



Digital Transformation through Electronic-Based Government System Policy in Indonesia: A Policy Narrative Analysis

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Abstract

In the era of digital transformation, the Electronic-Based Government System (SPBE) in Indonesia has become a priority to enhance the efficiency and transparency of governance. This study aims to analyze the government's policy narrative on SPBE, compare it with emerging counter-narratives, and formulate strategies to strengthen the policy. Using a post-positivist approach and Narrative Policy Analysis (NPA), data were analyzed from reliable news articles published between 2019 and 2024. The articles were selected from the top three ranked media in Scimago Media Rankings Kompas, Republika, and Okezone ensuring credibility and relevance. The findings indicate that the government's policy narrative emphasizes SPBE as a strategic solution for data integration, cybersecurity enhancement, and improved public service efficiency. The main protagonists of this policy include the Ministry of Administrative and Bureaucratic Reform (PANRB), the National Development Planning Agency (Bappenas), and the Ministry of Communication and Information Technology (Kominfo). However, challenges arise from sectoral egos, technical infrastructure weaknesses such as disruptions in the National Data Center (PDN), and recurring data breaches. Counter-narratives highlight the risks of data centralization and suboptimal inter-agency coordination. The study concludes that strengthening the SPBE policy narrative requires inclusive dialogue, comprehensive evaluations of cybersecurity and infrastructure readiness, and intensive public outreach to build trust and ensure effective policy implementation.

Introduction

In the era of globalization, the demands and needs for the use of information and communication technology are inevitable in running public sector organizations. The use of information and communication technology in organizing government in Indonesia is not new (Rahmadany, 2021). The initial regulation for the application of information technology appeared in 2003 through Presidential Instruction Number 3 of 2003 which regulates national strategies and policies for e-Government development. In 2010, when the Grand Design of Bureaucratic Reform 2010-2025 was prepared through Presidential Regulation Number 81 of 2010, the development of e-Government, also known as the Electronic-Based Government System (SPBE), was also strengthened. Most recently, Presidential Regulation No. 95/2018 on Electronic-Based Government System is expected to spur the use of information technology in government. The implementation of SPBE is expected to increase the effectiveness of government performance and efficiency by implementing information and communication technology (Arief & Abbas, 2021).

In several years of SPBE implementation, seen from the results of the United Nations (UN) e-Government Survey published by the UN every two years which is one of the main references to determine the e-Government performance of countries in the world, Indonesia's ranking has

increased from 2018-2024. In the UN e-Government Survey conducted through the UN Department of Economics and Social Relations (DESA), in 2024 Indonesia ranked 64th out of 193 countries surveyed. In the ASEAN region itself, Indonesia lags behind several neighboring countries, namely Singapore, which is ranked 7th, Thailand is ranked 42nd, the Philippines is ranked 49th and Malaysia is ranked 53rd.

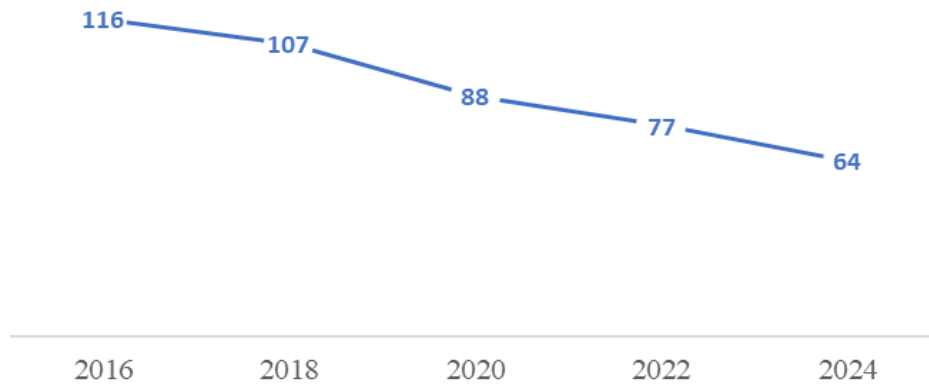


Figure 1. Indonesia's ranking in the UN E-Government Survey 2019 - 2023 (UN, 2024)

The development of SPBE in Indonesia is measured through the SPBE Evaluation by the Ministry of Administrative Reform and Bureaucratic Reform (KemenPANRB) which measures the SPBE Maturity Level Index in Central and Regional Government Agencies. Unlike the UN e-Government Survey which measures the level of readiness and utilization of information technology through the Human Capital, Telecommunication Infrastructure and Online Service approaches, the SPBE Evaluation focuses on assessing the performance and effectiveness of SPBE implementation. Since the implementation of the first evaluation in 2018, the achievements of the National SPBE Evaluation have tended to increase from 2018 to 2023. The results of the National SPBE Index for the first time held in 2018 received a score of 1.98 and thereafter from 2019 to 2023 tended to increase with an achievement in 2023 of 2.79. However, if in more detail, there is a gap related to the achievement of the index between the central government and local governments. In the central government, especially ministries, the achievement of central agencies that received a 'good' predicate reached 100%. Meanwhile, only 51% of district-level governments and 74% of city-level governments received a 'good' predicate.

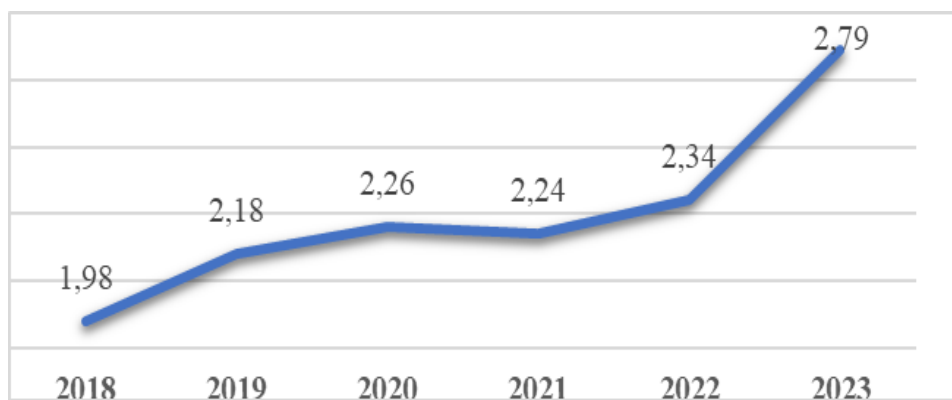


Figure 2. National SPBE Index Achievements 2018 to 2023 (KemenpanRB, 2024)

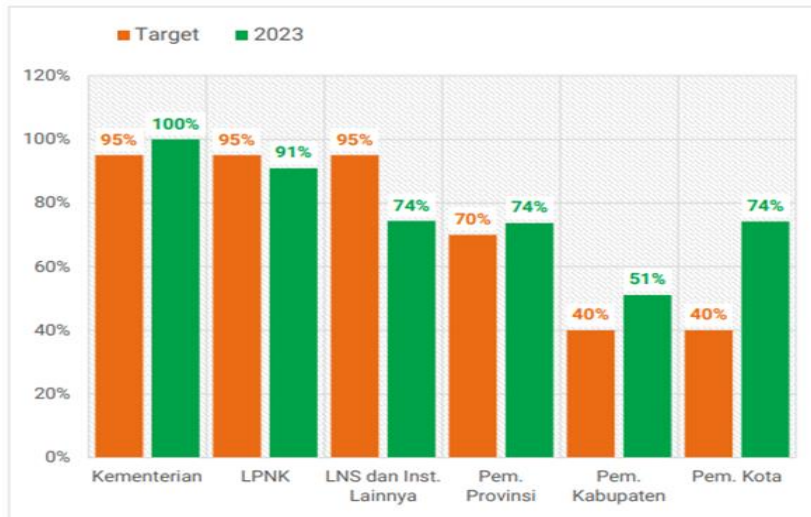


Figure 3. Percentage of IPPD with "Good" SPBE Evaluation results (KemenPANB, 2024)

In addition to providing benefits for the government and society, SPBE implementation also raises various problems both from internal and external to the government itself. Barriers from within the government itself include the absence of adequate policies/regulations, unprepared planning and budgets, and limited human resources and infrastructure (Hartanto & Fauziati, 2022). From external factors, the implementation of SPBE also poses many challenges, including the unpreparedness of the community in using SPBE. Although internet users in Indonesia in 2023 reached 221,563,479 people out of a total population of 278,696,200 or around 79.5% (APJII, 2024), Indonesia's digital literacy index only scored 3.65 on a scale of 5 (Kominfo, 2024). An important thing that becomes an obstacle and gets public attention is related to the data security of government agencies. In an electronic system security test to identify potential information security risks conducted by the National Cyber and Crypto Agency (BSSN) in 2023 on 586 electronic systems from 138 agencies, as many as 418 applications received a Critical rating, which means they must be repaired immediately because they are very vulnerable or have the opportunity to receive attacks and cause losses to the organization. In addition, there were 2,850 security holes found that have the potential for data theft (BSSN, 2024). This shows that SPBE carried out by government agencies has a high vulnerability to external attacks.

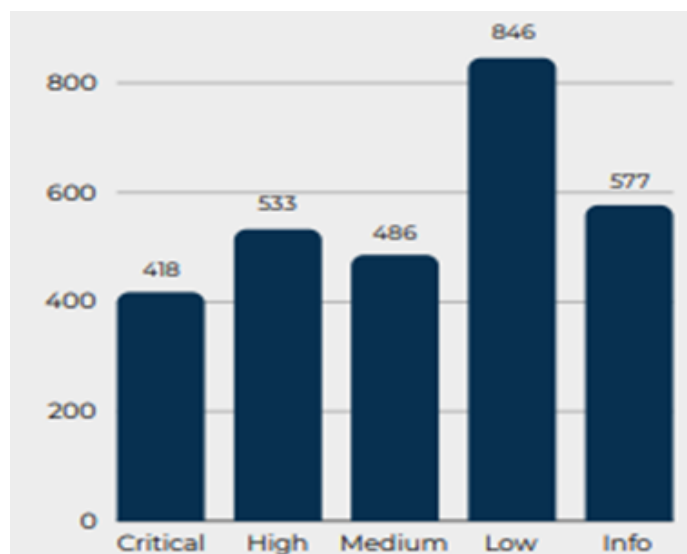


Figure 4. Risk Level of Government Applications in 2023 (BSSN, 2024)

In 2024 itself, there were various cases related to data leaks obtained from government sites. The latest incident is the case of the leak of data on 6 million taxpayer identification numbers (NPWP) managed by the Directorate General of Taxes of the Ministry of Taxes which contains names, addresses, telephone numbers, population identification numbers, and NPWPs. The data was then sold by the Bjorka account for around IDR 150 million on Breachforums on Wednesday, September 18, 2024 (Tempo, 2024). Data for 2022 s.s. 2023 from the Southeast Asia Freedom of Expression Network (SAFE-net) recorded 113 hacks of personal data, the majority from government agencies. These cases have led to various criticisms from the public, especially for those whose data has been leaked due to weak data protection from the government.

Various studies have tried to analyze the implementation of SPBE in Indonesia. From the various studies found, it is known that the aspects discussed in previous studies are from the aspects of policy, institutions, applications, and infrastructure. From the policy aspect, Putri & Warsono (2018) and Awaludin (2019) highlighted the weakness of local governments in implementing SPBE due to the need to fulfill various underlying regulations in its implementation. Another problem studied is related to institutional readiness in implementing SPBE. Some studies show that institutions are not ready to implement SPBE. Junaidi (2015) explains that top-level management support is needed in the implementation of SPBE. The application dimension is also a research topic, for example, conducted by Putri & Priyadi (2018) highlighting the existence of inactive applications and the lack of interaction in the application because it only provides information. Regarding infrastructure, research conducted by Sumarmin (2019) and Sabani et al. (2019) highlighted the absence of authority for application owners, namely local governments, to carry out infrastructure maintenance.

Research using a policy narrative perspective has not yet been conducted on the theme of SPBE. By using policy narrative analysis, an understanding will be obtained regarding how the government's policy narrative related to SPBE and analyzing the extent to which the policy narrative is effective. On the basis of these things, this research aims to: (a) find out the narrative built by the government related to SPBE policy, (b) compare the narrative with counter narratives from various parties, and (c) formulate policy strategies that can be developed by the government related to SPBE policy.

Methods

This research approach is post-positivism, by making theory as a research instrument. This research uses Narrative Policy Analysis (NPA) to analyze the narrative of SPBE policy in Indonesia as an effort to improve governance reform. NPA is a methodology for understanding debates over complex policies where there is uncertainty, complexity, and confusion in policy issues (The Open University, 2017). In the concept of Narrative Policy Framework (NPF) as explained in Weible & Sabatier (2018) explains that NPF is formed on two aspects, namely content and form. Form refers to the structure of the narrative, while Content describes the policy context and main topics. NPF has a structuralist perspective where the elements that appear in the narrative have patterns that can be generalized in various policy contexts. Thus, the structure of the narrative can be used as a comparison to see its influence on public policy.

The level of analysis in this research is the meso level, focusing on the role of policy actors, namely the government, and community groups that support or resist the policy. This level examines the interaction between the government and interested groups in the public policy process (Shanahan, 2017). The data in this study were collected through documentation studies using secondary data sources. The data collected were news articles from trusted online media. Media sources were selected based on the order of the top three in the Scimago Media

Rankings, namely Kompas, Republika, and Okezone. Indicators used by Scimago Media Rankings include: (1) The overall quality of the website and its effect on SEO; (2) The total number of referring domains; (3) The number of links pointing to a particular website; and (4) The quality of the links pointing to that website. The news articles collected were from the time period from the establishment of the SPBE Policy in Indonesia (October 5, 2019) until this research was conducted (October 18, 2024), with the search keywords: "SPBE Policy," "SPBE and PDN," and "SPBE Implementation."

This research focuses on two aspects of the Narrative Policy Framework (NPF), namely form and content (Weible & Sabatier, 2018). Form (Narrative Structure) identifies four elements in the policy narrative structure, namely: (1) Setting: The space and time context associated with the policy issue; (2) Characters: Characters in the narrative, including protagonists, antagonists, and victims; (3) Plot: The storyline that connects each character in a particular time and space; and (4) Moral of the story: The proposed policy solution or moral message. Furthermore, the Content of the policy narrative in the NPF concept consists of: (1) Policy Beliefs: The value system underlying the policy objectives; and (2) Strategies: Approaches used by the narrator to influence the policy process.

Results and Discussion

Narrative Analysis of SPBE Policy

The Electronic-Based Government System (SPBE) policy initiated by President Joko Widodo's administration is an effort to encourage digital transformation in Indonesia's governance. This policy is regulated through Presidential Regulation (Perpres) Number 95 of 2018, which is then strengthened by Perpres Number 132 of 2022 related to SPBE architecture. The SPBE policy was formulated in response to the demands of government modernization in the era of the Industrial Revolution 4.0. Its preparation was carried out through cross-ministerial coordination, including the Ministry of National Development Planning (Bappenas) as the coordinator who compiled the SPBE master plan based on national development priorities and bureaucratic reform. This process integrates inputs from various agencies and local governments to ensure integrated implementation at all levels of government (Kemenpan RB, 2019).

These steps show the government's efforts to realize efficient digital governance, such as GovTech Indonesia's launch of INA Digital as an integrated public service platform (Republika, 2024a). President Joko Widodo emphasized that ministries/agencies should stop creating new applications that are not integrated because they cause budget waste and overlapping functions. The launch of INA Digital as an integrated portal is expected to be a solution to digitize public services more efficiently and reduce sectoral ego. With one integrated portal, services such as education, health, business licenses, and taxation can be accessed more easily and quickly by the public (Okezone, 2024).

Indonesia experienced an increase in the SPBE Index score, from 0.4026 in 2010 to 0.6824 in 2020 (Kompas, 2021), and entered the Very High E-Government Development Index (VHEGDI) category with a ranking of 64th in the UN 2024 survey (Kompas, 2024). The government mentioned SPBE as a strategic policy for efficiency and transparency of public services through digitalization. Data integration and interoperability are prioritized, supported by regulations such as Presidential Regulation No. 82 of 2023 on the Acceleration of Digital Transformation. Indonesia's achievements in terms of transformation can be seen from the increase in the SPBE Index score and ranking on the VHEGDI, as well as from the increase in the E-Participation Index score to 35th in the world, which reflects increased public involvement in digital government (Kompas, 2024).

However, this success is inseparable from major challenges, especially in technical and governance aspects. The government has narrated the importance of the National Data Center (PDN) as a single source of truth, which is expected to overcome sectoral egos and improve the accuracy of data-based policy-making (Okezone, 2023b). However, reliance on a single infrastructure such as the PDN poses significant risks, especially when system disruptions occur. The Ministry of Health's data leaks, such as e-HAC and hospital patient data being sold on illicit cyber forums, point to weaknesses in the government's IT security system (Republika, 2022).

Recent PDN disruptions have highlighted the weaknesses of SPBE infrastructure, particularly in relation to resilience to cyberattacks. This disruption caused service paralysis, as complained by the Director General of Immigration of the Ministry of Law and Human Rights (Dirjen Immigrasi). According to Silmy, the disruption has paralyzed the autogate system at the airport, online visa, and passport processing, making it difficult for the public. He emphasized that the Directorate General of Immigration is only a user, so solving this problem is the responsibility of Kominfo (Republika, 2024b). This highlights the importance of more resilient management of shared infrastructure, as well as more effective cross-institutional coordination in anticipating and handling disruptions.

In addition, there was criticism from one academic, Prof. Ridi Ferdiana from UGM, who criticized the security weaknesses of the National Data Center (PDN) that was attacked by ransomware. He highlighted weak system architecture, security procedures, and public trust in personal data management. He suggested corrective measures, including regular inspections, implementation of comprehensive encryption, and implementation of a disaster recovery-based cloud infrastructure framework. Such an approach can be strengthened by adopting international standards in data governance and cybersecurity. Prof. Ridi also emphasized the need for Zero Trust Policy and government regulatory standards based on modern data center security to prevent similar attacks in the future (UGM, 2024).

BSSN reminded the importance of cybersecurity in the implementation of SPBE, considering that this system involves sensitive data from various government agencies. Disruptions to the PDN indicate a lack of infrastructure readiness to deal with cyberattacks or system failures. BSSN suggests a thorough evaluation of electronic systems and strengthening of IT infrastructure based on SPBE security technical standards. This evaluation should be a routine part of SPBE policy implementation so that existing weaknesses can be immediately identified and corrected. This incident also creates an impetus to improve personal data governance in accordance with regulations such as PP No. 71/2019 on the Implementation of Electronic Systems and Transactions and Permenkominfo No. 20/2016 (Republika, 2022). Consistency in the application of these regulations needs to be supported by massive supervision.

Based on the above, illustrating the narrative structure that includes the level of analysis, characters, and setting used to analyze this research, which can be further seen in the table below. An explanation of the plot that connects each character in the study will be discussed in the next section.

Table 1. Narrative Structure and Content

<i>Level of Analysis (Messo)</i>	The government as the main actor of SPBE policy that faces challenges from sectoral egos
<i>Setting</i>	The era of Industrial Revolution 4.0, the period of digital transformation in Indonesia since the issuance of Presidential Regulation No. 95/2018 until this research was conducted

<i>Characters/Actors</i>	Protagonist (Hero): Kemenpan RB, Bappenas, Kemenkominfo, BSSN Antagonist (Villain): Director General of Immigration at the Ministry of Law and Human Rights and Academics. Victim: People affected by service disruptions
<i>Plot</i>	The Indonesian government began its digital transformation journey by enacting <i>Presidential Regulation No. 95/2018</i> on Electronic-Based Government System (SPBE) to improve the efficiency of public services. Conflicts arise from technical challenges (PDN disruptions), sectoral egos, and cybersecurity weaknesses (e.g. ransomware attacks). Improvement efforts by strengthening cross-agency coordination regulations, and improving security systems
<i>Moral Message</i>	SPBE policy is the government's effort to modernize governance. Indonesia's achievement in SPBE implementation is considered a strategic step towards a digital government that is adaptive to technological change.
<i>Strategy</i>	Drafting of Presidential Regulation No. 132/2022 and Presidential Regulation No. 82/2023. Launch of integrated platforms such as INA Digital. Improved system resilience through Zero Trust Policy approach and security standards. Strengthening cross-institutional coordination and evaluation of the Government's digital infrastructure.

Source: processed by the author, 2024

Counter-Narrative of SPBE Policy

The Electronic-Based Government System (EBS) policy is indeed predicted as a solution to modernize government to face the digital era. However, the reality is that there are still many challenges that show that claims of efficiency and transparency have not been fully achieved. The recent disruption to the National Data Center (NDC), which crippled critical services such as immigration and public administration, revealed serious vulnerabilities in the infrastructure. Reliance on a single central system increases the risk of total paralysis in the event of a cyberattack or technical failure, which runs counter to the government's stated goal of efficiency.

In addition, the issue of data security is a major concern. Cases of data leaks in several government agencies, such as the Ministry of Health, show that the security system is inadequate. The risk of privacy violations is a real threat in the midst of digital transformation efforts. Academics such as Prof. Ridi Ferdiana emphasize the importance of strengthening system architecture and implementing stricter security policies, such as comprehensive encryption and the Zero Trust Policy approach. Without strong security, SPBE has the potential to increase the risk of misuse of personal data by irresponsible parties.

In addition to the technical aspects, the challenge of cross-agency coordination has also not been fully resolved. Incidents of disruption to the autogate system at airports due to PDN problems reflect the lack of synergy between user agencies and infrastructure managers. Sectoral egos that are intended to be eliminated through SPBE are still felt in the management of this digital service. Therefore, the government needs to evaluate and ensure the readiness of

infrastructure, human resources, and data security mechanisms before SPBE can truly be called a successful policy.

Metanarrative Analysis of SPBE Policy

The metanarrative analysis aims to map the main narratives built by the government regarding the Electronic Based Government System (EBS) policy in Indonesia, as well as the counter-narratives that emerge from various parties regarding its implementation. In addition, this analysis also aims to understand the causes of the different narratives that exist in society and provide strategic solutions to bridge these differences. The table below is used to compare the main narratives and counter narratives vis-à-vis each other, making it easier to analyze.

Table 2. Comparison of Narratives

Main Narrative	Counter Narrative	Causes of Differences
SPBE will improve the efficiency and transparency of public services through digitalization.	PDN disruption shows infrastructure is not ready, and single system increases risk of service paralysis	Differences in perceptions regarding infrastructure readiness and effectiveness of implementation in the field.
SPBE overcomes sectoral ego through data integration in the National Data Center (PDN).	Cross-agency coordination remains weak; PDN disruptions expose technical and coordination issues.	Different perceptions of the extent to which data integration and coordination between agencies are effective
SPBE strengthens data security and protects public information	Data leaks in several agencies show weaknesses in the security system.	Different views on security and data protection system readiness

Source: Authorized, 2024

There are barriers that cause differences in narratives between the government and those who criticize the SPBE policy, namely different perceptions of the readiness of technological infrastructure. The government views SPBE as a strategic step towards an efficient digital government, while opponents highlight the technical weaknesses that still occur, such as disruptions to the PDN and data leaks, which indicate that the system is not fully ready.

The metanarrative produced in the SPBE policy shows the government's efforts to protect the interests of the community by ensuring that digital transformation runs safely and effectively, and minimizes the risk of disruption or data leakage. In this case, strategic steps are needed to ensure this policy can be implemented optimally. The emergence of counter-narratives to the SPBE policy is normal as a response to the concerns of various affected parties, especially regarding aspects of security, infrastructure reliability, and personal data protection. This resistance shows that there are serious concerns from community groups and experts who are critical of the quality of SPBE policies and implementation. If not well anticipated, the negative issues that develop have the potential to weaken public trust and can be utilized by certain parties to create distrust of government policies.

Strategy Recommendations for Strengthening the SPBE Policy Narrative

Some of the policy narratives shaped by the government related to SPBE are that this system will improve efficiency and transparency of public services, overcome sectoral egos through data integration in the National Data Center (PDN), strengthen data security, and increase public participation through service digitization. However, various counter-narratives

emerged, such as infrastructure weaknesses seen in PDN disruptions, risk of data leakage, and inequality of digital access in various parts of Indonesia. To strengthen the SPBE policy narrative and increase public trust, some recommended strategic steps are as follows:

Open a dialog with academics, technology practitioners, and the general public. In these discussions, the government should present transparent data and information related to infrastructure readiness, risk mitigation plans, and steps taken to address system weaknesses. This aims to build trust and ensure that various perspectives are accommodated in the SPBE policy.

Conduct a comprehensive assessment of the security risks and potential impacts of system disruptions, particularly in relation to the NDP. This study should involve academics, cybersecurity experts, and the private sector. The main focus should be on strengthening security systems, infrastructure readiness, and evaluating past data leaks. The results of this study can strengthen the government's argument regarding mitigation measures and improvements that have already been made.

Develop an academic paper as the basis for SPBE policy that covers technical aspects, security, and socio-economic impacts. This paper must contain evidence-based recommendations and risk mitigation scenario planning, so that the public can see transparency and accountability in policy formulation.

Intensive socialization of SPBE policy to various parties, including NGOs, academics, media, and the general public. The focus of socialization is on the benefits of SPBE, steps to improve security systems, and efforts to improve digital infrastructure. Transparent and participatory socialization is expected to build public trust in the SPBE policy and reduce resistance in the field.

Conclusion

Based on the results and discussion related to the Electronic Based Government System (EBS) policy, several things can be concluded: (1) The main narrative built by the government is that SPBE is a strategic effort to improve efficiency, transparency, and quality of public services through digitalization. The government encourages data integration through the National Data Center (PDN) to overcome sectoral egos and strengthen data security as the foundation of modern and technology-based governance; (2) obstacles to the SPBE policy narrative built by the government include technical infrastructure weaknesses such as disruptions to PDN, data security risks due to repeated leakage cases, lack of coordination across institutions that still show sectoral egos, and resistance from several parties highlighting issues, data protection, and infrastructure readiness. (3) strategic recommendations to strengthen the government's narrative regarding SPBE policies in the community include: opening participatory dialogue spaces with academics, technology experts, and the public to build trust; conducting a comprehensive evaluation of SPBE infrastructure security and readiness; compiling evidence-based academic papers as a policy foundation; and conducting intensive and inclusive socialization related to SPBE benefits, risk mitigation measures, and system improvements to various groups or stakeholders.

References

- Arief, A., & Abbas, M. Y. (2021). Kajian Literatur (Systematic Literature Review): Kendala Penerapan Sistem Pemerintahan Berbasis Elektronik (SPBE). *Jurnal Ilmiah Teknik Elektro*, 8(1).
- Asosiasi Penyelenggara Jasa Internet Indonesia (APJII). (2024). APJII: Jumlah pengguna internet Indonesia tembus 221 juta orang. Retrieved October 26, 2024, from

<https://apjii.or.id/berita/d/apjii-jumlah-pengguna-internet-indonesia-tembus-221-juta-orang>

- Awaludin, L. (2019). Strategi Penguatan Kompetensi SDM Teknologi Informasi & Komunikasi (TIK) dalam Mengoptimalkan Penerapan Sistem Pemerintahan Berbasis Elektronik (SPBE). *Paradigma Polistaat: Jurnal Ilmu Sosial Dan Ilmu Politik*, 2(2), 118–134. <https://doi.org/10.23969/paradigmapolistaat.v2i2.2115>
- BSSN. (2024). Laporan Lanskap Keamanan Siber Indonesia 2023. Deputi Bidang Operasi Keamanan Siber dan Sandi, Badan Siber dan Sandi Nasional (BSSN). Jakarta.
- Junaidi, J. Implementasi Electronic Government untuk Penyelenggaraan Pelayanan Administrasi Kependudukan. *Reformasi*, 5(1), 169–182. <https://doi.org/10.33366/RFR.V5I1.74>
- KemenPANB (2024). Laporan Pelaksanaan Evaluasi SPBE Tahun 2023. Deputi Bidang Kelembagaan dan Tata Laksana, Kementerian Pendayagunaan Aparatur Negara dan Reformasi Birokrasi. Jakarta.
- Kominfo (2024). Laporan Indeks Masyarakat Digital Indonesia Tahun 2023. Badan Pengembangan SDM Kominfo, Kementerian Komunikasi dan Informatika. Jakarta.
- Hartanto, R., & Fauziati, S. (2022). Hambatan-Hambatan Dalam Implementasi Layanan Sistem Pemerintahan Berbasis Elektronik (Spbe) Pada Pemerintah Daerah. *JIKO (Jurnal Informatika dan Komputer)*, 5(3), 215–223. <https://doi.org/10.33387/jiko.v5i3.5344>
- Putri, N. O. I., & Warsono, H. (2018). Manajemen Electronic Government di Kabupaten Semarang. *Journal of Public Policy and Management Review*, 7(2). <https://doi.org/10.14710/jppmr.v7i2.20105>
- Putri, V. N. F., & Priyadi, B. P. (2018). Analisis Pengembangan Website www.cirebonkota.go.id dalam Pelaksanaan Electronic Government di Pemerintah Kota Cirebon. *Journal of Public Policy and Management Review*, 7(4), 94–108. <https://doi.org/10.14710/JPPMR.V7I4.21734>
- Rahmadany, A. F. (2021). Literature Study of Electronic Government Implementation in the Perspective of Indonesia's Electronic Government Ranking Dimensions. *Jurnal Bina Praja*, 13(2), 281–292. <https://doi.org/10.21787/jbp.13.2021.281-292>
- Sumarmin, A. M. (2019). Analisis Implementasi Electronic Government terhadap Pelayanan KTP Elektronik pada Suku Dinas Kependudukan dan Pencatatan Sipil Jakarta Barat di Tahun 2018. *JIM UPB (Jurnal Ilmiah Manajemen Universitas Putera Batam)*, 7(1), 11–20. <https://doi.org/10.33884/jimupb.v7i1.883>
- Sabani, A., Deng, H., & Thai, V. (2019). Evaluating the development of E-government in Indonesia. *ACM International Conference Proceeding Series*, 254–258. <https://doi.org/10.1145/3305160.3305191>
- Tempo. (2024, November 26). Pembobolan data pribadi NPWP. Koran Tempo. Retrieved from <https://koran.tempo.co/read/editorial/490002/pembobolan-data-pribadi-npwp>
- United Nations (UN). (2024). Country information: Indonesia. United Nations E-Government Knowledgebase. Retrieved October 26, 2024, from <https://publicadministration.un.org/egovkb/en-us/Data/Country-Information/id/78-Indonesia>

- Shanahan, E. A., Jones, M. D., & McBeth, M. K. (2018). How to conduct a Narrative Policy Framework study. *The Social Science Journal*, 55(3), 332-345. <https://doi.org/10.1016/j.soscij.2017.12.002>
- The Open University. (2017). Research methods: Narrative policy analysis. Retrieved December 9, 2020, from <https://www.open.edu/openlearncreate/mod/oucontent/view.php?id=13636§ion=5.1>
- Weible, C., & Sabatier, P. (2018). Theories of the policy process, 4th edn (Chicago, IL. <https://doi.org/10.4324/9780429494284>
- Kompas. (2023, December 23). Sebelum aplikasi SPBE prioritas dibuat, deregulasi dan debirokrasi proses layanan dilakukan dulu. Retrieved from https://www.kompas.id/baca/ekonomi/2023/12/23/sebelum-aplikasi-spbe-prioritas-dibuat-deregulasi-dan-debirokrasi-proses-layanan-dilakukan-dulu?status=sukses_login&login=1730019826607&open_from=header_button&loc=header_button
- Okezone. (2023, June 9). BSSN soroti keamanan siber, pengelolaan SPBE terbaik dianugerahi penghargaan. Retrieved from <https://nasional.okezone.com/read/2023/06/09/337/2828314/bssn-soroti-keamanan-siber-pengelolaan-spbe-terbaik-diganjar-penghargaan?page=all>
- Republika. (2023). Data kesehatan jadi incaran. Retrieved from <https://www.republika.id/posts/23785/data-kesehatan-jadi-incaran>
- Republika. (2023). Erick Thohir yakin kesiapan Peruri sebagai GovTech Indonesia. Retrieved from <https://ekonomi.republika.co.id/berita/se51uw490/erick-thohir-yakin-kesiapan-peruri-sebagai-govtech-indonesia?question-index=>
- Kompas. (2021, May 5). Indeks sistem pemerintahan berbasis elektronik. Retrieved from https://www.kompas.id/baca/opini/2021/05/05/indeks-sistem-pemerintahan-berbasis-elektronik?open_from=Search_Result_Page
- Okezone. (2024, May 27). Jokowi setop bikin aplikasi baru, bikin boros uang negara. Retrieved from <https://economy.okezone.com/read/2024/05/27/320/3013886/jokowi-setop-bikin-aplikasi-baru-bikin-boros-uang-negara>
- Kompas. (2023). Menteri PANRB: Kolaborasi akselerasi transformasi digital pemerintah melalui SPBE. Retrieved from https://www.kompas.id/baca/adv_post/menteri-panrb-kolaborasi-akselerasi-transformasi-digital-pemerintah-melalui-spbe?open_from=Search_Result_Page
- Okezone. (2023, December 8). Pemerintah percepat penerapan SPBE hingga ke daerah, ini alasannya. Retrieved from <https://nasional.okezone.com/read/2023/12/08/337/2935469/pemerintah-percepat-penerapan-spbe-hingga-ke-daerah-ini-alasannya>
- Republika. (2023). Pemkot Depok bentuk CSIRT, dapat mendukung SPBE yang lebih aman. Retrieved from <https://ruzka.republika.co.id/posts/482391/pemkot-depok-bentuk-csirt-dapat-mendukung-spbe-yang-lebih-aman>
- Okezone. (2023, December 4). Pusat data nasional kiris ego sektoral antar instansi. Retrieved from <https://megapolitan.okezone.com/read/2023/12/04/338/2932660/pusat-data-nasional-kiris-ego-sektoral-antar-instansi>

- Okezone. (2023, December 5). SDM masih jadi kendala penerapan SPBE. Retrieved from <https://nasional.okezone.com/read/2023/12/05/337/2933390/sdm-masih-jadi-kendala-penerapan-spbe>
- Republika. (2023). Tarif layanan internet broadband di Indonesia bukan yang termahal. Retrieved from <https://republika.co.id/berita/r4ilze423/tarif-layanan-internet-broadband-di-indonesia-bukan-yang-termahal>
- Republika. (2024, December 3). Pusat Data Nasional Bermasalah, Sistem Imigrasi Terganggu, Penumpang Menumpuk di Bandara. Retrieved from <https://ekonomi.republika.co.id/berita/sfezsm370/pusat-data-nasional-bermasalah-sistem-imigrasi-terganggu-penumpang-menumpuk-di-bandara>
- Universitas Gadjah Mada. (2024, December 3). PDN Diserang Siber, Pakar UGM Ungkap Langkah Menjaga Keamanan Server. Retrieved from <https://ugm.ac.id/id/berita/pdn-diserang-siber-pakar-ugm-ungkap-langkah-menjaga-keamanan-server>