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Evaluation of Electronic-Based Government System (SPBE) Implementation by The Palembang City Government: Analysis of System Integration, Data Utilization, and Public Service Orientation Based on Secondary Data from 2024-2025

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ABSTRACT

The implementation of the Electronic-Based Government System (Sistem Pemerintahan Berbasis Elektronik, SPBE) at the local government level requires the integration of digital systems, effective data utilization, and public service delivery within a coherent governance framework. This study aimed to evaluate SPBE implementation by the Palembang City Government using secondary data from 2024–2025, focusing on system integration, data utilization, and citizen-centered public service delivery. Guided by a citizen-centric digital government perspective, the study employed a qualitative, document-based case study approach. Data sources included official Palembang City Government documents, regulations, performance reports, SPBE evaluation documents, government data portals, and relevant academic literature. Data collection involved document identification, selection, extraction, classification, and cross-source verification. Source triangulation and an audit trail were employed to enhance the trustworthiness of the findings, while qualitative content analysis, thematic coding, categorization, comparative matrices, and gap analysis were used to examine the documentary evidence. The findings revealed that Palembang achieved an SPBE index score of 3.51 in 2024, with 36 electronic government systems reported as integrated and network connectivity established across all regional government agencies. The government's data management ecosystem was supported by the Satu Data (One Data) platform and related institutional arrangements, while its public service orientation was reflected in a Community Satisfaction Index (Indeks Kepuasan Masyarakat, IKM) score of 90.26 in 2024. These findings indicated that Palembang had established foundational capabilities in digital system integration, data governance, and public service delivery. However, documentary evidence demonstrating operational interoperability and the systematic use of government data in decision-making remained limited. The study recommended strengthening cross-system interoperability, improving the traceability of data utilization in administrative decision-making, and conducting longitudinal evaluations of digital public service performance.

INTRODUCTION

Digital government transformation has become a global policy priority, as technology is increasingly used not only to digitize administrative procedures but also to develop integrated, data-driven, and citizen-centered public services. The United Nations E-Government Survey 2024 ranked Indonesia 64th among 193 countries, with an E-Government Development Index (EGDI) score of 0.7991, placing it in the very high EGDI category (Nations, 2024). Although these achievements indicate progress at the national level, recent research has emphasized that digital government transformation varies in maturity across institutions and cannot be adequately assessed solely through increased technology adoption (Bamberg & Möser, 2007).

Indonesia's national policy framework provides a regulatory foundation for digital government integration through Presidential Regulation No. 95 of 2018 concerning the Electronic-Based Government System (Sistem Pemerintahan Berbasis Elektronik, SPBE) (Government of the Republic of Indonesia, 2018) and Presidential Regulation No. 132 of 2022 concerning the National SPBE Architecture (Government of the Republic of Indonesia, 2022). The national architecture establishes policy directions, architectural frameworks, domains, reference architectures, and strategic initiatives to promote coordinated digital government development and prevent fragmented information systems across government institutions. Research on public sector digital transformation has demonstrated that successful transformation depends on organizational change, governance arrangements, institutional capacity, and the effective integration of technology into government processes (Moser-Plautz & Schmidthuber, 2023).

Official data from the South Sumatra Provincial Government indicated that the province achieved an SPBE index score of 3.00 in 2024, corresponding to the "Good" category, while Palembang City recorded a score of 3.51, corresponding to the "Very Good" category. However, Palembang's score remained below those of Musi Banyuasin Regency (3.62) and Ogan Komering Ilir Regency (3.55) (South Sumatra Provincial Government, 2025). These regional differences are consistent with findings from Indonesian research indicating that local government e-government maturity is influenced not only by technological capabilities but also by organizational factors and institutional environments (Yeremias Cahyadi D. & Djunaedi, 2024).

The Palembang City Regional Medium-Term Development Plan (Rencana Pembangunan Jangka Menengah Daerah, RPJMD) reported 36 integrated electronic government systems in 2024, network connectivity across 100% of regional government agencies (Organisasi Perangkat Daerah, OPDs), an average network speed of 1,000 Mbps, and an SPBE index score of 3.51 (Palembang City Government, 2025a). Meanwhile, the Palembang City Government Performance Report recorded an increase in the SPBE index from 2.66 in 2023 to 3.51 in 2024, whereas the RPJMD reported a score of 2.70 for 2023. These discrepancies were retained as reported in their respective official documents rather than being combined into a single reconstructed statistical series (Palembang City Government, 2025b).

Nevertheless, these achievements did not necessarily demonstrate substantive interoperability among government information systems or the effective utilization of data to improve citizen-centered public services. Previous research has indicated that open

government data and digital infrastructure generate public value when data extend beyond publication and are actively accessed, exchanged, integrated, and utilized in government operations and service delivery (Wirtz et al., 2022). Similarly, research on data collaboration in digital governance has emphasized the importance of interagency data-sharing mechanisms, demonstrating that the availability of digital infrastructure does not automatically ensure integrated data utilization (Schmeling al Dakruni S. & Mergel, 2025).

The normative framework for this study was based on the SPBE policy orientation, which emphasizes the integration of information and communication technology into government administration and public service delivery. Presidential Regulation No. 132 of 2022 established the architectural framework for developing and aligning SPBE infrastructure across government institutions, including regional governments (Government of the Republic of Indonesia, 2022). Furthermore, Indonesia's digital government evaluation framework underwent a regulatory transition through Minister of Administrative and Bureaucratic Reform Regulation No. 8 of 2026 concerning Digital Government Performance Evaluation, which took effect on June 5, 2026, and revoked Ministerial Regulation No. 59 of 2020 (Ministry of PANRB, 2026).

From a digital government perspective, public service orientation extends beyond the availability of electronic service channels to encompass accessibility, responsiveness, user experience, and meaningful citizen engagement. A review of 66 articles identified citizen-centricity as a multidimensional concept involving governmental characteristics, the role of technology, and citizens' positions in their relationships with public institutions (Shah Peristeras V. & Magnisalis, 2024; Sundberg & Holmström, 2024). Research on digital public service interfaces has also demonstrated that the characteristics of digital service channels are associated with user experiences and satisfaction, indicating that the assessment of electronic public services should consider the quality of interactions between government institutions and citizens (Prokop & Tepe, 2022).

The analytical framework of this study focused on three interconnected dimensions of digital government transformation: system integration, data utilization, and public service orientation. Research on digital infrastructure innovation has demonstrated that information integration can facilitate public value creation by connecting institutional actors, administrative processes, and information resources (Rukanova et al., 2023). Furthermore, digital government transformation may encounter technological, organizational, human resource, data-related, economic, social, and legal challenges, suggesting that evaluation frameworks should extend beyond isolated measurements of digital infrastructure development (Challenges of Digital Services in Public Administration, 2026).

Previous studies have addressed important aspects of digital government transformation but have not fully integrated these three dimensions into a single evaluative framework. Moser-Plautz and Schmidthuber (2023) examined digital transformation as an organizational response and demonstrated that the extent of digital change varied according to institutional characteristics and responsibilities. Sundberg and Holmström (2024) explored the conceptual foundations of citizen-centricity in digital government, while Rukanova et al. (2023) developed a framework explaining public value creation through information exchange enabled by digital infrastructure. Collectively, these studies provided conceptual foundations

for examining organizational transformation, citizen-centered governance, and information integration, although their analytical emphases differed from the present study.

At the Indonesian local government level, previous research has primarily examined the determinants of e-government maturity or assessed performance through maturity indices. Yeremias et al. (2024) employed the technology–organization–environment (TOE) framework to investigate factors influencing e-government maturity among Indonesian local governments. Meanwhile, previous research in Palembang assessed the maturity of the SPBE service domain using an e-government maturity model (Pratama Herdiansyah M. I. Sutabri T. Amin Z. & Ependi, 2025). These studies provided valuable insights into institutional readiness and digital government performance. However, a research gap remained concerning document-based evaluations that simultaneously examined system integration, data utilization, and public service orientation within a single municipal government.

Regulatory developments in 2026 further strengthened the relevance of this evaluation approach. Minister of Administrative and Bureaucratic Reform Regulation No. 8 of 2026 concerning Digital Government Performance Evaluation established an evaluation framework incorporating self-assessment, document assessment, and interviews (Ministry of PANRB, 2026). In the present study, this regulation served as a normative reference for interpreting digital government performance, while the empirical analysis was restricted to secondary data from 2024–2025. A document-based approach was adopted to ensure that the evaluation remained grounded in verifiable official records without introducing unsupported interview or survey findings.

Accordingly, this study aimed to evaluate SPBE implementation by the Palembang City Government across three dimensions: system integration, data utilization, and public service orientation. The evaluation drew on secondary data from 2024–2025 and considered the regulatory context established in 2026. Unlike studies focusing exclusively on SPBE index scores or determinants of e-government maturity, this research examined the relationships among reported performance achievements, documentary evidence of implementation, regulatory requirements, and identified governance gaps. This approach aligned with developments in digital government research emphasizing data integration, organizational transformation, public value creation, and citizen-centered service delivery (Schmeling et al., 2025; Sundberg & Holmström, 2024).

The novelty of this study lay in its integrated, document-based evaluation of digital government performance rather than in the measurement of the SPBE index itself. Specifically, the study examined whether reported digitalization achievements were supported by documentary evidence of operational system integration, data availability and utilization, and citizen-centered public service delivery. Its practical contribution was to provide an evidence-based analytical framework that could help local governments distinguish improvements in formal SPBE performance indicators from substantive advances in digital government integration and service quality. By examining Palembang City's documented achievements within the evolving national policy framework, the study sought to identify implementation gaps and inform future improvements in integrated, data-driven, and citizen-centered digital governance.

METHOD

Research Approaches and Strategies

This study employed a qualitative approach using a document-based case study to evaluate the implementation of the Electronic-Based Government System (Sistem Pemerintahan Berbasis Elektronik, SPBE) by the Palembang City Government during 2024–2025, with reference to the 2026 policy context. Data were obtained from policy documents, performance reports, planning documents, SPBE implementation records, and publicly available administrative evidence. Document analysis was conducted to examine the content, interrelationships, and consistency of these sources (Bowen, 2009).

The empirical analysis was limited to 2024–2025, while the 2026 policy documents were used solely to contextualize changes in the digital government evaluation framework. This distinction ensured that regulatory developments in 2026 were not interpreted as evidence of implementation outcomes. Accordingly, the 2026 regulatory framework served as a normative reference for interpreting the documented implementation of SPBE during the study period.

Data Sources and Types

The research data is all in the form of secondary data obtained from official documents of the Palembang City Government, provincial governments, ministries/institutions, national regulations, and relevant scientific publications. The documents used include planning documents, performance reports, SPBE evaluation documents, regulations, information about government systems and data, as well as documents describing the implementation of digital public services.

Document selection is carried out purposively (based on research objectives) by considering the direct relevance to the three dimensions of the analysis, namely system integration, data utilization, and public service orientation. Documents are selected based on the authority of the publisher, relevance to the research object, period of publication, and sufficiency of information that can be used as evidence of implementation. The use of documents as a source of qualitative data requires examining the relevance, credibility, and context of the document before the information is used in the analysis (Bowen, 2009).

Data Collection Techniques and Instruments

Data collection is carried out through searching, downloading, checking, and archiving publicly available documents on official government websites and scientific sources. Each document is recorded based on the name of the document, publishing agency, year of publication, type of document, relevant substance, and its relevance to the focus of the research. The procedure is used to maintain traceability of the source and ensure that any information analyzed can be traced back to the original document.

Referring to the document analysis approach, the data collection and examination process is carried out systematically through the following stages (Bowen, 2009):

1. **Document identification.**

   The identification stage is carried out by finding official documents related to the SPBE of the Palembang City Government and the 2024–2025 empirical data period with the context of the 2026 policy. The search is directed to documents that provide information about the digital government system, government data, system integration, and the implementation of public services.

2. **Document selection.**

The selection stage is carried out by considering the relevance of the content, the authority of the publisher, the period of the document, and the adequacy of information to answer the research question. Documents that do not have verifiable publisher sources or do not provide substantive information are excluded from the corpus of analysis.

3. **Data extraction.**

The extraction stage is carried out by recording information related to system integration, data utilization, and public service orientation. Relevant information is recorded in an analysis matrix so that evidence from various documents can be systematically compared.

4. **Data classification.**

The classification stage is carried out by grouping information based on the three dimensions of the research and the indicators that have been determined. The classification is used to distinguish evidence related to systems, data, and services and to identify interdimensional relationships.

5. **Cross-verification.**

The cross-verification stage is carried out by comparing information between documents and between issuing agencies. Comparisons are used to find suitability, differences, inconsistencies, or gaps in information relevant to the evaluation of SPBE implementation.

The research instrument is in the form of a document analysis matrix sheet that contains the identity of the document, relevant evidence, code, category, analysis dimensions, and interpretation of the researcher. The recording forms an audit trail (audit trail) that allows the analysis process to be traced back from the findings to the underlying documents and evidence. Procedural documentation is an important part of maintaining the transparency of document-based research (Ahmed, 2024; Goossens Keymolen E. & Stanojević, 2025; Miles & Huberman, 2014; Rogger & Schuster, 2023).

Inclusion and Exclusion Criteria

Selection criteria are necessary so that the analyzed documents have a direct relationship with the object and period of the research. Normative, evaluative, administrative, and empirical documents can be used as long as they provide relevant information to assess the implementation of the Palembang City Government's SPBE. The selection is not based solely on the form of the document, but on the ability of the document to provide verifiable evidence.

The inclusion and exclusion criteria are set as follows:

a) **Inclusion.**

Documents are included in the research corpus if they are published or endorsed by relevant government agencies, discuss SPBE, digital government systems, government data, service integration, or digital public services, as well as relate to the empirical data period 2024–2025 or provide the normative context needed to read policy developments in 2026.

b) **Exclusion.**

A document is issued if it does not have a verifiable source of publisher, is only promotional without substantive evidence, is not directly related to the object of the

research, is a duplicate document, or does not provide additional information relevant to the dimensions of the analysis.

These criteria are used to form a corpus of documents that have substantive relevance and traceability of sources. The explicit application of the criteria also limits the entry of information that cannot be used to support the evaluation of SPBE implementation academically.

Analysis Units and Documents Analyzed

The unit of research analysis is the implementation of the Palembang City Government's SPBE as represented in the secondary document. The Palembang City Government is placed as a single case, while official documents are used as a source of evidence to assess the conditions of implementation based on the three dimensions of the research, namely system integration, data utilization, and public service orientation.

The analyzed documents are selected purposively until information relevant to the three dimensions of the analysis is adequately covered. The study did not use a population and sample of respondents because it did not involve surveys, interviews, or field observations. The selection of documents as a source unit allows the study to focus its evaluation on evidence that is already publicly available and can be re-examined.

Document-based design is also used in the study of digital transformation and bureaucratic reform in Indonesia by utilizing policy documents and institutional sources as analysis materials (Ardiputra, 2024). The position of this research remains different because the document corpus is specifically directed to the implementation of SPBE in Palembang City and is analyzed through three dimensions that have been determined.

Data Analysis Techniques

Data analysis uses qualitative content analysis with a combination of deductive coding and inductive coding. Initial code is derived from the three dimensions of the study, while additional code is developed when important information is found that has not been accommodated in the initial framework. The document data is then condensed, presented in a matrix, compared, and interpreted based on the evidence patterns found.

The stages of analysis are carried out as follows:

1. **Data condensation.**

   Information from the document is selected and summarized based on its relevance to the research question. Parts that do not relate to the three dimensions of the analysis are not included in the interpretation process.

2. **Coding**.

   Evidence related to system integration, data utilization, and public service orientation is coded based on a predetermined analysis category. Codes are used to maintain consistency in the identification of evidence between documents.

3. **Categorization**.

   Codes that have substantive similarities are grouped into research categories and indicators. This stage is used to identify patterns and relationships between evidence derived from different documents.

4. **Comparison matrix.**
   Evidence is compared between documents, between years, and between issuing agencies. Comparisons are used to identify consistency, changes, differences in records, and information gaps.
5. **Gap analysis.**
   Documented implementation conditions are compared to the policy direction, standards, and objectives of SPBE as well as the context of Digital Government evaluation. Analysis is not used to declare absolute success or failure if the documentary evidence is insufficient.
6. **Withdrawal of interpretation.**
   Interpretations are formulated based on the consistency, adequacy, and strength of evidence found in the corpus of documents. Analytical conclusions are limited to the conditions that can be supported by the available documents.

Thematic analysis is used to identify substantive patterns that emerge from the document set, while gap analysis is used to look at the distance between normative standards and documented implementation conditions. Thematic analysis is an approach that can be used to systematically identify and develop patterns or themes in qualitative data (Braun & Clarke, 2021). The use of both techniques allows research to connect empirical evidence with an evaluative framework without transforming the research design into causal relationship testing.

Data Validity

The validity of the data is maintained through source triangulation, which is comparing information from various documents and issuing agencies. Evidence that only appears in one document is not immediately treated as a general pattern if it does not have adequate support or comparative context. Triangulation is used to test the consistency of information while identifying differences in records between documents.

The quality of qualitative research can be assessed through credibility, transferability, dependability, and confirmability (Ahmed, 2024). This study applies these principles through source triangulation, explicit document selection criteria, recording of the coding process, storage of analysis matrices, and audit trail documentation.

The principle of trustworthiness is also related to the transparency of the analysis procedure and the traceability of the relationship between evidence, interpretation process, and research findings. Hanson et al. show that the Guba and Lincoln criteria can be used to assess the reliability of qualitative research through systematic procedures and in accordance with the character of the data used (Hanson et al., 2023). The application of these principles in this study is realized through documentation of the process of selection, coding, comparison, and interpretation of documents.

Analysis Tools

Data processing can be done using Microsoft Excel or qualitative analysis software such as NVivo or ATLAS.ti to organize documents, structure code, group themes, and build comparison matrices. The software serves as a tool for organizing and searching data, while decisions about code, categories, relationships between themes, and interpretation are determined based on the conceptual framework and document evidence.

The design of the analysis allows the research process to be traced back through the source of the document, the selection criteria, the dimensions of the analysis, the coding matrix, and the supporting evidence. Such transparency is important because the reliability of qualitative research depends not only on the final results, but also on the traceability of the procedures used to produce the interpretation (Ahmed, 2024); (Hanson et al., 2023).

RESULTS AND DISCUSSION

The results of the document analysis show that the implementation of the Palembang City Government's Electronic-Based Government System (SPBE) in the 2024–2025 empirical data period has been supported by the development of indicators of system integration, regional apparatus connectivity, government data provision, and public services. The analysis of the research results is focused on three dimensions, namely system integration, data utilization, and public service orientation. Data for 2026 is used as a policy context and is not treated as evidence of performance realization if the source document does not provide adequate empirical evidence.

Integration of Electronic-Based Government Systems

The Palembang City Government document shows the development of network system and infrastructure integration indicators that can be used to read the conditions of SPBE implementation longitudinally. These indicators include the number of integrated e-government systems, the percentage of regional devices connected to the network, the average network speed, and the SPBE index.

Table 1. Development of SPBE System Integration Indicators of the Palembang City Government in 2021–2025

Indicator	2021	2022	2023	2024	2025
Integrated *e-government* system	10	17	35	36	32*
OPDs connected *to e-government* networks (%)	100	100	100	100	100
E-government *network speed* (Mbps)	1.000	1.000	1.000	1.000	1.000
SPBE Index	2,66	2,66	2,70**	3,51	—

Sources: Palembang City RPJMD for 2025–2029 and Palembang City LKjIP for 2024

The number of e-government systems recorded as integrated increased from 10 systems in 2021 to 17 systems in 2022, 35 systems in 2023, and 36 systems in 2024. The Palembang City RPJMD also noted that all OPDs have been connected to the e-government network from 2021 to 2024, while the average network speed was recorded at 1,000 Mbps in the same period (Palembang City Government, 2025). This condition shows that network connectivity between regional departs has been documented as part of the digital government infrastructure.

The Palembang City SPBE Index was recorded at 3.51 in 2024. The Palembang City LKjIP recorded a value of 2.66 in 2023 and 3.51 in 2024, while the RPJMD listed 2.70 for 2023 (Palembang City Government, 2025a); (Palembang City Government, 2025b). The difference in recording is not reconstructed into a single number because the two documents have different administrative functions and the research maintains the values as listed in their respective sources.

The Palembang City planning document for the 2025–2029 period also places digital governance in a number of planning components that include strategy and plan, governance and management, digital technology, digital technology audits, and security. These components are treated as directions and planning instruments, not as evidence of the realization of 2026 performance (Palembang City Government, 2025b).

Utilization of Government Data

The secondary document shows that the Palembang City Government has provided institutional infrastructure for the publication and access of government data through the One Data Palembang portal. The portal provides search and access facilities for local government data and displays information on available organizations, topics, and datasets (Palembang City Government, 2025c). The existence of the portal is documentary evidence regarding the provision of public data access infrastructure.

Findings regarding data utilization can be grouped based on documentary evidence as follows:

1. **Data portal availability.**

   The availability of the One Data Palembang portal shows the existence of an institutional mechanism to centrally provide and access local government data. The portal explicitly provides data search facilities and displays information about the dataset and related organizations (Palembang City Government, 2025c).

2. **Availability Dataset sectoral.**

   The One Data Palembang Catalog provides a variety of sectoral data that can be accessed through the portal. The availability of data in the catalog shows that the provision of data is not only at the policy level, but has been translated into a mechanism for publishing local government data (Palembang City Government, 2025d).

3. **Strengthening data institutions.**

   Institutional strengthening is shown by the Decree of the Mayor of Palembang Number 403 of 2025 concerning the Establishment of the One Data Indonesia Forum at the Palembang City Level. The establishment of the forum shows the existence of a coordination structure that is specifically directed to support the implementation of One Data at the city government level (Palembang City Government, 2025e).

The availability of One Data portals, datasets, and institutions indicates that the provision of public data already has a documented form of institutional and infrastructure. The available secondary evidence has not directly demonstrated the frequency of use of datasets by regional apparatus, the mechanisms of its use in the decision-making process, or the impact of its use on policy. The findings of the study are therefore limited to the aspects of availability, access, and institutionalization of data that can be verified through documents.

Public Service Orientation

The orientation of public services is analyzed through indicators available in the Palembang City Government's performance and planning documents. The main indicators used include the Community Satisfaction Index (IKM), disclosure of development information, connectivity of regional apparatus, and the existence of satisfaction measurements in service units.

The Palembang City LKjIP recorded an IKM of 90.26 in 2024, an increase from 88.38 in 2023. The IKM target in 2024 was recorded at 87.75, while the final target for 2026 was

set at 90.00 (Palembang City Government, 2025a). The data shows an increase in public satisfaction indicators in performance documents, but is not used as causal evidence that the increase is due to the digitalization of services.

The development information disclosure index was recorded to increase from 80.5 in 2023 to 81.5 in 2024. The RPJMD also noted that the percentage of OPDs connected to the e-government network was 100% and the number of integrated e-government systems was 36 systems by 2024 (Palembang City Government, 2025b). The three indicators are used as documentary evidence on the condition of digital government and public services, not as a basis for concluding the cause-and-effect relationship between indicators.

Service documents at the regional apparatus level show that IKM measurements are carried out periodically. The Palembang City DPMPTSP provides IKM documents for the first semester and second semester of 2024 as well as the first semester and the second semester of 2025 (Palembang City DPMPTSP, 2025). The availability of these documents shows that the measurement of community satisfaction has become part of the service evaluation mechanism at the regional apparatus level.

Table 2. Development of Public Service Orientation Indicators of the Palembang City Government

Indicator	2023	2024	Target 2026	Indicator
Community Satisfaction Index	88,38	90,26	90,00	Community Satisfaction Index
SPBE Index	2,70*	3,51	—	SPBE Index
Disclosure of development information	80,5	81,5	—	Disclosure of development information

Sources: LKjIP of the Palembang City Government in 2024 and the Palembang City RPJMD in 2025–2029.

The data in Table 2 shows an increase in IKM from 88.38 in 2023 to 90.26 in 2024 and an increase in development information disclosure from 80.5 to 81.5. These changes show an increase in service indicators and information disclosure documented in local government documents. The data is not enough to state that the increase in IKM or information disclosure is a direct result of the implementation of SPBE because the study does not use causal design and does not have primary data on user experience.

The analyzed documents show that the indicators of SPBE, network connectivity, system integration, data provision, and community satisfaction have been used simultaneously in the Palembang City Government's performance and planning documents. Evidence for 2025 is more widely available in the form of planning, institutional, and service measurement documents, while the 2026 policy is used as a context for the development of the Digital Government's evaluation framework. The research's empirical findings are therefore limited to realizations explicitly recorded in the source documents until 2025.

Discussion

The implementation of the Palembang City Government's Electronic-Based Government System (SPBE) in the 2024–2025 empirical data period is characterized by three

main patterns, namely strengthening system and network integration, the availability of a government data ecosystem, and improving public service indicators. These three patterns show that the implementation of SPBE can not only be read through index values, but also through system connectivity, data availability, and documented service indicators. The next discussion connects these findings with previous concepts and research to assess the meaning of their implementation in the context of digital governance.

System Integration as a Dimension of SPBE Implementation

The availability of 36 e-government systems that are recorded as integrated and the connectivity of 100% of OPDs to the e-government network shows that integration has become part of the digital government infrastructure of the City of Palembang. The findings indicate that there is a technical capacity and network that supports the implementation of digital governance. The evidence has not automatically shown that the entire system has achieved substantive interoperability because the data analyzed does not contain technical testing on data exchange or process integration between systems.

This condition is in line with the research of Kasiwi et al. which shows that digital governance transformation requires interoperability across organizations, alignment of standards, semantic conformity, and cross-sector governance mechanisms (Eom & Lee, 2022; Gong & Yang, 2024; Güler & Büyüközkan, 2023; Kalogirou Stasis A. & Charalabidis, 2022; Kasiwi Wahyuni H. I. & Ratminto, 2025). The study also shows that the existence of systems that stand in different organizations is not enough to produce integration if it is not accompanied by a coordination and alignment mechanism between systems. These findings strengthen the position of this study that the number of integrated systems needs to be read along with the quality of intersystem relationships.

Prabowo et al.'s research on the digital transformation of local government digital governance also shows that strengthening digital governance requires the integration of multidimensional coordination systems and mechanisms (Prabowo Maryani D. Kawuryan M. W. & Wargadinata, 2026). The study uses interviews, document analysis, and observations to provide evidence that integration issues are not only technical, but also related to institutional coordination and government implementation practices. Palembang's findings are consistent in terms of integration needs, but this study does not yet have primary data to assess internal coordination or actual interoperability.

Wahyuni's research on the integration of Digital Public Services Mall applications also shows that application and data integration can support the integration of service delivery when the inter-organizational system functions as a single service ecosystem (Wahyuni, 2024). The findings provide context that network connectivity is the foundation, while the integration of applications, data, and processes is a more substantive stage. This position makes the number of 36 systems and 100% connectivity as documented evidence of integration capacity, not as final evidence of interoperability.

Data Utilization and Governance Strengthening

The existence of the One Data portal, the dataset catalog, and the establishment of the One Data Forum show that data management has acquired an institutional form in the implementation of the Palembang City government. The findings show that there is an infrastructure for data publication, access, and coordination that can support the implementation of information-based government. The existence of this infrastructure cannot

be used to conclude the intensity of data utilization in the government's internal processes because evidence on actual use is not adequately available in the documents analyzed.

Maulana et al.'s research shows that the digital transformation of Indonesian government is evolving towards a collaborative ecosystem that connects organizational readiness, technology, citizen-oriented services, and the involvement of various stakeholders (Margariti Stamati T. Anagnostopoulos D. Nikolaidou M. & Papastilianou, 2022; Maulana Sutan A. Romadhon A. & Hartati, 2026) . The study uses documentary analysis and secondary data and finds the linkage between organizational readiness, citizen-oriented services, and service delivery. The findings support the reading that data infrastructure needs to be placed in a governance ecosystem that connects organizations, technologies, and services.

This perspective has consequences for the interpretation of Palembang's findings. The dataset portal and catalog show the availability of data resources, while the One Data Forum shows the existence of an institutional mechanism for coordination. The evidence does not show how often data is used by regional apparatus, how data is exchanged in internal processes, or the extent to which data influences policy decisions. The limits of this evidence are important so that the availability of data is not equated with the use of data.

Research on the integration of technology in public services also places data integration as part of an organization's ability to strengthen coordination and service delivery (Salam Asmar & Rosalin, 2025). Palembang's findings support the existence of institutional prerequisites and data infrastructure, while evidence on the use of data in decision-making still requires more specific documentation. These conditions show that the dimension of data utilization is an area that still needs to be strengthened in the implementation of SPBE.

Public Service Orientation

The increase in the Community Satisfaction Index from 88.38 in 2023 to 90.26 in 2024 shows an increase in satisfaction indicators recorded in the Palembang City Government's performance documents. The findings are treated as changes in public service indicators, not as evidence that the digitization of SPBE directly leads to increased public satisfaction. The document-based research design does not allow testing the causal relationship between digital implementation and changes in user satisfaction.

Ye et al.'s research shows that the quality of digital government services can be assessed through various aspects related to citizens' needs and assessments, including efficiency, service quality, service attitudes, compliance, and government response (Ye et al., 2023). The findings show that the existence of digital services is not enough to describe the quality of services because user experience and assessment are an important part of the evaluation. This perspective supports the use of public satisfaction indicators as one of the evidence of service orientation, but does not make it the only measure of digital service quality.

Studies on digital-based public service transformation also show that digitalization needs to pay attention to accessibility, user experience, organizational capacity, and digital divide (Latupeirissa Dewi N. L. Y. Prayana I. K. R. Srikandi M. B. Ramadiansyah S. A. & Pramana, 2024). Service orientation is therefore not sufficiently understood through the number of applications or the availability of electronic channels. The relationship between integrated systems, available data, service access, and community satisfaction indicators needs to be read as an interrelated series.

Palembang's findings show that public satisfaction indicators have increased along with documented system integration, regional device connectivity, and data provision. These temporal relationships cannot yet be interpreted as cause-and-effect relationships because the study did not examine the mechanisms linking digitalization to changes in community satisfaction. A defensible interpretation is that public service indicators are evolving in a government environment that at the same time shows a strengthening of digital capacity.

Synthesis of Findings with Previous Research

The comparison of research findings with previous research is used to place the case of Palembang City in the development of digital government studies. The comparison is not intended as a statistical test because previous research has different objects, designs, data sources, and contexts.

Table 3. Comparative Synthesis of Research Findings with Previous Research

Dimensions of analysis	Research findings in Palembang City	Previous research findings
System integration	There are 36 *e-government systems* that are recorded as integrated and 100% of OPDs are connected to *the e-government* network.	Digital governance integration requires interoperability across organizations, alignment of standards, semantic conformity, and governance mechanisms (Kasiwi et al., 2025).
Data utilization	There is a One Data portal, *a dataset* catalog, and a city-level One Data Indonesia Forum.	Digital transformation is evolving towards a collaborative ecosystem that connects organizational readiness, technology, citizen-oriented services, and stakeholder engagement (Maulana et al., 2026).
Service onboarding	IKM was recorded at 90.26 in 2024 and increased from 88.38 in 2023.	The quality of digital government services is related to efficiency, quality, service attitudes, compliance, and response to citizens' needs (Ye et al., 2023).
SPBE governance	The SPBE indicator is used in the planning and performance documents of the Palembang City Government.	The transformation of local government digital governance requires the integration of cross-dimensional coordination systems and mechanisms (Prabowo et al., 2026).

Sources: Processed from the results of previous research and research (Kasiwi et al., 2025); (Maulana et al., 2026); (Ye et al., 2023); (Prabowo et al., 2026).

The table shows that Palembang's findings are in line with the development of digital governance studies that place integration, data, services, and governance as interrelated dimensions. These similarities are especially evident in the importance of interoperability, data ecosystems, citizen orientation, and institutional coordination. The main difference in this study lies in the use of documentary evidence of local governments as the basis for evaluation without interviews, surveys, or field observations.

Research Contributions

The contribution of the research lies in the incorporation of three dimensions of analysis in a single evaluation of document-based SPBE implementation. System integration, data utilization, and service orientation are not analyzed as stand-alone indicators, but are placed within a single framework to read the interconnectedness between the government's digital capacity and the delivery of public services.

Research on the maturity of e-government in Indonesian local governments shows that technological, organizational, and environmental factors play a role in shaping the maturity level of digital government (Yeremias et al., 2024). This study takes a different position by narrowing the unit of analysis in the Palembang City Government and linking the evidence of implementation at the system, data, and service levels. This position allows the achievement of the index to be read together with documentary evidence about the implementation process and capacity.

The practical contribution of the research is in the form of a reading framework that can be used to examine whether the achievements of SPBEs in performance documents are supported by evidence at the system, data, and service levels. The framework is also in line with the study of socio-technological integration which shows that the implementation of digital governance is related to the relationship between technology, transparency, public participation, and institutional context (Hertati et al., 2026). This position expands the reading of SPBE from mere technological achievements to the linkage between technological capacity and government functions.

Research Limitations

Secondary data-driven research has limitations in the depth of evidence regarding the use of systems and data practices at the internal level of the organization. Information on the frequency of use of datasets, apparatus experience, actual interoperability, and service user experience cannot be inferred if they are not explicitly documented. These limitations are a direct consequence of methodological choices that place public documents as the primary source of data.

The limitations of the use of secondary data were also found in Maulana et al.'s research on collaborative digital transformation in Indonesia. The study used documentary analysis and did not involve stakeholder interviews, so generalizations on the actors' experiences were limited (Maulana et al., 2026). These similarities reinforce the importance of distinguishing evidence on institutional capacity from evidence on actual practice.

The difference in the recording of indicators between documents is also a methodological concern in this study. Different values for certain indicators are maintained according to the source document and are not reconstructed into a single statistical series if the measurement context cannot be ascertained to be identical. This procedure maintains data traceability while preventing the harmonization of numbers that do not have a documentary basis.

Implications for SPBE Development

The findings of the study show several areas that can be of concern in the development of the Palembang City Government's SPBE. These implications are directed at strengthening the relationship between systems, data, and services so that the achievement of digitalization does not stop at the provision of infrastructure.

Strengthen interoperability between systems.

Strengthening interoperability can be directed at the alignment of technical, semantic, organizational, and data governance standards. Research by Kasiwi et al. shows that cross-organizational integration requires common standards and coordination mechanisms so that system integration does not stop at formal connectivity (Kasiwi et al., 2025). The implication

for Palembang is the need to strengthen evidence of information exchange and process integration between systems in addition to maintaining network connectivity.

Connecting One Data to Decision Making.

The availability of portals and datasets needs to be followed by mechanisms that can demonstrate the use of data in government processes. Research on collaborative digital transformation shows the importance of the relationship between organizational readiness, data, services, and stakeholder engagement (Maulana et al., 2026). The implications for Palembang are the need for documentation on the use of datasets in planning, performance monitoring, coordination across regional apparatus, and decision-making.

Connecting the SPBE indicator with the service indicator.

SPBE measurement can be read together with indicators of service quality and community satisfaction. Ye et al.'s research shows that the quality of digital government services is related to various dimensions of citizen experience, so that service measurement is not enough based on the existence of electronic channels (Ye et al., 2023). The implication for Palembang is the need to strengthen the relationship between digital achievement, service quality, accessibility, and user experience.

Develop longitudinal evaluations.

Longitudinal evaluations are needed to compare changes in system integration, data utilization, and service orientation from year to year. Such comparisons can help distinguish digital capacity building from more substantive changes in implementation quality. Consistent documentation of indicators can also reduce the difficulty of comparing data between years.

These four implications place SPBE development as a process that connects technology capacity, governance, data utilization, and service outcomes. Follow-up research can expand documentary evidence through apparatus interviews, system usage log analysis, interoperability testing, and user surveys so that documented conditions can be compared with actual practices in the field.

CONCLUSION

This study demonstrated that the implementation of the Electronic-Based Government System (Sistem Pemerintahan Berbasis Elektronik, SPBE) by the Palembang City Government was supported by government system integration, network connectivity among Regional Government Agencies (Organisasi Perangkat Daerah, OPDs), the establishment of a data ecosystem, and public service performance measurement. The SPBE Index score of 3.51 in 2024 and the Community Satisfaction Index (Indeks Kepuasan Masyarakat, IKM) score of 90.26 provided key documentary evidence for evaluating SPBE implementation. The SPBE Index score of 3.51 was also reported in the Palembang City Government Performance Accountability Report (Laporan Kinerja Instansi Pemerintah, LKjIP) for 2024 as an indicator of regional SPBE performance.

Regarding system integration, government documents reported 36 integrated e-government systems and network interoperability across 100% of OPDs. These findings indicated that the foundational infrastructure for system integration had been established. However, the availability of this infrastructure did not necessarily demonstrate substantive interoperability at the technical, semantic, organizational, and data governance levels, which are essential components of digital government interoperability.

Regarding data utilization, the establishment of the One Data portal, dataset catalog, and the Palembang City One Data Indonesia Forum (Forum Satu Data Indonesia) indicated that data provision and management had an institutional foundation. However, the available documentary evidence did not adequately demonstrate the frequency or mechanisms through which OPDs utilized datasets in decision-making processes. Therefore, the availability of data infrastructure could not be considered equivalent to its effective utilization.

Regarding public service orientation, the Community Satisfaction Index (IKM) increased from 88.38 in 2023 to 90.26 in 2024, indicating an improvement in satisfaction indicators reported in local government performance documents. However, this increase could not be interpreted as causal evidence that SPBE digitalization directly improved community satisfaction, as the study did not employ an empirical design capable of isolating the effects of SPBE implementation on changes in the IKM. This interpretation was consistent with research emphasizing that digital service quality should be assessed across multiple dimensions of service delivery and citizen experience rather than solely through the availability of digital systems.

Overall, the study identified system integration, data utilization, and public service orientation as three interconnected dimensions of SPBE implementation at the municipal government level. The documentary findings indicated that the Palembang City Government had established foundational capabilities across these dimensions. Nevertheless, evidence regarding substantive interoperability, the practical utilization of data in decision-making, and the direct relationship between digitalization and public service outcomes remained limited. These limitations highlighted the importance of distinguishing among the availability of digital infrastructure, its actual utilization, and its measurable effects on government administration and public service delivery.

Future research should expand the unit of analysis by comparing multiple OPDs or municipal governments to identify variations in SPBE implementation across organizational and administrative contexts. Integrating secondary and primary data through interviews with government personnel, observations of service delivery processes, and user surveys would enable researchers to assess the consistency between documented achievements and actual implementation practices.

Further research should also assess technical interoperability by examining data exchange traceability, integration standards, authentication mechanisms, data structures, and interapplication connectivity. Such assessments would provide stronger empirical evidence of system integration beyond the reported number of integrated applications. Additionally, longitudinal assessments of data utilization should examine dataset availability, usage patterns, integration into decision-making processes, and changes in government performance indicators over time.

These research directions could strengthen future assessments by distinguishing among digital system availability, actual system utilization, and measurable impacts on government administration and public services. Triangulating documentary evidence with technical assessments, organizational practices, and user experiences could also address the limitations of document-based research and provide a more comprehensive understanding of SPBE development at the local government level.

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The author hereby expressly states that no conflicts of interest, whether personal, commercial, or financial, were found, which have the potential to influence, interfere with, or reduce the objectivity and integrity of the findings in this study. The entire research process is carried out independently and free from the interests of any party.

AUTHOR CONTRIBUTIONS

All authors have made balanced and equal contributions at each stage of research. These contributions include the process of ideation and formulation of research concepts, data collection and analysis, to writing, editing, and refining the final manuscript before submitting it for publication.

GENERATIVE AI STATEMENT

In the process of preparing this manuscript, the author uses Artificial Intelligence (AI) technology to a limited extent, which is only as a tool to check the accuracy of grammar and refine the choice of words and writing style. The author emphasizes that AI is not involved in the stage of data collection, substantive analysis, or drawing research conclusions. All scientific substances, interpretations, and academic decisions are entirely the result of the author's thoughts and responsibilities.

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