The Study of E-Government Implementation in Indonesia

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Abstrak

Perkembangan teknologi informasi memberikan pengaruh yang sangat besar diberbagai kehidupan masyarakat. Salah satu pengaruh terbesar yang diberikan oleh teknologi informasi yaitu di pemerintahan. Kemajuan teknologi memberikan kemudahan pada instansi pemerintahan untuk dapat saling berkoordinasi membangun Indonesia menjadi lebih maju. Sistem Pemerintahan Berbasis Elektronik atau SPBE merupakan salah satu contoh kemajuan teknologi informasi yang sudah dimanfaatkan oleh pemerintah dengan tujuan pelayanan yang diberikan dapat lebih maksimal dari sebelumnya. Sebelum adanya SPBE ini terdapat istilah yang berbeda yaitu E-Government. E-Government menjadi salah satu kemajuan teknologi yang diadaptasi oleh pemerintah untuk memfasilitasi pelayanan dan sebagai alat untuk penyampaian informasi kepada masyarakat tentunya berkaitan dengan persoalan pemerintah. Penelitian ini bertujuan untuk mengetahui bagaimana Indonesia mengimplementasikan E-Government, konsep E-Government dan komparasi E-Government antara Indonesia dengan Negara lain.

Kata kunci: *Teknologi Informasi, Sejarah, Sistem Pemerintah Berbasis Elektronik, E-Government*

Abstract

The Development of information technology make a huge impact in various community life. One of the biggest influences given by information technology is in government. Advances in technology provide convenience to government agencies can coordinate with each other to build Indonesian becomes more advanced. Sistem Pemerintahan Berbasis Elektronik or SPBE is one of the examples of the advancement of information technology that has been utilized by the government in order to provide a more decent service to the public. Before the SPBE there was a different term, namely E-Government. E-Government became one of technology advancements that has been implemented by the government to facilitate service and as a device to deliver information related to government matters to the public. This study aims determain to how Indonesia implements E-Government, the concept of E-Government and the comparison of Indonesian E-Government with other countries.

Keywords: *Information Technology, History, Sistem Pemerintahan Berbasis Elektronik, E-Government*

1. Introduction

Information of technology is rapidly developing and has a significant impact on various aspects of human lives. Advances in technology provide many conveniences, such as the ease of receiving information through the access of smartphones. As one of the countries that consists of diverse provinces, Indonesia has begun developing information technology to provide ease for government institutions in exchanging information with each other. The governance of information technology is a process to ensure that the company's goals are achieved by evaluating stakeholders, needs, conditions, and options [1]. Information technology has been done at a few companies, but it hasn't been done in an organized way, so it's impossible to say how important information technology is in supporting business processes and achieving company goals [2]. The implementation of advances in information technology in an organization requires a considerable amount of budget with a substantial risk of failure. The

application of information technology provides opportunities for transformations and productivity in established businesses [3].

One of the examples of the advancement of information technology is the existence of Sistem Pemerintahan Berbasis Elektronik, or SPBE. The government is using SPBE to provide the best service to users both between governments and citizens. SPBE went through a long history; before SPBE existed, it went by another term, Electronic Government or shortened to e-government. E-Government is one of the information technologies used by the government in providing services and delivering information to citizens, as well as governments and anything related to government affairs [4]. The use of computers or information systems in government institutes or organizations is intended to accelerate the administrative process, search, and data processing to improve public service quality. The implementation of E-Government in organizations, mainly profit-oriented ones in developing countries, has delivered satisfactory results [5].

E-Government supports governance towards good governance. E-Government was established around four years ago [6]. The consideration for making policy was aimed to increase the value of effectiveness and efficiency along with transparency and accountability in government. E-Government is not just a concept that can be implemented offhand. The implementation of E-Government requires a few changes in terms of business process as well as organizational structure. The primary aspect of E-Government is how E-Government can bring citizens and people in business to establish a more connected relationship with the government [7]. The implementation of E-Government demanded developing information technology to provide credible access for citizens and people in business regarding the information provided by the government. This study focuses on the implementation and the comparison of Indonesia's E-Government with other developed countries, with the intention of knowing how different the implementation and the used methods in developing E-Government.

2. E-Government in Developed Countries

E-Government in developed countries is implemented based on the characteristics of each country. Developed countries that are considered to a good E-Government are as follows.

2.1. E-Government in South Korea

Ever since 2010 until the present, South Korea has succeeded in making history as the best country in utilizing information technology in various aspects of life. South Korea's success in utilizing E-Government cannot be separated from the maximum utilization of the website that the South Korean government has provided, www.korea.go.kr, which was developed to provide services to the public with an integrated portal. South Korea had succeeded in developing the best E-Government in the world and being widely recognized for it [8].

Initially, the E-Government in South Korea had a goal at an early stage to digitalize every government administration activity and establish the structure of information technology. In 1970, the South Korean government established the computerization of administration system and computerized every database in the beginning of 1980, then built a high-speed information and communication network in 1990. In the year 2000, it began to identify E-Government to start innovating and adopting the presidential agenda. The Electronic Government Act began to be developed in 2001 and was enacted as a law in South Korea and implemented to streamline all government administrative matters [8].

Figure 1. An example of E-Government in South Korea
(Source : https:/www.epeople.go.kr)

Figure 1. A picture containing the initial appearance of the e-People website managed by the South Korean government. The public can use this website to express opinions, such as providing suggestions, criticisms, and complaints from the citizens of South Korea regarding government performance. This website aims to evaluate the quality of information and the use of the said information as well as the public role on it.

2.2.   E-Government in Singapore

E-Government in Singapore consists of three stages, the first stage is called the initiation stage, the second stage is the infusion stage, and the third stage is called the customization stage. First stage namely initiation, the Singapore government took the first step by developing several official websites to develop a smart country. There are approximately 60 sites that were developed in June 1996 to disseminate individual information organized by the civil service and legislation. In the mid-1990s, the Singapore government developed Singapore One, which can distribute broadband technology capabilities to various fields such as education, business, and several community centers. Singapore has also developed an E-Citizen One Stop site. This website contains one-stop integrated services that can provide public services to the community [9].

The electronic service owned by the Singapore Government is www.gov.sg, which is the official online communication portal and repository of the Singapore Government. This portal provides the latest information on policies and news in Singapore. Users can also view Government-related events in the event calendar, translate government terms using translation tools and search for contacts from public service agencies [10].

The Infocomm Development Authority (IDA) is the institution that holds the authority related to E-Government in Singapore. The leading E-Government portal is called e-Citizen, which has approximately 1600 online public services. The available services provide the information needed by the public and contain services for conducting transaction activities. The transaction services in question include registering a company, filling out income taxes, applying for permits, legalizing marriages, applying for passports, and so on. This portal is very beneficial for the citizens because it can facilitate everything needed; it can be used anytime and anywhere without having to come directly to particular offices [9].
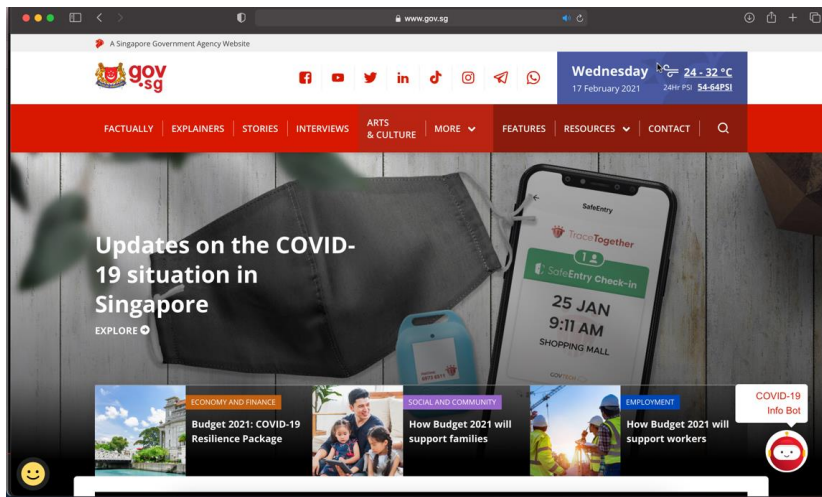
Figure 2. An example of E-Government in Singapore
(Source : https:/www.gov.sg)

Figure 2. The picture contains a display of one of the websites owned by the Singapore government. This website can be accessed by the public and provides various information about culture, economy and finance, job vacancies, social and community, and others. The convenience provided by this E-Government portal so that the public can obtain various information needed by simply accessing the portal.

2.3.   E-Government in Australia

The Australian government has continually incorporated e-government as a result of current information technology advancements at all levels. Most Australian governments had an explicit policy of promoting online information services through their separate organizations in the early to mid-1990s. This is in keeping with the overall development plans that we find in comparable nations around the globe in all jurisdictions. Government websites have evolved from delivering static information representing the majority of reformatted material typically delivered in hard copy to offering information that is continually changing and configurable, as well as interactive services where citizens can engage in business transactions with the government [11].

Australia was the first country to embrace technology in all of its forms, including the internet. According to studies conducted over the past ten years, the number of people who are able to utilize the internet and actively use it to conduct business with the government is increasing. According to a 2005 poll, 52 percent of households possess internet service. According to a research done by the Australian Government's Office of Information Management in 2003 on the benefits of e-government, 80 percent of internet users use online services to conduct transactions with the government. E-government services are used by 57 percent of business respondents and 46 percent of non-business respondents. Simultaneously, multiple comparative surveys of e-government competence levels position the Australian government among the top five in comparison to other nations with comparable economic levels [11].
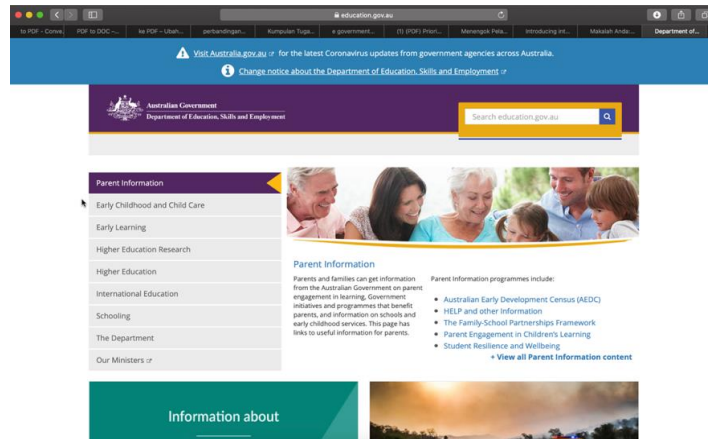
Figure 3. An example of E-Government in Australia
(Source : https://www.dese.gov.au)

Figure 3. One example of e-government implementation in Australia. The Ministry of Education manages this website, which contains some information about Australian education matters. The increasing benefits of substantial developments are for both the government, in terms of efficiency and coverage, and for users of government services, in terms of consistency, transaction speed, and time savings. Efforts in simplifying all issues of public service by ensuring integrated transaction capacity amongst organizations have been successful. For example, the Australian Tax Office was able to reach an agreement with Medicare Australia so that Australians can use the office's online services to file their tax forms. They can have Medicare data and re-access the Medicare system through a single interface at the same time.

3.   E-Government in Indonesia

An occurring problem for the Indonesian government is that E-Government is still not successful in implementing services and utilization of information technology. The implementation and development of E-Government certainly is not without its obstacles, those obstacles are as follows.

3.1   The Architecture of E-Government in Indonesia

The E-Government can run well if there is something that ensures the integration of operating system and document processing so that the transparency of public services is oriented according to the framework that has been designed. The architectural framework based on the 2003 Presidential Instruction is as follows.
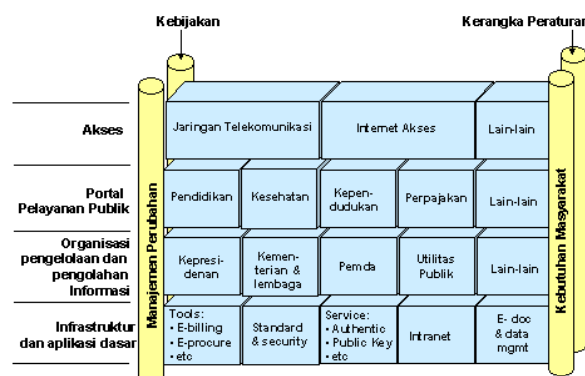

Figure 4. The Architecture of E-Government in Indonesia
(Source : Inpres 3/2003)

Figure 4. An image that contains the architecture of Indonesia's E-Government. The first layer is access, where an internet network is needed that can be used to access websites that have been built by the government. The second layer is the portal, and the website will integrate the processing of information management that will be processed in several related agencies. The third layer is the organization of information management and processing, marked by a process for managing, providing, and processing information transactions and electronic documents. The fourth layer is infrastructure and basic applications—facilities and infrastructure such as hardware and software needed to support processes in the previous layer. In order for the E-Government program in Indonesia to be successful, the government has developed a roadmap of activities for the E-Government program.
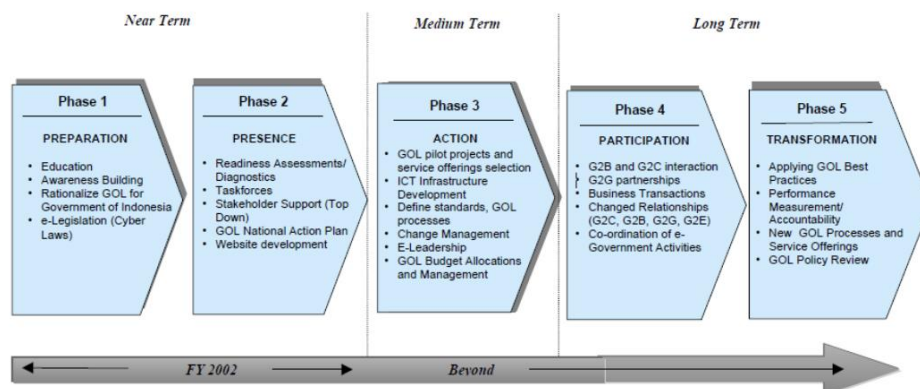

Figure 5. The Roadmap of E-Government in Indonesia
(Source : Indonesia's Roadmap to E-Government)

Figure 5. An illustration displaying a roadmap for Indonesia's E-Government development. The first stage is to establish e-leadership, which will support and coordinate E-Government initiatives at all levels. The second step is to draft E-Government and cyber-laws that are appropriate and suitable. The third step entails constructing and expanding ICT infrastructure. The fourth step is to create a prioritized list of projects and strategies to implement. The final step is to implement the management of change [12].

3.2   The Implementation of E-Government in Indonesia

The role of the internet has a significant influence to development of the implementation of E-Government. The growing development is expected to provide the best solution in every implementation of government towards good governance. Another problem that occurred came from the readiness of an organization. The quality of human resources that are still relatively low, will not be ready to apply an already advanced information technology. Obstacles that occur are stagnation in development, inadequate data updating, and management of application programs used by the government. The significant changes that happened before there was E-Government and after E-Government was established will remain unseen. Internal IT support becomes a sufficient obstacle if the use of information technology is incomparable to the carrying capacity of the devices used in the implementation of E-Government. Significant changes between before there was E-Government and after there was E-Government will not be seen. Internal IT support becomes a big enough obstacle if the use of information technology is not comparable to the carrying capacity of the devices used in the implementation of E-Government. In 2005, information was obtained that about 45% of local governments in Indonesia did not have a strategy for implementing E-Government. The management of E-Government that is yet to be structurally managed is also an obstacle in implementing E-Government [13]. This constraint will result in each local government having inequalities in the assignment of regional apparatuses that are in charge of E-Government [10].

Evaluations began to be carried out with the purpose of knowing how the government deal with technology advancement. At that time, the evaluation itself was called PeGI. The

assessment was carried out periodically to measure the effectiveness and the utilization of ICT in the Indonesian government. The dimensions of the assessment carried out include several aspects such as policy, institutional, infrastructure, application, and the aspect of planning [14]. The main goal for PeGI is to measure ICT utilization that consists of five dimensions and thirty-five attributes. The weights of each dimension of the PeGI frameworks are almost the same as well as interrelated with each other. The policy dimension consists of eight attributes; the institutional dimension has five attributes, the infrastructure dimension has seven attributes, the application dimension consists of ten attributes, and the planning dimension consists of five attributes [14].

3.3 The Assessment of E-Government in Indonesia

E-Government evaluations are very crucial to be conducted in order for the government to know how successful the Indonesian government implementation of E-Government. The government then should conduct an evaluation on tha ranking of E-Government or more known as PeGI [15]. This activity is intended to see the general condition of whether E-Government is able to be implemented properly. PeGI's activities have been carried out since early 2007, accompanied by rapid technological developments. The purpose of PeGI is to act as a reference for usage or development of information technology in government, this particular evalution is also being used to balance the implementation of electronic-based government. The indicators in each dimension of PeGI are as follows [6].
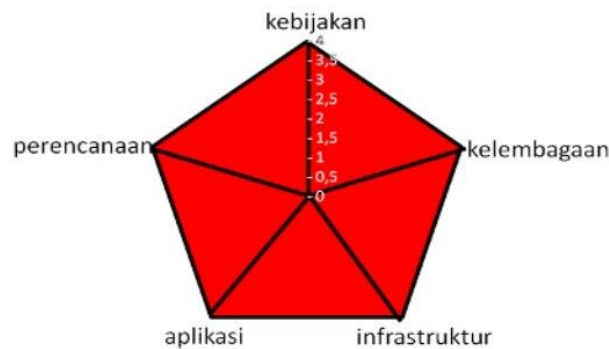

Figure 6. The Dimensions of PeGI
(Source : E-Government Assesment with PeGI)

Figure 6. An image containing the dimensions of PeGI, consists of five dimensions, the first dimension is policy, the second one is constitutional, the third one is infrastructure, the fourth one is application, and the last dimension is planning.
1. The policy dimension consists of evaluation which is conducted on the management or the process of policy making as well as the vision and mision that concerns ICT, it can be seen from the form of decrees, changes in regulations, changes in policies, a more improved and developed guidelines and strategic plans.
2. The institutional dimension contains assessment activities carried out on aspects of an effective organizational structure; there are documents containing the formulation of tasks and functions carried out by the organization, systems, and procedures that are available in full.
3. The infrastructure dimension contains assessment activities that include data centers and supporting applications and communication networks, security, and supporting facilities.
4. The application dimension consists of 10 indicators that are used for assessment activities on applications used by the government in carrying out public services.
5. The planning dimension contains integrated and sustainable ICT governance and planning management, there are five variables consisting of organization or function, planning system, master plan documentation, and financing. [6]

3.4 Challenges for E-Government in Indonesia

One of the changes that was seen from the Indonesia government implementation of E-Government is that the local government has established more sites of their own. The sites that were developed by local government are still very simple, such as homepages with very minimal news. Those sites are yet to be appropriately managed; hence interactions from visitors are non-existent, even when it was designed, it fitted to the ideal E-Government concept. Another factor is that there are no human resources that are able to support and provide in terms of skills and management in managing governmental sites, which raises hesitation from the government in implementing the E-Government. That proved the implementation of E-Government is still rather inferior, if the government and the human resources are incapable of managing the E-Government site properly.

4. Comparison of Indonesia's E-Government with Other Countries

The E-Government that is implemented in Indonesia is certainly different compared to the the ones that are implemented in other countries. The concept of socialization to the citizens, the developed contents, problems faced in implementing E-Government, and the development patterns of E-Government. This comparison was made based on references from several previous literature works that discuss various E-Government comparisons in Developed Countries [16]. The differences in the application can be used as a comparison of E-Government in Indonesia with other countries.

Table 1. Comparison of Indonesia's E-Government with Other Countries

Distinguishing Indicators	Indonesia's E-Gov	Other Countries' E-Gov
Content	There are three crucial elements in the implementation of SPBE in Government Agencies, namely government administration, which is an element of governance of the bureaucracy, reliability of information and communication technology (ICT) as a lever or enabler in its implementation. The last one is the ease of government services provided to users, according to their respective duties and functions.	E-government in other countries refers to the use of information technology by governments, such as using intranets and the internet, which enable the ability to connect citizens, businesses, and other activities. One of the elements that must exist in e-government is IT infrastructure to support the sustainability of e-government itself.
The Socialization Concept to The Citizens	The use of information and communication technology to promote effective and efficient governance, to facilitate accessible government services, to increase citizens' access to information, and to make government more accountable when faced with citizens. SPBE involves internet technology, telephone, community centers, wireless devices, and other communication systems. The results of the SPBE evaluation, conducted in 2019, were carried out on 637 government institutions. The good predicate was achieved by 60 percent of ministries or institutions, followed by provincial governments with 50 percent, and	An example of the socialization concept in other countries is the Australian citizen. According to the United Nations E-Government Survey in 2010, it was ranked 3rd in the E-Participation Index Top 20 Countries. Hence, it can be said that more than 50% of Australians are connected to the internet, which is one of Australia's success factors in implementing E-government. The Australian Government has implemented a particular portal service that can accommodate the needs of all citizens.

	district or city governments with 23 percent.	
The Completeness of Domain	The SPBE assessment consists of 4 domains: the SPBE internal policy domain, the SPBE governance domain, the SPBE management domain, and the SPBE service. SPBE's internal policy domain consists of the aspect of internal policy regarding SPBE governance. The domain of SPBE governance consists of aspects of SPBE strategic planning and the aspects of information and communication technology, as well as the aspects of SPBE organizers. SPBE management domain consists of the aspects of SPBE management implementation and the aspects of ICT audit. The SPBE service domain consists of electronic-based government services and the aspects of electronic-based public services.	Domains or steps that are used by several developed countries are able to provide information service through a website that was provided by the government. Those information contain policy related information, the governance of a country, applicable laws, and several generally required documentations. The improvement of information service was marked by the occurence of two-way communication through the website that had been provided by the government. Transactional service can be seen from the two-way communication between the public and the government. Connected service was marked by the changes communication style between the public and the government.
Problems that are Faced	1. A problem in implementing SPBE is the process that has not been integrated, this can be seen from the low data sharing between government institutions. 2. The development of information and communication technology (ICT) infrastructure has not been evenly distributed, there are developments that have been carried out optimally but there are still developments that are still need more work. 3. The security management of information is also still weak; this happens in almost all government institutions.	1. Opening space for black trade, fraud, and forgery, enabling damaging the nation's morale through certain sites, abuse that is not in line with religious and socio-cultural values that can cause divisions, and so on. 2. Poorly planned structural reform in policies and efforts. 3. The online services provided do not pay attention to the needs of the people who have special needs, such as the visually impaired community.
The Patterns of E-Government	1. SPBE provides information and services for the citizens 2. Improved public services that include networks for information and public service transactions that can be accessed anywhere and anytime. 3. Strengthening the capacity of management and coordination system for the implementation of SPBE to build an integrated SPBE within and between Central Agencies and Regional Governments.	1. Encourage government institutions to fully utilize and develop services through the internet. 2. Ensuring that the applications and the systems that support the implementation of e-government have been developed and implemented. 3. Increase the capacity and access for online government services throughout the region. 4. Improving ICT-based

4. Development of SPBE services that are user-oriented and open up space for community participation.	industry development that affects the speed of the implementation of E-Government. 5. Conducting comparative studies and regularly monitoring each implementation.

Table 1. A table consists of the comparasion of how Indonesia implements E-Government and how other countries implement E-Government. The implementation of E-Government in Indonesia is undoubtedly different from the implementation of E-Government in other countries, when compared to E-Government in Indonesia, it also involves other E-Business models while E-Government in other countries refers to the use of information technology. The current SPBE implementation has provided promising developments for the implementation of E-Government in Indonesia; it can be seen from the results of the SPBE evaluation in 2019. The results of the 2019 SPBE evaluation were carried out on 637 government institutions, and a good predicate was achieved by 60 percent of the ministries or institutions, 50 percent of the provincial government, and 23 percent of the district or city government. The socialization for the use of information technology in Indonesia is still relatively lacking compared to other countries. For example, Australia has succeeded in being ranked 3rd in the E-Participation Index of the Top 20 Countries. Australia has succeeded in implementing information technology because more than 50% of its people are connected to the internet. It is hoped that the existence of SPBE in Indonesia can increase public enthusiasm to use information technology in terms of using public services provided by the Government. The problems faced by Indonesia are different from other countries that are more advanced in the implementation of E-Government. Indonesia still has problems with the implementation of SPBE, as there are processes that have not been well integrated, it is hoped that in the future, the government can overcome the problems that are still being faced in the implementation of E-Government in Indonesia and learn more from other countries that have successfully implemented E-Government system.

5.   Conclusions

It can be concluded from the results of the discussion is that SPBE emerged after the implementation of E-Government was deemed to be unsuccessful in advancing an electronic-based Indonesian government. The challenges that arise in developing E-Government in Indonesia provide ample room for improvements in its implementation. E-Government in Indonesia is considered to be relatively unsuccessful, which triggered the appearance of SPBE. The emergence of SPBE in 2018 is the end of the E-Government period in Indonesia. SPBE also emerged because it was based on one of the reasons for the government to be transparent as well as the demands of the ever-evolving era. SPBE evaluation is the one carried out to assess the implementation of SPBE with a specific method. The stages in the SPBE evaluation consist of three stages, namely the planning stage, the implementation stage, and the reporting stage. There are two methods of implementation, namely self-evaluation and external evaluation. The comparison of E-Government in Indonesia with other countries is carried out to find out the differences in the implementation of the E-Government system. The problems faced by Indonesia in implementing E-Government are undoubtedly different from other countries that are more advanced in implementing E-Government. The emergence of SPBE is currently expected to be able to overcome the problems faced in the implementation of E-Government and can advance the implementation of information technology in government in Indonesia like other developed countries. In order for the SPBE to run properly, it requires financial support, established infrastructure development, and human resource training to become advanced and reliable human resources. Surely, SPBE also requires active participation from related parties, including the government, the citizens, and people in business.

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