

Beyond SPBE maturity: The gap between institutional maturity and publicly observable digital service evidence in Bengkulu, Indonesia

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Abstract

Institutional digital government maturity is not necessarily reflected uniformly in publicly observable and verifiable evidence of digital public services. This study aims to examine the gap between Electronic-Based Government System (SPBE) maturity and the verifiability of public service interface features in Bengkulu Province, Indonesia. It combines document analysis with a structured audit of six purposively selected service interfaces conducted on 19 September 2026, using 24 indicators across eight dimensions and an *Observable Digital Service* (ODS) index; indicators deemed substantively inapplicable were excluded from the denominator. The results show that Bengkulu's SPBE index reached 3.945 in 2025, classified as Very Good, while the six services achieved a mean ODS score of 82.64. Published service information received the highest score (100.00), whereas observable integration evidence (55.56) and HTTPS and data-practice disclosure (63.89) were the lowest-scoring dimensions. *Leave-one-service-out* analysis confirmed that these two dimensions remained the lowest-scoring across all iterations. This study contributes a diagnostic approach that distinguishes institutional maturity from publicly verifiable interface evidence without equating limitations in observable evidence with system failure.

Keywords: Electronic-Based Government System (SPBE); Digital government maturity; Digital public services; Interface verifiability; Bengkulu Province.

Abstrak

Kematangan institusional pemerintahan digital tidak selalu tercermin secara merata dalam bukti layanan publik yang dapat diamati dan diverifikasi masyarakat. Penelitian ini bertujuan menganalisis kesenjangan antara capaian kematangan Sistem Pemerintahan Berbasis Elektronik (SPBE) dan keterverifikasian fitur pada antarmuka layanan publik di Provinsi Bengkulu. Penelitian menggunakan analisis dokumen dan audit terstruktur terhadap enam antarmuka layanan yang dipilih secara purposif pada 19 September 2026, dengan 24 indikator dalam delapan dimensi dan indeks *Observable Digital Service* (ODS); indikator yang tidak relevan secara substantif dikeluarkan dari penyebut perhitungan. Hasil menunjukkan bahwa indeks SPBE Bengkulu mencapai 3,945 pada 2025 dengan predikat Sangat Baik, sedangkan rerata ODS enam layanan sebesar 82,64. Informasi layanan yang dipublikasikan memperoleh skor tertinggi (100,00), sementara bukti integrasi yang teramat (55,56) serta HTTPS dan pengungkapan praktik data (63,89) menjadi dimensi terendah. Analisis *leave-one-service-out* menunjukkan bahwa kedua dimensi tersebut tetap menjadi dua dimensi dengan skor terendah pada seluruh iterasi. Penelitian ini menawarkan pendekatan diagnostik untuk membedakan kematangan institusional dari bukti antarmuka yang dapat diverifikasi publik, tanpa menyamakan keterbatasan bukti yang terlihat dengan kegagalan sistem.

Kata Kunci: Sistem Pemerintahan Berbasis Elektronik (SPBE); Kematangan pemerintahan digital; Layanan publik digital; Keterverifikasian antarmuka; Provinsi Bengkulu.

Introduction

Digital government maturity does not always reflect the quality of services that citizens actually receive. In Dutch municipalities, Budding et al. (2018) found that the average maturity of electronic service delivery increased from 51.5% in 2014 to 64.6% in 2016. However, scores across municipalities still ranged from 19.6% to 94.0% in 2016, and the study found no significant relationship between municipal government expenditure and electronic service maturity. In Indonesia, Keban et al. (2024) analyzed 383 regencies and cities using partial least squares structural equation modeling (PLS-SEM) and found that technological, organizational, and environmental factors had significant positive effects on Electronic-Based Government System (SPBE) maturity, with the model explaining 31.9% of the variance. These findings indicate that assessments of digital maturity should be complemented by service-level examinations rather than relying solely on institutional scores to infer operational conditions.

The distinction between institutional maturity and service quality is important because citizens interact with government through specific service processes. Based on a survey of 340 e-government users in Vietnam, Pham et al. (2023) found that, among the five service-quality dimensions examined, only trustworthiness and fulfillment were significantly associated with perceived value. Perceived value and satisfaction were also positively associated with loyalty. Meanwhile, drawing on 13 citizen focus groups in Mexico, Buyannemekh et al. (2026) identified learning costs incurred when citizens search for information, compliance costs associated with preparing and submitting forms, and psychological costs experienced during follow-up processes. Through a systematic review of 47 articles, Hegemann and Ritz (2026) also mapped technological, organizational, and individual factors associated with administrative burden in digital service provision. These findings suggest that service experiences are shaped by the characteristics of the processes citizens encounter, rather than merely by the availability of digital platforms. Accordingly, information, access, assistance, integration, and disclosure of data practices should be examined as evidence visible at service interfaces, without treating them as direct measures of satisfaction or administrative burden.

Indonesia provides a relevant policy context for examining this relationship. Presidential Regulation No. 95 of 2018 establishes the framework for the Electronic-Based Government System (Sistem Pemerintahan Berbasis Elektronik, SPBE), while Presidential Regulation No. 82 of 2023 prioritizes the acceleration of digital transformation and the integration of national digital services. Minister of Communication and Informatics Regulation No. 1 of 2023 also governs data interoperability within SPBE and the One Data Indonesia initiative. These provisions establish integration as a governance objective that extends beyond the operation of

separate websites. Bengkulu Province provides a relevant case because its SPBE index reached 3.92 in 2024 and 3.945 in 2025, with both years classified as Very Good. Bengkulu Governor Regulations No. 9 of 2022 and No. 39 of 2023 govern SPBE implementation, while Regulation No. 16 of 2024 addresses SPBE information security management. In the context of local governance, Sasmita Dewi (2025) discusses SPBE as a pillar of good governance while also highlighting implementation challenges. These institutional achievements and regulatory frameworks provide a basis for examining whether the objectives of integration and digital governance are also reflected in publicly observable service evidence.

Previous studies have examined digital government maturity and public value using diverse research foci and units of analysis. In a longitudinal study of global cities covering 2003–2016, Ingrams et al. (2020) analyzed e-government development using indicators of information, usability, privacy, electronic services, and digital participation. Through a systematic mapping of 24 e-government maturity models, Okan (2024) demonstrated variation in the stages and dimensions used to assess maturity. From a public-value perspective, Twizeyimana and Andersson (2019) identified six dimensions of e-government public value through a literature review: improved public services, administrative efficiency, open government capabilities, ethical and professional conduct, trust in government, and social value and well-being. Based on a review of 60 empirical studies, MacLean and Titah (2022) found that the most frequently examined impacts included productivity, user satisfaction and service quality, and trust and communication with citizens. This literature provides a foundation for understanding digital government maturity and public value, but it does not specifically establish whether high SPBE scores at the local-government level are accompanied by consistent public evidence of service functionality, integration, assistance availability, and data-practice transparency at individual interfaces. This gap highlights the need to connect institutional achievements with audits of service evidence that citizens can directly observe.

Against this background, this study examines whether Bengkulu Province's high institutional SPBE maturity is accompanied by clear evidence of digital public services across six provincial services. It combines the 2019–2025 SPBE index series and an analysis of policy documents with a structured audit of 24 indicators across eight dimensions: accountability, service information, access, functionality, integration, assistance, data-practice disclosure, and access support. An Observable Digital Service (ODS) score is calculated for each service, followed by a leave-one-service-out analysis to determine whether the lowest-scoring dimensions remain consistent when one service is excluded from the analysis. The study is motivated by the need to distinguish institutional maturity from operational evidence visible at individual service interfaces. It therefore offers a descriptive diagnostic approach to complement SPBE evaluation through interface inspection and identify service features that remain

insufficiently observable, without claiming to measure legal compliance, technical interoperability, citizen satisfaction, transaction completion, or causal relationships.

Method

The study employs a descriptive-evaluative case study design that combines an analysis of institutional Electronic-Based Government System (SPBE) data, a review of policy documents, and a cross-sectional audit of six digital public service interfaces. Figure 1 presents the analytical framework, distinguishing three levels of evidence. The first level comprises SPBE index scores and ratings for 2019–2025, together with national and provincial regulations, to address RQ1. The second level involves auditing six services using 24 indicators across eight dimensions, calculating dimension scores and the Observable Digital Service (ODS) index, and conducting a leave-one-service-out analysis to address RQ2 and RQ3. The third level concerns service outcomes, including transaction completion, processing time, assistance received, administrative burden, satisfaction, and trust, none of which are measured in this study. The three levels are compared descriptively without estimating correlations or causal relationships.

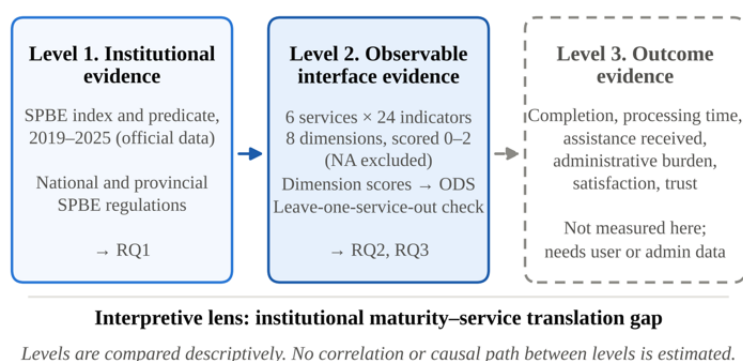


Figure 1. Analytical framework: three levels of evidence

Source: Author's elaboration.

SPBE index data for 2019–2024 were obtained from the Bengkulu Satu Data file by selecting the row for the Bengkulu Provincial Government rather than Bengkulu City or other regencies. The 2024 value was cross-checked against the Bengkulu entry in the Ministry of Administrative and Bureaucratic Reform's 2024 performance report, while the 2025 value and rating were obtained from the provincial government record in the national Satu Data Aparatur Negara dataset. The 2025 value of 3.945 was retained at the precision reported in the source. The series is descriptive because Ministerial Regulation of the Ministry of Administrative and Bureaucratic Reform No. 59 of 2020 revised the evaluation framework's domains, aspects, and indicators, effective 1 January 2021. Accordingly, year-to-year changes in the index are not treated as measurements obtained using an entirely unchanged instrument. The policy review covered Presidential Regulations No. 95 of 2018 and No. 82 of 2023 (Republic of

Indonesia, 2018, 2023), Ministerial Regulation of the Ministry of Administrative and Bureaucratic Reform No. 59 of 2020, Minister of Communication and Informatics Regulation No. 1 of 2023, and Bengkulu Governor Regulations No. 9 of 2022, No. 39 of 2023, and No. 16 of 2024. These documents were used as normative context, not as automatic evidence of compliance by individual services.

Six services were purposively selected to capture variation in public functions rather than to achieve statistical representativeness of all provincial services. The inclusion criteria were an external public function, an identifiable public access point, and an affiliation with the provincial government. Organizational profiles without a service function, internal administrative applications, duplicate access points, and unverified addresses were excluded. The audit was conducted on 19 September 2026, Western Indonesian Time (WIB), and covered public entry pages and official pages or documents linked to the relevant service functions. PUSAKO/Bapenda was selected as the entry point for provincial tax services because the legacy SAMSAT address was unstable. The inspection did not cover all associated applications, transaction stages requiring authentication, payment settlement, administrative decisions, or the entire citizen journey. An archived population frame and a complete exclusion log were unavailable; therefore, no claims are made regarding catalogue-wide coverage or statistical representativeness.

Table 1. Selected service interfaces and audited functions

No.	Service	Audited public function	Public access point
1	Bengkulu Satu Data	Open data publication and retrieval	https://data.bengkuluprov.go.id/
2	JDIH Bengkulu	Legal information and documents	https://jdih.bengkuluprov.go.id/
3	DPMPSTP/SIPANSE	Licensing information and transaction entry points	https://dpmpstp.bengkuluprov.go.id/
4	Loker Merah Putih	Employment information and job matching	https://lokermerahputih.bengkuluprov.go.id/
5	PUSAKO/Bapenda	Provincial tax information and pathways to related tax services	https://pusako.bengkuluprov.go.id/home
6	PPID Bengkulu Province	Public information requests and objections	https://ppid.bengkuluprov.go.id/

Note. The access points were observed on 19 September 2026 (WIB). The URLs identify the audited interfaces and do not establish that the pages remained unchanged after the observation date.

Source: Author's audit record.

The audit instrument comprised 24 indicators across eight dimensions, with three indicators per dimension. The indicators were informed by SPBE policy, digital

service-quality research, public-value scholarship, and the literature on administrative burden (Papadomichelaki & Mentzas, 2012; Chan et al., 2021; Aljukhadar et al., 2022; Madsen et al., 2022). The operational definitions were restricted to evidence observable through public interfaces and do not inherit the validity or reliability of the original survey instruments. Each applicable indicator was scored 0 if no qualifying evidence or function was found, 1 if the evidence was partial or incomplete, the function was only partly operational, or verification remained incomplete, and 2 if the evidence was clear, relevant, accessible, and functional within the scope of observation. The NA code was used only when an indicator was substantively inapplicable to a service's function, not when evidence was difficult to locate. Of the 144 service-indicator combinations, 135 were applicable and nine were coded NA. The same evaluator rechecked the coding against the rubric; this procedure did not constitute independent double coding and did not produce an inter-rater reliability coefficient.

Table 2. Audit dimensions, indicators, and interpretive limits

Code	Operational dimension	Indicators (three per dimension)	What the score does not establish
D1	Observable service accountability	(a) Identifiable unit responsible for the service; (b) official service contact information; (c) service standards, standard operating procedures (SOPs), or equivalent statements of responsibility	Actual responsiveness of the listed unit
D2	Published service information	(a) Service scope; (b) user procedures or process flow; (c) requirements relevant to the service function or output metadata	The accuracy, currency, or adequacy of every procedural detail
D3	Public access and navigation	(a) Accessible public URL; (b) navigation or search functionality; (c) readable guidance	Accessibility for people with disabilities or measured task usability
D4	Observable functionality and currency	(a) Core functionality can be initiated, where observable; (b) important links or documents are available; (c) evidence of recent or current updates	Continuous availability, transaction completion, or processing reliability
D5	Observable integration evidence	(a) Links to related official services; (b) shared authentication, where applicable; (c) public evidence of data or service exchange or reuse, APIs, or interoperability	Technical interoperability; hyperlinks establish only a visible relationship
D6	Published assistance and follow-up	(a) Assistance contact information; (b) complaint or feedback channels; (c) published tracking facilities or	Rapid responses, complaint resolution, or tracking at every stage

		response-time standards, where relevant	
D7	HTTPS and data-practice disclosure	(a) Use of HTTPS; (b) privacy or personal data-processing information; (c) terms, consent provisions, or explanations of data use	Cybersecurity, encryption strength, or legal compliance
D8	Observable access support and burden-related features	(a) Easily understood instructions; (b) assisted or alternative access channels; (c) low-friction access or reduced repeated data entry	Successful use by marginalized groups or actual effort saved

Note. Score 0 = qualifying evidence was not found on the inspected interface; 1 = evidence was partial or incomplete, the function was partly operational, or verification remained incomplete; 2 = evidence was clear, relevant, accessible, and functional within the scope of observation; NA = substantively inapplicable and excluded from the denominator.

Source: Author's audit instrument, informed by Papadomichelaki and Mentzas (2012), Chan et al. (2021), Aljukhadar et al. (2022), and Madsen et al. (2022).

Each dimension score was calculated by dividing the sum of the scores for applicable indicators by the maximum possible score for those indicators and multiplying the result by 100. In Equation (1), S_{idj} denotes the score of indicator j for service i in dimension d , while m_{id} denotes the number of applicable indicators in that dimension. The dimension score was calculated as follows.

$$D_{id} = 100 \times \frac{\sum_{j=1}^{m_{id}} S_{idj}}{2m_{id}} \quad (1)$$

A dimension with no applicable indicators was treated as undefined rather than assigned a score of zero. The Observable Digital Service (ODS) index was then calculated as the arithmetic mean of the defined dimension scores for each service. In Equation (2), A_i denotes the set of defined dimensions for service i , while D_{id} denotes that service's score on dimension (d). The ODS formula is presented below.

$$ODS_i = \frac{1}{|A_i|} \sum_{d \in A_i} D_{id} \quad (2)$$

All eight dimensions were defined for all six services, so each dimension received equal weight. Cross-service averages were calculated from the six service scores for each dimension rather than by pooling all indicator scores. The analysis reports means, medians, ranges, and dimension profiles. Six leave-one-service-out scenarios were used to examine whether D5 and D7 remained the two lowest-scoring dimensions. The calculations were checked arithmetically without changing the indicator ratings. All findings are descriptive; the ODS has not been validated and is not used to test statistical significance, correlations, or causal relationships.

Results and Discussion

Development of the Bengkulu Provincial Government’s SPBE index, 2019–2025

The implementation of the Electronic-Based Government System (Sistem Pemerintahan Berbasis Elektronik, SPBE) in the Bengkulu Provincial Government evolved over the 2019–2025 period. The SPBE index generally increased, although it declined in 2021. According to the Bengkulu Provincial Government’s workbook, the index stood at 2.40 in 2019, rose to 2.90 in 2020, and then fell to 2.79 in 2021. It subsequently increased to 3.11 in 2022 and 3.12 in 2023 before reaching 3.92 in 2024. Meanwhile, national data recorded an index of 3.945 for 2025. These changes provide an overview of year-to-year developments in the digital government evaluation results of the provincial government. The annual index values, ratings, and data sources are presented in Table 3, while the overall trend is illustrated in Figure 2.

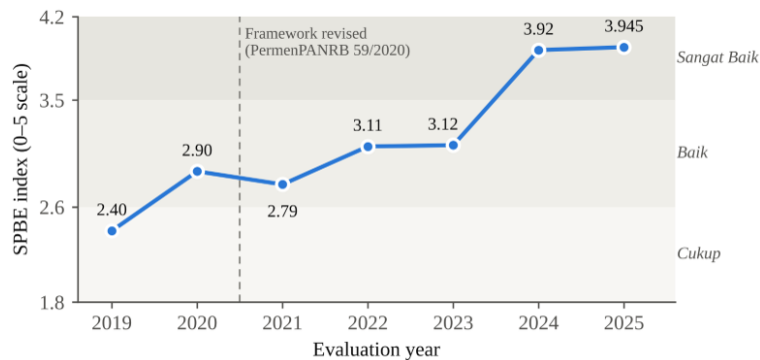


Figure 2. SPBE index of the Bengkulu Provincial Government, 2019–2025

Note. The shaded areas indicate the rating ranges: Fair (1.8 to less than 2.6), Good (2.6 to less than 3.5), and Very Good (3.5 to less than 4.2). The dashed line marks the change in the evaluation framework beginning in 2021.

Source: Bengkulu Provincial Government (2025) and Ministry of Administrative and Bureaucratic Reform (2020, 2025, 2026), compiled by the author.

The changes in the index were accompanied by shifts in the evaluation ratings. In 2019, the score of 2.40 fell within the Fair category. The index was subsequently classified as Good throughout 2020–2023, with values fluctuating between 2.79 and 3.12. In 2024, the index rose to 3.92, reaching the Very Good category, which was maintained in 2025 with a score of 3.945. Thus, the final two years of the observation period recorded the highest evaluation results compared with previous years. However, these ratings should be understood as the outcomes of formal assessments of SPBE implementation rather than as direct measures of the quality of all government digital services. A high index score does not, by itself, demonstrate that digital transactions are consistently successful, citizens are satisfied, or service interfaces are easy to use. The development of the index should therefore be interpreted in light of the scope of the evaluation.

The decline in the index from 2.90 in 2020 to 2.79 in 2021 also requires careful interpretation. Ministerial Regulation of the Ministry of Administrative and

Bureaucratic Reform No. 59 of 2020 revised the SPBE evaluation framework, which took effect in 2021. Consequently, the two values are not fully comparable as measurements obtained using the same instrument (Ministry of Administrative and Bureaucratic Reform, 2020). This limitation should also be considered when interpreting the increases recorded in subsequent years. An increase in the index indicates a change in evaluation performance but is insufficient to establish that a particular reform or policy caused that change. Such a conclusion would require comparable domain-level evidence and an analytical design capable of testing the relationship between policy and changes in outcomes. Accordingly, this index series is more appropriately used to describe the context of institutional maturity than as direct evidence of the effects of specific digital reforms.

Table 3. SPBE assessment results of the Bengkulu Provincial Government and data verification sources

Year	Index	Rating	Source		Basis for verification
2019	2.40	Fair	Bengkulu Data	Satu	Workbook: provincial government row and rating
2020	2.90	Good	Bengkulu Data	Satu	Workbook: provincial government row and rating
2021	2.79	Good	Bengkulu Data	Satu	Workbook: provincial government row and rating
2022	3.11	Good	Bengkulu Data	Satu	Workbook: provincial government row and rating
2023	3.12	Good	Bengkulu Data	Satu	Workbook: provincial government row and rating
2024	3.92	Very Good	Bengkulu Data	Satu	Workbook; Ministry of Administrative and Bureaucratic Reform performance report
2025	3.945	Very Good	Satu Data Aparatur Negara		Provincial government record for 2025; index value and rating as recorded

Note. The evaluation year is distinguished from the publication and data-retrieval dates. The 2025 index value retains the precision reported in the dataset. The evaluation framework changed beginning in 2021; therefore, the series does not constitute a fully harmonized measurement panel.

Source: Bengkulu Provincial Government (2025) and Ministry of Administrative and Bureaucratic Reform (2020, 2025, 2026).

Overall, Table 3 clarifies the sources and verification bases for each index value, while Figure 2 provides a visual representation of the trend. Together, they show that the Bengkulu Provincial Government's SPBE assessment results improved over the observation period, with ratings reaching Very Good in 2024–2025. Nevertheless, changes in the index cannot be used directly to conclude that all digital services available to the public have been successful. The SPBE index reflects evaluation results at the government level, whereas service quality requires examination of evidence more closely related to user experience and interface characteristics. The institutional

maturity data presented in this subsection therefore provide contextual grounding for understanding digital governance in the Bengkulu Provincial Government. The following discussion complements this overview with observations of digital services that are directly accessible to the public.

Digital service profiles and audit score patterns

The audit of six digital service interfaces of the Bengkulu Provincial Government revealed variations in Observable Digital Service (ODS) scores, as presented in Table 4. The mean ODS score was 82.64, with a median of 87.50 and a range of 61.46–93.75. JDIH Bengkulu obtained the highest score at 93.75, followed by Bengkulu Satu Data at 91.67. In contrast, Loker Merah Putih received the lowest score, at 61.46. These differences indicate that observable service features and evidence are not evenly distributed across public interfaces. However, the scores cannot be used directly to determine which service is the most effective overall. Each service serves a different function, and the applicability of individual indicators may vary. Therefore, ODS is more appropriately used to identify aspects that warrant attention in each interface.

Table 4. Public interface dimension scores and composite ODS scores

Service	D1	D2	D3	D4	D5	D6	D7	D8	n	ODS
Bengkulu Satu Data	100.0 0	100.0 0	83.33	100.0 0	75.00	100.0 0	75.0 0	100.0 0	2 1	91.6 7
JDIH Bengkulu	100.0 0	100.0 0	100.0 0	100.0 0	100.0 0	75.00	75.0 0	100.0 0	2 1	93.7 5
DPMPSTP/SIPANS E	100.0 0	100.0 0	100.0 0	83.33	66.67	100.0 0	50.0 0	83.33	2 4	85.4 2
Loker Merah Putih	66.67	100.0 0	100.0 0	50.00	0.00	25.00	66.6 7	83.33	2 2	61.4 6
PUSAKO/Bapenda	100.0 0	100.0 0	100.0 0	100.0 0	66.67	100.0 0	66.6 7	83.33	2 4	89.5 8
Bengkulu Provincial PPID	100.0 0	100.0 0	83.33	66.67	25.00	83.33	50.0 0	83.33	2 3	73.9 6

Note. D1 = visible service accountability; D2 = published service information; D3 = public access and navigation; D4 = observable functionality and information currency; D5 = observable evidence of integration; D6 = published assistance and follow-up; D7 = HTTPS and disclosure of data practices; D8 = visible accessibility support and features related to user burden. *n* = number of applicable indicators out of 24 in total; NA indicators were excluded from the denominator when calculating dimension scores. ODS is the mean of the eight dimension scores, with equal weighting.

Source: Author's structured audit, 19 September 2026. The values represent a descriptive index of the interfaces, not an official assessment or an estimate of users' actual experiences.

The pattern across dimensions shows that published service information (D2) scored 100.00 across all six interfaces. In contrast, observable evidence of integration (D5) had

the lowest mean score, at 55.56, followed by disclosure of information about HTTPS and data practices (D7), at 63.89. This pattern indicates that the availability of basic information is not necessarily accompanied by equally strong evidence of integration and disclosure of data practices. Differences across dimensions are also evident in Loker Merah Putih, which obtained an ODS score of 61.46. Although its D2 and D3 scores were both 100.00, its D5 score was 0.00 and its D6 score was only 25.00. Thus, a composite score can conceal weaknesses in specific dimensions. The narrative explanation of these patterns replaces the function of color-coding in the table while helping readers identify the main findings without relying on visual markers.

Low scores in a particular dimension should be interpreted in light of the audit's observational limitations. The D5 score of 0.00 for Loker Merah Putih means that no public evidence meeting the integration indicators was found in the interface examined; it does not establish that integration is necessarily absent from the system's back end. The same principle applies to D7: this dimension's score reflects observable evidence of HTTPS and disclosure of data practices based on the audit indicators, rather than a comprehensive assessment of system security or data management. Accordingly, low D5 and D7 scores identify aspects that warrant further examination, rather than providing direct evidence of technical failure. This interpretation is important to ensure that the descriptive index is not understood as extending beyond the scope of the data collected through observations of public interfaces.

Differences in service characteristics also limit score comparability. Information and document portals can display their primary outputs directly, whereas licensing, job-search, taxation, and information-request services may involve important stages that are not visible on their landing pages. Information displayed at a service's entry point does not establish that processes following authentication or subsequent administrative stages have been completed successfully. Selecting PUSAKO as the interface for taxation services provides insight into the evidence available at that entry point, but does not make this audit an assessment of the success of SAMSAT transactions. This limitation remains even though the calculations account for indicators classified as not applicable (NA). Therefore, Table 4 is better used to understand the profile of features visible in each interface than to rank the overall effectiveness of public services.

Cross-dimensional score patterns and audit result consistency

A comparison of the eight dimensions across the six digital services of the Bengkulu Provincial Government revealed differences in scores for observable features across dimensions. As shown in Table 5 and Figure 3, published service information (D2) achieved the highest mean score of 100.00. Visible service accountability (D1) and public access and navigation (D3) each scored 94.44, followed by accessibility support and features related to user burden (D8) at 88.89 and observable functionality and

information currency (D4) at 83.33. These values represent performance against the indicators used in the audit. A D2 score of 100.00 means that all specified information indicators received full scores across the six services; it does not mean that all procedural information is necessarily accurate, up to date, or adequate for every user.

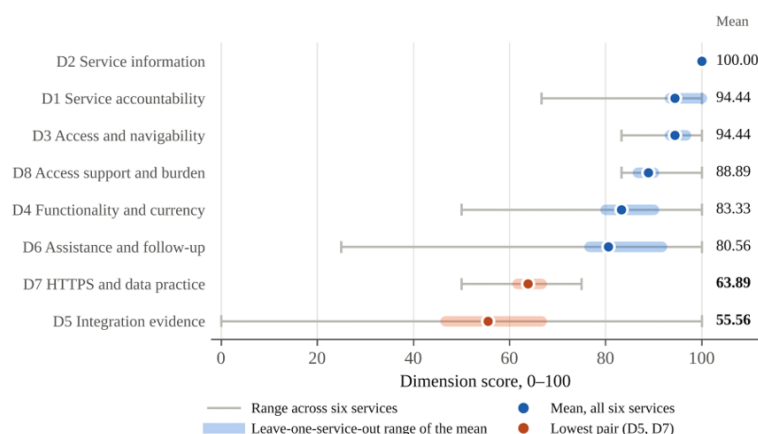


Figure 3. Mean dimension scores, service-level score ranges, and leave-one-service-out mean ranges

Source: Descriptive recalculations based on the dimension profiles in Table 4.

Table 5 also shows that observable evidence of integration (D5) had the lowest mean score, at 55.56, followed by disclosure of information about HTTPS and data practices (D7), at 63.89. D5 scores ranged from 0.00 to 100.00, whereas D7 scores ranged from 50.00 to 75.00, with no service receiving a full score. These two dimensions exhibit different patterns. Variation in D5 indicates that the integration evidence found at the interfaces differs considerably across services, whereas the range for D7 is narrower. Assessing D5 requires distinguishing the relevance of integration to the type of service, visible connectivity, and documented data-exchange arrangements. Meanwhile, assessing D7 requires examining the availability and content of accessible information on privacy, terms of use, and data utilization. A comprehensive assessment of technical safeguards remains beyond the scope of this audit.

Table 5. Mean dimension scores and sensitivity to service composition

Code	Operational dimension	Mean (n = 6)	Service-level score range	Leave-one-out mean range
D1	Visible service accountability	94.44	66.67–100.00	93.33–100.00
D2	Published service information	100.00	100.00–100.00	100.00–100.00
D3	Public access and navigation	94.44	83.33–100.00	93.33–96.67
D4	Observable functionality and information currency	83.33	50.00–100.00	80.00–90.00

D5	Observable evidence of integration	55.56	0.00–100.00	46.67–66.67
D6	Published assistance and follow-up	80.56	25.00–100.00	76.67–91.67
D7	HTTPS and disclosure of data practices	63.89	50.00–75.00	61.67–66.67
D8	Accessibility support and features related to user burden	88.89	83.33–100.00	86.67–90.00

Note. Each leave-one-out calculation excludes one service and recalculates the mean for the five remaining services. These ranges represent a sensitivity check for service composition, not confidence intervals. D5 and D7 were the two dimensions with the lowest mean scores in all six calculations.

Source: Descriptive recalculations based on the dimension profiles in Table 4; no new observations or reassessments of indicators were conducted.

A leave-one-service-out analysis was conducted to determine whether the score patterns were influenced by the inclusion of any single service. When Loker Merah Putih was excluded, the mean ODS score increased to 86.88 and the median to 89.58. The mean D5 score then reached 66.67, while D7 fell to 63.33, reversing the relative ranking of the two dimensions. Nevertheless, they remained the two dimensions with the lowest mean scores. Across the six calculations, mean ODS scores ranged from 80.42 to 86.88, mean D5 scores from 46.67 to 66.67, and mean D7 scores from 61.67 to 66.67. These results indicate that the relatively low scores for D5 and D7 do not depend solely on the inclusion of Loker Merah Putih. However, this analysis tests only changes in the composition of the six services, not sensitivity to indicators, weighting, decisions about indicator applicability, evaluators, observation dates, or services outside the sample. Therefore, these findings support identifying D5 and D7 as priorities for further examination within the scope of this audit, rather than drawing conclusions about all provincial government digital services.

The relationship between SPBE maturity and the availability of information, digital integration, and disclosure of data practices

The increase in Bengkulu Province's Electronic-Based Government System (SPBE) index indicates progress in institutional performance, but it does not explain whether conditions are consistent across individual digital services. The index rose from 2.40 in 2019 to 3.945 in 2025, although it declined from 2.90 in 2020 to 2.79 in 2021. Changes to the evaluation framework introduced in 2021 also require year-to-year comparisons to be made cautiously. Using exploratory factor analysis of 17 SPBE performance factors in Surabaya City and Mojokerto Regency, Hernando et al. (2023) identified five groups of factors: SPBE regulations, digital literacy, information technology infrastructure management, human resources, and system location. Regulations were the dominant factor in their study. These findings underscore the complexity of SPBE implementation while highlighting the need to examine whether institutional progress is reflected in evidence of digital service delivery in Bengkulu.

The gap between institutional performance and service-level evidence is apparent in the audit of six digital service interfaces of the Bengkulu Provincial Government conducted on 19 September 2026. The audit employed 24 indicators across eight dimensions and yielded a mean Observable Digital Service (ODS) score of 82.64, a median of 87.50, and a range of 61.46–93.75. This variation indicates that compliance with interface-level indicators is not uniform. Based on interviews with 40 experts, Mergel et al. (2019) defined digital transformation as a change encompassing services, organizational processes, culture, and relationships with stakeholders. This framework helps explain why institutional performance alone is insufficient to capture the full range of service conditions. However, Bengkulu's ODS is not a direct measure of digital transformation as examined by Mergel et al. The scores provide only an observational account of the indicators examined and therefore cannot be used to conclude that digital transformation has succeeded or failed overall.

Information availability was the most consistent aspect of the Bengkulu audit, as all six services received a score of 100 on dimension D2. This result indicates that the observed information indicators were met across all services, but it does not establish that the information was always up to date, easy to understand, or suited to users' needs. Aljukhadar et al. (2022) developed EGSQUAL, a 21-item instrument for measuring digital government service quality across seven dimensions. They validated the instrument using two Canadian citizen samples of 545 and 1,015 respondents, respectively, and subsequently tested it with 351 users of USA.gov and NY.gov. The dimensions cover information quality, assistance, ease of use, functionality, privacy and security, interactivity and personalization, and aesthetics. This comparison indicates that the D2 result represents a strength in the information indicators but does not capture all dimensions of service quality experienced by users.

The gap is more pronounced in the dimension measuring observable evidence of digital integration (D5), which had a mean score of 55.56 and a range of 0–100. This score is lower than that of D2, which reached 100 across all services. Miftah et al. (2023) examined the interoperability of local tax services at the Pekanbaru City Regional Revenue Agency, focusing on the connectivity of electronic services and the systems supporting them. Their study is relevant because the presence of an application does not automatically demonstrate that data exchange and processes across systems operate in an integrated manner. This issue is also related to Minister of Communication and Informatics Regulation No. 1 of 2023 concerning data interoperability in the implementation of SPBE and One Data Indonesia. In Bengkulu, variation in D5 indicates that evidence of integration visible at the interfaces is uneven. Nevertheless, a low score does not establish that technical integration is absent from the back-end systems; examining system architecture and data exchange is necessary to determine the actual conditions.

Dimension D7, which covers HTTPS indicators and disclosure of data practices, had a mean score of 63.89, with a range of 50–75. None of the six services received the maximum score on this dimension. This finding indicates limitations in meeting the observed indicators, but it cannot be interpreted directly as evidence of a data breach or cybersecurity failure. Papadomichelaki and Mentzas (2012) developed e-GovQual to evaluate website-based government service quality from citizens' perspectives. Their framework covers aspects such as ease of use, trust, reliability, information quality, and citizen support. This approach emphasizes that information quality, trust, and security are interconnected but distinct aspects. Therefore, the D7 results for Bengkulu should serve as a basis for further examination of connection security and disclosure of data practices, rather than as a verdict on the technical security of all services.

Cross-dimensional comparisons clarify the uneven pattern of audit results. In addition to D2, which scored 100 across all services, D1 and D3 each had a mean score of 94.44, D8 scored 88.89, D4 scored 83.33, and D6 scored 80.56. By contrast, D5 scored only 55.56 and D7 scored 63.89. Thus, information availability was not matched by equally strong evidence of integration and disclosure of data practices. This pattern is consistent with the multidimensional approach of Aljukhadar et al. (2022), which distinguishes information quality from functionality, assistance, and privacy or security. However, EGSQUAL measures user perceptions, whereas the Bengkulu audit examines interface-level indicators. The similarity lies in the importance of distinguishing dimensions of quality, not in the equivalence of the instruments or their measurement results.

The implications of this pattern should be understood from the perspective of citizen-government interactions. Lindgren et al. (2019) discussed how digitalization changes the ways citizens interact with public officials, the skills required, and the time and scope of service interactions. Meanwhile, Luna et al. (2024) used 13 focus groups across four cities in Mexico to examine the public value of digital services from citizens' perspectives. Their study connected individual benefits, including cost savings, with social values such as transparency, accountability, democracy, and equality. Both studies indicate that service quality cannot be assessed solely by the availability of information. In the Bengkulu audit, D6 scored 80.56 and D8 scored 88.89, but these values reflect only the observed indicators of assistance and accessibility support. Citizens' actual experiences, satisfaction, and perceived benefits were not measured in this study.

The sensitivity analysis indicates that the relatively low performance of D5 and D7 was not determined by a single service alone. Loker Merah Putih had the lowest ODS score, at 61.46, whereas JDIH Bengkulu obtained the highest score, at 93.75. When Loker Merah Putih was excluded, the mean ODS increased from 82.64 to 86.88. The mean D5

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score rose from 55.56 to 66.67, while D7 changed from 63.89 to 63.33. Although their relative positions were reversed, these two dimensions remained the pair with the lowest mean scores. Across all leave-one-service-out scenarios, mean ODS ranged from 80.42 to 86.88, D5 from 46.67 to 66.67, and D7 from 61.67 to 66.67. These results strengthen the evidence that the pattern was consistent across the six services examined, but they do not establish statistical significance or represent all provincial digital services.

From the perspective of digital government evolution, the Bengkulu findings provide a reason to distinguish digitization from broader governance transformation. Janowski (2015) developed a digital government evolution model comprising four stages: digitization, transformation, engagement, and contextualization. The model is a conceptual framework for understanding changes in the orientation of digital government, not a tool for assigning a stage to a region based solely on its index. As an empirical point of comparison, Irwansyah et al. (2025) examined SPBE implementation in East Kalimantan and highlighted issues involving institutional fragmentation, system and data integration, and human resource capacity. These findings are relevant to interpreting possible gaps between policy and service delivery practices, but they do not demonstrate that Bengkulu experiences the same underlying causes. Accordingly, the Bengkulu index and audit are better used to identify aspects requiring further evaluation than to determine the province's stage of digital government evolution.

Overall, the audit findings should be interpreted proportionately. A D2 score of 100 across all services indicates consistent fulfillment of the information indicators, but it does not establish that users always understand the information or that service delivery is effective. Conversely, the relatively lower D5 and D7 scores indicate limited evidence of integration and disclosure of data practices in the interfaces examined, rather than direct evidence of technical integration failure or inadequate system security. This interpretation is constrained by the purposive selection of six services, the use of a single evaluator, and the single observation date. ODS has also not been validated against user experiences, while changes to the SPBE evaluation framework since 2021 limit the comparability of index scores across years. Therefore, these findings constitute an initial diagnostic account that requires further examination through periodic audits, technical assessments of integration and security, and research into user experiences.

Conclusion

This study shows that the increase in Bengkulu Province's SPBE index is insufficient to demonstrate uniformity in the evidence of maturity across digital services. An audit of six service interfaces yielded a mean Observable Digital Service (ODS) score of 82.64, with a range of 61.46–93.75. Information availability (D2) was the most consistent

aspect, scoring 100 across all services, whereas observable evidence of digital integration (D5) and disclosure of data practices (D7) had mean scores of only 55.56 and 63.89, respectively. This pattern indicates that making information accessible does not automatically ensure equally strong evidence of integration and disclosure of data practices. Substantively, these findings highlight the importance of distinguishing institutional maturity from the evidence visible at service interfaces. Through a multidimensional audit and sensitivity analysis, this study identifies service aspects requiring further evaluation without assuming a causal relationship between the SPBE index and audit scores.

This study contributes an observational approach to complementing SPBE evaluations by examining evidence at service interfaces, particularly by distinguishing information availability, digital integration, and disclosure of data practices. However, the findings should be interpreted in light of several limitations: the six services were selected purposively, the audit was conducted by a single evaluator on a single date, ODS has not been validated against user experiences, and changes to the SPBE evaluation framework limit the comparability of index scores across years. This study also did not examine technical integration behind the systems, assess security comprehensively, or measure the effects of services on the public. Future research should therefore expand the number and diversity of services examined, involve multiple evaluators, and conduct periodic audits to track changes over time. Technical assessments of interoperability and disclosure of data practices, supplemented by user surveys or interviews, are also needed to determine whether interface-level evidence is associated with service quality and benefits actually experienced by the public.

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