



Digital Transformation of Public Services Based on E-Government in Indonesia: A Systematic Literature Review Using PRISMA and VOSviewer

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A B S T R A C T

This study is a Systematic Literature Review (SLR) that examines the transformation of public services from a manual system to a digital e-government-based system in Indonesia. Using the PRISMA 2020 protocol and bibliometric analysis via VOSviewer, a total of 30 articles from the Google Scholar, SINTA, and Scopus databases spanning various national and international journals indexed from 2022 to 2026 were systematically analyzed. The study's focus encompasses three main themes: (1) the transformation from manual to digital services, (2) the evaluation of regional public service applications, and (3) critical success factors for e-government implementation. The study's findings identified two thematic clusters and seven critical success factors. The implementation of public service digitalization in Indonesia still faces significant challenges, including gaps in public digital literacy, limitations in technological infrastructure in remote areas, and bureaucratic resistance. Technology-based innovations such as mobile applications, integrated service portals, big data, and blockchain demonstrate great potential in enhancing efficiency, transparency, and public satisfaction. This study recommends strengthening inclusive digital policies, enhancing the capacity of civil service personnel, and developing equitable digital infrastructure as prerequisites for the success of the national e-government transformation. The study's limitations include the exclusive use of sources in Indonesian and English, as well as the exclusion of gray literature.

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1. Introduction

Entering the era of Industrial Revolution 4.0 and Society 5.0, governments worldwide face transformative pressure to revolutionize the way they deliver services to the public. In Indonesia, this pressure has intensified following the COVID-19 pandemic, which dramatically accelerated the adoption of digital services across all sectors, including government public services. The national digital transformation agenda set out in Presidential Regulation No. 95 of 2018 on the Electronic-Based Government System (SPBE) has become the strategic policy foundation for accelerating e-government in Indonesia.

The concept of e-government has evolved beyond the mere digitalization of administrative processes to encompass a broader governance dimension, including transparency, accountability, citizen participation, and bureaucratic efficiency. [1] argues that digital governance is not merely the adoption of technology, but a fundamental transformation in the way governments interact with citizens, businesses, and other government

institutions. This transformation demands changes in organizational culture, business process restructuring, and the strengthening of apparatus human resource capacity.

Realities on the ground reveal a significant gap between ambitious digital governance policies and their actual implementation at the regional level. Various studies show that many regional governments still struggle with limited digital infrastructure and low digital literacy among both civil servants and the public as major barriers to digital service adoption [2]. System fragmentation that hinders interoperability between institutional data systems also remains a serious, unresolved constraint [3]. This gap creates a divide between the aspirations of digital transformation at the national policy level and the everyday service reality experienced by citizens [4].

Several recent trends in digital governance deserve serious attention. First, the emergence of the Government as a Platform (GaaP) approach, which enables the collaborative development of digital services among government, the private sector, and civil society. Second, the use of big data and artificial intelligence (AI) in public policy decision-making [5]. Third, the imperative of digital inclusion to ensure that digital transformation does not leave vulnerable groups and communities in remote areas behind.[6]

Although studies on e-government in Indonesia continue to grow, there remains a significant research gap: no Systematic Literature Review (SLR) has yet simultaneously synthesized the three dimensions of service transformation, application evaluation, and critical success factors based on the PRISMA 2020 protocol and VOSviewer bibliometric analysis for the Indonesian context in the 2022–2026 period. Existing partial studies tend to focus on a single aspect and a single region, resulting in findings that cannot be generalized nationally [7][8].

The novelty of this study lies in its use of a combined PRISMA 2020 and VOSviewer bibliometric analysis approach to map three dimensions of e-government simultaneously within the Indonesian context a methodological combination that has not been undertaken by previous research. The scientific contribution of this article is to provide an evidence-based synthesis that can serve as a foundation for national digital governance policy.

This study formulates three main research questions: (1) What are the patterns and trends in the transformation of public services from manual to digital, e-government-based systems in Indonesia during the 2022–2026 period? (2) How effective is the implementation of regional public service applications based on the existing literature? (3) What critical factors determine the success or failure of e-government implementation in Indonesia?

This study aims to: (1) synthesize the findings of 30 selected scientific articles on public service digitalization in Indonesia; (2) identify thematic patterns and research clusters using VOSviewer analysis; (3) evaluate the effectiveness of various approaches to regional public service digitalization; and (4) formulate evidence-based policy recommendations to accelerate an inclusive and sustainable e-government transformation in Indonesia.

State of the Art

The following literature review maps the conceptual and theoretical foundations underlying this study, covering the development of the e-government concept, the dynamics of public service transformation, the evaluation of regional service applications, and [11] the critical success factors for e-government implementation in Indonesia.

Concept and Evolution of E-Government

E-government conceptually refers to the use of information and communication technology (ICT) by government institutions to improve service efficiency, transparency, accountability, and citizen participation in governance processes. Over time, this concept has passed through several generations of evolution, from the first generation, which merely transferred physical documents into digital format, to the current generation, which focuses on integrated, ecosystem-based service platforms [10].

The theoretical frameworks commonly used in e-government research include the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT), and the DeLone and McLean information systems evaluation model. These models are used to analyze levels of technology acceptance, usage behavior, and the success of information systems implementation in public services [10]. In addition, the DeLone and McLean model emphasizes the importance of system quality, information quality, and service quality as key indicators of the success of a digital information system [6]. The DeLone and McLean model is considered relevant for evaluating digital-based public services because it assesses not only the technical aspects of the system, but also the level of usage and user experience in utilizing the service [10].

The transformation toward digital good governance requires not only technological change, but also institutional restructuring and regulatory reform. [10] asserts that digitalization should be understood as an enabler of good governance, not merely an end in itself, because successful digitalization is that which accelerates government responsiveness to citizens' needs and expands the space for public participation in development planning.

Transformation from Manual to Digital Services

The process of transforming public services from manual to digital systems in Indonesia is uneven and highly complex. Large cities with adequate fiscal capacity are able to make significant digital leaps, while regions with limited budgets and infrastructure are still grappling with the early stages of digitalization [6]. Similar conditions have also been documented in various regions, such as the City of Palembang, North Sorong Regency, and villages in Sulawesi [6] [8] [12].

[13] describes digital transformation as a layered process encompassing digitization (converting analog data to digital), digitalization (integrating digital technology into existing processes), and digital transformation (fundamentally redesigning business processes and service models). [14] documents how the Cakar (Cari Administrasi bagi Penduduk Kuantar) innovation in Kapanewon Kalasan successfully improved the accessibility of population administration services through a technology-assisted outreach approach. Similar innovations have also been found in the Village Self-Service Kiosk (Anjungan Pelayanan Mandiri Desa/APMD) in Tuban Regency [15] and in web-based village administration digitalization systems [16].

A major challenge in this transformation is the digital divide that remains wide between urban and rural populations, and between digitally literate younger generations and elderly citizens. [2] application in Bojonegoro, highlighting the importance of inclusive change-management strategies in every public service digitalization program.

Evaluation of Regional Public Service Applications

The evaluation of the effectiveness of regional public service applications has become a central theme in contemporary Indonesian e-government literature. Various evaluation methods have been applied, including the System Usability Scale (SUS), Heuristic Evaluation, TAM, and the DeLone–McLean evaluation model. [17] used a combination of SUS and Heuristic Evaluation to assess the Depok Single Window application, yielding important findings on usability aspects that need improvement. Other studies applied the Waterfall method to digitalize a sub-district public service system, demonstrating the importance of a structured development approach, and applied a similar approach to village-level public service information systems. [18] examined e-government-based public service innovation through the electronic birth certificate service (e-Lampid) in Surabaya City, finding that digital innovation in population administration services significantly improved ease of access, service speed, and public satisfaction compared to the previous manual system.

[19] examined the implementation of digitalization policy in the BPOM Mobile application, finding that the success of public service applications is strongly determined by the alignment between the application's technical design and its underlying regulations. [20] developed a Laravel-based integrated platform as a digitalization solution supporting interoperability among service modules. [21] in a comparative study of digital land-record transformation, found that data-format standardization is a prerequisite for system interoperability.

Critical Success Factors for E-Government

The reviewed literature identifies seven critical factors consistently associated with the success of e-government implementation in Indonesia. First, active support from regional leaders is a primary prerequisite for the success of digital transformation; without the commitment of regional heads, digitalization programs tend to stall at the policy level without real implementation [1]. [22] reinforces this through a study at DPMPTSP Palembang, which shows transformational leadership as the main determinant of digitalization success. Second, technology infrastructure in the form of reliable internet network availability and adequate hardware constitutes a technical foundation that cannot be ignored [6].

Third, the capacity of civil-service human resources determines the quality of system implementation and maintenance [23]. Fourth, the level of public digital literacy is an important factor influencing the success of digital service adoption, yet this aspect is still often overlooked in the planning and implementation of public service digital transformation [2]. In addition, the public's ability to understand and use digital technology also affects the effectiveness of electronic-based service usage across various regions [24].

Fifth, a clear legal framework provides the legitimacy foundation for e-government implementation [25]. Sixth, interoperability of systems across institutions is a crucial technical and governance challenge [3]. Seventh, local wisdom and contextual adaptation; digital innovations that take into account local community cultural characteristics tend to be more sustainable [9].

2. Method

2.1 Research Design: Systematic Literature Review (SLR)

This study uses the Systematic Literature Review (SLR) method as its main methodological approach. SLR was chosen for its ability to synthesize evidence from various sources systematically, transparently, and reproducibly, thereby producing more reliable conclusions than traditional narrative literature reviews. The SLR protocol follows the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines.

2.2 PRISMA Protocol

The article selection process was carried out through four PRISMA stages (Figure 1). (1) Identification: a literature search of the Google Scholar, SINTA, and Scopus databases using a combination of keywords: 'e-government Indonesia', 'public service digitalization', 'digital governance', 'regional public service application', and 'bureaucratic digital transformation', yielding 150 articles. (2) Screening: elimination of duplicates (20 articles) and articles deemed irrelevant based on title and abstract (60 articles), leaving 70 articles for the next stage. (3) Eligibility: full-text reading and evaluation using predetermined inclusion-exclusion criteria, resulting in 70 eligible articles. (4) Inclusion: the final determination of 30 articles that met all criteria for analysis.

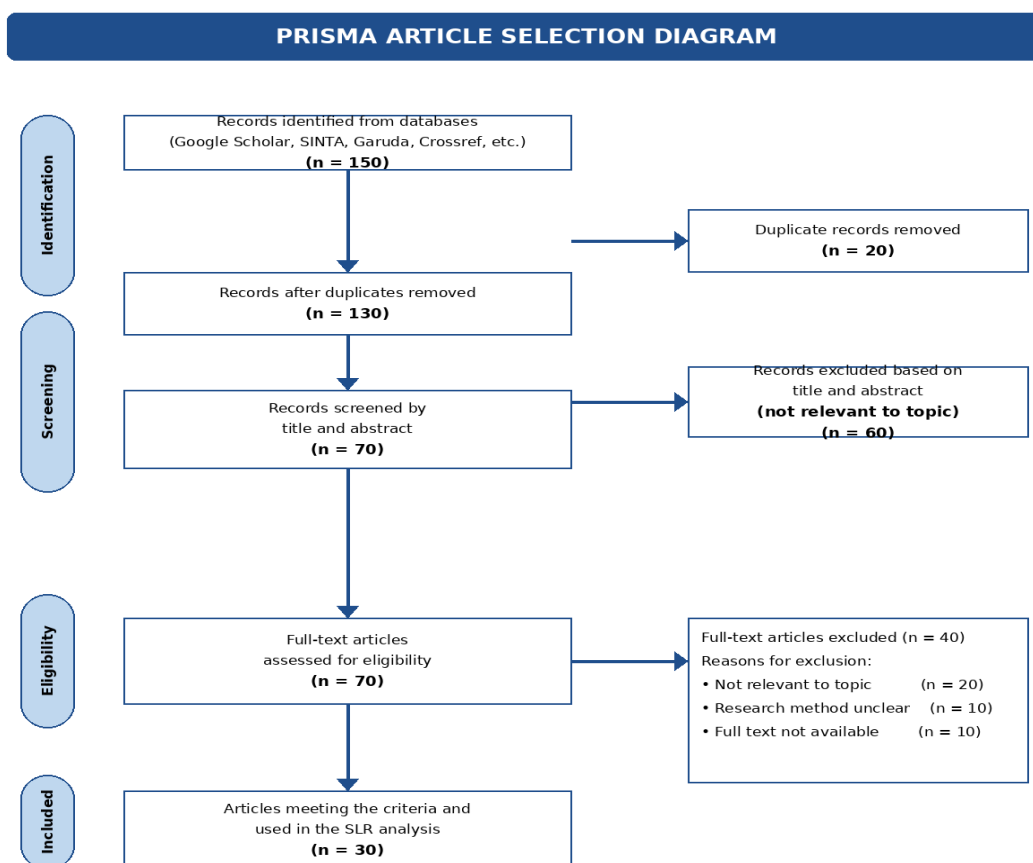


Figure 1. PRISMA 2020 Article Selection Flow Diagram

Source: Processed from the PRISMA selection results

2. 3 Inclusion and Exclusion Criteria

Inclusion criteria comprised: (1) articles published between 2022 and 2026; (2) discussing e-government implementation or public service digitalization; (3) focusing on the Indonesian context or having significant comparative relevance; (4) published in indexed scientific journals or reputable conference proceedings; and (5) available in full text. Exclusion criteria comprised: (1) opinion or editorial articles without an empirical basis; (2) articles not specifically addressing aspects of government public service; and (3) articles not written in Indonesian or English.

2.4 VOSviewer Analysis

This study used VOSviewer version 1.6.20 to conduct a bibliometric analysis of the 30 selected articles. VOSviewer was used for: (1) keyword co-occurrence network mapping to identify dominant thematic clusters; (2) overlay visualization to analyze the temporal trends of research-theme development; and (3) density visualization to measure the intensity of keyword occurrence. Of the 30 articles, only 22 had complete author-keyword metadata and could therefore be included in the co-occurrence analysis; the remaining 8 articles were still included in the qualitative thematic synthesis (Tables 2 and 3) but lacked explicit keyword data. The co-occurrence analysis used author keywords as the unit of analysis, the full-counting method, a minimum

occurrence threshold of 2, and a thesaurus file to merge Indonesian–English synonym terms (e.g., 'digitalisasi'/'digitalization', 'pelayanan publik'/'public service'). The analysis identified two dominant thematic clusters along with several specific sub-themes that interact to form an integrated knowledge ecosystem regarding public service digitalization in Indonesia.

2.5 Data Extraction and Synthesis Procedure

Data from each article were extracted using a standard form covering: article identity (title, author, year, journal), research methodology, geographic and institutional context, key findings, identified success/failure factors, and policy recommendations. Data synthesis was carried out through deductive thematic analysis based on the predetermined three dimensional framework, strengthened by inductive analysis for themes emerging organically from the literature (iterative thematic analysis). Given the variety of study types reviewed (case studies, qualitative, descriptive, community service, and R&D), quality assessment was conducted proportionally: case studies and qualitative studies were assessed based on the clarity of data-collection methods and source triangulation, while community-service and R&D reports were assessed based on the clarity of outputs and procedural replicability. This difference in evidentiary weight is reflected in the thematic synthesis, where findings from case studies/qualitative studies with triangulation were given greater emphasis than single descriptive reports.

3. RESULTS AND DISCUSSION

3.1 Characteristics of the Reviewed Articles

Analysis of the 30 articles meeting the inclusion criteria produced the following bibliometric profile. In terms of temporal distribution, the largest number of articles was published in 2024 (7 articles) and 2025 (10 articles), followed by 2023 (6 articles), 2026 (4 articles), and 2022 (3 articles). The research methodologies used include case studies, system evaluation, policy analysis, and community-service research.

Table 1. List of Articles Selected through PRISMA (n = 30)

No	Penulis	Judul (Ringkas)	Jurnal	Tahun	Metode
1	Arifin et al.	Digital governance: Studi kasus digitalisasi pelayanan publik terpadu di Kabupaten Serang	Jurnal Sosial Teknologi	2025	Case Study
2	Marfu'ah Kumalasar &	Digitalisasi pelayanan publik: Ketidaksiapan masyarakat dalam penggunaan aplikasi IKD	Kebijakan: Jrn. Ilmu Adm.	2024	Qualitative
3	Lailiyah	Digitalisasi desa sebagai upaya percepatan pelayanan publik mewujudkan good governance	RISTEK: Jrn. Riset & Teknologi	2022	Descriptive
4	Sallu	Digitalisasi kualitas pelayanan publik di Dinas Kependudukan dan Pencatatan Sipil	Remik: Jrn. Manajemen Informatika	2023	Descriptive
5	Anggriyani & Dewi	Efektivitas Aktualisasi Nilai-Nilai Pancasila Dalam Pelayanan Publik Berbasis Digitalisasi (Studi Kasus: DPMPSTP Kabupaten Gianyar, Provinsi Bali)	Kebijakan: Jrn. Ilmu Adm.	2025	Case Study
6	Qonita et al.	Penerapan kebijakan digitalisasi pelayanan publik pada aplikasi BPOM Mobile	Gunung Djati Conference Series	2024	Policy Evaluation

7	Teguh et al.	Penguatan literasi masyarakat terhadap digitalisasi pelayanan publik	I-Com: Indonesian Community Jrn.	2025	Community Service
8	Hanifah et al.	Digitalisasi layanan akta kelahiran: Studi interoperabilitas data Disdukcapil Kota Jambi	Jrn. Ilmiah PGSD Univ. Mandiri	2026	Case Study
9	Saputri Wicaksono	& Digitalisasi pelayanan publik melalui inovasi Cakar di Kapanewon Kalasan	J. of Governance & Policy Innovation	2025	Case Study
10	Nuraeni Aprilianingsih	& Implementasi big data dalam digitalisasi Mall Pelayanan Publik di Kabupaten Karawang	PRAJA: Jrn. Ilmiah Pemerintahan	2023	Case Study
11	Firdani & Hanif	Desain protokol keamanan data berbasis blockchain pada pengolahan data e-government	Metik Jurnal	2025	R & D
12	Al Khozaini & Mundiri	Mewujudkan transformasi digital berbasis kearifan lokal: Strategi menuju tata kelola unggul	JlIP-Jrn. Ilmiah Ilmu Pendidikan	2024	Conceptual
13	Kusumaningtyas & Prihandoko	Evaluasi aplikasi Depok Single Window dengan metode SUS dan Heuristic Evaluation	Jrn. Tek. Informasi & Ilmu Komp.	2024	Evaluation
14	Purwanti et al.	Peningkatan kualitas pegawai dalam efisiensi pelayanan publik berbasis digitalisasi	Jrn. Pendidikan dan Ilmu Sosial	2023	Descriptive
15	Rizqy & Setiawan	Digitalisasi layanan publik melalui Anjungan Pelayanan Mandiri Desa (APMD) di Kab. Tuban	NUSANTARA: Jrn. IPS	2025	Case Study
16	Purwanto & Yamin	Optimalisasi penyerapan aspirasi masyarakat melalui digitalisasi administrasi DPRD	JlIP-Jrn. Ilmiah Ilmu Pendidikan	2025	Policy
17	Afdila & Adnan	Digitalisasi Administrasi Publik Sebagai Salah Satu Perwujudan Reformasi Birokrasi	Jurnal Ilmiah Ekotrans & Erudisi	2022	Policy
18	Anggraini	Upaya meningkatkan kualitas layanan publik melalui digitalisasi di DPMPSTP Kota Palembang	PRAJA: Jrn. Ilmiah Pemerintahan	2023	Case Study
19	Simajuntak et al.	Implementasi digitalisasi pelayanan publik berbasis TI di era transformasi digital	Jrn. Pengabdian Masy. & Riset Pend.	2025	Community Service
20	Nursaleh et al.	Dampak digitalisasi terhadap peningkatan kualitas pelayanan publik di Desa Sipodeceng	Jrn. Dinamika Pemerintahan	2026	Case Study
21	Ilhadi et al.	Pendampingan teknologi informasi berkelanjutan dalam peningkatan digitalisasi desa	Jrn. Malikussaleh Mengabdi	2024	Community Service
22	Ambarsari et al.	Digitalisasi informasi dan peningkatan kualitas pelayanan publik: transformasi desa digital	Jrn. Pengabdian Masyarakat	2024	Community Service
23	Aziz et al.	Inovasi Pelayanan Publik Berbasis E-Government: Studi tentang Pelayanan Akta Kelahiran melalui e-Lampid Kota Surabaya	Journal of Office Administration: Education and Practice	2022	Case Study
24	Tiansah	Upaya meningkatkan kualitas layanan publik melalui digitalisasi di DPMPSTP Palembang	Jrn. Adm. Publik & Pemerintahan	2025	Case Study

25	Anjanah Subhashini &	Transformation of land records: The 21st century digital era	IJCRT	2024	Comparative
26	Amelia et al.	Analisis Dampak Digitalisasi Pelayanan Publik Dalam E-Government Terhadap Hak Masyarakat Di Tengah Ketimpangan Akses Internet	Al-Zayn: Jurnal Ilmu Sosial & Hukum	2025	Policy Analysis
27	Rahmawati et al.	Digitalisasi Layanan Publik Melalui Platform Terintegrasi Berbasis Laravel	Journal of Industrial Management and Technology	2026	R & D
28	Adinegoro	Analisis Transformasi Digital Layanan Publik Pertanahan: Hak Tanggungan Elektronik pada Kementerian Agraria dan Tata Ruang	Jurnal Administrasi Publik	2023	Policy Analysis
29	Bayu Wijaya Putra et al.	Pengembangan Sistem Informasi Penomoran Surat Berbasis Web untuk Digitalisasi Administrasi Kelurahan Plaju Darat	Jurnal Altifani	2026	R & D
30	Sofyar et al.	Application of Waterfall model on public service information system in Tungkaran Village	Jrn. Ilmiah Komputasi	2024	R & D

Source: Data processed from the PRISMA selection results (2025)

3.2 Temuan Utama: Transformasi dari Manual ke Digital

Analysis of the 30 articles reveals three dominant patterns in public service transformation. First, the Incremental Digital Transformation pattern, found in 63% of case studies, characterized by basic document digitization, gradual process automation, and cross-service integration [10][13] [9]. Articles included in this pattern are: [10], [13], [24], [14], [5], [23], [26], [25], [6], [7], [12], [15], [8], [22], [17], [4], dan [20].

Second, the Disruptive Digital Transformation pattern occurred in 23% of cases, marked by a comprehensive redesign of service models, such as at DPMPSTSP Gianyar Regency [27] which comprehensively redesigned its licensing service system based on digitalization by integrating Pancasila values as an ethical foundation for digital services, and at the Karawang Public Service Mall[5]. Article [21] also shows a disruptive pattern through the comprehensive transformation of the land-record system. Third, the Isolated Innovation Pattern, found in 13% of cases, in which digital innovation develops organically within a single service unit without being supported by a comprehensive digitalization strategy, making it vulnerable to unsustainability. Articles [16] and [28] fall into this category because they focus on the development of single-function information systems within one unit without integration into a broader digitalization strategy.

Table 2. Categorization Matrix of Articles Based on Digital Transformation Pattern

No.	Transformation Pattern	Included Articles	Main Characteristics
1	Incremental Transformation Pattern	No.3 (Lailiyah), No.4 (Sallu), No.7 (Teguh et al.), No.9 (Saputri & Wicaksono), No.10 (Nuraeni & Aprilianingsih), No.14 (Purwanti et al.), No.15 (Rizqy & Setiawan), No.16 (Purwanto & Yamin), No.18 (Anggraini), No.19 (Simajuntak et al.), No.20 (Nursaleh et al.), No.21 (Ilhadi et al.), No.22 (Ambarsari et al.), No.23 (Aziz et al.), No.24 (Tiansah), No.26 (Amelia et al.), No.13 (Kusumaningtyas & Prihandoko), No.17 (Afdila & Adnan), No.27 (Rahmawati et al.)	Gradual digitization, process automation, cross-service integration, without a comprehensive change to the business model
2	Disruptive Transformation Pattern	No.1 (Arifin et al.), No.5 (Anggriyani & Dewi), No.8 (Hanifah et al.), No.11 (Firdani & Hanif), No.12 (Al	Comprehensive redesign of service models, new technologies

No.	Transformation Pattern	Included Articles	Main Characteristics
		Khozaini & Mundiri), No.28 (Adinegoro), No.25 (Anjanah & Subhashini)	(blockchain, big data), fundamental change in business processes
3	Isolated Innovation Pattern	No.2 (Marfu'ah & Kumalasari), No.6 (Qonita et al.), No.29 (Bayu Wijaya Putra et al.), No.30 (Sofyar et al.)	Organic digital innovation within a single unit, without a comprehensive strategy, vulnerable to unsustainability

Source: Results of the SLR categorization matrix analysis

3.3 Findings: Effectiveness of Regional Public Service Applications

The evaluation of the effectiveness of regional public service applications shows significant variation. From a synthesis of 15 studies that explicitly evaluated application effectiveness: (1) 60% of applications showed increased user satisfaction, with an average SUS score above 70 (the 'Good' category); (2) 40% of applications still had usability problems related to interface navigation, information clarity, and accessibility; (3) applications with the highest active-user bases were those that integrated multiple services into a single platform (a super-app approach), based on qualitative observation of feature descriptions in the reviewed studies, given that quantitative data on active-user numbers were not consistently available across all 22 articles; and (4) inter-institutional data interoperability issues remain the biggest technical obstacle [3].

[17] found that the Depok Single Window application had an average SUS score of 72.5, indicating fairly good usability but requiring improvement in design consistency and system feedback to user actions. [17] also asserted that information quality (completeness, accuracy, and timeliness) has the greatest influence on digital-system user satisfaction, consistent with the DeLone and McLean evaluation model.

3.4 Findings: Critical Success Factors for E-Government

Rank	Critical Success Factor	Frequency (n=30)	Main References
1	Leadership & Political Commitment of Regional Heads	22 articles	Arifin et al. (2025); Anggraini (2023); Tiansah (2025)
2	Public Digital Literacy & Readiness	19 articles	Marfu'ah & Kumalasari (2024); Teguh et al. (2025)
3	Availability of Technology Infrastructure	18 articles	Firdani & Hanif (2025); Lailiyah (2022)
4	Capacity of Civil-Service Human Resources	17 articles	Purwanti et al. (2023); Ilhadi et al. (2024)
5	Strong Regulatory & Policy Framework	15 articles	Purwanto & Yamin (2025); Qonita et al. (2024)
6	Interoperability of Inter-Agency Information Systems	12 articles	Hanifah et al. (2026)
7	Adaptation to Local Wisdom & Regional Context	9 articles	Al Khozaini & Mundiri (2024); Rizqy & Setiawan (2025)

Source: Results of the SLR analysis

3.5 VOSviewer Bibliometric Analysis: Thematic Cluster Map

Keyword co-occurrence analysis using VOSviewer (22 articles, minimum occurrence = 2, with an Indonesian-English synonym-merging thesaurus) produced two dominant thematic clusters along with several more specific sub-themes. Cluster 1 (Public Service Digitalization): centered on the keywords 'public service' and 'digitalization' as the nodes with the highest occurrence and link strength, connected to sub-

themes of technical implementation at the regional/village government level, such as ‘village government’, ‘digital village’, ‘efficiency’, ‘quality’, and ‘innovation’. Cluster 2 (Electronic Governance/E-Government): centered on the keyword ‘e-government’, connected to ‘dprd’ (regional legislative council), ‘ikd’ (Digital Population Identity), ‘unreadiness’, and ‘bpom mobile’. Beyond these two dominant clusters, several smaller sub-themes were identified (each appearing in 1–2 articles): population administration (‘birth certificate’, ‘digital interoperability’), legality and service promotion (‘legality’, ‘marketing’), and service quality and mechanisms (‘good governance’, ‘information system’, ‘waterfall’, ‘online queue registration’). Unlike an earlier, erroneous analysis that identified three large clusters with keywords such as ‘SPBE’, ‘usability’, and ‘digital literacy’, this corrected analysis shows that the Indonesian e-government literature within this research corpus is still dominated by general discourse around digitalization and public service, with technical sub-themes still scattered and not yet forming a large cluster of their own.

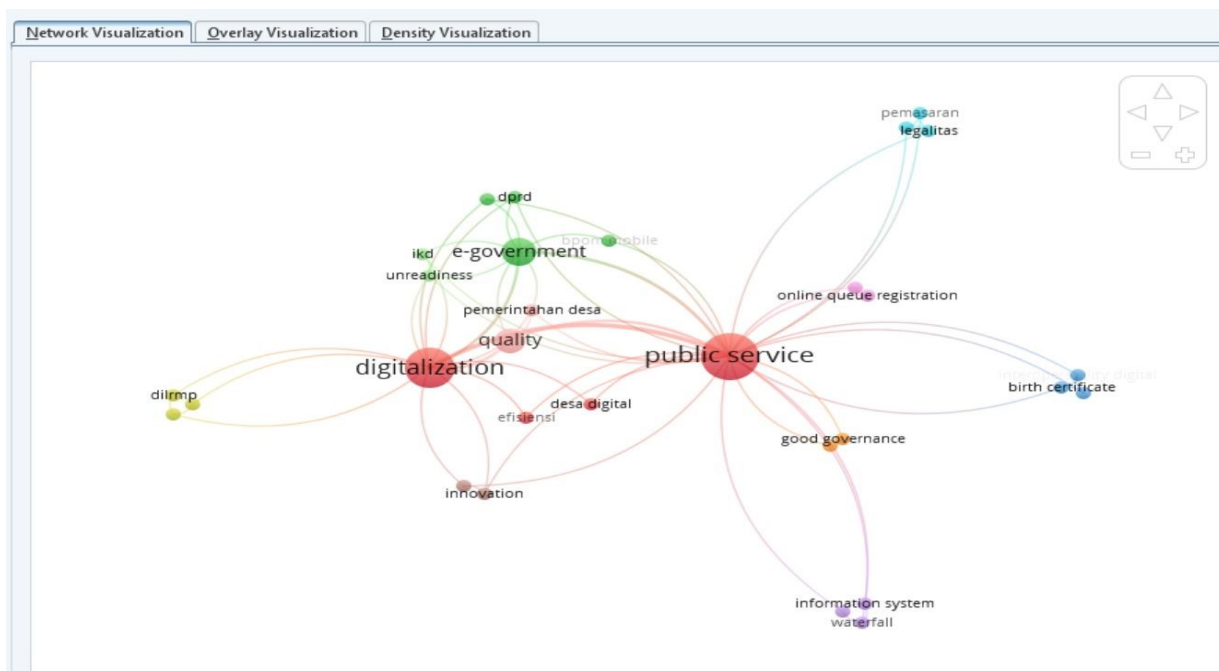


Figure 2. Network Visualization – VOSviewer Keyword Co-occurrence Network

Source: Results of VOSviewer bibliometric analysis

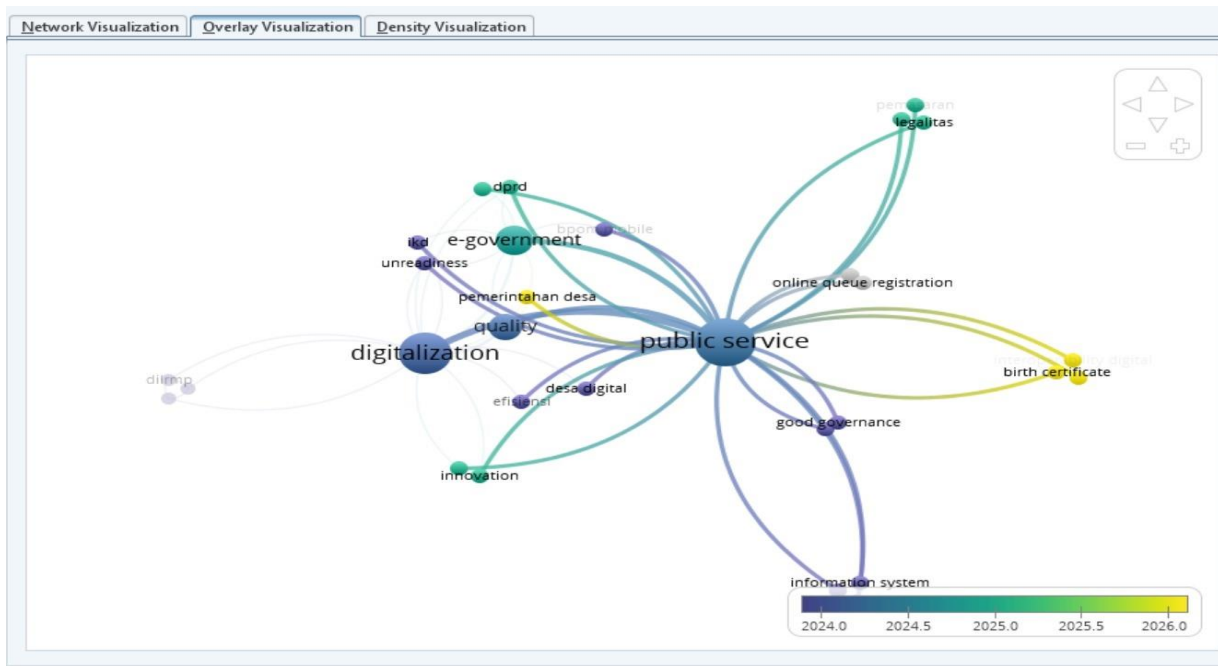


Figure 3. Overlay Visualization – Temporal Keyword Trends (2024–2026), VOSviewer

Source: Results of VOSviewer bibliometric analysis

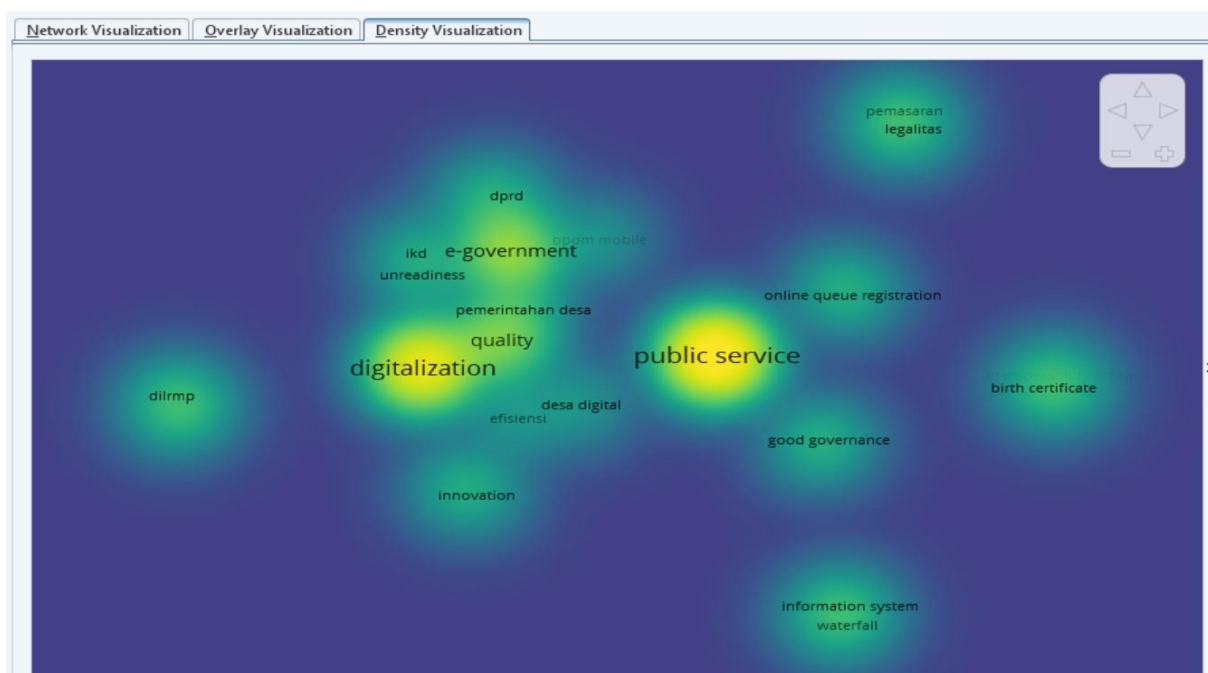


Figure 4. Density Visualization – Keyword Occurrence Intensity, VOSviewer

Source: Results of VOSviewer bibliometric analysis

The overlay visualization (Figure 3) shows the temporal distribution of keywords from 2024 to 2026. The keywords ‘public service’, ‘digitalization’, ‘quality’, ‘good governance’, and ‘information system’ are colored blue/purple, indicating that these themes have been a research focus since the early part of the review period (2024). The keywords ‘e-government’, ‘dprd’, ‘unreadiness’, ‘ikd’, ‘legality’, ‘marketing’, and ‘innovation’ are colored blue-green, indicating their emergence in the middle of the period (2024–2025). Meanwhile, ‘birth certificate’, ‘digital interoperability’, and ‘village government’ are colored yellow, indicating that these themes

represent the most recent research trends (2025–2026), pointing to a shift in research focus from general digitalization topics toward more specific technical issues such as inter-system data interoperability and digital document legality. The density visualization (Figure 4) shows that ‘public service’ and ‘digitalization’ have the highest occurrence intensity (the brightest yellow areas), ‘e-government’ has medium intensity (green), while other nodes have low intensity because each appears in only 1–2 of the 22 articles analyzed.

Discussion: Implications of Findings and Comparison with the Literature

The synthesis of findings from the 30 articles reveals a fundamental paradox in the digital transformation of public services in Indonesia: high policy enthusiasm at the national level has not yet been fully matched by implementation readiness at the regional level. The gap between digital policy formulation and its implementation is influenced by various factors, such as differences in fiscal capacity, the quality of human resources, and the availability of infrastructure between more advanced and lagging regions.

A second paradox is the tension between the speed of technology adoption and the depth of organizational transformation. Many agencies have successfully adopted new technologies quickly but have failed to transform their business processes and organizational culture. This finding is consistent with [29] theory of sensemaking in organizational change, in which technological change without a corresponding change in meaning and everyday practice tends to be unsustainable. Without deep organizational transformation, digitalization becomes little more than putting old wine in new bottles.

The finding regarding local wisdom as a success factor [9] offers an interesting perspective. A one-size-fits-all approach to e-government implementation has proven less effective. Innovations developed based on local needs and characteristics tend to achieve higher levels of adoption and sustainability. The compatibility between the technology used and social and cultural conditions, and community needs, is an important factor supporting the successful implementation of digital transformation in public service settings.

This study has several limitations that should be acknowledged. First, the literature search was limited to Indonesian- and English-language articles, thereby excluding potentially relevant studies in other languages. Second, grey literature (policy reports, theses, dissertations) was not included in the corpus. Third, the relatively short 2022–2026 time span limits the ability to identify long-term trends. Fourth, with only 30 articles, the VOSviewer bibliometric map has limited cluster representativeness. Future research is advised to expand the database, include grey literature, and extend the review time span.

The findings of this study are interesting to contrast with e-government developments in ASEAN countries. Compared with Indonesia, Malaysia through MyGovUC and Singapore through the National Digital Identity (NDI) have reached a more mature stage of cross-ministerial service integration, with relatively high levels of public acceptance. In contrast, Indonesia, despite its ambitious SPBE vision, is still at the stage of infrastructure consolidation and regulatory harmonization. This difference indicates that institutional factors and central–regional coordination capacity not technology alone are the main determinants distinguishing the level of e-government maturity among ASEAN countries.

Justification of the Representativeness of the 30 Articles: Although a corpus of 30 articles is relatively small in absolute terms, its representativeness can be justified on several grounds. First, the specific thematic focus (three dimensions of Indonesian e-government, 2022–2026) substantially narrows the relevant literature population. Second, the 30 articles cover diverse geographic contexts (Java, Sulawesi, Kalimantan, Bali, Papua), methodologies (qualitative, quantitative, R&D), and levels of government (national, provincial, regency, village), producing sufficient contextual variation for thematic synthesis. Third, thematic saturation was achieved, as the main themes recurred repeatedly across the analyzed articles.

Practical Implications and Policy Recommendations: The interoperability recommendation requires concrete action: the Ministry of Administrative and Bureaucratic Reform (Kementerian PAN-RB) needs to

establish a mandatory national Application Programming Interface (API) standard that all regional public service platforms must comply with, supported by an annual compliance-audit mechanism. The digital-literacy recommendation calls for a structured, tiered training program for civil servants (basic, intermediate, advanced) that is integrated into employee performance appraisal, rather than merely sporadic training. The data-protection recommendation requires the establishment of an independent Data Protection Authority (DPA) with the authority to audit government digital platforms and impose administrative sanctions for violations.

4. Conclusion

The Systematic Literature Review of 30 scientific articles on e-government and public service digitalization in Indonesia (2022–2026) yields six main conclusions. First, the digital transformation of public services in Indonesia is proceeding with increasing intensity but unevenly, with significant gaps between advanced and lagging regions. Second, visionary leadership and the political commitment of regional heads are the most determinant factors in the success of e-government implementation. Third, low public digital literacy, particularly in rural areas and among older age groups, is the most critical barrier to adoption. Fourth, interoperability of information systems across institutions remains an unresolved technical and governance challenge. Fifth, innovations based on local wisdom and human-centered design approaches yield higher levels of acceptance and sustainability. Sixth, data security and citizen privacy are critical issues requiring more serious policy attention. It should be noted that data security is a cross-cutting observation that emerged in several case studies, and is not part of the seven ranked critical factors in Table 3, which are ordered by explicit frequency of occurrence in the literature.

Based on these findings, this study recommends: (1) strengthening an inclusive national digital ecosystem through the acceleration of broadband internet infrastructure and universal design in every public service application; (2) systematic and sustainable digital capacity-building for civil servants; (3) the application of binding national interoperability standards across all government agencies; (4) strengthening personal-data-protection regulation within government digital platforms; (5) facilitating locally contextualized innovation through flexible policy space; and (6) developing a publicly accessible national digital-service evaluation platform. The future research agenda should prioritize: (1) longitudinal studies of the long-term impact of digitalization on service quality; (2) more systematic cross-regional comparative research; and (3) specific studies on the experiences of vulnerable groups (persons with disabilities, the elderly, indigenous communities) in accessing government digital services.

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