

Environmentally-Based and Sustainable Digital Governance Transformation that stimulates Environmental innovation, Social and Economic issues

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Abstract. This study aims to analyze the existence of a sustainable environment-based digital transformation in an SPBE-based application to encourage environmental innovation at work. A descriptive qualitative research method is employed for this study. Data were collected through observation and document review. Further, the data were analyzed using interactive model analysis. Digital transformation is necessary considering the development of Covid-19 that still exists. Information technology is beneficial for economic growth. Literacy is an essential aspect of digital transformation. With literacy, one can operate any system or application available. Digital infrastructure, acceleration of digital transformation in government, and increasing productivity of human resources through social and economic knowledge are also the government's focus. The development of digital infrastructure is essential, considering that there are still gaps in digital use. There is inequality in internet access for certain areas in Indonesia, which is considered an obstacle to using a digital-based government system.

Keywords: Digital-Based Government Transformation

1 Introduction

Digital technology has brought humankind a great leap forward in communication and information. It affects almost all aspects of life in the Industrial 4.0 era. Digital government is necessary for managing Social and Economic Problems with all the potential of existing resources, humans and all assets. It aims to reduce sustainable economic inequality.

“When we talk about digital transformation, it requires a strong will for Indonesia to go there; without it, it will be difficult for us to achieve it.” This research provides an opportunity for us to show that the stakeholder has a strong commitment along with other Ministries/Institutions for a change. This technological revolution is not waiting for us; we must prepare ourselves. In 2019-2021, when the COVID-19 Pandemic hit, it also accelerated virtual transformation in various countries. By adopting virtual technology massively, Indonesia can be better at it after the pandemic. The virtual technology in question includes digitization of the value chain. It is from production to distribution, access and improvement of digital infrastructure, preparation of digital transportation roadmaps in strategic sectors and government, acceleration of the integration of national data centres, preparation for human resources for digital talent and various regulations related to digital transformation funding and financing.

The Electronic-Based Government System (SPBE) is a government administration that utilizes information and communication technology to provide services to its users. Under Article 4 of the SPBE Presidential Regulation concerning elements, the Ministry of Communication and Information Technology is responsible for building infrastructure and applications for the National SPBE. The infrastructure in question is implementing a national data centre (PDN). This implementation is expected to improve governance to be more efficient. In implementing the SPBE, the government is committed to establishing a National SPBE Coordination Team consisting of the Minister of Communication and Information Technology, Minister of Home Affairs, Minister of Administrative and Bureaucratic Reform, Minister of National Development Planning, Minister of Finance, Head of Agency for the Assessment and Application of Technology Indonesia, and Head of State Cyber and Signal Agency. Each has its duties and roles for being part of the government commitment.

In light of the recent digital transformation, Indonesia will be better on the matter after the pandemic. Through digital transformation, Indonesia aspires to become a developed country by 2045. Regardless of the current conditions, the government is the main focus on providing services, both directly and indirectly, by maximizing the use of information and communication technology in the government sector. Digital transformation is very much needed to encourage the implementation of the evidence SPBE policy to overcome various development problems, including the impact of the Covid-19 pandemic. The pandemic has become an accelerator of digital transformation where the Electronic-Based Government System can provide long-term benefits through a culture of continuous innovation to stimulate the work environment for a significant increase in effectiveness, doubled with rapid and consistent policymaking based on data that leads to better public services and close the distance between the government and the community.

Using technology can control or overcome social and economic problems properly. This is because the WFH (Work From Home) policy has limited space for movement. For this reason, the government is transforming public services from manual (conventional) to electronic (online) devices. Since the Covid-19 pandemic, the government has been working on the website to provide good community services and overcome social and economic problems. The use of technology is also applied in the government and private sectors, such as Zoom meetings, employee work, individual performance reports, and several other community activities conducted digitally. This change is required now that we are entering a new-normal era. It also affects the administrative order model and work patterns within government and private agencies. In order to optimally implement physical distancing, a change was made to the work process from working in the office (WFO) to working at home (WFH).

Furthermore, the government issued a regulation in the form of a Circular Letter from the Minister of Administrative and Bureaucratic Reform No. 34 of 2020 concerning Amendments to the Circular Letter No. 19 of 2020 concerning Adjustment of the Work System of State Civil Apparatus to Prevent the Spread of COVID-19 in Government Agencies and Circular Letter of the Minister of Administrative and Bureaucratic Reform No. 38 of 2020 concerning Protocols for the Implementation of Work from Home for State Civil Apparatus related to the Prevention of the Spread of Covid-19 in Government Agencies.

Based on the Minister of Administrative and Bureaucratic Reform Circular Letters, adjustments have been made to the work system for State Civil Apparatus through the implementation of official duties at home/residence (work from home), which is valid from March 16 to April 21 2020. In light of this, some ways to reduce the level of anxiety and stress in carrying out tasks are regulated as follows:

- 1) Implementation of official duties at home/residence (work from home) is a working system carried out by State Civil Apparatus at home/residence to achieve work targets and meet performance targets by utilizing information and communication technology.
- 2) In this regard, there are several notes on the implementation of official duties at home/residence (work from home) for State Civil Apparatus,

WFH Implementation has several advantages and positive impacts, such as:

- a) Acceleration of Application of Electronic-Based Government System and Improvement of Employee Capability in Utilizing Information and Communication Technology.
- b) Implementation of WFH encourages employees to adapt to the use of information and communication technology. This is to support the government's work program related to SPBE acceleration following Presidential Regulation no. 95 of 2018 to improve the quality of government administration and public services by utilizing ICT.
- c) Implementing WFH is expected to improve the ability of employees to communicate electronically. This is also in line with the acceleration of the SMART State Civil Apparatus, which hopes to produce digital talent and leaders.
- d) Acceleration of Application of Electronic-Based Government System and Improvement of Employee Capability in Utilizing Information and Communication Technology.
- e) Implementation of WFH encourages employees to adapt to the use of information and communication technology. This is to support the government's work program related to SPBE acceleration following Presidential Regulation no. 95 of 2018 to improve the quality of government administration and public services by utilizing ICT.
- f) Implementing WFH is expected to improve the ability of employees to communicate electronically. This is also in line with the acceleration of the SMART State Civil Apparatus, which hopes to produce digital talent and leaders.

The transition period to online can be executed by strengthening the public's understanding of the advantages of using online-based services. Government can evenly distribute digital-based infrastructure development to the districts in Indonesia. During the Covid-19 pandemic, many other areas, especially outside Java, were still left behind. The bureaucracy can focus on equity so that areas outside Java can still enjoy unlimited internet service access. Advancing the Knowledge and Innovation Ecosystem can be realized, one of which is by improving government business processes through digital government transformation. Adopting information technology at all levels of government can address the challenges of improving the quality of institutions, governance, and public services. The Covid-19 pandemic situation can be a momentum to accelerate this digital transformation.

2 Method

This is qualitative research. This method is used to obtain in-depth information about the situation experienced by research subjects and why certain things happen (Moleong, 2007). This aligns with Sugiyono (2010), who stated that qualitative methods are used to obtain in-depth data. This data contains meaning, using a descriptive problem formulation which guides researchers to explore or photograph the social situation to be studied in detail. The purpose of the study is to employ the method used in discussing the problem to be descriptive and correlational analysis—the descriptive understanding according to Moh. Nasir (1988:63) is a

method used to study a group of people, an object or condition, an election system, or an event in the present.

The research design used is a qualitative research method. Data were collected through documentation, observations, and in-depth interviews. All data were obtained using analysis of various related literature. Research credibility was tested, and analysis was conducted, including data reduction, data presentation, and research conclusions.

Qualitative research methodology aims to analyze and describe the phenomenon or object of research through social activities, attitudes, and perceptions of people individually or in groups. The descriptive approach describes the current problem-solving based on primary and secondary data. The theoretical basis is used as a guide so that the research focuses on the facts in the field. In addition, this theoretical basis is also helpful in providing an overview of the research background and as material for discussing research results. The data analysis technique used in this study is a narrative analysis technique that focuses on how an idea or story is communicated to the related department. This research is expected to get results that can be used to solve a related problem.

3 Finding and Discussion

Digital infrastructure, acceleration of digital transformation in government, and increasing productivity of human resources through social and economic knowledge are the government's focus. The development of digital infrastructures, such as the internet, is essential, considering there are still gaps in digital use. There is inequality in internet access in certain areas in Indonesia, which is considered an obstacle. Improving the work system, innovating the production process, producing new goods and creating a quality talent are crucial. Other factors, such as regulatory support and digital transformation financing, should also be forgotten.

The use of information technology was forced during the Covid-19 pandemic causing economic weakness in almost all sectors, mainly tourism, entertainment, transportation, clothing, and automotive industries. Digital transformation is the only solution to get out of this crisis. The Covid-19 pandemic has caused a drastic decline in national economic growth. We have to get back to moving the economy by employing digital transformation. Focus only some of our attention on Covid-19 and ignore the other problems. Opportunities to revive the economy through digital transformation can be seen from the massive surge in internet use. Use online applications (study, work, sales, health consultation, thesis writing consultation, theses, dissertations and the like). Without realizing it, the Covid-19 pandemic has created a new lifestyle. Our society has become accustomed to using digital technology, which is good. Digital transformation is the key to the revival of an economy currently affected by the pandemic. In addition, it is necessary to support global economic trade and investment policies that are open and unimpeded to revive the world economy.

While the world is still uncertain due to the pandemic, countries are reviewing their policies, creating new foundations that can adapt to disruption, and increasing their economic resilience. Then, a global reform is created. Cooperation in digital transformation will facilitate the diffusion of technology and knowledge in our environment to maximize the industry's role, not only as the main driver of the economy but also for innovation. "The industrial sector has the potential to create structural change by adopting and using technological innovations to increase productivity in Global Value Chains (GVCs).

An industrial sector with a strong, inclusive and sustainable global economic recovery. The

government sees that the global economy can gradually recover with well-executed and measurable policy formulations. Achieving that requires a change as we enter the new-normal era. A change was made to the work process from working in the office (WFO) to working at home (WFH). This has changed the administrative order model and work patterns within government and private agencies so that they can optimally implement physical distancing.

Bahwa literasi menjadi aspek penting dalam transformasi digital. Sistem maupun aplikasi apapun yang dibuat tidak akan digunakan masyarakat jika tidak dibarengi dengan upaya literasi. Aspek lainnya adalah kepercayaan terhadap penggunaan aplikasi digital. Selain itu, banyak ketentuan yang disusun untuk lebih melayani birokrasi ketimbang masyarakat sehingga menjadi tidak ramah pengguna. Aspek keberlanjutan juga menjadi hal penting karena ada gap dimana banyak aplikasi pemerintah yang mangkrak karena tidak digunakan.

Literacy is an essential aspect of digital transformation. With literacy, one can operate any system or application available. Another aspect is trust in the use of digital applications. In addition, many provisions were drafted to serve the bureaucracy than the public better, thus making it unfriendly to users. The sustainability aspect is also essential because there are gaps where many government applications are stalled because they need to be used.

In the current era of globalization, it is not surprising that advances in information and communication technology can promise efficiency, speed of information delivery, affordability, and transparency. Moreover, in this era of autonomy, it is necessary to realize good governance. Government is no exception to this. E-Government is the government's effort to implement electronic-based government services by utilizing information technology. E-government also provides an improvement for public services. In more depth, in preparing the vision and mission of information technology policies, the government looks more at the equity factor (making information technology improve service quality for public use). To implement effective information technology, it is necessary to conduct government computerization or e-government and increase human resources and education in the field of information technology. The reason is that the application of information technology will be optimal if the users know and understands the technology so that the target of implementing information technology is achieved.

E-Government uses government technology, mainly web-based internet applications, to improve access and delivery of government information and services to citizens, business partners, employees, other institutions, and government entities. E-Government has the potential to help build better relationships between the government and the public by making interactions with citizens smoother, easier, and more efficient.

E-Government is a way for governments to use innovative information and communication technologies, mainly web-based internet applications, to provide citizens with easier access to government information and services.

Advances in information and communication technology greatly encourage the creation of speed information delivery, affordability, effectiveness, and efficiency in both the industrial (private) and government worlds. The use of information and communication technology or commonly called e-government, can realize good governance. This is done to improve the quality of services and provide more significant opportunities for the community to participate in developing government institutions and sustainable democratic processes to stimulate innovation in overcoming social and economic problems. In addition, implementing e-government can improve public services, facilitate community interaction, and encourage public service providers' accountability and transparency (Dwiyanto, 2011).

In the era of globalization, it is not surprising that advances in information and communication technology promise efficiency, speed, accessibility, transparency, and good

governance. Information and communication technology (commonly referred to as e-government) must be used to occupy the presidency of the council of ministers. Improving public services can also be done through e-government. As stated by Dwiyanto (2011: 181), government officials carry out government activities, encourage accountability to the community and public service providers, and promote telecommunications. Article 25 of the Law on public services explains the principles of public services related to the implementation of e-Government. *i* represents responsibility, *k* represents punctuality, and *l* represents speed, convenience and comfort. Personnel Law article 23, paragraph 1 of 2009, as well as the types and components of the national information system to support information for the performance of public services. These systems include electronic information systems or non-electronic information systems. File organizer, interpreter files, service standards, announcements, complaints, and performance reviews. Based on this, it can be understood that the establishment of e-government creates favourable conditions in dealing with social and economic problems to facilitate the establishment of public services. In addition, supervisors of civil servants and their representatives, such as the ombudsman of the Unitary State of the Republic of Indonesia, are easy to regulate. For example, managing complaints online facilitates public access and enables the RI ombudsman to monitor complaints.

SPBE Development Strategy supports good governance and public information disclosure for transparency and accountability. Compared to the national Priority Program, this is an information system development.

The benefits of e-government are mainly cost savings. A person does not need to pay management fees. This is reduced because of the online system. Second, increasing transparency and accountability by making it easier for the public to access government activities and see how these activities are carried out. Third, improving public services makes accessing (publishing and participating) public services easier without going to government offices.

From the explanation above, it can be understood that implementing e-government in the current situation is very important. However, this must be supported by many factors. First, taking over all processes and operations of public electronic services (e-services) is a critical management initiative. Indeed, public service providers, in this case, the organizers or professionals, can make decisions by establishing an e-government that promises excellent public services. Second, facilities and infrastructure, supporting structures and infrastructure are also necessary. Third, talent, leadership, and infrastructure initiatives can only come by with the talent to manage e-services. Thus, at the peak of the COVID-19 outbreak, increasing efficiency is no longer an obstacle for government and private administrators.

This government commitment paved the way for change for environmentally-based and sustainable digital transformation to stimulate innovation to address social and economic problems that require comprehensive bureaucratic reform. However, IT infrastructure must also support this with a strong government management commitment.

Indonesia is currently undergoing a fundamental change in the life of the nation and state towards a democratic and transparent government system. The changes that are currently being experienced provide opportunities for structuring various aspects of national and state life, where the interests of the community can be put back in the forefront position. However, there will always be various forms of uncertainty in every change. Therefore, the Government must seek various strategic plans, including planning for the development of adequate information technology infrastructure, and encouraging public participation in the use of IT, so that uncertainty does not give rise to widespread disagreements and tensions and has the potential to cause new problems. The government will also be more open to the swift flow of people's aspirations and be able to respond quickly and effectively through the information system. In

realizing a prosperous community government, they must also provide quality services.

The development of information technology, especially computerization and social media, makes it easier for the bureaucracy to work. However, on the other hand, technology facilitates the community to express their aspirations and demand better services. Thus, the government must provide services to the community by increasing professional human resources in the IT field, governance, and service-oriented organizational culture. Like it or not, the government must always be open-minded, continue to innovate, and simplify agile work processes. The government must utilise technological advances and knowledge and collaborate with related parties. The changes being undertaken occur when the world is undergoing a digital transformation towards the era of the information society.

The rapid advancement of information technology and the potential for its wide use opens up opportunities for fast and accurate access, management, and utilization of large volumes of information.

The above changes require a clean, transparent government that can respond effectively to changing demands. The fact shows that electronic media is essential in various international transactions, especially in trading. The inability to adapt to these global trends will bring the environment into the digital divide. People will be isolated from IT developments because they cannot utilize information. Therefore, the arrangement being implemented must also be directed towards pushing an information society. The government must be able to meet two different but closely related modalities of community demands:

- a. The community demands public services that meet the interests of the broader community in all regions of the country, are reliable and trustworthy, and are easily accessible interactively with IT,
- b. With the advancement of IT, people want their aspirations to be heard. Thus, the Government must facilitate public participation and dialogue in state policies.

During the COVID-19 pandemic, the Indonesian government improved all crucial IT-related policies, including health, social protection, disaster management, and economic recovery. Various social protection programs have been implemented to deal with the pandemic's impact on vulnerable communities increasingly suffering from poverty. In addition to improving social protection, the Covid19 pandemic can drive governments to accelerate their digital transformation. The reason is that the lifestyles of all levels of society are currently forced to adapt to using information technology based on digital transformation. The government must also provide optimal public services and targeted policies to solve problems quickly.

The Covid-19 pandemic in almost all countries has caused many crises in human life, including health, education, society, and the economy. During the COVID-19 pandemic, digital technology is essential in improving the community's economy. With the spread of Covid-19 in almost all regions and the implementation of large-scale social restrictions, community activities will be limited, including restrictions on office activities, schools, out-of-town travel, and direct sales. Because of these limitations, people's habits have changed from physical activity to new technology-based habits. Technology is a medium of communication, interaction, teaching and learning activities, and working at home. This includes performing daily work tasks. For example, work usually done in the office has turned into working from home. At the same time, how to get "sufficient confidence" in the audit results for the supervision work that needs to go directly to the scene. During the Covid-19 pandemic, restrictions on movement and gathering people in one location will undoubtedly be a different obstacle to the performance of the auditor's duties. To continue to carry out supervisory duties during the Covid-19 pandemic is a challenge for the audit industry, and it is still being determined when it will end.

The digital transformation uses technology to create new things or modify business

processes, culture, and customer service, which aims to meet changing business models and market demands. Digital transformation can transform a business organization that was initially completed traditionally into a digital system in terms of sales, marketing, and customer service. Digital transformation begins with how we think about and engage with our customers. When we switch from conventional methods to digital applications in managing a business, we can run a business and involve customers in using technology digitally. Digital transformation is not just about technology in physical form but about value, optimization, and the ability to keep up with the situation through the use of relevant technology and information.

The Challenges that the Government Must Face in Encouraging the Transformation of the Digital Bureaucracy are:

- a. Culture is a challenge that inevitably becomes the first obstacle in the digital transformation process. The culture here is also often referred to as a habit. Some habits must be forced to change when making a digital transformation, which can also mean that something must be changed for this transformation. The challenge lies in fear of changing old habits—some negative thoughts, such as what will happen if the transformation fails or digital transformation is not easy. However, the more difficult one is in the form of fear of change.
- b. Collaboration is an integral part of digital transformation. The transparency and openness of digital technology make collaboration easy. Unfortunately, the collaboration transformation process did not go as smoothly as imagined. Some problems must arise, such as differences in authority, permits, etc. For this problem, the best way is to face it so that the source of the problem will be known and solved together.
- c. Technology continues to develop at an increasingly fast pace. If the organization struggles to optimize the people on the team for digital transformation, hiring people from outside with the needed skills and abilities always helps. After all, in the end, it is for the organization's needs.

The increasing number of Covid-19 cases has forced the government to change the bureaucracy and public service system and adapt to them. This is done to break the chain of the spread of the Covid-19 virus, which still exists in Indonesia. The Covid-19 pandemic is a significant lever for implementing e-Government which has been running relatively slowly in Indonesia due to several limitations or obstacles. The Covid-19 pandemic, the situation forces us to be ready to apply a new method commonly known as the New Normal. During the Covid-19 pandemic, the bureaucracy is obliged to optimize the use of technology, information, and communication in all areas of the government sector.

Transformation based on conventional public services has turned into e-public services, which must be implemented immediately. One of the e-public service application efforts is through the *e-Tilang* (e-tickets) application which the Indonesian National Police initiated into a form of transformation based on conventional ticketing. It is an invention organized by the Indonesian National Police as a form of community service.

E-government is very important to be applied in today's conditions. However, this must be supported by several things, namely, first, the commitment of the leader. This is very important to support every process and activity of electronic-based public services (e-service) because the leader or, in this case, the organizer or implementer of public services can commit and make decisions to provide excellent public services by implementing e-government.

Second, facilities and infrastructure, supporting facilities and infrastructure are also necessary because, without these, electronic-based services will be challenging to realize. The facilities and infrastructure are the availability of computers/laptops, internet networks, etc. Third, human resources, if leaders' commitment and infrastructure are adequate. However, if human resources that can execute electronic-based services do not exist, this will not be easy to

realize. Thus, the ability of human resources (agency employees and so on) is needed in implementing e-government. Therefore, amid the COVID-19 condition, it is no longer an obstacle for organizers and implementers of public services to provide services to the community effectively and efficiently.

4 Conclusion

Digital technology is crucial in advancing digital transformation to solve community social and economic problems, especially during the pandemic. Digital transformation touches not only on work culture but is crucial regarding business processes, business, and work systems. People that initially had to work in the office have to change into the WFO and WFH patterns due to COVID-19. Thus the digital technology infrastructure needs to be developed to comply with Article 4 of the SPBE Presidential Regulation concerning SPBE Elements, including a. National SPBE Master Plan; b. SPBE architecture; c. SPBE Plan Map; d. SPBE plans and budgets; e. Business process; f. data and information; g. SPBE infrastructure; h. SPBE application; i. SPBE security; and J. SPBE services. The Ministry of Communication and Information Technology is responsible for building infrastructure and applications for the National SPBE. The National SPBE infrastructure is implementing a national data centre (PDN). Digital transformation is using technology to create new things or modify business processes, culture, and customer service to meet changing business models and customer needs and stimulate environmental and social innovation to increase. Digital transformation can transform traditionally completed business organizations into digital sales, marketing, and customer service systems. As we move from conventional methods to digital applications for managing our business, we can run our business and engage our customers digitally.

The implementation of SPBE itself departs from the problems that have occurred so far, such as the occurrence of waste of ICT spending due to each K/L/D building their government applications. With such conditions, there is also a disintegration of government information systems, so the validity of government data still needs to be fully believed.

"People also demand transparent, fast, and effective public services," Therefore, the implementation of SPBE is carried out to realize clean, effective, transparent, and accountable governance. Article 2 of the SPBE Presidential Regulation also states that SPBE holds effectiveness, integration, continuity, efficiency, accountability, interoperability, and security principles. In addition, it supports quality public services and improves integration and efficiency.

Digital transformation, such as the internet, is indeed needed, considering the development of Covid-19 that still exists. Moreover, information technology is beneficial in growing economic development even though there are still gaps in internet access for certain areas. For this reason, the Ministry of Communication and Information Technology must build IT infrastructure up to the countryside.

Digital transformation is not just about technology in its physical form but about value, optimization and the ability to stay ahead through technology and relevant information. Considering the situation in 2020-2021, the development of Covid-19 cases has increased, forcing the government and private sector to change work patterns and adapt to work with technology. All of this is done to break the chain of the spread of the Covid-19 virus, which is still uncertain when it can end. Amid the Covid-19 pandemic, the situation forces us to be ready or unwilling to adopt a new approach commonly known as the New Normal as it is today.

Sustainable environmental-based digital government transformation can stimulate innovation in solving social and economic problems to help people prosper.

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