SDGs targets and objectives such as social, economic, environmental and educational such as research (Effendi, 2021), research (Malsa et al., 2021), research (Ariyanti et al., 2022), penelitian (Pribadi, 2017), research (Safitri et al., 2022), research (Mhlanga, 2021), research (Fauzi & Oxtavianus, 2014), research (Zengin et al., 2021), research (Pateman et al., 2021), research (Octavia et al., 2022) and research (Purnaweni et al., 2022). The SDGs objectives that will be studied in this study are the objectives of strong and accountable institutions, this objective is no less important than other SDGs objectives, because it aims to create a peaceful and inclusive society in sustainable development, provide access to justice for all, build effective, accountable (responsible) and inclusive institutions, at all levels (Source: Meta Indicators of Sustainable Development Goals Edition II Ministry of BPN/Bappenas 2020).

2. Research Methods

The main instrument in this study is the researcher himself and is supported by supporting instruments such as interview guidelines, documentation studies. The benefits of supporting instruments are to complement the weaknesses of the researcher's own instruments (Creswell, 2016). Secondary data used are document or literature studies. Secondary sources are defined as historical sources, biographies, encyclopedias and other reference books, essays, books and articles that are reported or interpreted in written works by other parties or second parties. The unit of analysis of this study is the Semarang City Communication and Informatics Service. The informants of this study are 6 Semarang Smart City management staff, representatives of the Semarang Smart City user community.

In order to answer the formulation of the problem in this study, the researcher analyzed aspects, namely referring to the SPBE evaluation indicators of Permen PANRB No. 59 of 2020 concerning SPBE evaluation guidelines. Furthermore, the researcher used data analysis techniques through three stages. These stages include: data collection, data display, data verification, and drawing conclusions.

Table 1. Operational Research Variables

No	Source	Variable	Indicator	Parameter
1	PANRB Regulation No. 59 of 2020	SPBE	Internal Policies	<p>Internal Policy of SPBE Governance</p> <p>a. Maturity Level of Internal Policy related to SPBE Architecture of Central/Regional Government Agencies</p> <p>b. Maturity Level of Internal Policy related to SPBE Plan Map of Central/Regional Agencies</p> <p>c. Maturity Level of Internal Policy related to data management</p> <p>d. Maturity Level of Internal Policy for SPBE Development</p> <p>e. Maturity Level of Internal Policy related to data center services</p> <p>f. Maturity Level of Internal Policy related to operation of intra-central/regional agency networks</p> <p>g. Maturity Level of Internal Policy related to use of central/regional agency service connection systems</p> <p>h. Maturity Level of Internal Policy related to information management</p> <p>i. Maturity Level of Internal Policy related to ICT audits</p> <p>j. Maturity Level of Internal Policy related to SPBE coordination team of central/regional agencies</p>
			SPBE Governance	<p>SPBE Startegic Planning</p> <p>a. Maturity level of central/regional SPBE architecture</p> <p>b. Maturity level of central/regional SPBE plan map</p> <p>c. Maturity level of central/regional agency budget plan</p> <p>d. Maturity level of central/regional agency budget plan</p>
			Information and Communication Technology	<p>a. Maturity Level of SPBE Application Development</p> <p>b. Maturity Level of Data Center Services</p> <p>c. Maturity level of intra-Central</p>

Source: PANRB Regulation No. 59 of 2020 and Meta Indicators of Sustainable Development Goals Edition II Ministry of BPN/Bappenas 2020)

3. Results and Discussions

Evaluation of the implementation of Smart Governance in Supporting SDGs in Semarang City

The implementation of smart governance in Semarang City cannot be separated from Semarang smart city, where one aspect of smart city is smart governance with openness of information, online-based public services, easy and fast. According to Permen PANRB No.59 of 2020 in evaluating electronic-based government systems there are several indicators including; Internal Policy, Governance and services as follows:

Internal Policy

Internal policies in the implementation of

electronic-based government systems aim to regulate SPBE and the duties and functions of ministries up to regional apparatus organizations in the regions, so that with the existence of internal policies themselves as the basis and control center of the system, both SPBE providers and their users.

Based on the results of the Semarang Smart City Research, there are already policies ranging from presidential regulations to regional secretary decisions. In this case, the Semarang City Government has implemented a policy of governance and electronic-based government system services or smart governance to support the strengthening of strong and accountable institutions at all levels. In this case, explained by the Head of the e-government Midwife, Semarang City Communication and Information Service; Regarding the policy or regulation for implementing SPBE, we have done it, God willing, we will follow the rules in Permen PANRB No. 59 of 2020. (February 1, 2024).

Semarang City Government through the PPID Diskominfo of Semarang City confirmed that there is a Smart City Policy or SPBE as a basis and control in implementing SPBE, as follows: "If our rules are all there, we follow SPBE regulations from the center to the regions" (February 6, 2024).

The following are the results of internal policy observations, through the Semarang City smart governance channel;

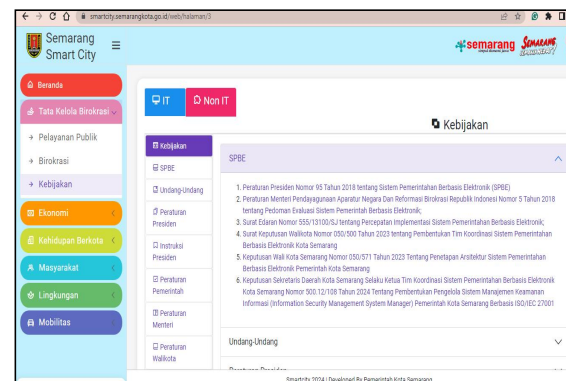


Figure 1. Semarang City Smart Governance Policy

Based on the image above, Semarang City in terms of implementing an electronic-based government system has referred to regulations from the center to the regions, in this case the Semarang City government is seriously implementing SPBE to improve public services. Assessment of the Internal Policy indicator by analyzing the availability of governance policies and internal service policies in the implementation of smart governance in Semarang City, based on the results of observations of internal SPBE governance policies that have been implemented in the smart governance system

in the Semarang City government. The following are the results of observations that researchers have found, we present in table 2. below:

Table 2. Internal Policy Research Results

Indicator	Parameter	Questions	Evidence
Internal Policies	Internal Policy of SPBE Governance	1) Semarang City Government has formulated and implemented smart governance policies by referring to applicable central government regulations	1) All applicable regulations regarding the implementation of smart governance have been published on the Semarang Smart City website
	a. Maturity Level of Internal Policy related to SPBE Architecture of Central/Regional Government Agencies	2) Development of smart governance implementation policies has been implemented in 34 OPDs in Semarang City	2) 34 Regional Government Organizations of the Semarang City Government have implemented online services for approximately 500 applications
	b. Maturity Level of Internal Policy related to SPBE Plan Map of Central/Regional Agencies		
	c. Maturity Level of Internal Policy related to data management		
	d. Maturity Level of Internal Policy for SPBE Development		
	e. Maturity Level of Internal Policy related to data center services		
	f. Maturity Level of Internal Policy related to operation of intra-central/regional agency networks		
	g. Maturity Level of Internal Policy related to use of central/regional agency service connection systems		
	h. Maturity Level of Internal Policy related to information management		
	i. Maturity Level of Internal Policy related to ICT audits		
j. Maturity Level of Internal Policy related to SPBE coordination team of central/regional agencies			

Source: 2024 research results

SPBE Governance

E-government system governance as a framework that ensures the implementation of integrated SPBE arrangements, directions, and controls. Based on research results at the Semarang City Communication and Information Office, SPBE governance has been implemented properly in accordance with the indicators of Permenpan RB No. 59 of 2020. The governance of SPBE in Semarang City is under the Semarang City Communication, Informatics and Statistics Office. SPBE governance in terms of planning has been in the master plan based on the Semarang Mayor's Regulation in 2018.

Semarang City Government through the Semarang City Communication and Information Office PPID confirmed that SPBE governance has been managed well, the following is an explanation from the informant: "Everything has been stated in Perwal 26 of 2018, our data center calls it One Data which has been well managed and all existing services have been linked to the relevant OPD" (February 6, 2024). The following are the results of SPBE governance observations, through the Semarang City PPID public complaint channel;



Figure 2. Semarang City One Data Portal

Assessment of SPBE governance indicators in Semarang City, based on the results of observations of SPBE management that have been implemented in the smart governance system in Semarang City has been managed well. The following are the results of observations that researchers found, we present in table 3. below:

Table 3. SPBE Governance Research Results

Indicator	Parameter	Questions	Evidence
SPBE Governance	SPBE Starteguc Planning	1) The smart city roadmap of Semarang City already exists based on Perwal 26 of 2018	1) There is a smart city master plan for Semarang
	a. Maturity level of central/regional SPBE architecture	2) The maturity of the data center has been implemented well	2) There is a single data portal under the Communication and Information Service
	b. Maturity level of central/regional SPBE plan map	3) Network services are good	3) Wifi is spread throughout the sub-districts
	c. Maturity level of central/regional agency budget plan	4) Smart governance has been implemented collaboratively or linked to OPDs in the Semarang City Government	4) Services in smart governance can be accessed across sectors
	d. Maturity level of central/regional agency budget plan		
	Information and Communication Technology		
	a. Maturity Level of SPBE Application Development		
	b. Maturity Level of Data Center Services		
	c. Maturity level of intra-Central Agency/Regional Government network services		
	d. Maturity level of use of the Central Agency/Regional Government service connection system		
SPBE Orgabizers			
a. maturity level of implementation of the Central Agency/Regional Government SPBE coordination team			
b. maturity level of collaboration in implementing SPBE			

Source: 2024 research results

SPBE Management

Management of electronic-based government systems as a process to achieve effective, efficient, and sustainable SPBE implementation, as well as quality SPBE services. Based on research results in Semarang Smart City, there is already a well-managed SPBE management, seeing that the portals and applications that have been implemented have been active, effective and efficient in their use. As expressed by the following informant; SPBE management for data security, we have a certificate and we have also conducted socialization to the public regarding this, so that the public does not hesitate to access services. (February 6, 2024).

Semarang City Government Through the PPID Diskominfo of Semarang City confirmed that there

is a Smart City Policy or SPBE as a basis and control in implementing SPBE, as follows: "SPBE Management Management such as personnel services have been centralized in the KPP Service and the Semarang City Government has been certified ISO 27001:2022 from the British Standard Institution regarding maintaining the security and safety of information in organizing public information " (February 6, 2024). The following are the results of SPBE Management observations, through the KPP Service PPID channel of Semarang City:

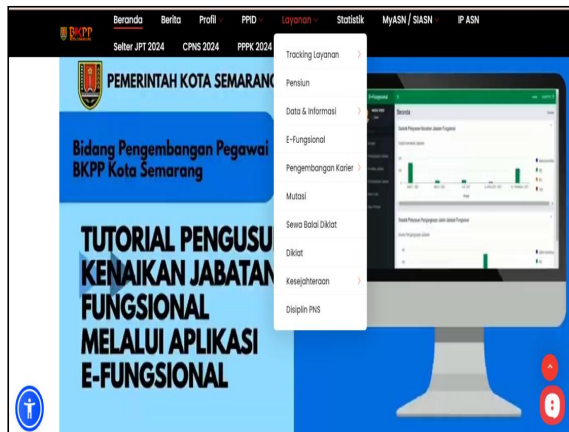


Figure 3. Semarang City Personnel Services

Assessment of SPBE management indicators in Semarang City, based on the results of observations and interviews regarding SPBE management has been implemented well, proven by ISO 27001:2022 certification regarding the security of public service information in Semarang City. The following are the results of observations that researchers found, we present in table 4. below:

Table 4. SPBE management Research Results

Indicator	Parameter	Questions	Evidence
SPBE Manajement	Implementation of SPBE Management	1) Information security at the Semarang City SPBE has been implemented well.	1) Semarang City Government has been certified ISO 27001:2022 from the British Standard Institution regarding maintaining information security and safety in organizing public information
	a. Maturity Level of Implementation of SPBE Risk Management	2) Employee management services have also been implemented well at the SPBE.	2) Personnel Management Services have been centralized at the Semarang City BKPP
	b. Maturity Level of Implementation of Information Security Management		
	c. Personnel Management Services		
	d. Maturity Level of Implementation of Data Management		
	e. Maturity Level of Implementation of ICT Asset Management		
	f. Maturity Level of Implementation of Human Resource Competence		
	g. Maturity Level of Implementation of Knowledge Management		
	h. Maturity Level of Implementation of Change Management		
	i. Maturity Level of Implementation of SPBE Service Management		
	Implementation of ICT Audit		
	a. Maturity Level of Implementation of SPBE In Infrastructure Audit		
	b. Maturity Level of Implementation of SPBE Application Audit		
	a. Maturity Level of Implementation of SPBE Security Audit		

Source: 2024 research results

SPBE Services

Electronic-based government system services aim to see the output produced by the Semarang City government in the form of service applications that have beneficial value. Based on research results in Semarang smart city, SPBE services from the administration and service sectors have been assessed well so that they are beneficial for service users. In this case, explained by the Head of the e-government Midwife, Semarang City Communication and Information Service; all SPBE services are included in Semarang smart city, both in the administration and service sectors. All existing services are linked to the relevant OPD (February 6, 2024).

The Semarang City Government through the PPID of Semarang City Communication and Information Service confirmed that the implementation of SPBE services has been maximized, as seen from the extent to which public complaints are managed under the name "SAPA Mbak Ita" (February 6, 2024). The following are the results of observations of SPBE services on public complaints in Semarang City :



Figure 4. Semarang City Public Complaints Service

Based on the observation of public complaint services that each complaint service is well managed, all reports have received services in accordance with applicable procedures. While for the JDIH service of Semarang City can be seen as follows;

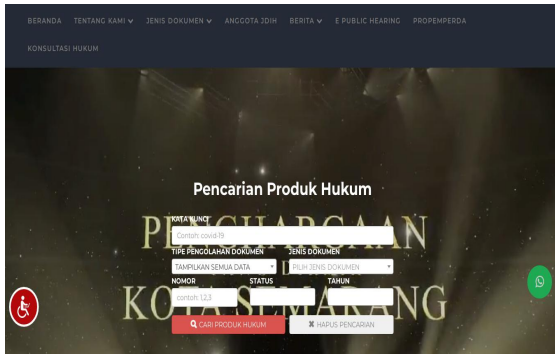


Figure 5. JDIH Services of Semarang City

Based on the image above, the Maturity of the Legal Documentation and Information Network (JDIH) is good, then the assessment of SPBE service indicators in Semarang City based on interviews as follows, the results of observations that researchers found are presented in table 1.4. below:

Table 5. SPBE Services Research Results

Indicator	Parameter	Questions	Evidence
SPBE Services	Implementation of SPBE Management	1) All services in the SPBE management sector are implemented well 2) Public complaint services have been managed well	1) The existence of a well-managed Smart City Portal for SPBE services 2) The existence of a portal and complaint service application
	a. Planning Service Maturity Level		
	b. Budgeting Service Maturity Level		
	c. Financial Service Maturity Level		
	d. Procurement of Goods and Services Maturity Level		
	e. Personnel Service Maturity Level		
	f. Dynamic Archive Service Maturity Level		
	g. State/Regional Property Management Service Maturity Level		
	h. Government Internal Supervision Service Maturity Level		
	i. Organizational Performance Accountability Service Maturity Level		
	j. Employee Performance Service Maturity Level		
	Electronic-Based Public Services		
	a. Public Service Complaint Service Maturity Level		
	b. Open Data Service Maturity Level		
	c. Legal Documentation and Information Network (JDIH) Maturity Level		
d. Public Service Maturity Level Sector 1			
e. Public Service Maturity Level Sector 2			
a. Public Service Maturity Level Sector 3			

Source: 2024 research results

Implementation of SDGs (Strengthening inclusive, accountable and transparent institutions)

The focus of this research is on the 16th SDGs goal (Resilient institutions), Institutions are as a container (institution) and as governance. As an institution and governance, Indonesia has had a grand design for Bureaucratic Reform. Bureaucratic reform that runs with the phases of role-based governance, performance-based governance, and culminates in performance-based governance. Institutions in Indonesia will move towards dynamic governance after going through the performance-based governance phase, namely institutions based on bureaucratic performance. The following are the results of our research presented

in table 6. as follows;

Table 6. SDGs Goals 16 Research Results

Indicator	Parameter	Questions	Evidence
Strengthening inclusive, accountable and transparent institutions (SDGs goals 16)	Accountable and transparent institutions	1) There is an increase in SAKIP reports 2) E-procurement users are effective 3) The value of the Semarang city bureaucratic reform index is good 4) The level of service compliance is good 5) Each OPD has a public complaint service 6) Has a PPIID 7) Good resolution of information disputes	1) E-SAKIP 2) E-procurement is effective 3) The value of the Semarang City Bureaucratic Reform Index is good with an A index in 2023 4) The level of service compliance is good 5) Each OPD has a public complaint service 6) PPIID website 7) Good resolution of information disputes
	a. Improvement of the Government Performance Accountability System (SAKIP)		
	b. Use of E-procurement for procurement spending		
	c. Percentage of government agencies that have a Good Bureaucratic Reform Index value		
	d. Proportion of residents who are satisfied with their last experience of public services.		
	e. Percentage of Compliance with the Implementation of the Public Service Law		
	There is public access to information		
	a. Number of complaints handled		
	b. Availability of Public Agencies that carry out obligations as stipulated in Law No. 14 of 2008 concerning Public Information Disclosure.		
	c. Percentage of public information dispute resolution through mediation and/or non-litigation adjudication.		
	a. Number of certificates owned by Information and Documentation Officers (PPIID) to measure the quality of PPIID in carrying out duties and functions as stipulated in laws and regulations		

Source: 2024 research results

Based on the interview results, the ongoing bureaucratic reform has been running well, because the Semarang City government works based on bureaucratic performance. The following are the results of observations, namely:

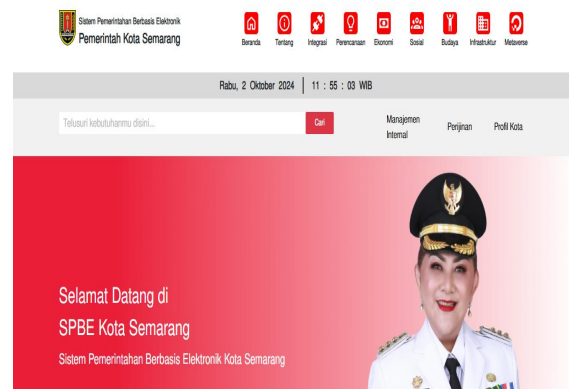


Figure 6. SPBE Semarang City

The electronic-based government system of Semarang City has now been implemented optimally considering the seriousness of the Semarang Smart City program, which is one of the Smart Cities that is an example for other Cities. Even the results of the 2023 Kemenpan RB evaluation showed that the Semarang City bureaucratic reform index value was A and the SPBE implementation index was 3.892. Based on the research results, it can be concluded that the implementation of smart governance in supporting SDGs in Semarang City has been implemented well based on the SPBE assessment indicators of

Permenpasn RB No. 59 of 2020, which shows that public information disclosure has been implemented well, but the phenomenon found by researchers during the study was the lack of public knowledge regarding the channels provided by the Semarang City government which were so good.

4. Conclusion

Based on the results of the study, it can be concluded that the implementation of smart governance in supporting SDGs in Semarang City has been implemented well based on the SPBE assessment indicators of Permenpasn RB No. 59 of 2020 showing that public information disclosure has been implemented well, in terms of user security it has also received an ISO 27001:202 certificate, in addition public complaints have been managed well. Then for the SPBE implementation policy, the Semarang City government has adopted central regulations to applicable regional regulations, and for e-procurement services it has been managed well, the results of the 2023 Kemenpan RB evaluation showed that the Semarang City bureaucratic reform index value was A and the SPBE implementation index was 3.892.

The recommendation that can be given in this article is that the electronic-based government system is already good, it remains how the government can increase the enthusiasm of public participation in using digital-based smart governance services. An effective way to increase public participation in accessing digital services is by increasing digital literacy knowledge to the public by providing training, providing resources and learning materials, providing internet access in each sub-district, and collaborating with students and academics.

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