JKAP (Jurnal Kebijakan dan Administrasi Publik)
Vol.29 (2), November 2025, 30-43
ISSN 0852-9213 (Print), ISSN 2477-4693 (Online)
DOI: 10.22146/jkap.99003

TOWARDS MORE EFFECTIVE PUBLIC SERVICES: E-READINESS ANALYSIS OF INDONESIA'S BNN ONE STOP SERVICE (BOSS)

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Abstract

This study investigates the e-readiness of Indonesia's BNN One Stop Service (BOSS), a digital initiative aimed at enhancing drug abuse prevention and recovery services. With a focus on the Bali Province, selected for its high City Drug Threat Response (KOTAN) index, the research examines the challenges BOSS faces in a region struggling with significant drug-related issues. This case study offers valuable insights into the barriers hindering the effective delivery of digital public services in resource-constrained areas. Using the modified STOPE Framework (Strategy, Technology, Organization, People, Environment, and the newly introduced Budgeting domain), the study assesses the operational readiness of BOSS. The methodology includes 13 in-depth interviews with key respondents, including supervisory leaders, service staff, and BOSS operators. The research identifies several operational challenges, including outdated ICT infrastructure, slow internet speeds, and a lack of coordination with other government agencies, that impede service efficiency. Additionally, it reveals significant gaps in the budgeting process, where centralized procurement and financial constraints have caused delays in acquiring critical technology and resources. This study contributes to the field of e-government readiness by introducing the Budgeting domain into the STOPE Framework, thus expanding the scope of e-readiness assessments. The findings highlight the complex interplay between leadership, infrastructure, and regulatory frameworks, providing valuable insights into the challenges of successful digital service delivery, especially in resource-limited settings.

Keywords: *E-government; E-readiness; STOPE Framework*

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Submitted: *07-08-2024*
Accepted: *21-11-2025*

INTRODUCTION

E-government initiatives are vital for modernizing public services by enhancing accessibility, service quality, and efficiency (Kavathkar et al., 2023; Shobaruddin, 2019; Zhang & Kaur, 2024). However, in developing countries, the adoption of e-government faces significant barriers, including digital divides, insufficient ICT infrastructure, and a lack of skilled human resources (G. Kauma et al., 2022; Inakefe et al., 2023). Bureaucratic constraints and organizational culture further exacerbate these challenges, with many public sector employees lacking the technical expertise required (Godara, 2024; Wilson & Mergel, 2022).

To address these barriers, e-readiness analysis is essential. It evaluates a country or organization's preparedness for ICT-based services, considering factors such as infrastructure, human resources, legal frameworks, and public (Nam et al., 2022; Scholta et al., 2019). E-readiness helps identify gaps and informs successful e-government implementation, avoiding failures that may deepen the digital divide and hinder development (Hidayat & Sofiani, 2024; Muparadzi et al., 2024).

In Indonesia, the Electronic-Based Government System (SPBE) index measures e-readiness, guiding progress and identifying challenges in digital adoption. Despite progress, agencies like the National Narcotics Agency (BNN) still face hurdles, as reflected in its 'fair' SPBE rating. The BNN One Stop Service (BOSS) initiative, which integrates drug abuse prevention services into a digital platform, aims to address these challenges and supports Indonesia's broader public service modernization.

This study focuses on BOSS, exploring its role in streamlining drug abuse prevention services and its alignment with Indonesia's Digital Indonesia 2045 Vision. By consolidating services under one platform, BOSS improves service delivery and ensures marginalized communities have access to essential services, supporting goals of better governance and inclusive service delivery.

However, a gap exists in the literature regarding the financial sustainability of e-government systems, particularly in resource -constrained environments. Existing frameworks like STOPE often overlook the financial dimension, especially budgeting for ICT procurement, maintenance, and research & development (R&D), which are crucial for long-term sustainability (Alghamdi et al., 2019; Hidayat & Sofiani, 2024; Nugroho & Purbokusumo, 2020; Zubaidah et al., 2024).

While frameworks such as e-GOVERNMENT 2.0 and ERA focus on infrastructure and citizen engagement (Kagoya et al., 2019; Sheoran & Vij, 2022), they neglect the financial sustainability of e-government initiatives. This research fills this gap by extending the STOPE framework to include a Budgeting domain, thereby enhancing it by addressing financial preparedness and ensuring the sustainability of ICT-based public services, particularly in financially constrained regions.

This study makes a significant contribution by integrating financial sustainability into the assessment of e-government readiness, offering a comprehensive framework that accounts for both technical and non-technical factors, such as organizational culture, leadership, and financial preparedness. The inclusion of Budgeting allows for a more thorough evaluation of e-government systems, particularly in regions with limited budgets.

The choice of BOSS as the case study is both scientifically and policy-relevant. As Indonesia's leading agency for drug abuse prevention, BNN's digital transformation through BOSS aligns with national health and governance goals. The success or failure of BOSS can provide valuable lessons for e-government projects in public health sectors in Indonesia and other developing countries.

This research aims to assess BOSS's e-readiness, identify challenges, and propose improvements, particularly in financial sustainability, offering actionable recommendations to enhance service delivery, governance, and public health efforts.

Theoretical Framework

This study builds upon the STOPE Framework (Strategy, Technology, Organi-

zation, People, Environment) to assess the e-readiness of the BNN One Stop Service (BOSS). The STOPE framework is widely used in e-government assessments and evaluates key aspects of e-readiness, including technological, organizational, and sociopolitical factors that influence the success of -based (Choi et al., 2016; Hidayat & Sofiani, 2024; Nugroho & Purbokusumo, 2020; Zubaidah et al., 2024). Its comprehensive approach is particularly useful for BOSS, which is involved in drug abuse prevention—a sector deeply influenced by organizational culture, leadership decisions, and government regulations (Alghamdi et al., 2019; Yulia Retnani et al., 2019).

However, while the STOPE framework effectively addresses technological, organizational, and human readiness, it neglects financial sustainability, a critical factor for the long-term success of e-government services. To address this gap, this study introduces the Budgeting domain, which enhances the STOPE framework by focusing on financial preparedness—particularly in resource-constrained regions like Bali, where financial challenges hinder the adoption and maintenance of digital services. The inclusion of this domain ensures that ICT services are not only deployed but also sustained and developed over time.

The Budgeting Domain in the STOPE Framework

The introduction of the Budgeting domain in the STOPE framework is a key innovation. Traditional frameworks, such as those by Alghamdi et al. (2019) and Hidayat & Sofiani (2024), address financial resources but fail to emphasize financial sustainability and long-term budgeting practices, which are essential for e-government success. By focusing on financial preparedness, the Budgeting domain ensures that digital services can secure funding for both immediate needs and future development, making it critical for long-term service sustainability.

Rationale for the Standalone Budgeting Domain

Incorporating budgeting as a standalone domain enables a deeper understanding of how financial planning impacts the sustainability of e-government services (Mussa Ali et al., 2023; Singh & Singh, 2024; Wang et al., 2023). The Budgeting domain highlights how financial constraints can restrict the growth of services like BOSS, particularly as digital platforms evolve. Continuous budgeting for procurement, maintenance, and Research and Development (R&D) is necessary to keep up with technological advancements and operational needs. Without proper financial planning, digital services risk becoming outdated, experiencing operational disruptions, or failing to scale. This is especially problematic in resource-constrained regions, where limited budgets can impede the procurement of necessary technology or hinder ongoing maintenance and innovation efforts.

Sub-domains Under Budgeting

The Budgeting domain is divided into three key sub-domains: Procurement, Maintenance, and R&D. These sub-domains are prioritized due to their direct impact on the sustainability and growth of digital services:

1. Procurement: Adequate procurement budgets are essential to ensure that technology and infrastructure are in place for effective digital service delivery (Latupeirissa et al., 2024; Nose, 2023; OECD, 2022; Sivaramakrishnan & Pellissery, 2023). Delays in the procurement process on E-Government innovation highlight the need for more efficient budgeting at the local level.
2. Maintenance: Maintenance is crucial for ensuring the long-term functionality of digital services. Regular updates and prompt technical issue resolution prevent service disruptions. The lack of a sustainable maintenance budget can lead to technology degradation and security breaches, undermining service effectiveness (Demir et al., 2021; Knowles et al., 2021).
3. R&D: Continuous funding for research and development is necessary to innovate and keep digital services aligned with emerging technologies. At the local level, R&D budgets are often limited, hindering innovation. Allocating funds for R&D ensures that e-government innovation remains adaptable, improving service features and user experience over time (Nose,

2023; Ronzhyn & Wimmer, 2022).

METHODS

This study employs a qualitative case study methodology to assess the e-readiness of the BNN One Stop Service (BOSS) in Bali Province, Indonesia. Bali was chosen for its high City Drug Threat Response (KOTAN) index, which measures the effectiveness of regional responses to drug-related challenges, making it an ideal location for studying drug-abuse prevention services. Bali's role as a pilot region for digital government initiatives also provides an opportunity to assess the challenges and successes of e-government in the context of public health.

While focusing on Bali offers valuable insights, the study acknowledges its limitation in generalizability. The findings may not fully reflect broader trends in Indonesia, and future research should expand to other regions to provide a more comprehensive understanding.

Data Collection Methods

Data collection took place from April 1 to April 30, 2024, using three primary methods:

1. In-depth Interviews: Thirteen key informants participated in semi-structured, open-ended interviews. These included leaders, service staff, and BOSS operators. The interviews, which lasted 45-60 minutes, focused on their experiences and challenges with BOSS. The semi-structured format allowed flexibility, enabling the capture of insights into organizational, technological, and operational issues. All interviews were audio-recorded and transcribed. Additional interviews were conducted if data saturation was not achieved.
2. Document Analysis: Secondary data were gathered from official reports, strategic plans, SOPs, and internal communications. This helped validate the interview findings and provided contextual information on BOSS's organizational structure and financial management.
3. Direct Observations: Observations were conducted during site visits to BNN offices in Bali, focusing on BOSS's daily operations and staff interactions with service users. This method provided real-time insights into BOSS's implementation and helped identify discrepancies between reported experiences and actual practices. External Challenges

Sampling Strategy

A purposive sampling strategy was used to select 13 informants with significant knowledge of BOSS's implementation. The informants were grouped into three categories to capture diverse perspectives:

1. Supervisory Leaders (5 informants): These individuals held decision-making roles and provided strategic insights into BOSS's challenges and operational plans.
2. Service Staff (4 informants): Frontline staff who interacted directly with users, providing insights into operational challenges and the practical impact of BOSS.
3. BOSS Operators (4 informants): These individuals were involved in the technical operation of BOSS and offered perspectives on ICT infrastructure and system performance.

While purposive sampling ensured that informants had relevant expertise, it may introduce some selection bias, as their perspectives are shaped by their direct involvement in BOSS. Future research could expand to include a broader range of stakeholders.

Data Analysis and Triangulation

Data analysis was conducted using NVivo 12 Plus software, following a three-stage coding process based on Grounded Theory (Akkaya, 2023):

1. Open Coding: Initial themes were identified by breaking down the data into manageable units.
2. Axial Coding: Relationships between themes were explored, and data were categorized according to the STOPE framework and the newly introduced Budgeting domain.
3. Selective Coding: These themes were integrated into a cohesive narrative addressing the research questions.

To enhance the validity and reliability of the findings, data triangulation was used, incorporating data from interviews, documents, and observations. This approach minimized

bias and provided a comprehensive understanding of BOSS's e-readiness (Noble & Heale, 2019).

FINDINGS AND DISCUSSION

The study assessed the e-readiness of the BNN One Stop Service (BOSS) using the modified STOPE Framework, which includes Strategy, Technology, Organization, People, Environment, and a newly introduced Budgeting domain. The results highlighted both strengths and areas for improvement across these domains, providing a comprehensive view of BOSS's current state.

Strategy Domain

In the Strategy Domain, effective leadership direction was found to be a significant factor influencing the implementation of BOSS. However, the findings revealed that the leadership directives were often general, limiting their practical impact in addressing field-level challenges. As noted by Respondent P.4 a service staff member,

> "The guidance and initiatives provided by leaders at the supervisory or administrative level are general and do not directly address the specific issues and conditions in the field, where each work unit (satker) inevitably faces unique challenges related to its own circumstances."

This quote emphasizes the disconnect between leadership directives and on-the-ground realities in service delivery. Effective leadership is crucial to the successful implementation of digital services, and the findings suggest room for improvement in clarity and actionable steps at the leadership level. Leaders need to tailor their strategies to address the specific challenges faced by local teams, rather than offering generalized solutions that may not be practical for every unit.

Furthermore, the study found that ICT cooperation with other agencies was lacking, with several respondents highlighting the absence of formal cooperation plans. Respondent L.4, a BOSS operator staff, mentioned,

> "There's no formal plan for collaborating with other units. Thou, the integration with the Public Service Mall was done informally."

This indicates the need to develop comprehensive ICT cooperation plans that include clear integration strategies with other government systems. Additionally, improving ICT budgeting processes is vital for sustaining these collaborations and achieving long-term service improvements.

Technology Domain

In the Technology Domain, while the basic ICT infrastructure was found adequate, several technical issues emerged that hindered service performance. For example, slow internet speeds and outdated equipment were identified as obstacles by Respondent L.2, a BOSS operator, who said,

> "The internet is slow, and many devices are aging, which causes delays during peak hours."

To address these issues, it is crucial to upgrade the internet infrastructure and replace outdated devices to enhance the overall performance and reliability of BOSS.

A deeper look into the ICT BNN One Stop Service (BOSS) Infrastructure revealed that server constraints and application disruptions were significant problems. Respondent L.1, a supervisory leader, explained,

> "The servers often crash, and the BOSS application frequently malfunctions, which leads to delays in service delivery."

These disruptions, which affect both performance and security, call for server capacity upgrades and enhanced security measures to ensure the service runs smoothly and safely.

Organization Domain

In the Organization Domain, a notable

Source: Author, 2023

strength was the successful integration of BOSS with other systems, which indicates the service's potential for further development. However, the study also identified several organizational challenges that impacted its success. One of the most critical challenges was the lack of clear regulations at the local level, leading to inconsistent service delivery. As one supervisor, respondent P.8 pointed out,

> "Without clear regulations at the local level, we face confusion and delays in implementing BOSS."

The absence of clear, standardized regulations creates barriers to smooth implementation and needs to be addressed at all administrative levels to ensure consistency and accountability.

Additionally, the change management process within the organization was found to be insufficient. Respondents reported that BOSS required immediate upgrades, and technical support was lacking. One of the service staff, respondent P.3, noted,

> "The system crashes often, and we struggle to provide uninterrupted service to the public."

To address these issues, continuous training and technical support are essential to ensure that staff can fully utilize the system and adapt to technological changes.

People Domain

The People Domain was characterized by a strong understanding of BOSS among staff, but specialized training for BOSS was found to be lacking. Respondent P.6, a service officer, remarked,

> "We know the basics, but there was no specific training for BOSS, and we need more advanced training to handle its features effectively."

This gap in ICT education and training suggests the need for advanced, role-specific training to enhance service quality, efficiency, and professionalism.

Furthermore, the study found that there was insufficient planning for managing ICT skills within the organization. To ensure the long-term effectiveness of BOSS, it is crucial to develop strategic plans to manage and upgrade IT skills, ensuring that staff are consistently equipped with the knowledge needed to operate new technologies.

Environment Domain

In the Environment domain, one critical issue identified was the lack of backup power sources, which posed significant risks during power outages. This issue was briefly mentioned in the findings, but a deeper analysis is necessary to understand the underlying institutional responsibility and the prioritization of this infrastructure. The lack of backup power systems disrupts service continuity during power outages, undermining BOSS's reliability. Informant L.4, a BOSS operator, noted:

> "During power outages, the absence of a backup generator leads to significant service disruptions. We lose the ability to process requests, and the system goes down entirely."

The absence of backup power solutions highlights a critical gap in the environmental readiness of BOSS. Power reliability is a fundamental issue for any e-government service, particularly for platforms like BOSS, which depend on continuous access to online services. The responsibility for providing backup power typically lies with the regional work unit or the relevant infrastructure authority, but the lack of prioritization at the local level has hindered the development of such systems. Additionally, allocating financial resources for backup power should be part of the budgeting domain, ensuring investments in maintaining service availability even during power interruptions.

The findings indicate that the regional work unit has not fully recognized the critical nature of power reliability in delivering continuous public services. The prioritization of backup power should be considered part of the government's responsibility to ensure public services are resilient to common challenges, such as power outages. Allocating funding for backup power solutions,

such as generators, would prevent operational delays and improve the overall reliability of BOSS.

Budgeting Domain (Modified STOPE Framework)

The introduction of the Budgeting domain in this study revealed several financial constraints that affected the operational readiness of BOSS. Key issues, such as centralized procurement processes and insufficient R&D budgets at the local level, were identified as significant barriers to the service's sustainability. However, further interpretation is needed to understand the institutional dynamics and the prioritization of budgetary decisions in the context of BOSS. Informant P.9, a supervisory leader, stated:

> "We have an ICT budget, but it must be approved centrally, which slows down the process. Local units are often left waiting for approval, and by the time we get the funds, the technology is already outdated."

This comment highlights the challenges of a centralized budgeting system, where decisions are made at the national level, causing delays in acquiring critical resources. Decentralizing budget approvals could enable local units to better respond to regional needs and invest in timely technology upgrades. The slow approval process exacerbates the problem, especially in a rapidly changing digital landscape where outdated technology can significantly hinder service delivery.

Moreover, the lack of an R&D budget at the local level underscores the difficulty of maintaining and innovating the service. As noted by another informant, L.3, a supervisory leader:

> "Only the central unit has an R&D budget for BOSS, but local units don't have specific funds for application development. This hampers innovation and makes it hard for us to implement updates and improvements."

This limitation in R&D funding severely restricts the potential for continuous innovation in BOSS. Without a dedicated research and development budget, the platform is unlikely to adapt to emerging needs or technological advancements. R&D is crucial for improving the service's features, security, and overall user experience. To address this, allocating specific R&D funds to local units would promote innovation and ensure the system evolves in response to both user needs and technological advancements.

The budgeting constraints faced by BOSS highlight the importance of incorporating financial sustainability into e-government initiatives. The Budgeting domain must account for both short-term procurement needs and long-term sustainability by continuously investing in maintenance, R&D, and upgrades.

DISCUSSION

This study's findings underscore the importance of e-readiness for the successful implementation of e-government services, particularly in the context of the BNN One Stop Service (BOSS). This section discusses the scientific and practical implications of the findings, compares the results with existing literature, and offers recommendations for enhancing BOSS's effectiveness.

Critical Issues in BOSS Implementation

This study assessed the e-readiness of the BNN One Stop Service (BOSS) using the modified STOPE framework, focusing on the Strategy, Technology, Organization, People, Environment, and Budgeting domains. The findings underscore both the strengths and areas for improvement, providing a comprehensive understanding of BOSS's e-readiness and its long-term sustainability potential.

The Strategy Domain revealed that leadership within BOSS is committed but faces challenges because strategic directives are general and lack actionable steps to address field-level operational challenges. This finding aligns with research suggesting that top-down management structures often hinder e-government initiatives, especially when they fail to integrate field-level feedback into decision-making processes (Wilson & Mergel, 2022). In comparative studies, e-government initiatives in Estonia and Russia have emphasized the importance

of feedback loops and bottom-up communication to ensure that strategies align with on-the-ground realities (Espinosa & Pino, 2025; Shukyurov, 2024). For BOSS, adopting a more collaborative approach that involves staff at all levels in strategy formulation could improve the effectiveness and efficiency of service delivery, as seen in studies of public service delivery in Nigeria and Iraq, where stakeholder engagement was a core factor in the project's success (Dr. Ammar Abdul Ameer Shamkhi Alshlah, 2023; Foluso Modupe Adeyinka & Adeyinka Patrick Adewumi, 2023).

In the Technology Domain, the study found that while BOSS's basic ICT infrastructure was generally adequate, issues such as slow internet speeds and outdated equipment were hindering service performance. These findings echo global challenges in e-government, as discussed in studies from India and Kenya, where outdated technology infrastructure remains a barrier to effective service delivery (G. Kauma et al., 2022; Godara, 2024). In Kenya (G. Kauma et al., 2022), Outdated technology infrastructure contributes to inefficiencies, as it hampers the implementation of innovative solutions necessary for seamless public service delivery. Additionally, the lack of government commitment to developing a robust ICT policy and slow procurement processes further exacerbate these challenges, limiting the potential for effective and efficient e-government operations across various ministries. For BOSS, upgrading its internet infrastructure and replacing outdated devices is essential to enhance service reliability, reduce delays, and improve user satisfaction. These improvements will also ensure BOSS can meet growing digital demands.

The Organization Domain showed that while BOSS has successfully integrated with other government systems, the lack of clear local-level regulations has led to inconsistencies in service delivery. This finding is consistent with previous studies that emphasize the need for clear regulatory frameworks in e-government (Hayashi & Arai, 2024; Zhang & Kaur, 2024). The lack of clear local-level regulations is a common issue faced by e-government projects in developing countries. For example, in Ecuador, the lack of standardized regulations at the local level led to delays in e-government implementation and inconsistent services (Loor & Rivadeneira, 2024), similar to BOSS. To address this, BOSS must prioritize developing and standardizing regulations at both the central and local levels to ensure consistent, efficient service delivery.

In the People Domain, the study found that while staff generally had a good understanding of BOSS, the lack of specialized training was a significant gap. This gap in specialized training mirrors challenges faced by other e-government projects. In Cross River State, Nigeria, a similar lack of ICT training was found to hinder service quality and staff performance, a finding supported by previous research (Inakefe et al., 2023). Addressing this, a study of Federal tertiary institutions in southwest Nigeria incorporated role-specific training for e-government systems, which significantly improved efficiency and staff performance (Adenekan & Jimoh, 2024). For BOSS, implementing role-specific, advanced training for staff would ensure that the system is fully utilized, improving service delivery and enhancing professionalism.

The Environment Domain revealed that the lack of backup power solutions during power outages posed a risk to service continuity. The lack of backup power systems is not unique to BOSS. Many e-government projects in developing countries face similar issues, as highlighted in a study of e-government services in Rwanda, where a lack of backup power led to interrupted services and user dissatisfaction (Mutimukwe et al., 2017). To mitigate these risks, it is recommended that BOSS invest in backup power solutions, such as generators, at all BNN offices to ensure uninterrupted service delivery, especially in regions prone to power outages.

In the Budgeting Domain, the introduction of the centralized ICT procurement approval process was found to delay service delivery. This finding aligns with budgeting challenges observed in other e-government

projects worldwide (Bhandari, 2023; Molobela & Uwizeyimana, 2023; Mussa Ali et al., 2023). In India, centralized budget approvals hindered ICT procurement, delaying e-service implementation (Hoque, 2024). To enhance BOSS's efficiency, decentralizing budget approval and giving local units greater control over their budgets would help ensure the timely procurement of necessary resources and improve service delivery.

Moreover, successful examples of decentralized budgeting in e-government systems from countries such as Kazakhstan and Vietnam highlight the effectiveness of local-level budget autonomy. In Kazakhstan, The Berekeli Bastama project exemplifies this approach, promoting participatory budgeting and fostering regional development, thereby demonstrating the effectiveness of decentralization in enhancing local governance and citizen involvement in decision-making processes (Alisharipov et al., 2024). Similarly, Vietnam's e-government initiatives improved control over local budgeting, enabling faster technology adoption and local innovation (Tran & Nguyen, 2024).

In BOSS, adopting a decentralized budgeting system would not only reduce delays in procurement but also encourage local innovation by allowing regional offices to allocate funds to areas with the highest priority needs. It is also recommended that local units receive dedicated R&D budgets to ensure continuous improvement and adaptation of the BOSS system to meet evolving user needs.

Sociopolitical Context and Its Impact

In addition to the technical and organizational challenges identified, this study revealed significant sociopolitical factors that influenced the implementation and effectiveness of the BNN One Stop Service (BOSS). These factors were rooted in bureaucratic resistance and power dynamics, which played a crucial role in shaping the operational readiness of the service and its reception across different levels of government (Bagrationi & Gordienko, 2024; Oluwakoya, 2024).

Bureaucratic resistance emerged as a primary barrier to the smooth implementation of BOSS. In particular, the lack of clear local-level regulations created confusion and delays in service delivery (du Plessis & Fuo, 2024; Maula & Prasojo, 2021). As one respondent pointed out, "Without clear regulations at the local level, we face confusion and delays in implementing BOSS." This finding aligns with previous research on bureaucratic inertia, which shows that entrenched practices and resistance to change hinder the integration of new technologies and processes (Bilous et al., 2024; Cieslak & Valor, 2025; Mohadeseh Noroozi, 2024). The absence of standardized regulations at the local level led to a fragmented approach to service delivery, resulting in inconsistent application of procedures and inefficiencies (Hermansyah, 2024; Kyssima & Sulle, 2024).

Additionally, the study found that power dynamics between central and regional work unit agencies further complicated the implementation of BOSS. The absence of formalized inter-agency cooperation and integration strategies led to delays and inefficiencies (Arwanto & Anggraini, 2022; Kumari, 2023). As one respondent highlighted, "There's no formal plan for collaborating with other units; the integration with the Public Service Mall was done informally." This finding underscores the importance of fostering stronger collaboration between government agencies at both the central and local levels (Adyawarman, 2021; Gao, 2024). The lack of cooperation among these entities often led to fragmented services and operational silos, limiting BOSS's effectiveness and its ability to deliver integrated public services (Jones et al., 2024; Mkhize, 2024).

These silos emerge because different stakeholders have differing priorities and visions for how digital government services should be implemented. The fragmentation can be seen as a direct result of power struggles between agencies, where each institution operates with its own objectives, timelines, and operational frameworks. This division of efforts contributes to a lack of alignment and coordination, further hindering the

smooth integration of services across different levels of government. In addition, the absence of clear governance structures or inter-agency agreements means that key players fail to effectively share resources or data, compounding the inefficiency in service delivery.

These bureaucratic and power dynamics challenges are common in many government agencies, particularly when trying to implement large-scale digital transformation projects. As highlighted by previous studies, the lack of alignment between central and regional work unit entities can severely hinder the success of e-government initiatives (Rekunenko et al., 2025). In the case of BOSS, these institutional barriers must be addressed to create a more cohesive, cooperative governance structure that can support the smooth rollout and scaling of the service (Boeger, 2024).

These sociopolitical challenges emphasize that the success of BOSS was not solely determined by the quality of technology or organizational readiness, but also by the ability of leadership to navigate the complex sociopolitical environment. To ensure the long-term sustainability of e-government services like BOSS, it is critical to address bureaucratic resistance, establish clear regulations at all levels, and foster stronger inter-agency collaboration. These steps will enable BOSS to operate more effectively and create a more integrated service-delivery model, thereby enhancing the program's overall impact.

Improvement Strategies in BOSS

To address challenges in **BOSS** , several strategic recommendations are proposed to improve effectiveness, enhance collaboration, ensure long-term sustainability, and address leadership and infrastructure challenges. These strategies are framed within a broader policy landscape to ensure actionability and support at institutional and governmental levels.

Strengthening Leadership and Governance

A lack of consistent leadership and political support hinders BOSS's success. The proposed policy reform suggests developing leadership training for government officials focused on e-government strategy and decision-making. Additionally, leadership roles for e-government projects like BOSS should be clearly defined and politically supported, with mechanisms to ensure continuity, such as the establishment of e-government leadership committees.

Decentralization of ICT Procurement

Centralized ICT procurement delays service delivery. A policy reform is recommended to decentralize procurement, giving local units budget autonomy to manage ICT-related expenses and respond to regional needs more efficiently.

Technology and Infrastructure Upgrades

Outdated ICT infrastructure and slow internet hinder BOSS's functionality. A national infrastructure upgrade strategy is proposed to improve broadband, hardware, and technology resources, especially in underserved regions, with funding mechanisms to support local governments.

Decentralization of Budgeting

Centralized budget approval reduces local innovation. Policy reforms should allow local units to manage dedicated budgets for R&D, ICT maintenance, and service innovation, enabling faster responses to emerging needs.

Development of Standardized Regulations for E-Government

A lack of clear local regulations causes confusion. A national policy should mandate standardized e-government regulations to ensure consistency and clear implementation guidelines.

Capacity Building and Continuous Training Programs

Role-specific training for BOSS staff is crucial. National training policies should be developed for continuous skill development, ensuring staff are well-versed in system use, security, and ICT innovations.

Inter-Agency Collaboration and Formal Cooperation Agreements

Lack of inter-agency cooperation hin-

ders seamless service delivery. Policy mandates should require agencies to enter into formal cooperation agreements, thereby enhancing collaboration and resource sharing for e-government services.

CONCLUSION

This study assesses the e-readiness of the BNN One Stop Service (BOSS) using the modified STOPE framework, incorporating Strategy, Technology, Organization, People, Environment, and the newly introduced Budgeting domain. The key innovation of this research is the inclusion of the Budgeting domain, which integrates financial sustainability into e-readiness—an often overlooked aspect in previous studies. This modification allows for a more holistic approach, especially in resource-constrained environments.

The findings reveal strengths and challenges within BOSS, particularly the need for improved budget management, ICT infrastructure, and local regulations. The Budgeting domain strengthens the STOPE framework's applicability, guiding policymakers in designing, implementing, and evaluating e-government initiatives by emphasizing the importance of sustainable financing and addressing infrastructure gaps.

Moreover, the study highlights the broader relevance of the modified STOPE framework. It provides a comprehensive view of e-government sustainability, particularly for developing countries facing financial constraints. The framework supports the creation of resilient, equitable, and efficient digital services.

While this study offers valuable insights, it is limited by a single case study. Future research should include multiple case studies across regions to validate the framework's applicability and refine the Budgeting domain with more specific financial indicators. Additionally, applying the STOPE framework to non-health sectors such as education, social services, and disaster management will expand its applicability, offering insights into digital transformation challenges across these sectors.

In conclusion, this research contributes significantly to the e-readiness literature by presenting a modified STOPE framework focused on financial sustainability. It offers actionable recommendations for improving digital public services, particularly in resource-constrained environments, and supports the development of more resilient and sustainable e-government services.

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