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Advanced at the Front, Fragile at the Back: SPBE's Service–Management Gap in Indonesian Agencies

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A B S T R A C T

Indonesia's Electronic-Based Government System (SPBE) has expanded online services faster than the internal management on which they depend. This study measures the gap between the services domain (front office) and the management domain (back office) in the 2024 evaluation results of 615 central and local agencies and national domain scores for 2021–2024, applying Wilcoxon signed-rank and Kruskal–Wallis tests and a configuration typology. Services outscored management in 99.7% of agencies, with a mean gap of 1.96 points, and the national gap widened from 1.58 to 1.92. The gap was largest among cities and regencies, and 181 agencies, 139 of them regencies, combined very good services with poor management. Strengthening data, asset, and ICT human resource management should precede further service expansion.

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INTRODUCTION

Citizens encounter digital government through its front office: the portals, applications, and online forms that replace a queue at a counter. What happens behind that interface is less visible. Data must be collected once and shared, ICT assets must be maintained, and staff must be able to run and repair the systems they use. Layne and Lee (2001) captured this dependence in their stage model, in which transaction services require internal government systems to be connected to online interfaces, and full maturity requires integration across functions and levels of government. A front office that grows faster than its back office may look advanced while resting on fragile foundations.

Indonesia offers a clear case. Presidential Regulation No. 95 of 2018 established the Electronic-Based Government System (*Sistem Pemerintahan Berbasis Elektronik*, SPBE), and Ministerial Regulation No. 59 of 2020 introduced an annual evaluation that scores agencies on internal policy, governance, management, and services. The services domain rose from 2.81 in 2021 to 3.78 in 2024, whereas the management domain, which covers data, ICT assets, human resources, knowledge, information security, and related functions, moved only from 1.23 to 1.86 (Kementerian Pendayagunaan Aparatur Negara dan Reformasi Birokrasi [Kementerian PANRB], 2024). The national gap between the two therefore widened while both improved.

Indonesian research has examined parts of this problem. Studies have assessed data interoperability for SPBE in Wonosobo Regency (Mutiarin et al., 2024), the interoperability maturity of employment data across ministries and regions (Wahyuni et al., 2024), and the services domain of a single regency office (Saputra et al., 2020). Others have proposed enterprise architecture to address fragmented SPBE implementation (Rahmadani et al., 2025) or traced the consolidation of records management into the SRIKANDI platform (Suprayitno et al., 2024). Most of this work concerns single sites or systems. Regional inequality in front-office services has been documented elsewhere (Budai & Tózsa, 2020), yet no study has measured, across the whole population of evaluated agencies, how far Indonesian front offices have moved ahead of their back offices.

This article fills that gap. It asks how large the service–management gap is and how it has evolved since 2021, whether it differs across central, provincial, city, and regency governments, and how many agencies combine advanced services with weak management.

THEORETICAL FRAMEWORK

Maturity research helps to explain why such a gap matters. Early models described e-government as a sequence of stages, from online presence through interaction and transaction to integration (Chohan et al., 2020). Reviews have since noted large differences among models and a shift from stage-based to dimension-based assessment (Hujran et al., 2023). Divergence is also common within a single stage. Among 2,470 Mexican municipalities, websites classified at the same level differed sharply in what they actually offered (Carrera Mora, 2023), and Ecuador combined a strong Online Service Index with persistent

implementation weaknesses (Martín Mayoral, 2025). A single score, in other words, can hide an unbalanced organisation.

A dimensional view directs attention to organisational capability. Gil-Garcia (2012) argued that e-government success is enacted through the interplay of technology, organisational capabilities, and institutions rather than delivered by technology alone. Public-sector maturity models accordingly include the digital competencies of employees and the digitalisation of internal processes (Kafel et al., 2021), and evidence from 2,219 Italian municipalities links e-maturity to organisational factors and ICT expenditure (Tangi et al., 2023). IT capabilities form the base on which e-government systems succeed (Alshaher, 2021), and municipal readiness for new technologies depends on organisational conditions that many local governments lack (Aristovnik et al., 2025).

The back office itself is hard to modernise. Legacy systems, particularly those that stand alone or hold incompatible data, remain a major obstacle to digital transformation in European public administration (Irani et al., 2023). In developing countries, IT integration depends on a web of technical, organisational, and institutional factors (Madaki et al., 2024), and e-government systems in Botswana suffered from poor communication and integration among agencies (Thela et al., 2025). Organisational interoperability is now treated as a precondition for transformation rather than a technical detail (Margariti et al., 2022). Brazil illustrates the risk of separating the two sides. Its municipalities pursued interoperable financial systems and citizen-facing digital services as parallel agendas that were seldom considered together (de Azevedo et al., 2025).

People and assets complete the picture. Civil servants' readiness for digital work depends on organisational support (Pulkkinen et al., 2025), and digital skills strengthen the resilience of public employees (Sagarik, 2024). The gap in advanced skills needed for interoperable services has become a policy concern in its own right (Stasis & Papastylianou, 2022). Municipalities also struggle to manage their physical and digital assets across life cycles (Lafioune et al., 2024). The World Bank (2016) described these elements as the "analog complements" of digital investment, and Dunleavy et al. (2006) warned that digital-era governance fails when organisations do not rebuild internal capability. Heeks (2006) located many failures in the gap between the assumptions of a system design and the realities of the organisation that must operate it.

Figure 1 presents the framework. Services form the visible front office, management forms the back office, and governance and policy provide the foundation. The capacity of each government tier conditions how far the front can move ahead of the back. Three hypotheses follow: services exceed management systematically (H1), the gap is larger at lower tiers (H2), and agencies with strong services but poor management are concentrated among regencies (H3).

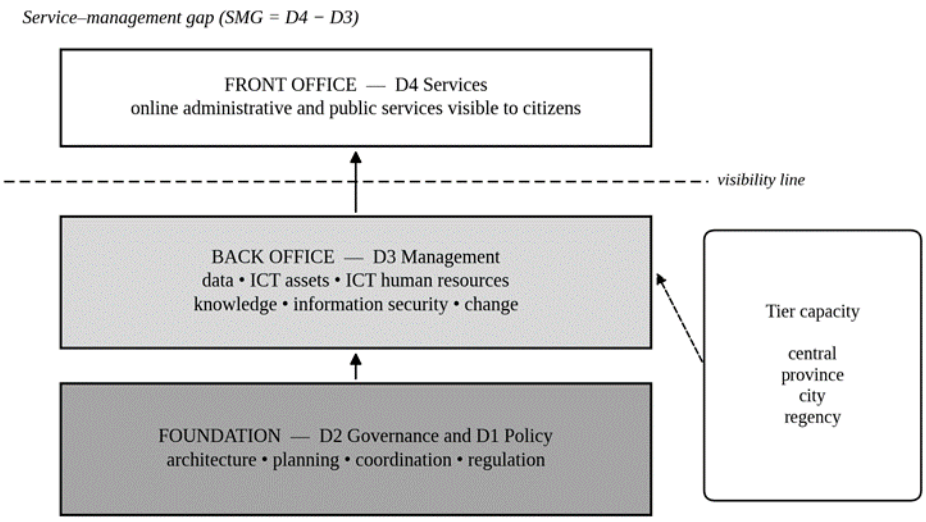

Figure 1. Conceptual Framework of the Service–Management Gap
Source: Author's elaboration based on Layne and Lee (2001), Gil-Garcia (2012), and Presidential Regulation No. 95 of 2018

METHODS

This study uses a quantitative, descriptive-comparative design based on secondary analysis of official evaluation data, an approach that allows existing data to answer new questions provided that their origin and limits are made explicit (Cheng & Phillips, 2014). The data came from the 2024 SPBE evaluation report, which contains the results of 615 agencies, namely 92 central institutions, 38 provinces, 93 cities, and 392 regencies, together with national domain scores (Kementerian PANRB, 2024). The management domain has been reported separately only since 2021, so the national trend covers 2021–2024.

SPBE domains are scored from 1 to 5. Scores are rated poor (below 1.80), fair (1.80–2.59), good (2.60–3.49), very good (3.50–4.19), or excellent (4.20 and above) under Ministerial Regulation No. 59 of 2020. The services domain (D4) covers electronic administrative and public services, while the management domain (D3) covers the management functions set out in Presidential Regulation No. 95 of 2018, including risk, information security, data, ICT assets, human resources, knowledge, change, and services, together with ICT audit. The central variable is the service–management gap (SMG) of each agency *i*, as defined in Equation (1).

$$SMG_i = D4_i - D3_i \quad \ldots\ldots\ldots\ldots\ldots (1)$$

Agencies were also grouped into four configurations. A *fragile front* combines very good or excellent services (D4 ≥ 3.50) with poor management (D3 < 1.80). A *consolidated* profile has strong services and at least fair management, a *uniformly weak* profile has both domains below these thresholds, and a *moderate* profile covers the remainder. Three alternative thresholds were tested for robustness.

H1 was tested with the Wilcoxon signed-rank test (Wilcoxon, 1945), overall and within each tier, with the effect size in Equation (2). H2 was tested with the Kruskal–Wallis test (Kruskal & Wallis, 1952), followed by Dunn's

comparisons with Bonferroni adjustment. Spearman's correlation described associations among domains. Record counts were checked against the published totals, and analyses were run in Python with SciPy.

$$r = |Z| / \sqrt{N} \quad \ldots\ldots\ldots\ldots\ldots (2)$$

Data quality was checked before analysis. The number of extracted records matched the totals published for each tier, and domain scores were taken as reported. Ties between the two domains were excluded from the Wilcoxon ranking, as the procedure requires. Only one agency recorded identical scores and one recorded a higher management than services score, so these exclusions do not affect the conclusions.

RESULTS

A Widening Gap at the National Level

Figure 2 compares the two domains nationally. Both improved every year. Services moved from the good range into the very good range in 2024, while management only crossed from poor to fair. The distance between them grew from 1.58 points in 2021 to 1.64 in 2022, 1.81 in 2023, and 1.92 in 2024. Management rose by 0.63 points over three years and services by 0.97, so the front office pulled further ahead even as the back office improved.

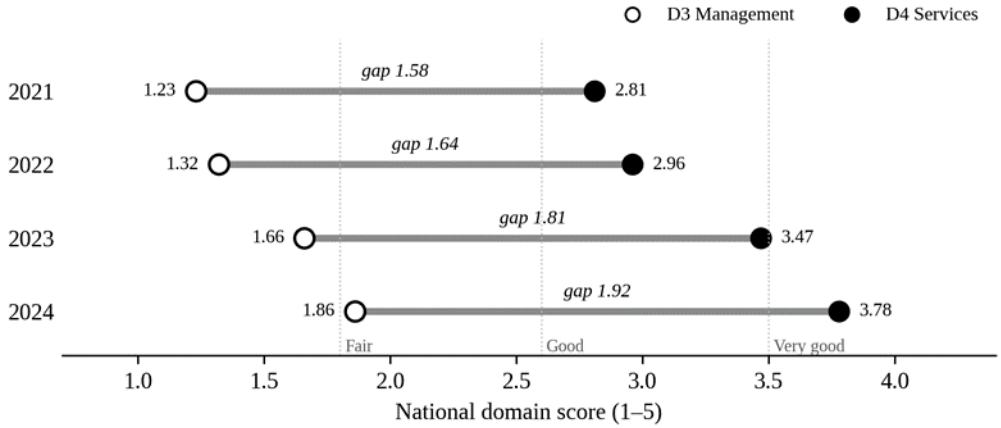

Figure 2. National Scores of the Management (D3) and Services (D4) Domains, 2021–2024

Source: Kementerian PANRB (2024), processed by the author

Services Ahead of Management in Almost Every Agency

The agency data confirm the national pattern with unusual consistency. Across 615 agencies, services averaged 3.84 and management 1.88, a mean gap of 1.96 points (Table 1). Only one agency scored higher on management than on services, and one recorded identical scores. Nearly half of all agencies (49.4%) recorded a gap of two points or more. The Wilcoxon test was significant overall and within every tier (all $p < .001$), and the effect size reached its practical maximum ($r = 0.87$) because almost every paired difference was positive. H1 is therefore strongly supported.

Table 1. Services, Management, and the Service–Management Gap by Government Tier, 2024

Tier	n	D4 M (SD)	D3 M (SD)	SMG M (SD)	D4 > D3 (%)	SMG ≥ 2 (%)	Z
Central	92	4.15 (0.55)	2.59 (0.82)	1.56 (0.69)	98.9	25.0	−8.33
Province	38	3.98 (0.68)	2.17 (0.91)	1.81 (0.58)	100.0	31.6	−5.37
City	93	4.05 (0.53)	2.03 (0.82)	2.02 (0.65)	100.0	48.4	−8.37
Regency	392	3.71 (0.64)	1.65 (0.74)	2.06 (0.59)	99.7	57.1	−17.14
All agencies	615	3.84 (0.64)	1.88 (0.85)	1.96 (0.64)	99.7	49.4	−21.47

Note: M = mean; SD = standard deviation; SMG = D4 − D3. All Wilcoxon tests significant at $p < .001$; $r = 0.87$ in every tier.
Source: Kementerian PANRB (2024), processed by the author

Figure 3 places all four domains side by side. Services were the strongest domain in every tier and management the weakest, with the management column (outlined) standing apart from the rest of the matrix. Central institutions still averaged only 2.59 in management, the lower bound of the good range, despite services averaging 4.15. Regencies averaged 1.65, which is in the poor range.

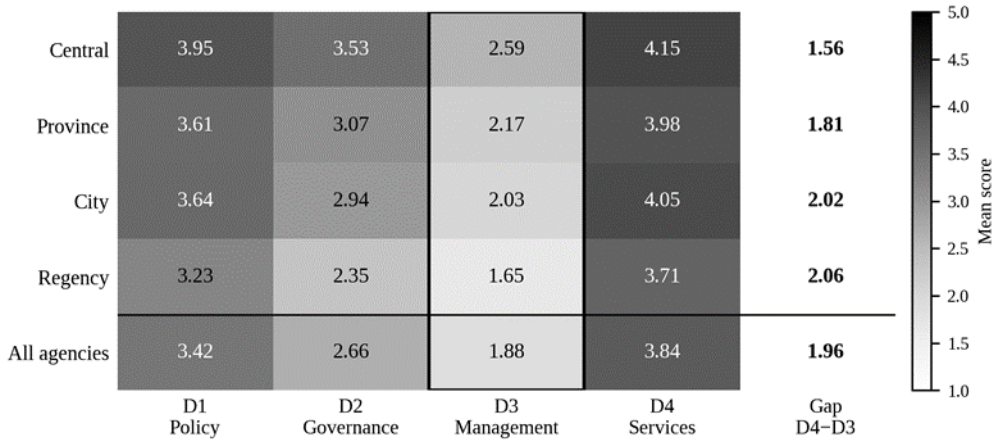

Figure 3. Mean SPBE Domain Scores by Government Tier, 2024
Source: Kementerian PANRB (2024), processed by the author

Governance follows management more closely than services do. In each tier the governance column in Figure 3 sits between the two, and it declines down the hierarchy at almost the same rate as management, from 3.53 among central institutions to 2.35 among regencies. Services decline far less, from 4.15 to 3.71. Local governments have therefore kept pace in what citizens see while falling behind in the planning and management layers that support it.

How the Gap Varies Across Government Tiers

The gap widened down the hierarchy, from 1.56 among central institutions to 1.81 in provinces, 2.02 in cities, and 2.06 in regencies. The Kruskal–Wallis test confirmed the difference, $H(3) = 46.12$, $p < .001$, with a small-to-moderate effect ($\varepsilon^2 = 0.075$). Dunn's comparisons in Table 2 show that central institutions differed significantly from cities and regencies, and provinces from regencies. Cities and regencies did not differ from each other. H2 is supported, with the qualification

that the main break lies between central institutions and local governments, while cities and regencies share a similar gap.

Table 2. Pairwise Comparisons of the Service–Management Gap (Dunn's Test)

Comparison	Mean ranks	z	p (Bonferroni)
Central – Province	202.7 vs 250.9	−1.41	.957
Central – City	202.7 vs 319.0	−4.45	< .001
Central – Regency	202.7 vs 335.6	−6.46	< .001
Province – City	250.9 vs 319.0	−1.99	.277
Province – Regency	250.9 vs 335.6	−2.81	.030
City – Regency	319.0 vs 335.6	−0.81	1.000

Note: Kruskal–Wallis H(3) = 46.12, p < .001, ε² = 0.075.
Source: Kementerian PANRB (2024), processed by the author

Two Different Distributions

Averages understate how differently the two domains are distributed. Figure 4 shows the rating profile of each domain by tier. In services, 76.1% of all agencies were rated very good or excellent and only 3.4% fell below good. In management the picture is reversed: 51.4% were rated poor, 25.2% fair, and no agency reached excellent. Among regencies, 62.5% were rated poor in management, compared with 18.5% of central institutions. Most striking, 176 agencies, including 142 regencies, recorded the minimum management score of 1.00.

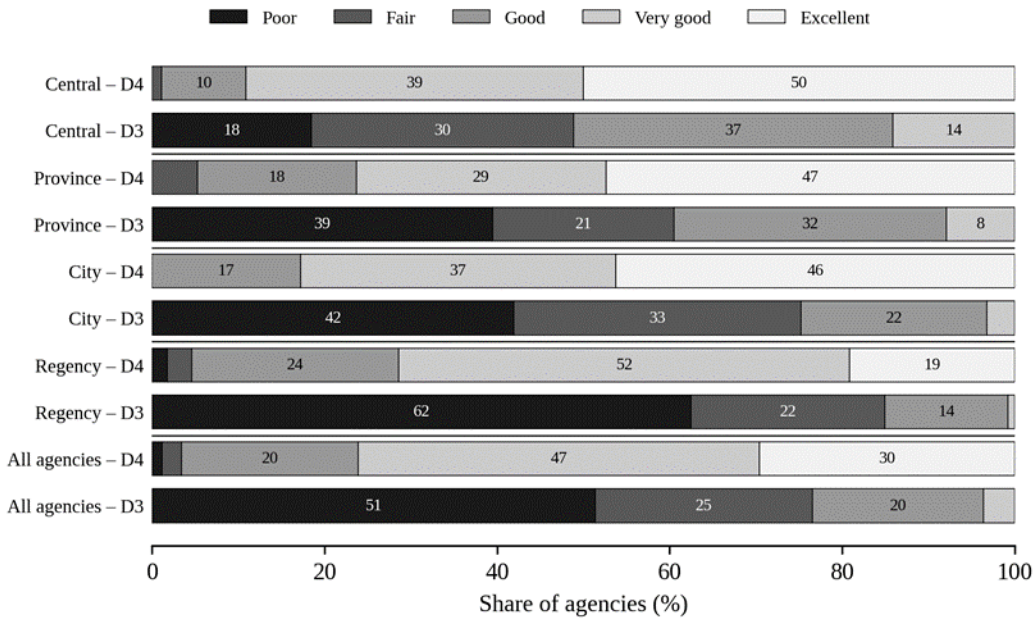

Figure 4. Rating Distribution of the Services (D4) and Management (D3) Domains by Government Tier, 2024

Source: Kementerian PANRB (2024), processed by the author. Note: Numbers inside the bars indicate percentages of agencies.

The Fragile Front

Table 3 classifies agencies by the configuration of their two domains. The consolidated profile was the largest group, with 287 agencies (46.7%), and it dominated among central institutions (76.1%). The fragile front was the second

largest group, with 181 agencies (29.4%). Of these, 139 were regencies, meaning that 35.5% of all regencies offered very good services on top of poor management, compared with 13.0% of central institutions. H3 is supported.

Table 3. Service–Management Configurations by Tier and Mean Domain Scores, 2024

2	Central	Province	City	Regency	Total (%)	D2	D3	D4
Consolidated	70	23	53	141	287 (46.7)	3.49	2.65	4.27
Fragile front	12	6	24	139	181 (29.4)	2.21	1.23	3.83
Uniformly weak	5	9	15	106	135 (22.0)	1.51	1.08	2.99
Moderate	5	0	1	6	12 (2.0)	2.61	2.46	3.26
Total	92	38	93	392	615 (100)	2.66	1.88	3.84

Note: Fragile front = D4 ≥ 3.50 and D3 < 1.80; consolidated = D4 ≥ 3.50 and D3 ≥ 1.80; uniformly weak = D4 < 3.50 and D3 < 1.80. D2–D4 are mean scores.
Source: Kementerian PANRB (2024), processed by the author

The profiles also reveal what separates the fragile front from the consolidated group. Their services differed only moderately (3.83 against 4.27), but their management scores differed sharply (1.23 against 2.65), and so did governance (2.21 against 3.49). Governance and management were closely correlated across all agencies ($\rho = 0.85$). Larger gaps were also associated with lower overall SPBE indices ($\rho = -0.31$), so the fragile front is not a hallmark of advanced agencies.

The concentration among local governments held under most alternative definitions. A gap of at least 2.50 points identified 137 agencies, 75.9% of them regencies, and a looser rule (D4 ≥ 3.50 and D3 < 2.60) identified 328 agencies, 68.0% of them regencies, both above the 63.7% regency share of the sample. A stricter rule requiring excellent services identified only 19 agencies, and regencies made up 42.1% of them. Few regencies reach excellent services, so the most extreme form of the fragile front is rare and more evenly spread.

DISCUSSION

The similarity between cities and regencies deserves comment. Cities offered stronger services than regencies but did not manage their back offices proportionately better, so their gap was almost as wide. Urban governments face greater demand for online services, and procuring applications is the quickest way to answer it. The capacity to manage data and assets does not scale in the same way, which suggests that the gap reflects organisational priorities as well as resources. Central institutions, by contrast, combine stronger management with more homogeneous services, and they are the only tier in which the consolidated profile clearly dominates.

Why the Back Office Lags

The results describe an SPBE that has reached the transaction stage at its interface without completing the integration beneath it. Layne and Lee (2001)

expected online transactions to be accompanied by the connection of internal systems. In most Indonesian agencies the interface arrived first. This pattern is consistent with the view of Gil-Garcia (2012) that technology does not produce success without organisational capability, and with evidence that front-office development can be highly uneven even within one country (Budai & Tózsa, 2020). Service applications are visible, relatively quick to procure, and easy to demonstrate to evaluators. Back-office work is slower and less visible. Designing services around citizens' journeys also requires the back office to share information across units, and technology-led initiatives often neglect this step (Saxena et al., 2022).

Resources help to explain why central institutions stand apart. E-maturity in Italian municipalities was associated with organisational factors and ICT expenditure (Tangi et al., 2023), and success in enacting e-government depends on organisational capabilities that are built over time (Gil-Garcia, 2012). Central institutions are likely to command larger ICT budgets and more specialised units than most regencies. Their smaller gap suggests that when capacity is available, agencies invest in the back office as well as the front.

Integration is the first obstacle. Legacy systems and incompatible data slow transformation even in advanced administrations (Irani et al., 2023), and integration in developing countries depends on organisational as much as technical factors (Madaki et al., 2024; Margariti et al., 2022). The Brazilian experience, where financial and service agendas ran in parallel (de Azevedo et al., 2025), resembles the Indonesian one. Indonesian studies point to the same bottleneck: data interoperability for SPBE still requires agreed information models (Mutiarin et al., 2024), employment data exist in multiple versions across organisations (Wahyuni et al., 2024), and SPBE implementation remains fragmented across regional governments (Rahmadani et al., 2025).

People and assets form the second obstacle, and here regencies are most exposed. Digital readiness depends on organisational support (Pulkkinen et al., 2025), and digital skills underpin the resilience of public employees (Sagarik, 2024). Advanced skills for interoperable services are scarce even in Europe (Stasis & Papastylianou, 2022). In Indonesian villages, limited computer and internet use among officials has held back e-government (Waluyo et al., 2022). Asset management adds a further demand that municipalities rarely meet without a dedicated framework (Lafioune et al., 2024). Digitalisation in Romanian public institutions depended jointly on infrastructure, data management practices, and employees (Greavu-Şerban et al., 2025), and these are precisely the elements that the SPBE management domain records. The World Bank (2016) called them analog complements, and the fragile front is where their absence is most visible.

Data management deserves particular emphasis. Presidential Regulation No. 39 of 2019 on One Data Indonesia requires agencies to produce and share data according to common standards, which presupposes a functioning back office. Data collaboration and smart data management are increasingly treated as core public-sector capabilities (Schmeling et al., 2025; Valle-Cruz & García-Contreras, 2025). The SRIKANDI platform shows that consolidation of fragmented applications is possible when mandated and coordinated nationally

(Suprayitno et al., 2024), and interoperability has become a condition for effective smart-city governance in Yogyakarta and Makassar (Hardi et al., 2025).

The link between governance and management offers a practical lesson. Fragile-front agencies were weak in both domains, which suggests that architecture, planning, and coordination carry the back office more than service applications do. Evaluation may reinforce the imbalance. Performance systems tend to improve what is easiest to show (Van Dooren et al., 2015), and services are easier to show than competent ICT staff or clean data. Heeks (2006) and Dunleavy et al. (2006) both warned that systems built ahead of organisational capability tend to disappoint. Maturity assessments that rely on the provision of services can also overstate progress (Tangi et al., 2023), and agencies at the same nominal level may differ widely in substance (Carrera Mora, 2023).

Policy Implications

Three implications follow. Investment should shift from adding service applications to strengthening data, asset, and ICT human resource management, with regencies as the priority. Consolidation offers one route. Shared-services centres reduce duplicate data collection in the back office (Bogdanoska Jovanovska et al., 2021), and service-oriented interoperability frameworks connect fragmented systems (Thela et al., 2025). Capability building offers another, since municipal technology readiness and employees' digital competencies are measurable dimensions of maturity (Aristovnik et al., 2025; Kafel et al., 2021). The SPBE evaluation itself could also report the gap between services and management, so that agencies are rewarded for balance rather than for visible services alone. These steps would align the implementation of Presidential Regulation No. 95 of 2018 with One Data Indonesia.

The findings also carry a lesson for measurement. A composite SPBE index averages domains that move at different speeds, so an agency with excellent services and a minimal management score can still appear to be making good progress. Reporting domain profiles, or at least the service–management gap, would allow supervisors to identify fragile fronts before new services are added on top of them. Tracking the same agencies across evaluation cycles would further show whether the gap closes as management catches up or widens as services continue to expand.

CONCLUSIONS AND RECOMMENDATIONS

Indonesia's SPBE is advanced at the front and fragile at the back. Services outscored management in almost every agency, the national gap widened between 2021 and 2024, and more than half of all agencies were rated poor in management while three quarters were very good or better in services. The gap was largest among local governments, and 181 agencies, most of them regencies, combined strong services with poor management. These agencies were also weak in governance, which points to architecture and planning as the foundation that the back office needs. Priority should go to data, asset, and ICT human resource management, and SPBE evaluation should reward balance across domains.

FURTHER STUDY

The study relies on a single year of agency data and on verified self-assessments, and the domains contain different indicators. Future research could build an agency panel across evaluation cycles and use case studies to explain how some regencies build their back office before expanding their front office.

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