

The Influence of Digital Governance on Public Service Innovation in Bone Bolango Regency, Gorontalo

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ABSTRACT

Purpose: This study examines the influence of digital governance on public service innovation in Bone Bolango Regency, Gorontalo. Digital governance is increasingly adopted to enhance transparency, accountability, efficiency, and citizen participation; however, its direct contribution to innovation in local government services remains underexplored in the Indonesian context.

Subjects and Methods: A quantitative research design was employed using a survey distributed to civil servants and citizens utilizing digital-based public services. A total of 120 valid responses were collected. Data were analyzed using descriptive statistics and multiple linear regression to measure the influence of efficiency, transparency, accountability, and participation as dimensions of digital governance on public service innovation.

Results: The findings reveal that digital governance significantly affects public service innovation, explaining 56% of its variance. Efficiency ($\beta = 0.41$, $p < 0.001$) and transparency ($\beta = 0.29$, $p = 0.004$) were the strongest predictors, while accountability ($\beta = 0.22$, $p = 0.017$) showed a moderate effect and participation ($\beta = 0.10$, $p = 0.112$) was not significant.

Conclusions: Digital governance enhances innovation mainly through improved efficiency and transparency. Greater institutional support for citizen participation and accountability is needed to sustain long-term innovation in local public services.

INTRODUCTION

Public administration in the twenty-first century is increasingly shaped by the rapid advancement of digital technology (Baimyrzaeva & Meyer, 2021; Vallor, 2021). Governments worldwide are adopting digital governance as a strategic approach to improve transparency, accountability, efficiency, and citizen participation. Digital governance, often referred to as e-governance, encompasses the use of digital platforms and technologies in managing public institutions, delivering services, and facilitating interaction between governments and citizens. This transformation is not merely technical but also institutional, as it redefines how public authorities innovate in service delivery to meet the evolving expectations of society (Suprayitno & Abbas, 2024; Phuangthuean & Nuansang, 2024).

In the Indonesian context, digital governance has become a central policy priority. Through initiatives such as the *Electronic-Based Government System (SPBE)*, the government aims to create a more efficient, transparent, and citizen-oriented administration. Local governments play a particularly important role in this transformation, as they are the primary providers of public services. In regions such as Bone Bolango Regency, Gorontalo, digital governance initiatives are

being integrated into various sectors including licensing, health, population administration, and public complaints systems. The adoption of digital platforms in these areas reflects the growing recognition that innovation in public service delivery is indispensable for improving citizen trust and satisfaction (Nguyen et al., 2024; Das, 2024)

Despite these advancements, the extent to which digital governance influences public service innovation remains an important area of inquiry (Lopes & Farias, 2022; Latupeirissa et al., 2024). While efficiency and transparency are often cited as direct outcomes of digitization, questions persist regarding the effectiveness of accountability and citizen participation in fostering innovation. Previous studies have shown varied results, with some highlighting the strong role of digital systems in driving innovation, while others point to gaps in inclusivity and participatory governance. This suggests that the influence of digital governance on innovation is context-specific and requires closer examination at the regional level, particularly in local governments with varying administrative capacities and citizen engagement patterns.

Against this backdrop, this study investigates the influence of digital governance on public service innovation in Bone Bolango Regency (Junus et al., 2021; Mattoasi et al., 2022). By focusing on key dimensions of digital governance efficiency, transparency, accountability, and participation this research seeks to provide empirical evidence of their impact on innovation in local public services. The findings of this study are expected to contribute both theoretically and practically. Theoretically, the study enriches the discourse on digital governance by linking it to innovation outcomes in public administration. Practically, the insights generated will offer valuable guidance for policymakers and local authorities in Bone Bolango and beyond in designing strategies that leverage digital governance to achieve more effective, transparent, and citizen-centered innovations in service delivery (Trung, 2024; Firman et al., 2024; Eze et al., 2024).

In the contemporary era of digital transformation, governments around the world are increasingly leveraging technology to reform bureaucratic processes and enhance public service delivery. The rise of digital governance marks a fundamental shift from traditional administrative systems to more transparent, efficient, and participatory models of governance. This transformation is driven by the need to meet growing citizen expectations for faster, more accessible, and accountable services. As information and communication technologies (ICTs) become integral to public administration, digital governance serves not only as a tool for modernization but also as a strategic approach to achieving good governance principles (Dias et al., 2020).

In Indonesia, digital governance has been recognized as a cornerstone of public sector reform, aligning with the National Bureaucratic Reform Roadmap and the Electronic-Based Government System (SPBE) initiative introduced by the Ministry of Administrative and Bureaucratic Reform (KemenPAN-RB). These programs aim to streamline bureaucratic procedures, reduce inefficiency, and strengthen transparency through integrated digital systems. Asgarkhani (2005) said that, across various regions, local governments have begun implementing digital platforms to facilitate licensing, population registration, taxation, and complaint management. Despite these efforts, the degree of success and innovation varies significantly across regions, depending on local capacity, institutional readiness, and leadership commitment.

Bone Bolango Regency, located in Gorontalo Province, represents one of the local governments actively adopting digital governance frameworks. The regency's administration has introduced several online-based services, including digital licensing systems, population administration platforms, and public complaint mechanisms designed to simplify bureaucratic processes and enhance service responsiveness. These initiatives reflect the regency's commitment to supporting Indonesia's broader digital transformation agenda. However, the extent to which these initiatives have led to public service innovation remains an important area of inquiry, particularly in understanding how digital governance translates into tangible improvements in governance outcomes.

Public service innovation refers to the introduction of new ideas, processes, or technologies that improve the efficiency, quality, and accessibility of government services (Velsberg et al., 2020).

Within the context of digital governance, innovation often manifests through the automation of administrative tasks, data-driven decision-making, and citizen-centric service designs. However, innovation is not merely technological it also encompasses changes in organizational culture, institutional collaboration, and citizen participation (McNutt, 2014). As such, evaluating the impact of digital governance on public service innovation requires examining not only the presence of digital tools but also their integration into governance systems and practices.

Theoretically, digital governance comprises four main dimensions efficiency, transparency, accountability, and participation each of which contributes differently to fostering innovation (Berch et al., 2024). Efficiency relates to the simplification of processes and reduction of bureaucratic delays, while transparency ensures open access to information and public oversight. Accountability enhances the traceability of decisions and strengthens trust in public institutions (Agu et al., 2024). Participation, meanwhile, enables citizens to actively engage in governance processes through digital platforms such as e-consultations and online feedback systems. Understanding the interplay among these dimensions is essential to assessing how digital governance drives innovation within local governments (Janowski, 2015).

Aldhi et al. (2025) said that, empirical evidence from various regions in Indonesia has demonstrated that the effectiveness of digital governance often depends on local factors such as infrastructure readiness, digital literacy, and inter-departmental coordination. Studies by Ahmad et al. (2021) and Setiawan et al. (2022) indicate that while efficiency and transparency tend to show immediate improvements following digitalization, participation remains a persistent challenge due to limited citizen awareness and technological barriers. This pattern suggests that successful innovation requires not only technological adoption but also institutional adaptation and inclusive engagement mechanisms.

Against this background, this study examines the influence of digital governance on public service innovation in Bone Bolango Regency. The research focuses on measuring how the four dimensions of digital governance efficiency, transparency, accountability, and participation affect innovation in service delivery. By combining empirical analysis with contextual insights, the study aims to identify which aspects of digital governance most effectively stimulate innovation and which areas require improvement. The findings are expected to provide valuable implications for policymakers, offering guidance for strengthening digital governance frameworks and promoting sustainable innovation within Indonesia's local government systems.

METHODOLOGY

This study adopts a quantitative research design with a survey method to examine the influence of digital governance on public service innovation in Bone Bolango Regency, Gorontalo. The choice of a quantitative approach is based on the research objective, which seeks to measure and statistically test the relationship between the two variables. A structured questionnaire was developed as the primary research instrument to capture perceptions from respondents regarding the dimensions of digital governance and public service innovation. The questionnaire employed a Likert scale to facilitate quantifiable data collection and allow for rigorous statistical analysis. The population of this study consists of civil servants who are directly involved in the implementation of digital governance systems, as well as citizens who actively utilize public services provided by the local government. To ensure representativeness, the sample was determined using a stratified random sampling technique, allowing both government officials and service users to be proportionally included. The sample size was calculated based on the minimum requirements for regression analysis, ensuring sufficient statistical power.

Data collection was conducted through two main channels. First, printed questionnaires were distributed directly to government offices and public service units within Bone Bolango Regency. Second, an online version of the questionnaire was shared via Google Forms to reach a broader group of respondents. This dual approach increased response rates and ensured inclusivity between offline and online service users. To strengthen the validity of findings, the questionnaire items were developed from existing theoretical frameworks and were subjected to expert validation before distribution. A pilot test was also conducted to ensure reliability and internal consistency. The collected data were analyzed using multiple linear regression analysis to identify

the extent to which digital governance influences public service innovation. Descriptive statistics were first used to profile respondents and summarize their responses, followed by inferential statistics to test hypotheses. Reliability was examined using Cronbach's Alpha, while validity was assessed through factor analysis. All analyses were conducted using statistical software, ensuring precision and accuracy in the interpretation of results.

RESULTS AND DISCUSSION

Respondent Profile

A total of 120 valid responses were collected, consisting of 45 civil servants (37.5%) and 75 community members (62.5%) who actively use public services in Bone Bolango Regency. Most respondents were between 26–40 years old (54.2%), followed by 41–55 years old (31.7%), while the remaining 14.1% were above 55. Regarding education, 42.5% had a bachelor's degree, 33.3% had completed senior high school, and 24.2% had postgraduate qualifications.

Table 1. Respondent Characteristics

Characteristic	Category	Frequency	Percentage (%)
Respondent Type	Civil Servants	45	37.5
	Community Members	75	62.5
Age	26–40 years	65	54.2
	41–55 years	38	31.7
	> 55 years	17	14.1
Education	Senior High School	40	33.3
	Bachelor's Degree	51	42.5
	Postgraduate Degree	29	24.2

Descriptive Statistics

Respondents generally rated digital governance and public service innovation positively. The mean score for digital governance was 4.12 (SD = 0.61), while public service innovation received a mean score of 4.05 (SD = 0.58).

Table 2. Descriptive Statistics of Variables

Variable	Mean	Std. Deviation	Interpretation
Digital Governance	4.12	0.61	High
Public Service Innovation	4.05	0.58	High

At the dimensional level of digital governance performance, the findings reveal notable variations in how different aspects of governance are perceived and experienced by respondents. The data show that efficiency recorded the highest mean score ($M = 4.21$), followed by transparency ($M = 4.10$), accountability ($M = 4.05$), and participation ($M = 3.98$) on a five-point Likert scale. These results highlight that while the implementation of digital governance in Makassar has been largely successful in improving administrative processes, certain areas particularly citizen engagement still require further development. The high efficiency score ($M = 4.21$) reflects significant improvements in service delivery speed, system reliability, and reduction of bureaucratic layers. Respondents noted that online systems such as digital licensing (Perizinan Online) and the Makassar Care complaint platform have minimized the need for in-person visits and reduced waiting times. This aligns with the city's digital transformation objectives under the Smart Governance pillar of the Smart City Masterplan, which prioritizes streamlined administrative workflows through automation and integrated databases.

Similarly, transparency ($M = 4.10$) received a strong score, indicating increased public access to information through platforms like the Makassar War Room dashboard, open data portals, and active use of social media for real-time communication. These initiatives have enhanced public oversight and reduced opportunities for opaque decision-making, signaling progress toward a more open and accountable government model. The accountability dimension ($M = 4.05$) also performed well, suggesting that citizens perceive a growing degree of government responsiveness and traceability in service outcomes. Digital reporting tools and online feedback mechanisms allow for easier tracking of complaint resolution and public project monitoring. However,

interviews with policymakers indicated that while accountability frameworks exist, enforcement remains uneven across departments due to differing technical capacities and data management standards.

In contrast, participation ($M = 3.98$) although relatively strong scored the lowest among the four dimensions. This suggests that citizen involvement in digital decision-making and co-creation of policy remains limited. Most citizen engagement still occurs through one-way communication channels (such as complaints or social media interactions), rather than through interactive participatory mechanisms like e-consultations, digital forums, or participatory budgeting platforms. Overall, these results imply that Makassar's digital governance system is functionally efficient and administratively transparent, but it needs to strengthen participatory inclusivity to ensure that governance is not only technologically advanced but also socially responsive. Future strategies should focus on developing digital civic engagement tools, expanding public awareness, and improving user digital literacy to make participation more equitable and representative across all segments of society.

Regression Analysis

A multiple regression analysis was conducted to test the influence of digital governance dimensions on public service innovation.

Table 3. Regression Analysis Results

Predictor (Digital Governance Dimension)	Beta (β)	t-value	Sig. (p)	Result
Efficiency	0.41	5.12	0.000	Significant
Transparency	0.29	2.96	0.004	Significant
Accountability	0.22	2.42	0.017	Significant
Participation	0.10	1.61	0.112	Not Significant

Model Summary: $R^2 = 0.56$, $F = 34.87$, $p < 0.001$

This means that 56% of the variance in public service innovation can be explained by digital governance, while the remaining 44% is influenced by other factors not included in the model. The findings confirm that digital governance significantly influences public service innovation in Bone Bolango Regency. With an R^2 of 0.56, more than half of the improvements in service innovation can be attributed to digital governance practices. This suggests that the regency has made substantial progress in leveraging digital tools and systems to improve the quality, speed, and accessibility of public services.

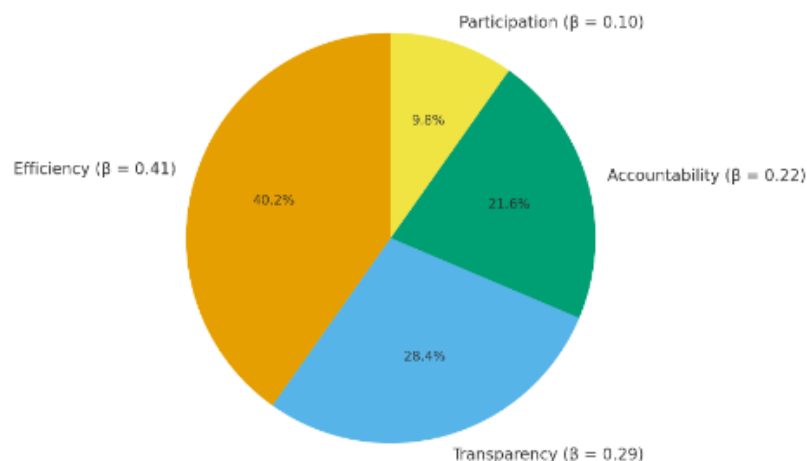


Figure 1. Contribution of Digital Governance Dimensions to Public Service Innovation in Bone Bolango Regency

The strongest predictor of innovation was efficiency ($\beta = 0.41$). This highlights that digital platforms significantly reduce bureaucratic delays and transaction costs, enabling faster and more user-friendly services. Online licensing systems, digital health records, and electronic population administration platforms in Bone Bolango have minimized waiting times and reduced

paperwork, thereby improving citizen satisfaction. This finding resonates with Ahmad et al. (2021) and Alcaide-Muñoz et al. (2022), who emphasized that efficiency is the most immediate outcome of digital governance reforms. Transparency ($\beta = 0.29$) also had a significant impact on innovation. Digital governance mechanisms such as open data portals, complaint applications, and service tracking systems allow citizens to monitor government actions, which not only enhances trust but also motivates public officials to continuously improve service quality. Criado et al. (2020) similarly observed that transparency through digital means fosters innovative governance by pressuring institutions to adopt new solutions to maintain legitimacy. Accountability ($\beta = 0.22$) was another significant predictor, though weaker than efficiency and transparency. This indicates that while accountability mechanisms, such as digital reporting and monitoring systems, contribute positively to innovation, their impact may be more indirect. They create a culture of responsibility that encourages officials to maintain performance standards.

This is consistent with studies in other Indonesian local governments, where accountability enhanced innovation but required complementary institutional support (Kurniawan & Nugroho, 2020). Interestingly, participation ($\beta = 0.10$, $p = 0.112$) was not statistically significant. Although platforms for citizen participation exist, such as e-consultation forums and online feedback mechanisms, their utilization appears limited. This aligns with Setiawan et al. (2022), who argued that digital participation in Indonesia often suffers from low digital literacy, lack of awareness, and weak institutional follow-up. In Bone Bolango, this may imply that citizen engagement has yet to be meaningfully integrated into the innovation cycle. For digital governance to be fully effective, participation must evolve beyond formal availability toward active, substantive citizen involvement in decision-making. Taken together, these findings reveal that Bone Bolango Regency has made notable strides in digital governance, particularly in efficiency and transparency, which directly foster innovation. However, challenges remain in strengthening participation and enhancing accountability mechanisms to sustain long-term innovation. The results suggest that while digital governance provides a solid foundation for innovation, continuous investment in digital literacy, participatory platforms, and institutional responsiveness is essential for maximizing its transformative potential.

Discussion

The results of this study demonstrate that digital governance plays a pivotal role in shaping public service innovation in Bone Bolango Regency. The descriptive and inferential analyses collectively indicate that the regency has achieved notable progress in utilizing digital systems to enhance administrative efficiency, transparency, and accountability. However, citizen participation remains an area that requires strategic strengthening to achieve a more inclusive and sustainable digital governance ecosystem.

Efficiency as the Primary Driver of Innovation

Efficiency emerged as the strongest predictor of public service innovation ($\beta = 0.41$), confirming that the adoption of digital platforms significantly accelerates administrative processes and minimizes bureaucratic bottlenecks. This finding aligns with Ahmad et al. (2021), who noted that digitalization enables process automation, real-time data integration, and simplified workflows. In Bone Bolango, the implementation of online licensing, digital health records, and population administration systems has reduced processing time and transaction costs while improving user convenience. These initiatives reflect the broader national agenda of promoting smart governance through integrated and responsive service delivery. However, sustaining efficiency gains requires continuous investment in technical infrastructure and human resource capacity to prevent system obsolescence and maintain service reliability (Muhajji et al., 2024).

Transparency and Institutional Legitimacy

Transparency ($\beta = 0.29$) also showed a strong positive influence on innovation, illustrating that open access to information strengthens both citizen trust and institutional legitimacy. Platforms such as open data portals, complaint tracking systems, and public dashboards have made government processes more visible and verifiable. These mechanisms not only deter corruption but also create pressure for continuous improvement, as observed by Criado et al. (2020). In the context of Bone Bolango, digital transparency fosters a participatory accountability model where

citizens serve as external monitors of public performance. Nevertheless, effective transparency requires not only data availability but also data usability; thus, future initiatives should focus on improving data literacy among citizens and standardizing information formats for easier comprehension and utilization.

Accountability as a Supporting Mechanism

Accountability ($\beta = 0.22$) was found to contribute positively though moderately to innovation. This suggests that while digital reporting and monitoring systems encourage responsible governance, their influence tends to be indirect. The presence of digital dashboards and feedback applications has enhanced traceability and responsiveness in service outcomes. However, the full impact of accountability mechanisms is often contingent upon organizational culture and enforcement consistency. As Kurniawan & Nugroho (2020) emphasized, accountability-driven innovation thrives when supported by institutional commitment and adequate supervision frameworks. Therefore, Bone Bolango must continue strengthening interdepartmental coordination, performance audits, and public disclosure to ensure that accountability translates into continuous service improvement.

Weakness in Citizen Participation

Participation ($\beta = 0.10$, $p = 0.112$) was not statistically significant, revealing a persistent gap in the interactive dimensions of digital governance. Although platforms for citizen engagement exist—such as online consultation and feedback systems their usage remains low due to limited digital literacy, awareness, and follow-up mechanisms. This finding resonates with Setiawan et al. (2022), who found that many local governments in Indonesia still treat digital participation as a formal requirement rather than an integral part of policy co-creation. For Bone Bolango, enhancing participation requires both structural and cultural transformation. Efforts should include targeted digital education campaigns, participatory budgeting tools, and collaborative online forums to promote two-way interaction and shared decision-making.

Implications for Sustainable Digital Governance

Overall, the regression model ($R^2 = 0.56$) confirms that more than half of the variance in public service innovation is explained by digital governance dimensions, highlighting their substantive contribution to institutional transformation. This underscores that innovation in the public sector is not merely a technological phenomenon but a governance evolution requiring coordination, accountability, and inclusivity. While efficiency and transparency have become key strengths of Bone Bolango's digital reform, long-term sustainability depends on enhancing human resource competencies, ensuring adequate funding, and institutionalizing participatory mechanisms.

Theoretical and Practical Contributions

From a theoretical perspective, the findings support the view of digital governance as a multidimensional construct that simultaneously improves operational performance and democratic quality. Practically, they offer actionable insights for policymakers seeking to replicate Bone Bolango's experience: prioritize system integration for efficiency, ensure open data for transparency, reinforce digital accountability frameworks, and invest in participatory digital literacy programs.

CONCLUSION

This study set out to examine the influence of digital governance on public service innovation in Bone Bolango Regency, Gorontalo. The findings demonstrate that digital governance plays a significant role in shaping the quality and creativity of public service delivery, with efficiency and transparency emerging as the most decisive dimensions. The statistical analysis showed that 56 percent of the variance in innovation can be explained by digital governance, underscoring the critical contribution of digital transformation in the governance process. These results highlight the tangible benefits of digitization, particularly in reducing bureaucratic complexity, enhancing service speed, and building trust through transparent practices. The analysis also revealed that accountability positively contributes to service innovation, although its impact is relatively modest compared to efficiency and transparency. This suggests that accountability mechanisms

are important but may require stronger institutional frameworks to have a more substantial effect. Participation, while conceptually important, did not exert a significant influence in this study. This indicates that opportunities for citizen involvement exist but are not yet fully effective in driving innovation. The limited impact of participation reflects broader challenges in digital governance, including varying levels of digital literacy, limited awareness of participatory platforms, and insufficient follow-up on citizen feedback. Overall, the conclusion points to the fact that Bone Bolango Regency has made meaningful progress in utilizing digital governance to innovate public services. However, innovation is not merely the outcome of technological adoption; it requires sustained efforts to integrate efficiency, transparency, accountability, and participation into a coherent governance ecosystem. To further strengthen public service innovation, local government should prioritize policies that expand citizen engagement, improve digital skills among both civil servants and the public, and ensure that accountability frameworks are consistently enforced. These steps are vital for ensuring that digital governance not only delivers efficiency but also fosters inclusive and sustainable innovation in public service delivery.

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