

Digital Government Maturity and Public Service Performance: An Institution-Level Linkage of Indonesia's SPBE and IPP Ratings, 2025

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ABSTRACT

Purpose — This study examines the relationship between Electronic-Based Government System (SPBE) maturity and Public Service Performance Index (IPP) ratings among Indonesian government institutions in 2025, while controlling for institution type.

Design/methodology/approach — The study employed a quantitative, observational and cross-sectional design using official secondary data. The analytical dataset comprised 251 government institutions matched across the 2025 SPBE and IPP datasets. Descriptive analysis, cross-tabulation, Spearman's rank correlation and cumulative link ordinal logistic regression were conducted using IBM SPSS Statistics 27.

Findings — SPBE maturity was moderately and positively associated with IPP ratings (Spearman's $\rho = 0.520$, $p < 0.001$). After controlling for institution type, a one-level increase in SPBE maturity was associated with 4.55 times higher cumulative odds of achieving a higher IPP category (OR = 4.55, 95% CI [3.13, 6.62], $p < 0.001$). However, the alignment between digital government maturity and public service performance was not complete. Among institutions with the highest SPBE maturity predicates, 23.5% recorded IPP ratings of B or below.

Research limitations/implications — The study is limited by the use of predicate-level data, a single observational year, sparse category cells, incomplete IPP linkage coverage, and potential construct overlap and common-source bias. The findings therefore indicate association rather than causation. The results support integrated monitoring of digital government maturity and public service performance.

Practical implications — Government institutions can use SPBE and IPP indicators jointly to identify gaps between digital transformation maturity and public service performance. Institutions with high SPBE maturity but relatively lower IPP ratings may require further assessment of service processes, organizational capabilities and implementation quality.

Originality/value — This study provides an institution-level empirical linkage between Indonesia's official SPBE and IPP ratings. It extends existing assessment approaches by modelling IPP as an ordinal outcome and controlling for institution type through ordinal logistic regression.

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Introduction

In contemporary public administration, performance measurement systems are widely recognized as critical instruments for ensuring transparency, enhancing service delivery quality, and driving organizational reform (Agostino et al., 2021; Moynihan & Kroll, 2016; Tran & Nguyen, 2020). To objectively evaluate distinct dimensions of institutional performance, governments typically deploy multifaceted indices. Two prominent frameworks currently governing this evaluation are the Electronic-Based Government System (SPBE) index—mandated by Presidential Regulation No. 95 of 2018 and Ministerial Regulation No. 59 of 2020 (Indonesia, 2018; Kementerian Pendayagunaan Aparatur Negara dan Reformasi Birokrasi, 2020), which assesses an institution's internal digital governance capability and IT maturity, and the Public Service Performance Index (IPP) governed by Ministerial Guideline No. 5 of 2023 (Kementerian Pendayagunaan Aparatur Negara dan Reformasi Birokrasi, 2023) which evaluates the tangible outcomes of public service delivery. While SPBE essentially measures the underlying administrative and technological capacity, IPP serves as the ultimate indicator of operational service outcomes delivered to the public.

Given that both indices originate from the same ministry, it is logical to expect a strong alignment between them. Empirical studies in the Indonesian context have consistently suggested that robust digital governance and e-government implementation should ideally demonstrate superior public service outcomes (Aritonang, 2017; Pramuditha et al., 2024; Taufiqurokhman et al., 2024). However, in practical terms, KemenPANRB evaluates, publishes, and monitors the SPBE and IPP metrics through separate administrative silos. This separation in governance creates an evaluation gap. Whether an institution's official digital capability rating actually aligns with its evaluated service performance remains an open empirical question. This is consistent with the broader literature on fragmented performance measurement in government, which finds that indicators evaluated through separate administrative processes often fail to produce a coherent picture of institutional performance (Dhillon, 2022).

The expectation for this alignment is fundamentally supported by established frameworks, such as DeLone and McLean's (2003) Information Systems Success Model and Moore's (1995) Public Value Theory. Together, these perspectives establish a core premise that institutional investments in digital capacity must ultimately manifest in tangible service outcomes. Evaluating this expected alignment is crucial. A statistical mismatch, such as an institution boasting highly rated IT maturity alongside poor service delivery outcomes, could indicate severe strategic inefficiencies, failures in change management, or misallocations of public resources.

Previous literature examining the relationship between digital initiatives and public service performance has predominantly focused on demand-side user perceptions, qualitative conceptualizations, or macro-level geographic data. In the context of user perceptions, empirical studies have consistently demonstrated that digital service quality significantly enhances citizen satisfaction and perceived public value (Pham et al., 2023; Pramuditha et al., 2024; Taufiqurokhman et al., 2024). However, these analyses rely heavily on individual user surveys and specific e-government application evaluations rather than institutional-level administrative assessments. Conceptually, qualitative studies within the Indonesian context have argued that governmental digital systems should inherently improve service effectiveness (Aritonang, 2017), yet this theoretical relationship remains largely untested using official quantitative metrics. On a broader scale, researchers have utilized macro-level data to evaluate this alignment. For instance, Ma and Zheng (2019) observed that supply-side national digital rankings do not always mirror actual service utilization across countries, while

studies by Mao and Zhu (2025) and Zhu et al. (2024) linked digital integration to service quality using regional panel data from provinces and cities, which lacks the micro-institutional granularity of individual government agencies.

To systematically validate this empirical gap, a structured literature search was conducted across international and regional databases, specifically Scopus, Google Scholar, and the Indonesian Publication Index (Garuda). By filtering publications within the 2018–2026 period and applying two parallel sets of Boolean queries—an Indonesian-language query, ("SPBE" OR "Sistem Pemerintahan Berbasis Elektronik") AND ("IPP" OR "Indeks Pelayanan Publik"), and an English-language query, ("e-government maturity" OR "digital government maturity") AND ("public service performance" OR "public service quality")—the combined search yielded an initial pool of 87 potential records [ISI DARI CATATAN PENELUSURAN: rincian jumlah rekaman dari query Indonesia dan query Inggris]. After screening titles and abstracts to exclude duplicates, purely descriptive qualitative designs, and macro-level reviews, 5 full-text articles (Aritonang, 2017; Ma & Zheng, 2019; Mao & Zhu, 2025; Pramuditha et al., 2024; Zhu et al., 2024) were retained for detailed evaluation as the closest conceptual frameworks. Ultimately, this screening confirmed that these prior studies relied on individual user perceptions or regional panel data, yielding no prior quantitative studies that directly connect the official SPBE and IPP indices at the micro-institutional level.

Therefore, this study aims to examine the alignment between SPBE maturity ratings and IPP performance ratings among Indonesian government institutions in 2025, controlling for institution type. The originality and contribution of this research are strictly methodological rather than theoretical. By employing a documented data-linkage protocol and ordinal logistic regression on official administrative datasets, this study provides an empirical cross-evaluation of KemenPANRB's performance measurement system. The findings are expected to inform policymakers on the necessity of joint-monitoring practices and targeted capacity-building, particularly regarding the disparities in organizational resources across different levels of government.

Research questions and hypothesis.

The study addresses the following questions:

RQ1. Does a higher level of digital governance capacity (SPBE predicate) positively align with public service performance outcomes (IPP predicate) among Indonesian government institutions in 2025?

RQ2. Does this performance alignment remain evident after controlling for organizational characteristics (institution type)?

H1. Government institutions with higher SPBE maturity predicates are more likely to achieve higher IPP performance predicates, demonstrating an internal alignment within the government's performance measurement system, after controlling for institution type.

Methods

Research Design

This study employed a quantitative, observational, and cross-sectional research design using official secondary data from the 2025 assessment period. The institution served as the unit of analysis, and the linked analytical dataset comprised 251 central and local government institutions. The study examined the direction and strength of the association between SPBE and IPP predicates. Because the data were collected within the same assessment period, the analysis does not establish temporal order or causality.

Research Model

The analytical model operationalizes this theoretical expectation by positioning the SPBE predicate as the focal ordinal predictor and the IPP predicate as the ordinal outcome. Institution type is included as a nominal control because central, provincial, district, and city institutions differ in authority, service scope, population coverage, organizational resources, and service complexity, all of which may influence IPP independently of SPBE maturity. As shown in Figure 1, the cumulative-link ordinal logistic regression estimates the conditional association between SPBE and IPP after accounting for institution type. The model does not estimate the theoretical mechanisms as mediators and does not identify a causal effect.

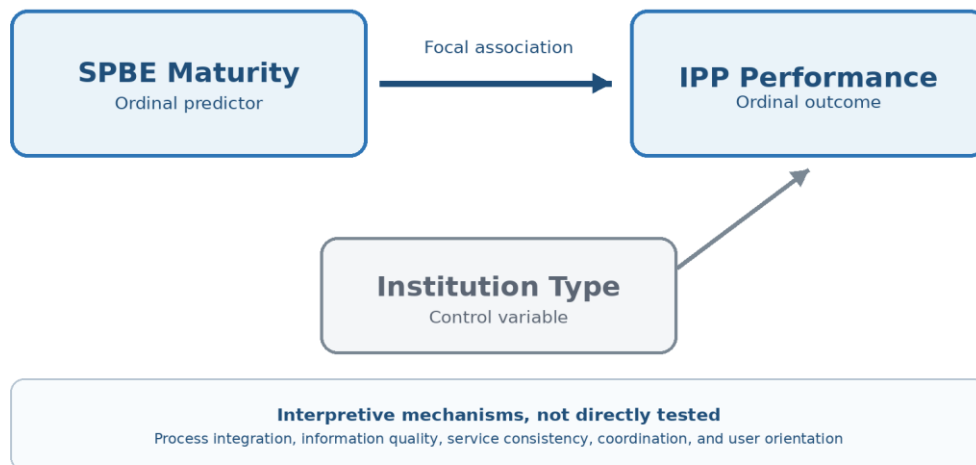


Figure 1. Conceptual and analytical framework.

Source: Authors' conceptualization based on DeLone and McLean (2003), Moore (1995), and OECD (2020).

Population and Sample

The data comprise the 2025 SPBE Index and the 2025 Public Service Performance Index (IPP) published through Satu Data of the Ministry of Administrative and Bureaucratic Reform. The study selected 2025 because both indices refer to the same assessment period, which permits contemporaneous comparison at the institutional level and avoids temporal inconsistency from combining ratings assessed under different annual conditions. Consequently, the findings describe the institutional pattern observed in 2025 and do not measure change over time. The relevant regulatory basis includes Presidential Regulation No. 95/2018 (Indonesia, 2018), Ministerial Regulation No. 59/2020 (Kementerian Pendayagunaan Aparatur Negara dan Reformasi Birokrasi, 2020), and Ministerial Guideline No. 5/2023 (Kementerian Pendayagunaan Aparatur Negara dan Reformasi Birokrasi, 2023).

The target population comprises central and local government institutions evaluated through both systems. The study did not draw a probability sample. Instead, it used a census of the matchable intersection of the two datasets. A record was eligible when it: (1) appeared in both 2025 datasets; (2) produced a one-to-one institution-name-year match; (3) retained a documented raw name, canonical name, and matching status; (4) contained a valid SPBE predicate; (5) contained a valid IPP predicate; and (6) had no unresolved duplication or predicate conflict.

The source files contained 267 SPBE rows and 582 IPP rows. Duplicate auditing produced 266 unique SPBE institutions and 580 unique IPP institutions. One-to-one linkage yielded 251 institutions, representing 94.4% of unique SPBE institutions and 43.3% of unique IPP institutions. Unmatched records, unresolved duplicate conflicts, and records without valid predicates were excluded. As verified by the matching decision log, the inability to link the

remaining 15 SPBE institutions occurred because these specific entities were absent from the 2025 IPP evaluation dataset, reflecting differences in the ministry's evaluation coverage rather than technical failures in the name-matching protocol. No values were imputed. Therefore, the inferential population is the intersection of institutions evaluated by both indices and successfully linked in 2025, rather than every institution appearing in either source dataset.

Measurement of Variables

The analytical model operationalizes data specific to the 2025 observation period, which functions as a temporal constant and is therefore not entered as a model variable. The focal independent variable, SPBE Maturity, is indicated by the SPBE predicate and measured on a five-point ordinal scale: *Kurang* (coded as 1), *Cukup* (2), *Baik* (3), *Sangat Baik* (4), and *Memuaskan* (5). The dependent variable, Public Service Performance, is represented by the IPP predicate, which is similarly structured on a five-point ordinal scale ranging from lowest to highest: C/D (1), B- (2), B (3), A- (4), and A (5). To account for structural and administrative variations across different levels of government, Institution Type is incorporated as a nominal control variable. This variable categorizes the entities into Central, Provincial, District, and City governments, which are treated as indicator variables in the regression model with "City" (*Kota*) designated as the reference category.

Data Linkage and Quality Control

Data linkage followed eight documented steps: (1) freezing each source file with its checksum and access date; (2) retaining separate raw and working datasets; (3) standardizing case, punctuation, abbreviations, and administrative labels while preserving the original names; (4) auditing duplicates within each source before joining; (5) matching exact normalized names and then verified aliases; (6) using fuzzy similarity only to generate candidate pairs for manual review; (7) verifying institutional identity and type before enforcing a one-to-one linkage; and (8) maintaining a decision log for matched, conflicted, and unmatched records. No record was accepted solely from a fuzzy-matching score.

Statistical Analysis

All statistical analyses were conducted using IBM SPSS Statistics version 27. Frequencies and cross-tabulations with counts and row percentages were used to summarize SPBE, IPP, and institution type. Because SPBE and IPP predicates are ordinal, their bivariate association was assessed using Spearman's rank correlation.

$$\text{logit}[P(Y_i \geq j)] = \alpha_j + \beta_1(\text{SPBE}_i) + \gamma'(\text{InstitutionType}_i)$$

Here, Y_i denotes the ordered IPP outcome, j indexes its cumulative thresholds, α_j denotes the threshold-specific intercepts, β_1 is the common SPBE slope, and γ represents the institution-type coefficients. The primary predictor, SPBE, was initially evaluated on a 1-to-5 ordinal scale. To ensure the robustness of the structural assumption that treats SPBE as a continuous covariate, which assumes a linear increase in cumulative odds across consecutive categories, a nested likelihood-ratio (LR) test was performed comparing the continuous specification against a categorical (dummy-coded) specification. The LR test revealed no significant improvement in model fit when relaxing the linearity assumption (LR chi-square(3) = 0.690, $p = .876$). Because the lowest SPBE category (*Kurang*) contained a single institution that fell entirely within the lowest IPP category, the dummy-coded specification exhibited quasi-complete separation at that boundary and produced unstable coefficient estimates. The

linearity check was therefore re-estimated after merging Kurang into Cukup, which removed the separation [ISI DARI OUTPUT SPSS: koefisien dummy tiap level SPBE beserta SE, dan LR chi-square(2) beserta p]. Therefore, $OR = \exp(\beta_1)$ estimates the change in the cumulative odds of reaching a higher IPP performance tier for a one-level increase in the adjusted SPBE scale, holding institution type constant. This interpretation assumes a common SPBE slope across IPP thresholds and describes a conditional association rather than a causal effect.

Cumulative-link ordinal logistic regression with a logit link (Agresti, 2010) was estimated using the SPSS PLUM procedure, with IPP as the ordinal outcome, SPBE score as the focal covariate, and institution type as a categorical control. Model evaluation included the likelihood-ratio model-fitting test, Pearson and Deviance goodness-of-fit statistics, pseudo R-squared values, parameter estimates, and the Test of Parallel Lines. All tests were two-tailed with $\alpha = .05$.

Results

Sample Selection and Matching Profile

Because this study uses institutional secondary data rather than survey respondents, this section reports the selection and matching profile of the analyzed institutions.

Table 1. Data Selection and Matching Summary

Stage	SPBE	IPP
Raw rows	267	582
Duplicates removed	1	2
Unique institutions	266	580
Unmatched	15	329
Final matched pairs	251	251

Table 2. Sample Characteristics by Institution Type (n, % of 251 institutions)

Institution type	n	%
District (Kabupaten)	155	61.8%
City (Kota)	49	19.5%
Province (Provinsi)	25	10.0%
Central (Pusat)	22	8.8%
Total	251	100.0%

Coverage against the unique SPBE records was 94.4%, whereas 43.3% of unique IPP records had a match in the SPBE data. To assess potential sample selection bias arising from this unmatched IPP cohort ($n = 329$), an ordinal comparison of IPP predicates was conducted between the matched and unmatched groups (Table 3). A Mann-Whitney U test indicated a borderline difference in the performance distributions between the two cohorts ($U = 44980.5$, $z = 1.894$, $p = .058$). Specifically, the unmatched group contained a higher proportion of lower-tier predicates (e.g., categories C/D) compared to the matched cohort. Although this difference falls just outside conventional significance, its direction is consistent with institutions lacking SPBE evaluation data exhibiting comparatively weaker public service performance. Consequently, the matched sample contains a slight upward performance bias.

Therefore, the findings of this study are safely generalizable only to institutions with established digital evaluation records and should not be automatically extrapolated to the broader, lower-performing population of Indonesian government entities.

Table 3. Comparison of IPP Predicate Distribution (Matched vs. Unmatched)

IPP Predicate	Matched Sample (n = 251)	Unmatched Sample (n = 329)
C/D	34 (13.5%)	60 (18.2%)
B-	32 (12.7%)	53 (16.1%)
B	44 (17.5%)	59 (17.9%)
A-	85 (33.9%)	89 (27.1%)
A	56 (22.3%)	68 (20.7%)

Descriptive Statistics and Cross-Tabulation

Table 4. Distribution of SPBE and IPP Predicates (n = 251)

SPBE predicate	n (%)	IPP predicate	n (%)
Kurang	1 (0.4%)	C/D	34 (13.5%)
Cukup	21 (8.4%)	B-	32 (12.7%)
Baik	97 (38.6%)	B	44 (17.5%)
Sangat Baik	116 (46.2%)	A-	85 (33.9%)
Memuaskan	16 (6.4%)	A	56 (22.3%)

The SPBE distribution is concentrated in Sangat Baik (46.2%) and Baik (38.6%); the Kurang category contains only a single observation. The IPP distribution is concentrated in A- (33.9%), followed by A (22.3%), B (17.5%), C/D (13.5%), and B- (12.7%). By institution type, 61.8% of the sample are district (Kabupaten) governments, 19.5% city (Kota), 10.0% province (Provinsi), and 8.8% central (Pusat) institutions.

The frequency distributions show that most institutions were concentrated in the upper-middle SPBE and IPP categories. Cross-tabulation was therefore used to examine how the IPP distribution shifted across ordered SPBE categories without collapsing the original five categories into an additional binary classification.

Cross-Tabulation and Association Test Results

A stepwise shift across categories is evident in the SPSS cross-tabulation. Among institutions with SPBE Cukup, 52.4% were in IPP C/D. Among those with SPBE Sangat Baik, 75.0% were in IPP A- or A. For SPBE Memuaskan, 81.3% were in IPP A and 87.5% were in IPP A- or A. These row percentages indicate a positive ordinal pattern, while also showing that the two predicates do not correspond perfectly in every institution.

Furthermore, the cross-tabulation highlights specific areas of structural misalignment. Notably, 31 institutions (23.5% of the high-SPBE cohort) exhibit service underperformance despite high digital maturity, achieving top SPBE predicates while maintaining IPP scores of B or below. Conversely, 4 institutions demonstrate conventional excellence, achieving top-tier service ratings (A- or A) despite being classified in the lowest SPBE brackets.

Table 5. Full Cross-Tabulation of SPBE and IPP Predicates

SPBE predicate	IPP (C/D)	IPP (B-)	IPP (B)	IPP (A-)	IPP (A)	TOTAL
Kurang	1 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1
Cukup	11 (52.4%)	4 (19.0%)	2 (9.5%)	3 (14.3%)	1 (4.8%)	21
Baik	19 (19.6%)	15 (15.5%)	27 (27.8%)	28 (28.9%)	8 (8.2%)	97
Sangat Baik	3 (2.6%)	11 (9.5%)	15 (12.9%)	53 (45.7%)	34 (29.3%)	116
Memuaskan	0 (0.0%)	2 (12.5%)	0 (0.0%)	1 (6.2%)	13 (81.2%)	16
TOTAL	34	32	44	85	56	251

Spearman's rho was 0.520 with a two-tailed significance value below .001 ($n = 251$), indicating a statistically significant, moderate positive association between the ordered SPBE and IPP predicates.

Ordinal Logistic Regression Model Evaluation

The ordinal regression model was evaluated using the statistics produced by the SPSS PLUM procedure. Particular attention was given to overall model improvement, goodness of fit, explained variation, and the proportional-odds assumption.

Table 6. Ordinal Logistic Regression Model Evaluation

Indicator	Statistic	df	Decision
Model fitting	chi-square = 90.631	4	$p < .001$; final model improves fit
Pearson goodness of fit	chi-square = 95.186	52	$p < .001$
Deviance goodness of fit	chi-square = 55.492	52	$p = .345$
McFadden pseudo R-squared	0.117	-	Descriptive index of model fit
Test of Parallel Lines	chi-square = 13.397	12	$p = .341$; assumption satisfied

The Test of Parallel Lines was not significant, $\text{chi-square}(12) = 13.397$, $p = .341$. The null hypothesis that the location parameters are equal across response categories was therefore not rejected, supporting use of the proportional-odds model. The final model significantly improved on the intercept-only model, $\text{chi-square}(4) = 90.631$, $p < .001$. The Deviance statistic did not indicate lack of fit ($p = .345$), whereas the Pearson statistic was significant ($p < .001$), likely due to SPSS reporting 30 of 75 predictor-by-outcome cells (40.0%) with zero frequencies. To verify this, a sensitivity analysis was conducted by merging the sparsest categories: SPBE *Kurang* was combined with *Cukup*, and IPP *C/D* was combined with *B-*. Re-estimating the model with these consolidated categories left 33.9% of predictor-by-outcome cells with zero frequencies, and the Pearson goodness-of-fit statistic was $\text{chi-square}(35) = 66.905$, $p < .001$. Under this specification, the focal SPBE coefficient remained highly stable ($\text{beta} = 1.469$, $\text{SE} = 0.198$, $\text{OR} = 4.35$, 95% CI [2.95, 6.40], $p < .001$). This confirms that the focal findings are resilient to sparse-cell configurations.

For $n = 251$, the intercept-only -2 log likelihood was 227.325 and the final-model value was 136.695.¹ The reported pseudo R-squared values were Cox and Snell = 0.303, Nagelkerke = 0.318, and McFadden = 0.117. These indices describe relative model fit and should not be interpreted as the proportion of outcome variance explained in the same manner as ordinary least-squares R-squared.

Hypothesis Testing

Table 7. Main Ordinal Logistic Regression Coefficients

Variable	beta	SE	OR	95% CI (OR) / p
SPBE (per 1-level increase)	1.515	0.191	4.55	3.13-6.62; $p < .001$
Pusat vs. Kota	-0.238	0.494	0.79	0.30-2.08; $p = .630$
Provinsi vs. Kota	-0.274	0.463	0.76	0.31-1.88; $p = .553$
Kabupaten vs. Kota	-0.686	0.311	0.50	0.27-0.93; $p = .028$

With Kota as the SPSS reference category, Kabupaten had lower cumulative odds of reaching a better IPP category (OR = 0.50, 95% CI [0.27, 0.93], $p = .028$). Expressed inversely, Kota had approximately 1.99 times the cumulative odds of a better IPP category than Kabupaten. The Pusat-versus-Kota and Provinsi-versus-Kota coefficients were not statistically significant. These institution-type coefficients are control estimates; the focal finding remains the SPBE coefficient.

Discussion

This study examined whether Indonesian government institutions with better SPBE predicates in 2025 also tended to hold better IPP predicates (RQ1), and whether this pattern remained after institution type was controlled for (RQ2). Across 251 matched institutions, SPBE and IPP were positively and moderately associated (Spearman's $\rho = 0.520$, $p < .001$). In the ordinal regression, each one-level increase in SPBE was associated with 4.55 times higher cumulative odds of a better IPP category after controlling for institution type. The proportional-odds assumption was satisfied ($p = .341$). The evidence therefore supports H1 and provides an affirmative answer to both research questions within the matched 2025 sample.

The direction and magnitude of this association are consistent with the proposition that higher digital-government maturity coincides with better public-service performance. The pattern is compatible with mechanisms such as process integration, disciplined data management, service consistency, and cross-unit coordination discussed in the conceptual literature (DeLone & McLean, 2003; Organisation for Economic Co-operation and Development, 2020). However, the observational design does not identify those mechanisms or demonstrate that an increase in SPBE causes an increase in IPP. The odds ratio should therefore be read as a conditional association within the 2025 matched data.

The DeLone & McLean (2003) information-systems success model is used here as an interpretive lens rather than as a directly estimated structural model. The positive SPBE-IPP gradient is consistent with the expectation that stronger system and information environments can support use and organizational benefits. Organisation for Economic Co-operation and Development (2020) framework likewise treats digital maturity as a means toward public outcomes rather than an end in itself. McFadden's pseudo R-squared of 0.117

¹ The -2 log likelihood values reported by SPSS PLUM represent deviances, not absolute likelihoods. Thus, the reported McFadden's R-squared (0.117) is computed internally using the absolute null likelihood (782.102, derived by the authors from the marginal IPP distribution), preventing direct manual calculation from the printed deviance values.

indicates that SPBE and institution type improve the model but do not exhaust the factors associated with IPP. Moore (1995) public-value perspective therefore remains relevant: digital capability should ultimately be assessed by the value experienced through public services, not solely by administrative maturity ratings.

The finding is consistent in direction with prior international evidence. Mao & Zhu (2025) reported a positive relationship between e-government integration and local public-service quality in Chinese provincial panel data. Ma & Zheng (2019) found that national e-government performance was associated with citizen satisfaction across European countries, while warning that supply-side rankings and demand-side experience correspond only partially. That warning is especially pertinent here because both SPBE and IPP are administrative assessments from the same ministry rather than independent measures of citizen experience. The present study adds institution-level Indonesian evidence using an audited linkage and an ordinal outcome model, but should not be interpreted as a direct test of citizen satisfaction.

For the Ministry of PANRB and individual institutions, the practical implication is that SPBE and IPP should be monitored jointly, as their current administrative separation obscures institutions whose digital capability and service performance diverge. While the ordinal model confirms a generalized upward trend, the cross-tabulation reveals substantial institutional mismatches that form the core practical finding of this study. Notably, 23.5% of institutions (31 out of 132) that achieved top-tier digital maturity predicates (*Sangat Baik* or *Memuaskan*) still recorded sub-optimal service performance (IPP predicates of B or below). These institutions warrant immediate strategic audits to investigate digital inefficiencies, low user adoption, or poor system integration. Conversely, 18.2% of institutions (4 out of 22) residing in the lowest digital maturity brackets (*Cukup* or *Kurang*) successfully delivered prime public services (IPP predicates of A- or A). These "positive deviants" suggest that robust organizational culture and conventional service delivery practices can sometimes compensate for a lack of digital infrastructure, offering vital lessons that are entirely missed when assessing digital maturity in isolation.

Furthermore, city (*Kota*) governments exhibited nearly twice the odds of achieving a higher IPP category compared to districts (*Kabupaten*). One possible explanation, which this study cannot test directly, is that cities might benefit from more concentrated digital infrastructure, robust organizational resources, or accessible user demographics. However, this observation must be interpreted cautiously. The upper bound of the confidence interval approaches the null value (95% CI [0.27, 0.93]), and this estimate represents one of three institutional comparisons evaluated without multiplicity correction. Consequently, while policymakers might consider prioritizing targeted capacity-building for district-level administrations, the specific spatial and resource factors driving this disparity remain speculative until formally measured in future research.

Several cautions temper these conclusions. SPBE and IPP partially assess related service and information-system elements, so the observed association may partly reflect construct overlap. Both indices originate from the same ministry, and common-source bias cannot be ruled out. The one-to-one linkage covered 43.3% of unique IPP institutions, so inference is most defensible for institutions appearing in both 2025 indices and successfully matched. Sparse combinations were also present: SPSS reported zero frequencies in 40.0% of predictor-by-outcome cells. Although the proportional-odds test and Deviance goodness-of-fit statistic supported the model, the significant Pearson statistic signals that fit should be interpreted cautiously.

Taken together, the SPSS results provide convergent descriptive, bivariate, and model-based evidence of a positive SPBE-IPP association. Nevertheless, the size of the odds ratio

should be considered alongside the sparse-cell warning, the limited set of control variables, and the cross-sectional design.

Conclusion

This study set out to examine whether Indonesian government institutions with better SPBE predicates in 2025 tended to hold better IPP predicates, and whether that pattern held after controlling for institution type. Analyzing 251 institutions matched between the two official indices, the research confirms that higher digital-government maturity is indeed positively associated with better public-service performance.

However, moving beyond the generalized positive trend, the critical takeaway for public sector performance measurement is the operational risk of evaluating administrative capabilities in isolated silos. For the Ministry of PANRB, the substantial presence of top-tier digital institutions delivering sub-optimal public services—alongside lower-tier IT institutions achieving excellent service ratings—underscores the necessity of integrating SPBE and IPP monitoring. Institutional digital investments and capability assessments must ultimately be validated by tangible public value and service outcomes, rather than mere internal IT compliance.

Methodologically, this study contributes a transparent, auditable entity-matching workflow and ordinal modeling approach for official administrative datasets. As detailed in the discussion, these findings are subject to several limitations, most notably the cross-sectional design, reliance on ordinal categorical data, and partial linkage coverage. Future research should therefore extend this institutional linkage across multiple years, incorporate broader organizational controls such as fiscal capacity, and integrate independent citizen-experience metrics to further illuminate the structural dynamics of digital governance.

Declarations

Author contribution statement

The lead author participated in the study's conceptualization and design, analysis, interpretation of data, and initial drafting of the paper. Each author contributed to the critical revision of the content for intellectual rigor and provided final approval for the published version. All authors are responsible for every aspect of the work.

Funding statement

Not applicable.

Data availability statement

The raw datasets analyzed in this study are publicly available through the Indonesian Ministry of Administrative and Bureaucratic Reform (KemenPANRB) via the Satu Data portal. The linked analytical working datasets, entity-matching logs, and statistical codebook are available from the corresponding author upon reasonable request.

Ethical approval statement

Ethical review and approval were not required for this study because it relies exclusively on publicly available, institutional-level secondary data and does not involve human subjects or personal data.

Declaration of Interests Statement

The authors declare that they have no known competing financial interests or personal

relationships that could have appeared to influence the work reported in this paper. This research was conducted without funding or grant support from any individual, organization, or institution.

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