Development of Digital-Based Public Information Systems to Enhance Information Quality

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Abstract

Digital technology transformation has shifted the paradigm of modern government governance. Public information systems are no longer merely administrative supplements but have become key instruments in achieving openness and accountability. According to Santoso (2025), 'the implementation of digitalization in government is key to increasing transparency and accountability in public governance'. Society now demands public information that is fast, easily accessible, accurate, and transparent; even the Head of BRMP-TROA emphasizes the importance of providing 'public information that is fast, easily accessible, accurate, and transparent'. However, in practice, many public institutions still face obstacles, such as fragmented and poorly integrated information, leading to inconsistent information delivery, delayed responses to public needs, and a lack of efficiency. Digitalization of the public sector is seen as the primary solution to these issues, as technology enables data integration and real-time information presentation with broader access. For example, the use of digital technology allows the government to 'provide greater access to important information for the community, increase participation in decision-making, and accelerate administrative processes'. This literature review synthesizes concepts and previous research regarding public information systems, information quality, and the digitalization of public services. The expected result is a conceptual understanding of how the development of digital-based public information systems can improve the quality of public information and strengthen the principles of transparency and public service effectiveness."

Keywords: *Public Information Systems, Digital Information Quality, Public Services.*

I. INTRODUCTION

Digital transformation has become a global phenomenon affecting nearly all aspects of government and public services. In this era, the role of information and communication technology (ICT) is dominant in improving service quality (Asmuddin, A. 2025). (Irfan, B., 2023) notes that the digitalization of public services offers numerous benefits, such as "facilitating public access to information and services, increasing government transparency, and enhancing the efficiency and quality of services provided". Furthermore, it is expected that through digitalization, "public services can become more efficient, transparent, and responsive to community needs," thereby supporting the realization of good governance (Irfan, B., 2023). This aligns with the findings of Ahmad & Santoso (2025) that by utilizing ICT through e-Government and e-Services, governments can provide faster, more efficient, and transparent public services. In other words, digital-based systems enable the integration of various public service functions, allowing complex administrative processes to be simplified through online channels.

Public information quality has become a central issue alongside increasing public demands. High-quality public information must be relevant, accurate, timely, and reliable to support public decision-making (Yusman, Y., 2024). Information quality is the output of an information system designed to provide guidance for users in making decisions (Ariadanang, A. K., 2022). In other words, information quality is determined by the extent to which the information presented is complete, clear, and useful for its users. In information quality literature, components such as accuracy, timeliness, and relevance are often considered the most important. Information that meets these criteria not only facilitates user decision-making but also increases public trust in the government.

In the practice of public information management, many challenges still need to be addressed. In various local governments, public information is scattered across numerous non-integrated platforms. (Ritonga, 2025) reports that inconsistent information delivery, delayed responses to public needs, and a lack of efficiency. Such conditions have the potential to cause

public information to lose its strategic value and fail to meet public expectations for information services. Digitalization of public information systems is considered one of the primary solutions to overcome the aforementioned problems. By adopting digital technology, governments can integrate various data sources and provide real-time information with a wide reach (Zein, H. H. M., 2024).

Integrated system designs have been proven to accelerate the delivery of accurate information to the public (Ritonga, 2025). Additionally, digital-based public information systems open opportunities for two-way interaction between the government and citizens. (Ahmad., 2025) note that the use of digital technology allows the government to provide greater access to important information for the community, increase participation in decision-making, and accelerate administrative processes. With this responsive approach, public information is no longer one-sided but is tailored to user needs.

The development of digital-based public information systems relates not only to technical aspects but also to institutional, policy, and social dimensions. Without a strong theoretical understanding, developed systems risk becoming mere technology projects without a significant impact on public information quality. For instance, the freedom of information law (Law No. 14/2008) requires principles of transparency, accountability, and participation in government governance (Ritonga, 2025). Therefore, system development efforts must be supported by enabling policies and multi-sector collaboration. This research is structured as a literature review that examines theories and previous findings related to public information systems, public sector digitalization, and information quality. This study aims to enrich academic discourse and provide a conceptual overview of the expected outcomes of digital-based public information system development, particularly in improving information quality for the community.

The main research issue raised in this study is the low quality of public information caused by the limitations of traditional information systems and the suboptimal use of digital technology. Many public agencies currently still manage information in a fragmented manner without a unified platform, so important information is often uploaded late or presented in formats that are difficult for the public to access. Consequently, the public finds it difficult to obtain the information they need quickly and reliably. (Ritonga, 2025) asserts that if public platforms are not well-integrated, it will lead to inconsistent information delivery and delayed responses to community needs. Delayed data updates and low information accessibility are common problems arising in many public providers. Moreover, the information content provided sometimes fails to meet quality standards (e.g., inaccurate or irrelevant), thus failing to support effective public decision-making.

Another issue of concern is that public satisfaction with public services is increasingly measured by how quickly the government provides information online. There is currently a strong demand for public information to be accessible at any time through digital channels, both through official websites and government social media. However, in reality, the use of these channels is not uniform and is sometimes neglected. Another problem is the challenge of infrastructure and digital literacy, making digital information services difficult for all levels of society to enjoy. Overall, these issues indicate that conventional public information management models have not been able to meet public expectations in the digital age, and a more adaptive and comprehensive system transformation is required.

Based on the issues above, the research problem examined in this article is: How can the development of digital-based public information systems contribute to improving public information quality? Furthermore, this research also explores conceptual factors that need to be considered in the development of public information systems so that the systems effectively meet the principles of openness, accuracy, and relevance of information. In this context, digital-based public information systems are required to present information openly and easily accessible to the public. The definition of transparency in public services emphasizes that information regarding government services and procedures is available openly and is easily accessible to the community (Ritonga, 2025). In other words, system development must ensure that information is not only published but can also be easily accessed by users. Additionally, information quality is another important indicator. Users expect accurate, timely, and relevant information. Therefore, effective public information systems must be able to produce information outputs that meet these three criteria.

Another aspect examined is user orientation and supporting policies. System development must consider user needs and involve other stakeholders (e.g., non-governmental organizations or the private sector) so that the system aligns with user preferences. This is consistent with the findings of Ahmad & Santoso (2025), which emphasize the importance of collaboration between the government, the community, and the private sector in strengthening digitalization implementation to create more open and accountable governance. Furthermore, public policy factors such as freedom of information regulations (e.g., Law No. 14/2008) should serve as a foundation to ensure that public information systems are consistent with the goals of good public service. Thus, this research does not only focus on the technical aspects of the system but also

investigates the conceptual framework related to information governance, user orientation, and institutional support needed so that digital public information system development can truly improve information quality for the community.

II. RESEARCH METHODOLOGY

This research is designed as a qualitative study employing a systematic literature review (library research) approach. The methodology focuses on identifying, evaluating, and synthesizing all available research relevant to the development of digital-based public information systems and their direct impact on the quality of information provided to the community. By using this method, the study aims to build a robust conceptual bridge between technological implementation and the fulfilment of public service principles such as transparency, accountability, and efficiency.

A. Data Identification and Selection Criteria

The data sources for this study consist of secondary data retrieved from reputable academic databases, including Google Scholar, Indonesian Publication Index (Garuda), and various international journals. The selection of literature was governed by several criteria:

1. **Relevance:** Articles and books must specifically address digital transformation in government, information management, or public service quality.
2. **Timeliness:** Priority was given to recent publications (primarily between 2022 and 2025) to capture the latest trends in e-government and digital technology.
3. **Legal Context:** Official documents, specifically Law No. 14/2008 concerning the Freedom of Public Information, were included to provide a regulatory perspective on transparency requirements.

B. Systematic Data Collection Process

The data collection process was carried out through a structured search of digital libraries and academic repositories. Keywords such as "*Sistem Informasi Publik*", "*Digitalization*", and "*Information Quality*" were utilized to filter the most pertinent academic works. The researcher conducted a deep dive into previous empirical studies, such as the implementation of integrated systems in regional government offices and the impact of *e-Services* on public satisfaction, to gather diverse perspectives on the challenges and successes of digital governance.

C. Data Analysis and Synthesis Technique

The analysis followed a qualitative content analysis model, which involves several systematic steps:

1. **Data Reduction:** The researcher filtered through a vast array of documents to select only those providing critical insights into system integration and user-centric design.
2. **Data Display:** Findings were categorized based on core themes, such as the dimensions of information quality (accuracy, timeliness, and relevance) and the institutional factors (policy and collaboration) that determine system effectiveness.
3. **Synthesis and Comparison:** The study synthesized findings from multiple authors for instance, connecting the transparency theories of (Santoso, 2025) with the practical integration methods reported by (Ritonga, 2025) to develop a comprehensive conceptual model.
4. **Verification and Conclusion:** The final stage involved drawing conclusions that translate theoretical findings into actionable recommendations for future digital-based system development.

D. Conceptual Framework Development

Finally, this methodology integrates the findings into a conceptual framework that combines Technology Acceptance theories with Public Management principles. This framework evaluates digital technology not merely as a tool, but as an *enabler* that requires institutional support, legal foundations, and a strong orientation toward user needs to successfully enhance the quality of public information.

III. RESULTS AND DISCUSSION

The present study finds that digital transformation in government governance functions as more than just an administrative improvement; it now operates as a crucial mechanism for enhancing accountability, transparency, and public service delivery. Contemporary research demonstrates that digital platforms streamline bureaucratic procedures, reduce information asymmetry, and foster more responsive government–citizen interactions (Wahyudi et al., 2024). Specifically, digital-based public information systems—such as integrated government portals—facilitate the consolidation of previously fragmented service channels into unified platforms, making administrative processes more coordinated and accessible (Haedar, 2025). This aligns with broader findings on digital era governance that stress the role of digitization in reshaping public administration toward client-centered service delivery.

Digitalization also addresses traditional inefficiencies prevalent in manual systems, including delayed responses and uneven information dissemination. Digital technologies enable government agencies to provide real-time data with extensive reach, which enhances service quality and supports evidence-based decision-making. Furthermore, the integration of digital repositories—where multiple datasets and

services are accessible through a single point—emerges as a key determinant of public service effectiveness in the contemporary governance landscape (Wahyudi et al., 2024).

A. Analysis of Public Information Quality

Within the context of information quality, a core output of public information systems our findings indicate improvements across four established dimensions: accuracy, timeliness, relevance, and accessibility. These align with frameworks in digital public administration literature that identify similar indicators as essential to user trust and system effectiveness:

1. Accuracy

Automated digital workflows reduce human error in data entry and reinforce the validity and reliability of published information.

2. Timeliness

Digital platforms enable instantaneous data uploading, mitigating delays associated with traditional bureaucratic procedures.

3. Relevance

Customized categorization and user-driven content delivery ensure that information better meets specific community and stakeholder needs.

4. Accessibility

Through official websites and integrated mobile interfaces, public information becomes available continuously, increasing transparency and public trust in governance.

These improvements confirm that digital public information systems are more effective than analog systems not only in distribution speed but also in aligning with citizen expectations for clarity and usability.

B. System Integration and Service Efficiency

Our discussion highlights that the success of digital public information systems depends heavily on system integration and the synchronization of technologies across government units. Literature indicates that merging various digital channels, such as web portals, social media, and mobile apps, significantly accelerates information dissemination and reduces fragmentation in service delivery (Wahyudi et al., 2024). This trend reflects global e-government priorities, where interoperable information systems are regarded as fundamental to seamless service integration.

Despite these gains, persistent challenges remain. Issues such as limited digital literacy, inadequate infrastructure in rural or underserved regions, and workforce capacity constraints hinder equitable system adoption (Haedar, 2025). This echoes broader findings in digital governance research, which identify the digital divide as a principal barrier to inclusive public sector digitization (Pramana, I. B. G. A. Y. 2024). If left unaddressed, such disparities may perpetuate inequities in access to information and services, undermining governance objectives. Therefore, system development strategies must be complemented by initiatives in digital skills training, inclusive infrastructure investment, and community engagement programs to ensure equitable benefits for all societal segments.

IV. RECOMMENDATION

Based on this study, several conceptual recommendations are proposed. First, the development of public information systems must be designed in an integrated manner by prioritizing user needs. The government needs to involve the community in the design process (co-creation) and provide platforms that are user-friendly. Second, collaboration between various parties must be strengthened. As reminded by Santoso (2025), strengthening 'collaboration between the government, society, and the private sector is crucial to reinforce the implementation of digitalization'. The government should establish partnerships with technology developers and civil society organizations to create systems that are responsive and accountable. Third, information quality standards need to be codified into policy. Public information must be routinely updated, verified for accuracy, and packaged in an easy-to-understand format. Lastly, increasing the digital capacity of officials and the digital literacy of the community must be a priority, so that all parties can utilize public information systems optimally. By integrating technical, policy, and social aspects, it is expected that digital-based public information systems can deliver true information transparency and enhance the quality of public services for the community.

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