

Evaluating the Implementation of the Electronic-Based Government System (SPBE) in the Bojonegoro Regency Education Office: A Study Based on Indonesia Presidential Regulation No. 96 of 2018

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ABSTRACT	ARTICLE DETAILS
The implementation of the Electronic-Based Government System (SPBE) has become a strategic priority for improving the quality, efficiency, and accessibility of public services in Indonesia. This study aims to evaluate the implementation of SPBE within the Department of Education of Bojonegoro Regency using the policy evaluation framework developed by Bridgman and Davis, which comprises four dimensions: input, process, output, and outcome. A qualitative descriptive approach was employed, with data collected through interviews, observations, and document analysis involving policy implementers, technical personnel, educators, and service users. The findings indicate that SPBE implementation has generally achieved positive results across all evaluation dimensions. The input dimension demonstrates adequate support in terms of budget allocation, human resources, technological infrastructure, and training programmes. The process dimension reveals that implementation was conducted through structured stages, including planning, development, testing, and deployment, supported by inter-unit coordination and external collaboration. The output dimension shows that seven major digital educational services have been successfully implemented and widely utilised, generating more than 15,000 transactions per month with generally favourable user satisfaction levels. The outcome dimension highlights improvements in service accessibility, administrative efficiency, service quality, stakeholder satisfaction, organisational collaboration, and human resource competencies. However, several challenges remain, particularly regarding data integration, uneven digital competencies, infrastructure disparities, and resistance to digital transformation. The study concludes that SPBE implementation within the Department of Education of Bojonegoro Regency can be categorised as effective, although continuous improvements are required to optimise service quality and ensure the sustainability of digital transformation initiatives. KEYWORDS: electronic-based government system, SPBE, policy evaluation, digital government, public service, educational administration.	Published On: 10 July 2026 Available on: https://ijiissh.com/

1. INTRODUCTION

The rapid advancement of Information and Communication Technology (ICT) over the past two decades has fundamentally transformed public sector governance worldwide, including in Indonesia (United Nations, 2022; World Bank, 2021). This transformation extends beyond technological adoption and encompasses changes in bureaucratic structures, organisational culture, public service delivery, and government accountability (Dunleavy et al., 2006; Mergel et al., 2019). Consequently, governments have increasingly adopted digital governance frameworks to improve administrative efficiency, transparency, responsiveness, and citizen participation (United Nations, 2022; OECD, 2020). Within this context, electronic government (e-government) has evolved from a technological innovation into a strategic instrument for public sector reform aimed at creating citizen-centred governance systems (Gil-Gracia, 2018; Heeks, 2006).

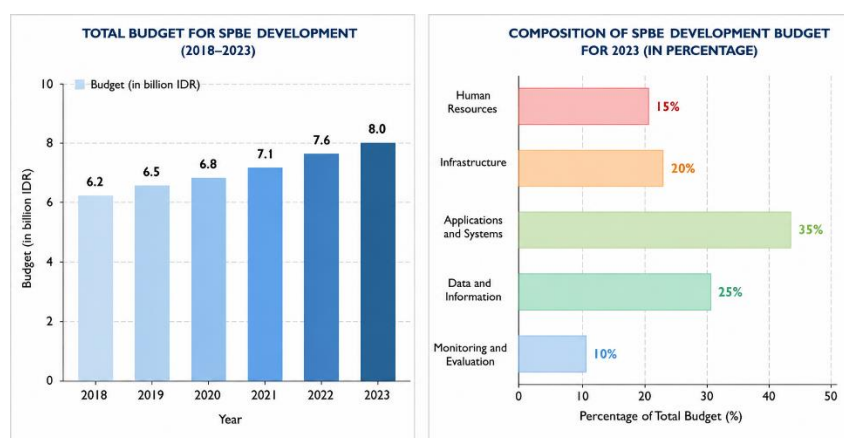
In response to these developments, the Indonesian Government enacted Presidential Regulation Number 95 of 2018 concerning the Electronic-Based Government System (Sistem Pemerintahan Berbasis Elektronik/SPBE). The regulation serves as the primary legal and strategic framework for digital transformation across public institutions at both the central and local government levels. SPBE

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seeks to establish clean, effective, efficient, transparent, and accountable governance while delivering public services that are integrated, accessible, accurate, and responsive to citizens' needs (Kementerian PANRB, 2023; Nurkyatsiwi, 2024). Accordingly, the implementation of SPBE constitutes a critical component of Indonesia's broader bureaucratic reform agenda and digital government strategy.

Indonesia's commitment to SPBE has demonstrated measurable progress in recent years. Since the first national SPBE evaluation was conducted in 2018, the National SPBE Index has shown a continuous upward trend. According to the Ministry of Administrative and Bureaucratic Reform (Kementerian PANRB), the National SPBE Index reached 2.34 out of 5 in 2022, exceeding the annual target of 2.30 and achieving a "fair" performance category (Kementerian PANRB, 2023). Furthermore, the United Nations E-Government Survey 2022 ranked Indonesia 77th out of 193 countries, representing an improvement of eleven positions compared to its 88th ranking in 2020 (Kementerian PANRB, 2023; United Nations, 2022). These achievements indicate that the implementation of SPBE has contributed positively to the development of digital governance at the national level (United Nations, 2022).

Figure 1. Development of the National SPBE Index (2018–2023) and Overview of Implementation Challenges in Bojonegoro Regency



Source: Ministry of Administrative and Bureaucratic Reform (2023) and Department of Communication and Informatics of Bojonegoro Regency (2023).

Despite these encouraging developments, several structural challenges continue to hinder the optimisation of SPBE implementation, particularly at the local government level. One of the most critical challenges is the fragmentation of digital systems, whereby numerous government applications operate independently and are unable to communicate effectively across agencies. This lack of interoperability reduces administrative efficiency and limits the integration of public services (Indonesia.go.id, 2023; Janssen & Estevez, 2013) (Indonesia.go.id, 2023; Janssen & Estevez, 2013). Recognising these challenges, the Ministry of Administrative and Bureaucratic Reform has designated education services as one of nine priority services within the national SPBE architecture and identified local education departments as strategic institutions for evaluating public service performance (Kementerian PANRB, 2024).

Bojonegoro Regency represents one of the local governments actively pursuing smart city development and SPBE implementation across all governmental agencies, including the Department of Education. These initiatives align with Indonesia's broader smart government and smart region agenda, in which ICT utilisation serves as a key driver of regional competitiveness in the era of Industry 4.0 (Anthopoulos, 2017; Fitri et al., 2024).

However, the implementation of SPBE within the Department of Education of Bojonegoro Regency continues to encounter numerous technical and non-technical obstacles. From an infrastructure perspective, data from the Department of Communication and Informatics indicate that approximately 32% of schools located in remote areas still lack adequate internet connectivity. Similar challenges have been widely identified in developing countries, where digital transformation efforts are often constrained by infrastructural inequalities and uneven access to ICT resources (Heeks, 2002; World Bank, 2021).

Human resource capacity also remains a significant concern. An internal survey conducted in 2023 revealed that only 45% of employees possessed adequate proficiency in SPBE-related applications. Previous studies have demonstrated that digital competency and organisational readiness are among the most important determinants of successful e-government implementation (Alshomrani, 2012; Hidayati, 2021).

Furthermore, organisational resistance to change represents another major challenge. Approximately 38% of employees continue to prefer conventional paper-based administrative procedures, while SPBE socialisation and awareness programmes have not yet

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reached all stakeholders. Resistance to organisational change has frequently been identified as a major barrier to digital government transformation, particularly within public sector organisations characterised by entrenched bureaucratic routines (Setiawan, 2021; Weerakkody et al., 2011).

Given these circumstances, policy evaluation becomes essential for assessing whether SPBE implementation has achieved its intended objectives. One relevant analytical framework is the policy evaluation model developed by Bridgman & Davis (2000), which evaluates programme performance through four dimensions: inputs, processes, outputs, and outcomes. This framework enables a comprehensive assessment of policy implementation and facilitates the identification of strengths, weaknesses, and areas requiring improvement.

Previous studies have highlighted both the opportunities and challenges associated with SPBE implementation. Pratama (2019), Sari & Prabowo (2020), Setiawan (2021), and Wahyu (2020) consistently found that although digital government initiatives improve efficiency, transparency, and service quality, challenges related to infrastructure, human resources, organisational culture, and system integration remain persistent barriers. Similar findings have been reported in international e-government studies (Gil-Gracia, 2018; Mergel et al., 2019).

Although these studies provide valuable insights, several research gaps remain. First, previous research generally focuses on individual dimensions of SPBE implementation without integrating infrastructure, human resources, system integration, organisational culture, budgetary capacity, and monitoring mechanisms within a single evaluative framework. Second, empirical studies examining SPBE implementation in district-level education agencies operating within geographically heterogeneous regions remain limited. Third, issues related to monitoring and evaluation mechanisms, organisational culture, and inter-system integration have received insufficient scholarly attention (Janssen & Estevez, 2013; Mergel et al., 2019).

Therefore, this study offers three primary contributions. First, it adopts a multidimensional evaluation approach that simultaneously examines infrastructure, human resources, system integration, organisational culture, budgetary capacity, and monitoring and evaluation mechanisms. Second, it investigates SPBE implementation within a developing regency characterised by diverse geographical conditions, providing empirical evidence from a context that has received limited scholarly attention. Third, it formulates evidence-based strategic recommendations derived from field findings that may inform both local policy improvement and broader digital government initiatives in other Indonesian regions facing similar challenges.

Based on these considerations, this study aims to evaluate the implementation of the Electronic-Based Government System (SPBE) within the Department of Education of Bojonegoro Regency using the policy evaluation framework proposed by Bridgman & Davis (2000). Specifically, this study aims to evaluate the implementation of the Electronic-Based Government System (SPBE) within the Bojonegoro Regency Education Office based on Presidential Regulation No. 95 of 2018, identify factors supporting and constraining implementation, and formulate strategic recommendations to enhance digital governance and educational service delivery.

2. METHODOLOGY

This study employed a qualitative descriptive approach to evaluate the implementation of the Electronic-Based Government System (SPBE) within the Bojonegoro Regency Education Office in accordance with Indonesian Presidential Regulation No. 95 of 2018. A qualitative approach was adopted to obtain an in-depth understanding of stakeholders' perspectives and experiences regarding SPBE implementation, particularly in relation to policy processes, implementation challenges, and perceived outcomes in educational service delivery (Creswell, 2018; Moleong, 2012).

The research was conducted at the Bojonegoro Regency Education Office, SMP Negeri 1 Kapas, and SMP Negeri 1 Kedungadem, which were selected due to their direct involvement in the implementation of SPBE in educational administration and public service delivery. The study adopted the policy evaluation framework of Bridgman & Davis (2000), focusing on four dimensions: inputs (budget allocation, workforce availability, IT infrastructure, and human resource competencies), processes (implementation procedures, stakeholder involvement, challenges, and mitigation strategies), outputs (quantity and quality of educational services), and outcomes (service accessibility, administrative efficiency, public satisfaction, and sustainability of impacts).

Informants were selected through purposive sampling to ensure that participants possessed relevant knowledge and direct experience related to SPBE implementation (Sugiyono, 2022). A total of ten informants participated in the study, including officials from the Bojonegoro Regency Education Office, school administrators and teachers from the selected schools, students, and parents. This diverse group of participants provided multiple perspectives on the implementation and effectiveness of SPBE in educational services.

Table 1. Research Informants

Informant Category	Institution	Number of Informants
Education Office Officials	Bojonegoro Regency Education Office	2
Teachers and Administrative Staff	SMP Negeri 1 Kapas	2
Teachers and Administrative Staff	SMP Negeri 1 Kedungadem	2

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Students	Junior High Schools	2
Parents	Parents of Students	2
Total Informants		10

Source: Data processed by researchers (2026)

Data were collected through semi-structured interviews, direct observation, and document analysis. The collected data were analysed using the interactive model proposed by (Miles et al., 2014), which comprises data condensation, data display, and conclusion drawing and verification. To ensure the credibility and trustworthiness of the findings, source triangulation was employed by comparing information obtained from multiple informants and data collection techniques.

3. RESULTS AND DISCUSSION

A. Input

According to Bridgman & Davis (2000), inputs refer to the resources utilised to support the implementation of a policy or programme. These resources include financial capacity, human resources, infrastructure, technology, and other forms of organisational support necessary for effective implementation. In this study, the input dimension of the Electronic-Based Government System (SPBE) implementation within the Department of Education of Bojonegoro Regency was evaluated through four key aspects: budget allocation, human resources, information technology infrastructure, and training.

1) Budget Allocation

Financial resources constitute a fundamental prerequisite for the successful implementation of digital government initiatives. Findings from interviews indicate that stakeholders generally perceived the increase in SPBE funding as a positive development that facilitated digital service enhancement, information and communication technology (ICT) procurement, and system security improvements.

As noted by a Junior Policy Analyst:

“The budget increased and greatly supported digital development.”

A similar perspective was expressed by the Head of Information Technology:

“The budget increase had a positive impact on ICT procurement.”

From the perspective of service users, one parent also emphasised the importance of additional funding:

“Additional funding is very important for improving system security.”

These perceptions are supported by documentary evidence showing that the SPBE budget increased from IDR 5.3 billion in 2022 to IDR 7.3 billion in 2023, representing a growth rate of 41.5%.

Table 2. SPBE Implementation Resources, 2022–2023

No.	Input Component	Unit	2022	2023	Growth
1	Budget	Billion IDR	5.3	7.3	+41.5%
2	Personnel Involved	Persons	180	220	+22.2%
3	Local Servers	Units	10	15	+50%
4	LAN Network Points	Points	8	12	+50%
5	Training Activities	Times	12	18	+50%

Source: Financial Report of the Department of Education of Bojonegoro Regency (2023)

Further analysis of the 2023 budget distribution reveals that the majority of funding was allocated to application development and hardware procurement, reflecting the strategic priorities of digital transformation.

Table 3. SPBE Budget Allocation in 2023

No.	Budget Component	Amount (IDR)	Percentage
1	Application Development	3,200,000,000	42.67%
2	Hardware Procurement	2,800,000,000	37.33%
3	Human Resource Development	1,200,000,000	16.00%
4	Operational Costs	300,000,000	4.00%
	Total	7,500,000,000	100%

Source: Financial Report of the Department of Education of Bojonegoro Regency (2023)

The data indicate that budget priorities were concentrated on application development (42.67%) and hardware procurement (37.33%). This allocation demonstrates the local government's commitment to establishing an integrated and sustainable digital governance system.

2) Human Resources

Human resources represent a critical component in determining the effectiveness of SPBE implementation. Interview findings suggest that the number of personnel involved in SPBE implementation is generally considered adequate. Nevertheless, respondents highlighted several challenges related to personnel distribution, technical expertise, and competency development.

One policy analyst stated:

“Human resources are sufficient, but further training is still needed.”

Similarly, another informant emphasised:

“The number of personnel is sufficient, but their distribution is not yet evenly balanced.”

These statements suggest that while staffing levels are relatively adequate, disparities in personnel allocation across organisational units may affect implementation effectiveness. Furthermore, concerns were raised regarding limited technical support at the local level, particularly in rural service areas.

Despite these concerns, some service users viewed the competence of technical personnel positively. One respondent noted:

“The IT personnel are already adequately trained.”

Documentary evidence supports these findings, showing that the number of personnel involved in SPBE implementation increased from 180 individuals in 2022 to 220 individuals in 2023, representing an increase of 22.2%. However, organisational competency assessments indicate that most personnel remain at basic to intermediate skill levels. This finding suggests that increases in staffing have not been accompanied by proportionate improvements in competency levels across the organisation.

3) Information Technology Infrastructure

Information technology infrastructure plays a vital role in supporting the operational effectiveness of SPBE. Most interview participants reported that the expansion of local servers and Local Area Network (LAN) infrastructure had improved the performance of digital services.

A policy analyst explained:

“The addition of servers and LAN networks has greatly improved service operations.”

Similarly, another informant stated:

“Infrastructure has improved, and efficiency has increased.”

Supporting documentation indicates that the number of local servers increased from 10 units in 2022 to 15 units in 2023. Likewise, LAN network points expanded from 8 to 12 locations, representing a 50% increase. These improvements demonstrate the organisation’s commitment to strengthening technological infrastructure to support more effective and efficient electronic service delivery.

Despite these positive developments, several challenges remain. The Head of Information Technology noted:

“The equipment is adequate, but network stability is not consistent across all locations.”

Another respondent highlighted connectivity limitation within certain educational institutions:

“The servers are fast, but some schools are not yet connected to the LAN network.”

These findings indicate that although information technology infrastructure has improved substantially, disparities in connectivity and network stability continue to affect the quality of digital service provision. Therefore, infrastructure development should be accompanied by broader efforts to ensure equitable access across all educational institutions.

In addition to conventional infrastructure expansion, the Department of Education has begun implementing cloud computing technologies and mobile-based services to enhance accessibility, flexibility, and scalability. These initiatives are expected to strengthen technological support for SPBE implementation and broaden service accessibility for users.

4) Training

Training serves as an essential mechanism for enhancing organisational capacity in managing and operating digital systems. Interview findings indicate that participants consistently viewed SPBE training programmes positively, emphasising their contribution to technical knowledge, system adaptation, and operational effectiveness.

One participant stated:

“The training was relevant and increased technical knowledge.”

Another respondent observed:

“Very useful, but it needs to be conducted more frequently.”

In addition, one informant noted:

“The training was helpful, but not all technicians participated.”

These statements suggest that training activities have contributed positively to competency development; however, challenges remain regarding training frequency and participant coverage.

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Documentary evidence reveals that the number of training activities increased from 12 sessions in 2022 to 18 sessions in 2023, representing a growth rate of 50%. This increase reflects the Department's commitment to strengthening employee capacity in support of SPBE implementation.

Overall, training programmes have contributed positively to human resource development. Nevertheless, increasing training frequency, expanding participant involvement, and tailoring training content to organisational needs remain important priorities for optimising SPBE implementation.

Table 4. Summary of Resources Supporting SPBE Implementation in the Department of Education of Bojonegoro Regency

No.	Input Component	Quantity/Description	Remarks
1	SPBE Budget (2023)	IDR 7,500,000,000	Allocated for system development, training, and infrastructure
2	Personnel Involved	220 persons	Including IT staff, operators, administrators, and technical support personnel
3	Human Resource Quality	Requires further competency development through advanced training	Based on interview findings and internal surveys
4	Infrastructure	15 local servers and 12 LAN networks	Internet access remains limited in some areas
5	Supporting Technology	Initial implementation of cloud computing and mobile devices	Enhances accessibility and system scalability

Source: Department of Education of Bojonegoro Regency (2026)

Based on Table 4, the resources available to support SPBE implementation can be considered relatively adequate. Budgetary support, the availability of personnel, infrastructure improvements, and the adoption of supporting technologies collectively demonstrate the organisation's commitment to digital transformation. However, competency development and equitable infrastructure access remain important areas requiring further attention.

The findings indicate that stakeholders generally perceive the input dimension of SPBE implementation positively. Increased budget allocations have supported digital service development, ICT procurement, and system security enhancement. Human resource availability is considered relatively sufficient, although competency development and the equitable distribution of technical personnel remain ongoing challenges. Similarly, improvements in server capacity and network infrastructure have strengthened digital service operations, despite persistent issues related to connectivity and network stability in certain areas. Training programmes have also contributed positively to capacity building, although greater frequency, broader participation, and more specialised content are still needed.

From the perspective of Bridgman & Davis (2000), inputs encompass all resources required to support policy implementation, including financial resources, human resources, infrastructure, and technical support. The findings demonstrate that SPBE implementation within the Department of Education of Bojonegoro Regency has been supported by increasingly adequate inputs, as evidenced by improvements in funding, staffing levels, technological infrastructure, and training activities between 2022 and 2023. However, consistent with Bridgman and Davis' argument that policy effectiveness depends not only on the availability of resources but also on their quality and suitability, further investment in human resource development, infrastructure equalisation, and training enhancement remains necessary to optimise the long-term implementation and sustainability of SPBE.

B. PROCESS

According to Bridgman & Davis (2000), the process dimension refers to the sequence of activities undertaken during policy implementation to achieve predetermined objectives. Process evaluation focuses on assessing how a programme is executed, including coordination mechanisms, system development, testing procedures, implementation stages, and challenges encountered throughout the implementation process. In this study, the process dimension was used to evaluate the implementation stages of the Electronic-Based Government System (SPBE) within the Department of Education of Bojonegoro Regency.

The findings indicate that the implementation of SPBE within the Department of Education of Bojonegoro Regency has been carried out through a structured process encompassing planning, development, testing, and implementation stages. The process was supported by inter-unit coordination, system integration mechanisms, collaboration with external partners, training programmes, and continuous monitoring through a helpdesk system. As a result, SPBE integration was successfully achieved in approximately 85% of schools by the end of the study period.

1) Inter-Unit Coordination Planning

Interview findings indicate that effective coordination and structured planning were considered essential factors supporting the successful implementation of SPBE. Most informants emphasised the importance of collaboration among organisational units through formal coordination mechanisms.

A Junior Policy Analyst explained:

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“Cross-unit coordination was carried out through the establishment of an integration team.”

Similarly, another informant highlighted the strategic role of the integration team:

“An integration team is necessary to ensure effective SPBE implementation.”

The Head of Information Technology further stressed the importance of organisational synergy:

“Synergy among departments is required to ensure optimal implementation.”

These findings suggest that coordination mechanisms played a crucial role in facilitating communication, aligning objectives, and ensuring consistency throughout the implementation process. The establishment of an integration team appears to have strengthened collaboration among organisational units and supported the execution of SPBE initiatives.

2) System Development Phase

The development stage involved the design and construction of digital applications intended to support educational administration and service delivery. However, interview findings revealed that limited internal technical capacity represented a significant challenge during this phase.

One informant noted:

“There are still too few developers, so support from external partners is required.”

Another respondent similarly stated:

“Application development becomes more efficient with support from external partners.”

These findings indicate that collaboration with external organisations served as an important strategy for overcoming internal capacity limitations. Such partnerships enabled the organisation to accelerate application development while ensuring that technical requirements could be adequately addressed despite shortages of specialised personnel.

3) System Testing and Quality Assurance

Prior to full-scale implementation, the SPBE applications underwent testing procedures to evaluate system functionality, identify technical issues, and ensure operational stability. Informants consistently emphasised the importance of testing in improving system quality.

One respondent explained:

“System bugs were identified during the testing phase.”

Another informant stated:

“Bugs discovered during testing could be corrected before the system was fully deployed.”

From the user perspective, a parent highlighted the benefits of testing:

“Testing helps identify system weaknesses so that services can be improved.”

These statements demonstrate that the testing stage played a significant role in reducing technical errors and enhancing the reliability of the digital systems before wider implementation. The process also contributed to user confidence by ensuring that potential problems were addressed prior to operational deployment.

4) Implementation and User Adaptation

Following the testing phase, SPBE was gradually implemented across educational institutions within Bojonegoro Regency. Although informants generally viewed implementation as successful, several challenges emerged, particularly regarding user adaptation and resistance to organisational change.

The Head of Information Technology observed:

“Implementation has proceeded, although resistance remains among some senior teachers.”

This view was supported by another respondent:

“There is still resistance among senior teachers towards using digital systems.”

Meanwhile, a student noted:

“Senior teachers need support during the transition to digital systems.”

These findings indicate that resistance to technological change remained one of the principal barriers during implementation. To address this challenge, the Department of Education introduced phased training programmes and ongoing assistance to facilitate user adaptation and encourage acceptance of digital systems.

Table 5. SPBE Implementation Stages and Challenges

Stage	Timeline	Achievement	Challenge	Mitigation Strategy
Planning	Jan–Mar 2022	Development of a digital roadmap	Cross-unit coordination	Establishment of an integration team
Development	Apr–Sep 2022	Seven core applications completed	Limited number of developers	Collaboration with PT Telkom
Testing	Oct–Nov 2022	Pilot testing in 12 schools	System errors (23 bugs)	Daily system updates

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Implementation	Dec 2022–Present	85% of schools integrated	Resistance among senior teachers	Progressive training programmes
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Source: Department of Education of Bojonegoro Regency (2025)

According to information provided by the Junior Policy Analyst, SPBE implementation was further supported by the establishment of an SPBE Task Force consisting of 25 members representing different organisational units. In addition, eighteen training sessions were conducted during 2023, with an average attendance rate of 82%. Monitoring and evaluation activities were facilitated through a helpdesk system designed to record, monitor, and resolve technical issues encountered during implementation.

Despite considerable progress, several implementation barriers continued to affect programme execution. Based on interview findings and supporting documentation, these obstacles can be categorised into technical, human resource, and organisational challenges, as presented in Table 6.

Table 6. Distribution of SPBE Implementation Barriers

Type of Barrier	Frequency	Percentage
Technical	45	37.5%
Human Resource	56	46.7%
Organisational	19	15.8%
Total	120	100%

Source: Processed by the researcher (2026)

The data indicate that human resource-related challenges represented the most significant barrier (46.7%). These challenges primarily involved resistance to change, uneven digital competencies, and difficulties in adapting to new systems. Technical barriers accounted for 37.5% of recorded issues, while organisational barriers constituted 15.8% of total implementation challenges. The findings suggest that successful digital transformation depends not only on technological readiness but also on the preparedness and acceptance of users within the organisation.

According to the process evaluation perspective of Bridgman & Davis (2000), effectiveness is assessed based on how implementation activities are carried out in accordance with established procedures and plans. The findings suggest that the implementation process generally followed the intended roadmap and contributed positively to the achievement of programme objectives.

Despite these achievements, several challenges remain, particularly those related to human resource capacity, which emerged as the most significant barrier, followed by technical and organisational constraints. Therefore, further efforts are needed to strengthen digital competencies, improve coordination among organisational units, and provide continuous support for system users. These improvements are essential to ensure the long-term effectiveness and sustainability of SPBE implementation within the education sector.

C. Output

According to Bridgman & Davis (2000), outputs refer to the direct products or immediate results generated through the implementation of a policy or programme. Outputs may take the form of services, systems, or other tangible products resulting from the utilisation of organisational resources and implementation processes. In the context of the Electronic-Based Government System (SPBE) implemented by the Department of Education of Bojonegoro Regency, outputs were assessed through the number of digital services generated, service utilisation, service quality, and user satisfaction.

The findings indicate that SPBE implementation has successfully produced several digital services that support educational administration and service delivery. These services have facilitated interactions among educational institutions, administrators, teachers, students, and the wider community while improving the efficiency and accessibility of educational services. A secondary school teacher noted:

“The implementation of SPBE within the Department of Education of Bojonegoro Regency has produced seven main services that function to improve the efficiency and effectiveness of educational services, although the services developed have not yet fully satisfied all users of educational services.”

This statement suggests that SPBE implementation has generated tangible outputs in the form of digital services that are actively utilised by educational stakeholders. However, it also indicates that certain aspects of service quality still require improvement to better meet user expectations.

The performance of the digital services generated through SPBE implementation is presented in Table 7.

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Table 7. Performance of SPBE Digital Services

No.	Service	Transactions per Month	Satisfaction Rate (%)
1	Online Student Admission System (PPDB Online)	6,200	85%
2	Academic Portal	4,000	82%
3	Online Learning Consultation Service	1,100	76%
4	Online Grade Submission System	2,100	80%
5	Teacher Performance Reporting and Monitoring System	900	78%
6	Complaint and Suggestion Portal	450	74%
7	Educational Archive Digitisation Service	250	70%

Source: Department of Education of Bojonegoro Regency (2026)

As shown in Table 7, the Online Student Admission System (PPDB Online) recorded the highest level of utilisation, reaching approximately 6,200 transactions per month with a user satisfaction rate of 85%. This finding demonstrates that the digitalisation of student admissions has significantly improved service accessibility and administrative efficiency. Similarly, the Academic Portal exhibited strong performance, recording approximately 4,000 monthly transactions and achieving a satisfaction level of 82%. These results suggest that services directly related to core educational activities tend to attract higher levels of utilisation and user approval. In contrast, several services demonstrated relatively lower satisfaction levels. The Complaint and Suggestion Portal achieved a satisfaction rate of 74%, while the Educational Archive Digitisation Service recorded the lowest satisfaction level at 70%. Although these services have been successfully implemented and utilised, the findings indicate the need for improvements in functionality, accessibility, responsiveness, and overall user experience. The variation in satisfaction levels across services suggests that the benefits of digital transformation have not been distributed evenly among all service categories.

Overall, SPBE implementation has resulted in seven major digital services that are actively utilised by educational institutions and the public. Service utilisation data indicate that the combined transaction volume exceeded 15,000 transactions per month during the study period. Furthermore, user satisfaction surveys revealed an average satisfaction score of 4.3 on a five-point scale, indicating that the services generally met user expectations and contributed positively to educational service delivery.

A summary of the outputs generated through SPBE implementation is presented in Table 8.

Table 8. Summary of SPBE Outputs in the Department of Education of Bojonegoro Regency

Output Indicator	Description
Number of Educational Services	Seven major digital services have been implemented, including PPDB Online, Academic Portal, Online Consultation Service, Online Grade Submission, Teacher Performance Reporting, Complaint Portal, and Educational Archive Digitisation.
Service Quality	Total service transactions exceeded 15,000 per month, with an average user satisfaction score of 4.3 out of 5. PPDB Online and the Academic Portal achieved the highest satisfaction levels (85% and 82%, respectively), while the Educational Archive Digitisation Service recorded the lowest satisfaction level (70%).
Alignment with User Needs	Overall, the services have addressed community needs and improved administrative efficiency within the education sector. However, several services still require refinement to better meet user expectations.

Source: Data processed by the researcher (2026)

The findings demonstrate that SPBE implementation has generated a range of digital services that support educational administration and service delivery within Bojonegoro Regency. The high volume of service transactions and generally positive user evaluations indicate that these services have been widely adopted and provide meaningful benefits to users. Nevertheless, differences in satisfaction levels among services highlight the need for continuous evaluation and improvement to ensure a more consistent service experience.

From the perspective of Bridgman & Davis (2000), outputs represent the immediate results of policy implementation and serve as an initial indicator of programme effectiveness. The findings suggest that SPBE implementation has successfully produced outputs aligned with its intended objectives, namely the provision of more accessible, efficient, and effective educational services through digital platforms. The availability of multiple operational services, coupled with substantial utilisation rates and positive satisfaction scores, demonstrates that the programme has generated measurable outcomes at the operational level. However, variations in service quality indicate that some outputs have not yet achieved optimal performance. Therefore, while the output dimension can be categorised as positive overall, continuous service enhancement, feature development, and user-centred improvements remain necessary to maximise the effectiveness and sustainability of SPBE implementation within the education sector.

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D. Bureaucrat Structure

According to Bridgman and Davis (2000), outcomes refer to the changes, benefits, or impacts experienced by target groups as a consequence of policy implementation. Unlike outputs, which focus on the immediate products generated by a programme, outcomes assess the broader effects of those products on organisations, stakeholders, and society. In the context of the Electronic-Based Government System (SPBE) implemented by the Department of Education of Bojonegoro Regency, outcomes can be observed through improvements in service accessibility, administrative efficiency, user satisfaction, and the sustainability of the benefits generated by digital transformation initiatives.

The findings indicate that SPBE implementation has generated a range of positive outcomes for educational service delivery. These outcomes are particularly evident in improved access to educational services, faster administrative processes, enhanced service quality, and stronger collaboration among educational stakeholders. A Junior Policy Analyst explained

“Efficiency improvements can be seen in the online student admission process, which is much faster and reduces long queues. However, challenges remain regarding data integration across systems, meaning that document verification still requires additional time.”

This statement demonstrates that SPBE implementation has contributed significantly to improving administrative efficiency within the education sector. The digitalisation of services enables citizens to access information and educational services more conveniently than under the previous manual system. In addition, the utilisation of information technology has accelerated administrative processes such as student admissions, grade submission, performance reporting, and educational data management.

One of the most significant outcomes identified in this study is the increased accessibility of educational services. Services that previously required face-to-face interactions can now be accessed online through digital platforms and applications developed by the Department of Education. This transformation has improved transparency, expanded service coverage, and reduced barriers to access, particularly for users located in different geographical areas.

From the perspective of user satisfaction, SPBE implementation has also enhanced the overall service experience for students, parents, teachers, and educational staff. Digital services provide greater convenience by allowing users to access information and complete administrative procedures without having to visit schools or government offices directly. Nevertheless, several users expressed expectations for further service improvements, particularly regarding the addition of new features, enhanced system functionality, and increased training and assistance to support more effective utilisation of digital services.

Furthermore, the implementation of SPBE has strengthened collaboration between schools and the Department of Education in managing educational data and service delivery. The adoption of digital systems has facilitated more effective communication, accelerated information exchange, and supported evidence-based decision-making processes. Regular training programmes have also contributed to improving the competencies of employees and educational personnel in utilising information technology to support organisational objectives.

The overall outcomes of SPBE implementation are summarised in Table 9.

Table 9. Summary of Outcome Impacts of SPBE Implementation

Aspect	Description of Impact
Improved Service Accessibility	Citizens and educational stakeholders can access educational information and services online, including student admissions, academic portals, and online consultations. This has enhanced transparency and expanded service coverage.
Administrative Efficiency	Student admissions, grade submission, and reporting processes have become faster, more accurate, and better organised. Technology utilisation has reduced queues and administrative processing time. However, challenges remain regarding data integration and verification procedures.
User Satisfaction	Digital services provide a more convenient and responsive experience for students, parents, and teachers. Although satisfaction levels are generally high, some users still expect service enhancements and additional training.
Sustainability of Impacts	Regular training programmes, stronger collaboration between schools and the Department of Education, and operational cost savings indicate the potential sustainability of long-term positive impacts from SPBE implementation.

Source: Data processed by the researcher (2026)

In addition to these broad impacts, SPBE implementation has generated several specific organisational and social benefits, as summarised in Table 10.

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Table 10. Summary of Outcomes Generated by SPBE Implementation in the Department of Education of Bojonegoro Regency

No.	Impact Area	Description
1	Improved Efficiency	Administrative processes have become faster and more organised, reducing data processing and reporting time.
2	Information Accessibility	Citizens and stakeholders can access educational information online, thereby enhancing transparency.
3	Enhanced Service Quality	Services provided to students and parents have become more responsive and effective through digital platforms.
4	Improved Collaboration	Communication and collaboration between schools and the Department of Education have strengthened, supporting programme implementation.
5	Human Resource Development	Regular training and capacity-building initiatives have improved employees' ability to utilise information technology.
6	Cost Savings	The use of digital technologies has reduced operational costs associated with data management and administrative activities.
7	Increased Stakeholder Satisfaction	Both citizens and employees have reported higher levels of satisfaction with educational services following SPBE implementation.

Source: Data processed by the researcher (2026)

The findings presented in Tables 9 and 10 demonstrate that SPBE implementation has produced substantial benefits for both service users and the organisation. Improved accessibility has enabled broader public access to educational services, while enhanced administrative efficiency has streamlined operational processes and reduced processing times. Furthermore, the positive effects on service quality, stakeholder satisfaction, organisational collaboration, and human resource development indicate that the benefits of SPBE extend beyond technological improvements and contribute to broader organisational transformation.

Despite these achievements, several challenges remain. The findings reveal that data integration across different systems has not yet been fully optimised, resulting in delays in document verification and information synchronisation. These issues may reduce the overall effectiveness of digital services and limit the potential benefits that can be achieved through integrated electronic governance. Consequently, further efforts are required to strengthen system interoperability and optimise the utilisation of existing digital platforms.

From the perspective of Bridgman and Davis (2000), outcomes represent the benefits or changes experienced by target groups as a consequence of policy implementation. The findings of this study indicate that SPBE implementation has generated meaningful outcomes for educational governance in Bojonegoro Regency, particularly in terms of improved accessibility, administrative efficiency, service quality, stakeholder satisfaction, and organisational capacity. These results suggest that the policy has largely achieved its intended objectives and has delivered tangible benefits to users and implementing organisations. Therefore, the outcome dimension of SPBE implementation can be categorised as positive. Nevertheless, improvements in system integration, service optimisation, and continuous capacity development remain necessary to ensure that these benefits can be sustained and further expanded in the future.

4. CONCLUSION

The findings indicate that SPBE implementation has generally performed well across all evaluation dimensions. From the input perspective, the programme was supported by increased budget allocations, adequate human resources, improved information technology infrastructure, and continuous training activities. The process dimension demonstrated that implementation followed a structured sequence of planning, development, testing, and deployment, supported by inter-unit coordination and collaboration with external partners. In terms of outputs, the programme successfully generated seven digital educational services that were actively utilised by stakeholders, with service transactions exceeding 15,000 per month and generally positive user satisfaction levels. Furthermore, the outcome dimension revealed significant benefits, including improved accessibility to educational services, enhanced administrative efficiency, stronger organisational collaboration, increased stakeholder satisfaction, and the development of digital competencies among personnel. Nevertheless, challenges related to data integration, uneven digital competencies, infrastructure disparities, and resistance to organisational change remain important issues requiring further attention.

The findings suggest that the successful implementation of SPBE depends not only on the availability of resources but also on the capacity of organisations to manage technological, organisational, and human factors in an integrated manner. Future research may expand the scope of analysis by examining SPBE implementation across multiple local government sectors or conducting comparative studies between regions with different levels of digital maturity. In addition, future studies could integrate complementary theoretical frameworks, such as the Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT), or Information Systems Success Model (IS Success Model), to better understand user acceptance, technology utilisation, and long-term service effectiveness. Such approaches would contribute to a more comprehensive

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understanding of digital government implementation and provide broader policy recommendations for strengthening public sector digital transformation.

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