Implementation of E-Government in Accelerating Bureaucratic Reform in Indonesia

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Abstract. The E-government in Indonesia has not been running well. The phenomenon shows that the development of e-government implementation declared to be completed in 2024 has not been achieved optimally. This paper aims to contribute thoughts on accelerating the implementation of e-government in Indonesia. E-government is a process of digitizing government, including in the community. The targets of bureaucratic reform in the implementation of e-government include the full implementation of public digital services and the administration of national government; big data and artificial intelligence; realizing a smart city with a new way of working. Transformation is a very complex process of change and requires an ability to equate perception to change itself. The research method uses the Soft System Methodology (SSM) approach as the right method to solve complex problems. This study found that there are two main obstacles faced in the implementation of e-government. First, business processes that have not been integrated due to the low culture of various data and information between government agencies. Second, because the infrastructure of Information and Computer Technology (ICT) has not reached all government agencies. There are some recommendations provided, namely (1) managing government work systems and processes, (2) utilizing ICT in public service, (3) developing the telecommunications and information technology industry, and (4) developing the capacity of human resources in the government.

Keywords: Bureaucratic Reform · E-government · E-governance · Soft System Methodology (SSM) · Indonesia

1 Introduction

The era of e-government brings everyone rushing to keep up with technological developments in carrying out their activities. The government that serves the community is an essential part of making arrangements. E-government technology brings changes to everyday life. This new technology is reframing community interactions, especially in services. For this reason, reforms are highly prioritized, especially in management related to services [1].

A. Rahman et al. (Eds.): ICAS 2022, ASSEHR 776, pp. 338–348, 2024.
https://doi.org/10.2991/978-2-38476-104-3_33

Following the development of digitalization, an important concern for the Government in the policy of bureaucratic reform in Indonesia is also directed towards an electronic-based government system (SPBE) in 2018 (PP 95 of 2018). This policy is to ensure a framework that provides the implementation of regulation, direction and control in the implementation of SPBE in an integrated, effective, efficient and sustainable manner, as well as the realization of quality SPBE services. The intended quality SPBE service is the output issued by one or several application functions with practical value. The value of these benefits includes effectiveness; cohesiveness; continuity; efficiency; accountability; interoperability; and security.

Bureaucratic reform that promotes e-government through the SPBE architecture cannot stand alone. Various objectives can be integrated into a vision. This SPBE architecture provides impetus to achieve the vision in bureaucratic reform. The goal of building this SPBE is to have an SPBE architecture that integrates all business processes, data and information, SPBE infrastructure, applications and security, resulting in integrated SPBE services. The SPBE architecture is a national development planning document.

The correlation between the SPBE architecture and the direction of the bureaucratic reform policy aims to create good, clean and authoritative governance based on law and bureaucracy. There are four Policy Directions that will be carried out, namely: 1) Strengthening the Management Implementation of the State Civil Apparatus (ASN), with the strategy of improving the maritime system and simplifying echelonization and structuring functional positions 2) Institutional and business process structuring with government agency institutional structuring strategies and integrated SPBE implementation, 3) Performance accountability system reform, 4) Public service transformation. The four directions of this Policy have interrelated activities.

In Indonesia, a phenomena known as bureaucratic reform is being used to implement e-government. This phenomenon has both benefits and drawbacks. A “smart city” is the result of the development of e-government implementation, which has been declared and is expected to be finished in 2024. However, this cannot be achieved optimally. This policy is an attraction for the people of Indonesia. The implementation of e-government policies with SPBE in Indonesia, which started in 2018, is still not going well. The less optimal e-government program with the name SPBE, the results are still not good, which is marked by the new index reaching 1.98 in 2018, ranked 107, even though this condition has improved compared to 2016 at number 116. The increase in the index continues continuously seen, but has not met expectations in its operations. In 2020 it managed to increase significantly and put Indonesia in the top 100 of the world rankings in position 88 out of 193 countries. Indonesia managed to jump up 35 ranks in the 2020 E-Participation Index. The Participation Index becomes the Very High E-Participation Index group. Thus, e-government carried out by digitalization has been welcomed by the community and can be said to be a blessing for all [2]. However, has the increase in the e-government index fulfilled the community’s need for public services? This is a problem that needs to be answered fundamentally.

The problems faced in the implementation of e-government in Indonesia are still felt to be slow compared to the targets set. This is because various issues arise. First, there is a lack of synergy between functions in the fields of government, especially in strict governance. Second is the number of duplications of applications. It is estimated that

27,400 applications have the potential to be duplicated. Besides that, there are still many scattered data rooms (server rooms). Until now reached 2700 data centers. This condition means that the applications built by each agency, both in the government and in the local government, have not been integrated. Third, with so many application duplication, it impacts the creation of silos, resulting in a waste of budget. This is because each agency builds its own application that is not integrated between applications, both internally and externally with other government systems or between organizations. The fourth problem, the applications made in each agency only meet the needs of their own environment. The application is made to pay less attention to the interrelationship of information from both information sources and users. Applications can be said to be still in silo form. The fifth problem is in providing ICT infrastructure that does not yet have a standard. ICT infrastructure use standards as a reference for quality security and information security. ICT standards and standardization of digital service quality in an integrated manner.

2 Method

This research was conducted using a qualitative approach combined with soft systems methodology (SSM). This SSM has been taught by Peter M Checkland since the 60's and is currently still being developed and used a lot [3]. This method is widely used in various countries to solve complex and dynamic problems, improve performance measurement systems such as those carried out by Kayaga [4] in Uganda. The reason for using the SSM approach is because the implementation of e-government involves various organizations and people who have different roles [5]. The complexity of solving face-to-face activity transformation problems can be elaborated with this approach. Hafseld et al. did this to understand the complexity of the problems faced in the transformation of e-government implementation seen from organizational dimensions, the introduction of new technologies and innovations, which create value added for citizens and business people, with a case study approach. Furthermore, it is emphasized that the transformation process is very dynamic [5].

The implementation consists of 7 steps. The first step that needs to be done is to understand the problem situation that is considered problematic. The second step is expressing the problem situation of an irregular problem, then a search is carried out using a rich picture to capture the thoughts and views of various parties. Then the formulation of the problem is agreed upon to be traced by developing CATWOE to help ensure the concept using the root definition. Smyth and Checkland [6], that to be able to elaborate on the complexity of the problem in this paper, steps in the Soft System Methodology (SSM) are used). In SSM there is a way of elaborating stakeholders in each activity [7]. Warren et al. [8] has also explained that the soft system methodology approach makes it possible to describe complex and dynamic issues from various perspectives to become clearer problems to be analyzed in decision making. Therefore, the problem elaborates with various elements in the Customer, Actor, Transformation, World View or Weltanschauung Owner Environment (CATWOE). In detail described in Table 1.

The third step defines the root causes of the relevant system of the intended behavior. Root definition is a statement of purpose that captures the essence of the particular situation of the applicable system. This activity is an exploration of the root causes of

Table 1. Expression of the situation of e-government problems in Indonesia with CATWOE.

Customer	Individuals who receive output and input from both positive and negative transformations. In this case, it is the people affected by the e'government policy through the SPBE policy. This research was conducted on the community of technology-based information system application developers, both individual communities, private organizations and the government. Application users These customers are not only for people who are involved with the bureaucracy, but also for the community.
Actor	The people who will carry out the transformation activities if the system is made real. The actor here describes the actor or implementer of the SPBE Policy who initiates and sets the goals for the change program. In this case, changes in public services that are manual in nature towards digital. The Governor as the operational implementation of RB in the field of e-government, especially in electronic-based service systems (SPBE). SPBE coordination team (Perpres 95/2018). Pergub 86 of 2018. The government cheap information officer is responsible for planning, alignment, preparing for implementation and evaluation in the West Java Provincial Government. The Coordination Team consists of: chaired by the Regional Secretary; Deputy General administration assistant, Member of Diskominfo, Bappeda, Organizational Bureau, BPKAD, Inspectorate.
Transformation	Purposeful activities are expressed as transforming inputs into outputs to be produced. This e-government aims to simplify integrated services.
World view or weltanschauung	Transformer elements are actors who act as transformers of change from service and administration of government with manual work procedures to digital work procedures. In this activity many elements are involved. This transformer adheres to the goal of changing from manual, face-to-face government services to digital-based services and reducing face-to-face contact between service providers and service recipients. The e-government user community considers that the Ministry of Communication and Information is the view of the surrounding environment regarding the implementation and development of e-government. *Diskominfo* is an Enabler, which provides e-government running facilities in the regions.

(*continued*)

Table 1. (*continued*)

Owner	The President of the Republic of Indonesia as a wider system decision maker concerned with system performance.
Environment	The wider environment, which is the demands of the country's competitiveness needs, the demands of change nationally and internationally, the anticipation of technological changes, the main obstacles outside the system boundaries that are significant in implementing e-government.

e-government implementation. The fourth step is to conceptually build e-government policy implementation activities in Indonesia, with effective, efficacy and efficient limits [9]. Step 5 is to compare the concept with the real world. And the sixth step determines the desired change, and the seventh step takes action to improve the current problem situation. The e-government implementation elaboration in this discussion is only used up to the fifth step because e-government in Indonesia has just been reorganized by involving various institutions.

3 Result and Discussion

The intended use of e-government boundaries issued by the World Bank and the United Nations is the adoption and integration of information technology (Internet, mobile computing, and wide area networks) within government agencies, making changes in interactions with society (citizens, businesses, other government agencies, etc.) different [10]. Thus, the use of information technology aims to change management activities that are carried out manually into activities with digital workflows.

The implementation of e-government in Indonesia uses the term SPBE which has been made in the National SPBE Master Plan. The President of the Republic of Indonesia, Joko Widodo, as the owner of SPBE's vision, has given a mandate since 2018 by carrying out Steps (1) expanding access and improving digital infrastructure and internet provision; (2) preparation of a digital transformation roadmap in strategic sectors, namely the government sector, public services, social assistance, education, health, trade, industry and broadcasting; (3) integrating data centers; (4) preparing digitally talented Human Resources; (5) of course there are regulations, funding schemes and fast financing. The community welcomes this as a customer. The existence of e-government is an use of electronic means to increase interaction in service between the community and the government. The use of e-government and to improve administrative effectiveness and efficiency in government internal operations and decision-making processes [11].

This e-government implementation is a digital transformation and can be said as a digitalization of government. Therefore the management of e-government carried out with SPBE is a transformation from conventional public administration to digital public administration in which digital government is implemented. Concerning digital government, it is ensured that it has a national digital ecosystem both internally and externally, to promote democracy, dignity and freedom of society, support electronic development

and encourage fair and efficient service delivery [11]. Thus this digital ecosystem needs to be understood broadly, meaning integration of digital infrastructure and adoption; digital economy; as well as people who are of course also digitally ready; digital rights and governance related to SPBE.

The implementation of digital governance (SPBE) is carried out using two policies. First, Presidential Regulation number 95 of 2028 concerning Electronic-based Government, in which this regulation is a provision in the administration of government that utilizes information and communication technology in providing integrated services to SPBE users. Meanwhile, Presidential Regulation number 39 of 2019 is a government data management policy to produce data that is accurate, up-to-date, integrated and accountable, and easily accessible and used between central and regional agencies that meet data standards. This means that every data user originating from one Indonesian data is certain to be valid and reliable.

As a manifestation of the linkages between these various agencies, an Electronic-Based Service System Coordination Team (SPBE) was formed. This team consists of the Minister of National Development Planning/Bappenas, Minister of Communication and Information, Minister of Home Affairs, Minister of Finance, Head of the National Crypto Agency (BSSN) and Head of the National Research and Innovation Agency. This team is coordinated by the Ministry of Administrative and Bureaucratic Reform (Fig. 1).

The SPBE architecture has been designed and agreed upon by the government with the following mechanisms: Mechanisms and governance are coordinated by the Ministry of Administrative and Bureaucratic Reform, which integrates and digitises government business processes across sectors. Digital transformation and digital work mechanisms are carried out by each ministry and agency as mentioned above. The Ministry of Communication and Information carries out its functions and is responsible for developing

Fig. 1. The elements involved in the SPBE Grand Design.

software applications and supporting integrated business process applications and digital services. Besides that, the Ministry of Communication and Information is also responsible for hardware, network and data center facilities that accommodate applications developed by each service agency and store data and information.

Provision of the above facilities to realise one safe Indonesian data, meaning data and information used by applications and services carried out with SPBE. The security of this data is the responsibility of the National Cyber Crypto Agency, where the facilities, processes and policies that support the availability of services and SPBE needs as well as protecting data from unauthorized access are their responsibility.

The implementation of the SPBE Policy has produced several policies related to digitalization of services that have been used, including:

1. Integrated Dynamic Archival Information System (Srikandi) which facilitates digital and integrated archive management. In this Heroine, a policy has been made using the PAN RB Ministerial Decree number 679 of 2020.
2. In procuring services for the need for work tools for every government organization, an Electronic Procurement Service (LPSE) has been prepared. This LPSE is a service unit for the electronic procurement of goods/services system established by Ministries or Institutions or Universities or BUMN and Local Governments to facilitate ULP (Procurement Service Unit) in procuring goods or services. This has been issued by the Decree of the Minister of Administrative Reform and Bureaucratic Reform number 1148 of 2021.
3. In accommodating the aspirations and complaints of the public as a form of community participation in governance, a policy was formed in the form of a Decree of the Minister for Administrative Reform and Bureaucratic Reform number 680 of 2020 in a mechanism for the National Public Service Complaint Management System (SP4N) - People's Online Aspirations and Complaint Service (LAPOR).

The three policies mentioned above are online service applications that individuals easily use, government agencies and businesses, as a National Digital Service (SIPP).

4 Implementation of Digitalization of Public Services in Regions

These tools in practice have not met the needs of the transformation of conventional public administration and have been welcomed by the SPBE user community.

SPBE users are central agencies, local governments, employees of the State Civil Apparatus, individuals, communities, business actors, and other parties who utilize SPBE Services. Communities as SPBE consumers compete to innovate through applications. Nationally, 27,400 applications have the potential to be duplicated. Besides that, there was a waste in the use of facilities and infrastructure. Currently there are 2700 data centers/server rooms spread across Indonesia.

With so many applications and server rooms spread across Indonesia, it results in unfavorable performance. An in-depth description of SPBE implementation in Indonesia is provided with an overview of the implementation results in the West Java Provincial Government.

SPBE implementation for local governments described the level of success with one example in the West Java Provincial Government. An autonomous government system in

Indonesia provides an advantage for accelerating e-Government, if managed properly. This is driven by community innovation both individually and within organizations in each region to realize e-Government. The number of applications mentioned above shows the public interest in quickly realizing the achievement of SPBE. One example of a region considered advanced 2 in the implementation of SPBE is West Java Province. The management of SPBE in West Java is coordinated by the Regional Secretary of West Java Province with the implementation coordinator carried out by the Office of Communication and Information of West Java Province. This service is a Single Sign On Portal (SSO) under construction which will function as a government administration portal with the public (community). Besides that, it also handles intra-regional networks or acts as a network center. Government service portal, as a tool to integrate information into one data. West Java has 12 regencies/cities that have a smart city master plan with an achievement of 85%, and one of the regencies that get the best title in Indonesia is Sumedang Regency, which is located in West Java.

The advantage of centralizing intra-regional networks can provide an efficiency of 20% of the total costs incurred. Besides that, the data center also has 435 registered applications. This amount cannot be utilized effectively. The number of applications that can be used is 357 applications. While 78 applications cannot be utilized. Of the 78 applications after being analyzed about the causes of the ineffectiveness of their use, because they are not in accordance with the needs of these agencies on an ongoing basis. 78 applications that were not utilized on average resulted from project change activities when participating in the Supervisory Leadership Training, abbreviated as PKP and Diklatpim III or Administrator Leadership Training (PKA). Applications that are considered suitable as many as 357 applications can be run and synchronized with other applications.

The advantages of a decentralized government system can encourage government programs that require community participation. The issues that should be encouraged to be resolved are:

1 There is a guide that can be used to unify perceptions, language, information technology, infrastructure of every innovation produced by the community as a form of participation.
2 In general, local governments implement e-government policies according to their respective needs. For the West Java Provincial government, it already has a Public Service Portal that functions as an integrating center.
3 Establish responsible allocation mechanisms and flow of information.

Results of evaluation and monitoring of the success rate of the SPBE implementation index in Indonesia. Purpose This evaluation is used as a reference for the government in aligning SPBE development programs and plans to produce integration, continuity and quality in SPBE services. This evaluation was carried out by the Ministry of State Apparatus Empowerment and Bureaucratic Reform as an actor in the e-government program. It can be illustrated that very few have achieved the title in the last 2 years. In 2020 it reached 26 very good, less than 25% of the total application users and 75% in the fairly good category. As shown in the following Fig. 2.

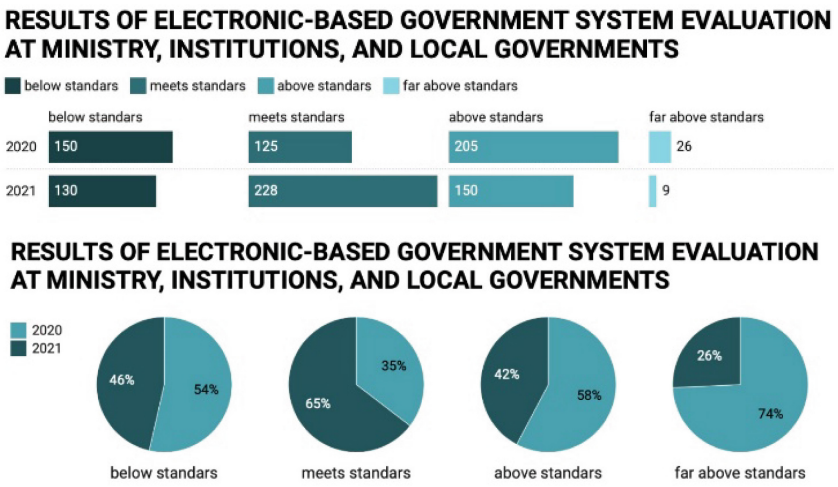

Fig. 2. Results of evaluation of the use of e- government in Indonesia.

With conditions like the above, it can be said that the participation of the people who are very enthusiastic in realizing e'government through SPBE cannot be accommodated properly. This is because this very strong participation does not yet have an administrative basis. Weaknesses in decentralized government systems make integration difficult.

Within the framework of the SPBE architecture, Schallmo et al. [12] defines the digital transformation of modern business as a process that acts from the individual level to the network level of actors, fundamentally changing business models. Transformation involves using new technology to provide services. This process requires skills that enable the collection and exchange of data and the ability to analyze and evaluate options, which are then used to initiate new processes.

In this case, from the owner's point of view, the steps that will be taken are planned. It contains related elements, namely: architecture; Plan Map; Business process; data and information; Infrastructure; Security; Effective, efficient and economical public services and equity.

5 Conclusion and Recommendation

E-Government is now inevitable to be implemented in public administration. This paper concludes that, first, government is a business process that has not been integrated due to the low culture of sharing various data and information between government agencies. Second, the infrastructure of information and computer technology (ICT) has not reached all government agencies, so the implementation of e-government in Indonesia still faces many obstacles. However, there are some recommendations can be delivered to improve the implementation of E-government in Indonesia, namely (1) managing

government work systems and processes, (2) utilizing ICT in public service, (3) developing the telecommunications and information technology industry, and (4) developing the capacity of human resources in the government.

E-government provides a very adequate transformation of public services, and the community welcomes its implementation as customers. The lack of success is due to the speed of innovation of the people who participate in welcoming e-government with less balanced policy directions.

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