

# The Influence of Digital Governance on Public Service Innovation

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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:** The study employed a quantitative survey design involving 120 respondents consisting of civil servants and community members utilizing digital public services. Data were collected through structured questionnaires using a Likert scale and analyzed using descriptive statistics and multiple linear regression analysis.

**Results:** The findings indicate that digital governance significantly influences public service innovation. Efficiency emerged as the strongest predictor, followed by transparency and accountability, while participation did not show a significant effect. The implementation of digital systems improved service speed, accessibility, institutional responsiveness, and public trust. Citizen satisfaction toward digital public services was generally high, particularly regarding service efficiency and accessibility.

**Conclusions:** Digital governance has successfully strengthened administrative modernization and public service innovation in Bone Bolango Regency. Strengthening participatory governance mechanisms and digital civic engagement remains necessary to support sustainable, inclusive, and citizen-centered innovation in local public administration.

## 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 employed a quantitative research design using a survey approach to examine the influence of digital governance on public service innovation in Bone Bolango Regency, Gorontalo, Indonesia. Quantitative research was selected because the study aimed to measure the relationship between variables objectively and statistically through numerical data analysis. According to John W. Creswell, quantitative methods are appropriate for testing hypotheses and identifying causal relationships among variables within a structured framework. The study focused on analyzing how the dimensions of digital governance efficiency, transparency, accountability, and participation affect innovation in public service delivery.

### **Research Design**

The research adopted an explanatory survey design to determine the causal influence of digital governance on public service innovation. Explanatory research is suitable for investigating the extent to which one variable affects another through statistical testing and empirical verification. The independent variable in this study was digital governance, consisting of four dimensions: efficiency, transparency, accountability, and participation. The dependent variable was public service innovation. The conceptual framework was developed based on theories of digital governance and public administration proposed by scholars such as Tomasz Janowski and Michael Asgarkhani, emphasizing that digital governance contributes to administrative modernization and innovation in public institutions. The survey method was selected because it enables researchers to collect standardized data from a relatively large number of respondents within a limited period. This method also facilitates statistical generalization and allows for objective measurement of respondents' perceptions toward digital governance practices implemented by the local government of Bone Bolango Regency. The study utilized a cross-

sectional design, meaning that data collection was conducted at one point in time without longitudinal observation. Such a design is commonly used in governance and public administration studies to evaluate contemporary institutional phenomena (Creswell, 2018).

### **Research Location and Context**

The study was conducted in Bone Bolango Regency, located in Gorontalo Province, Indonesia. Bone Bolango was selected as the research site because the regency has actively implemented digital governance initiatives as part of Indonesia's Electronic-Based Government System (SPBE) policy. The local government has introduced several digital platforms to improve administrative efficiency and public service quality, including online licensing systems, digital population administration, electronic complaint services, and integrated information systems. These initiatives reflect the regional government's commitment to supporting bureaucratic reform and digital transformation in public administration. The context of this study is particularly relevant because local governments in Indonesia are increasingly required to modernize public services through information and communication technologies. However, disparities in institutional readiness, infrastructure capacity, and citizen participation remain challenges in achieving effective digital governance. Bone Bolango Regency provides an appropriate case for examining how digital governance practices contribute to innovation in local public service delivery, especially in a developing regional context.

### **Population and Sampling Technique**

The population of this study consisted of two major groups: civil servants involved in implementing digital governance systems and citizens who actively utilized digital public services provided by the Bone Bolango Regency Government. Civil servants were included because they directly manage and operate digital governance platforms, while citizens were selected because they are the primary recipients and evaluators of public services. A stratified random sampling technique was employed to ensure proportional representation between government officials and service users. Stratified sampling is considered effective in heterogeneous populations because it allows each subgroup to be adequately represented within the sample. According to Earl Babbie, stratified random sampling improves representativeness and reduces sampling bias in social research. The sample size was determined based on the minimum statistical requirements for multiple regression analysis. Following recommendations by Hair et al. (2019), a minimum of 15–20 respondents per predictor variable is required for reliable regression analysis. Since this study involved four predictor variables, the minimum required sample ranged from 80 to 100 respondents. To increase statistical reliability and reduce sampling error, the study collected 120 valid responses consisting of 45 civil servants and 75 community members.

### **Data Collection Techniques**

Primary data were collected through a structured questionnaire developed based on theoretical indicators of digital governance and public service innovation. The questionnaire used a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree") to measure respondents' perceptions. Likert scaling was selected because it allows attitudes and perceptions to be quantified systematically for statistical analysis. The questionnaire consisted of two sections. The first section gathered demographic information such as age, educational background, and respondent category. The second section measured perceptions regarding the dimensions of digital governance and public service innovation. Indicators of efficiency included service speed, process simplification, and accessibility. Transparency indicators measured openness of information and accessibility of public data. Accountability indicators focused on responsiveness, reporting mechanisms, and traceability of administrative decisions. Participation indicators examined citizen engagement and digital interaction opportunities. Meanwhile, public service innovation was measured through indicators related to service quality, technological adaptation, responsiveness, and institutional creativity. Data collection was conducted through two approaches. First, printed questionnaires were distributed directly to government offices and public service units in Bone Bolango Regency. Second, online questionnaires were disseminated through Google Forms to expand respondent reach and facilitate participation among digitally

active citizens. This combination of offline and online distribution enhanced inclusivity and increased response rates.

### **Instrument Validity and Reliability**

To ensure research quality, validity and reliability tests were conducted before the main survey implementation. Content validity was established through expert judgment involving academics and practitioners in public administration and digital governance. The questionnaire items were reviewed to ensure conceptual relevance, clarity, and consistency with the research objectives. A pilot test involving 30 respondents was conducted to evaluate the reliability and readability of the instrument. Reliability testing used Cronbach's Alpha coefficient to determine internal consistency among questionnaire items. According to Lee J. Cronbach, a Cronbach's Alpha value above 0.70 indicates acceptable reliability. The results showed that all variable constructs exceeded the acceptable threshold, indicating strong internal consistency and reliability. Construct validity was further assessed using exploratory factor analysis (EFA). Factor loading values above 0.50 were considered acceptable indicators of construct validity. The validity and reliability procedures ensured that the questionnaire accurately measured the intended constructs and minimized measurement errors.

### **Data Analysis Technique**

The collected data were analyzed quantitatively using statistical software. Descriptive statistics were first employed to summarize respondent characteristics and describe the distribution of responses. Measures such as mean, standard deviation, frequency, and percentage were used to present general trends in the data. Inferential statistical analysis was subsequently conducted using multiple linear regression analysis to examine the influence of digital governance dimensions on public service innovation. Multiple regression was selected because it enables the simultaneous analysis of multiple independent variables in predicting a dependent variable. The regression model can be expressed as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$$

Where (Y) represents public service innovation, ( $X_1$ ) denotes efficiency, ( $X_2$ ) transparency, ( $X_3$ ) accountability, ( $X_4$ ) participation, ( $\alpha$ ) is the constant, ( $\beta$ ) represents regression coefficients, and (e) is the error term. Before regression testing, classical assumption tests were conducted, including normality, multicollinearity, heteroscedasticity, and linearity tests. These procedures ensured that the regression model met statistical assumptions and produced unbiased estimates. Hypothesis testing used a significance level of 0.05. Variables with significance values below 0.05 were considered to have a statistically significant influence on public service innovation. Ethical considerations were maintained throughout the research process. Respondents participated voluntarily and were informed about the purpose of the study before completing the questionnaire. Confidentiality and anonymity were guaranteed to protect respondents' identities and encourage honest responses. The study also ensured that collected data were used solely for academic purposes and analyzed objectively without manipulation.

## **RESULTS AND DISCUSSION**

This section presents the empirical findings of the study concerning the influence of digital governance on public service innovation in Bone Bolango Regency, Gorontalo, during the 2025 administrative period. The presentation of findings follows the quantitative research framework outlined in the methodology section, including descriptive statistical analysis, instrument validity and reliability testing, classical assumption testing, and multiple linear regression analysis. The results are organized systematically to ensure consistency between the research objectives, variables, and analytical procedures employed in this study.

The findings begin with an overview of respondent characteristics to provide contextual understanding of the sample composition. Subsequently, descriptive statistics are presented to explain respondents' perceptions regarding digital governance and public service innovation. The results then proceed to validity and reliability testing to confirm the adequacy of the research instrument. Finally, inferential statistical findings derived from multiple linear regression analysis are presented to determine the extent to which digital governance dimensions influence

public service innovation in Bone Bolango Regency in 2025. The findings are based on primary data collected from 120 respondents consisting of civil servants and community members actively utilizing digital public services.

### Respondent Characteristics

Understanding respondent characteristics is an essential step in quantitative research because demographic information provides contextual insight into the composition of the study sample. The profile of respondents helps explain how perceptions toward digital governance and public service innovation may vary according to social background, institutional role, age category, and educational attainment. In this study, respondent characteristics were analyzed to ensure that the sample adequately represented both public service providers and users within Bone Bolango Regency during 2025. The demographic variables examined included respondent type, age, and educational background, as these factors are closely associated with digital literacy, access to technology, and experience in utilizing digital public services.

Table 1. Respondent Characteristics in 2025

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

Source: Primary Survey Data Processed by the Researcher (2025)

The findings presented in Table 1 indicate that community members represented the majority of respondents, accounting for 62.5% of the total sample, while civil servants comprised 37.5%. This distribution demonstrates that the study successfully incorporated perspectives from both the providers and recipients of public services, thereby strengthening the comprehensiveness of the research findings. The dominance of community members also reflects the increasing involvement of citizens in utilizing digital governance platforms introduced by the Bone Bolango Regency Government during 2025.

In terms of age distribution, respondents aged between 26 and 40 years constituted the largest proportion of participants at 54.2%. This suggests that the majority of respondents belonged to the productive and digitally adaptive age group, which is generally more familiar with technology-based public services. Respondents aged 41–55 years accounted for 31.7%, while those above 55 years represented only 14.1% of the sample. The relatively smaller proportion of older respondents may indicate lower engagement with digital public service systems among elderly citizens, potentially due to differences in technological familiarity and digital literacy levels.

Regarding educational background, most respondents possessed a bachelor’s degree (42.5%), followed by senior high school graduates (33.3%) and postgraduate degree holders (24.2%). The relatively high educational attainment among respondents indicates that participants generally possessed adequate knowledge and capability to understand and evaluate digital governance systems objectively. Higher educational levels are often associated with better digital literacy and stronger awareness of public service quality, which may contribute to more informed assessments regarding innovation and governance effectiveness.

The respondent profile demonstrates that the study involved participants with diverse demographic backgrounds while remaining dominated by individuals who are actively engaged with digital technology and public services. This demographic composition strengthens the reliability of the findings because the respondents possessed sufficient experience and exposure to evaluate the implementation of digital governance and public service innovation in Bone Bolango Regency during 2025.

## Descriptive Statistics of Research Variables

Descriptive statistical analysis was conducted to examine the general pattern of respondents' perceptions regarding the implementation of digital governance and the development of public service innovation in Bone Bolango Regency during 2025. This analysis is important because it provides an initial overview of how respondents evaluate the effectiveness of governance practices and innovation performance within local public administration. By using mean scores and standard deviations, the analysis is able to identify not only the level of respondent agreement but also the consistency of perceptions across the sample population. The descriptive findings also serve as a foundation for subsequent inferential statistical analysis, particularly in understanding whether the observed perceptions reflect stable and reliable trends within the research data. The variables analyzed in this section include digital governance as the independent variable and public service innovation as the dependent variable.

Table 2. Descriptive Statistics of Research Variables in 2025

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

Source: Primary Survey Data Processed by the Researcher (2025)

The results presented in Table 2 generally indicate that respondents viewed the implementation of digital governance and public service innovation positively. The findings suggest that digital transformation initiatives introduced by the Bone Bolango Regency Government have been perceived as effective in supporting administrative modernization and improving the quality of public service delivery. The consistently high evaluations across both variables reflect growing public acceptance of technology-based governance systems within local government institutions.

In addition, the relatively consistent response patterns indicate that respondents shared similar perceptions regarding the effectiveness of digital governance practices implemented during 2025. This consistency strengthens the reliability of the findings and suggests that digital governance reforms have generated observable impacts on public administration and service innovation. Overall, the descriptive analysis demonstrates that the implementation of digital governance has contributed positively to institutional performance, administrative responsiveness, and innovation capacity within Bone Bolango Regency.

## Descriptive Analysis of Digital Governance Dimensions

To obtain more detailed findings, descriptive statistical analysis was further conducted for each dimension of digital governance, namely efficiency, transparency, accountability, and participation.

Table 3. Descriptive Analysis of Digital Governance Dimensions in 2025

Dimension	Mean	Standard Deviation	Interpretation
Efficiency	4.21	0.54	Very High
Transparency	4.10	0.59	High
Accountability	4.05	0.63	High
Participation	3.98	0.66	High

The efficiency dimension recorded the highest mean score ( $M = 4.21$ ), indicating that respondents strongly perceived improvements in administrative speed, process simplification, and service accessibility through digital governance implementation during 2025. Online licensing systems, electronic population administration, and integrated public service platforms were perceived as significantly reducing bureaucratic delays and improving service convenience.

Transparency obtained a mean score of 4.10, reflecting positive perceptions regarding openness and accessibility of governmental information. Respondents acknowledged that digital platforms enabled easier access to administrative information and improved public monitoring of government activities.

Accountability achieved a mean score of 4.05, indicating that digital governance systems contributed positively to responsiveness and administrative responsibility. Respondents perceived that online complaint systems and reporting mechanisms facilitated greater governmental accountability.

Participation obtained the lowest mean score among the dimensions ( $M = 3.98$ ), although it remained within the high category. This suggests that while digital participation platforms existed in 2025, citizen involvement in policymaking and collaborative governance remained relatively limited compared to other dimensions.

### Validity and Reliability Testing

Before conducting inferential statistical analysis, it is essential to ensure that the research instrument meets the required standards of validity and reliability. Instrument testing was carried out to evaluate whether the questionnaire items were capable of accurately measuring the intended research constructs and producing consistent results across respondents. In quantitative research, validity and reliability testing are fundamental procedures because the accuracy of statistical findings largely depends on the quality of the measurement instrument used in data collection. Construct validity in this study was assessed using exploratory factor analysis (EFA) to confirm that each indicator appropriately represented the dimensions of digital governance and public service innovation. Reliability testing was subsequently conducted using Cronbach’s Alpha coefficients to determine the internal consistency of the questionnaire items. The results of the reliability analysis are presented in Table 4.

Table 4. Reliability Test Results in 2025

Variable	Cronbach’s Alpha	Interpretation
Digital Governance	0.892	Reliable
Public Service Innovation	0.876	Reliable

Source: Primary Survey Data Processed by the Researcher (2025)

The research instrument demonstrated a strong level of reliability and measurement consistency. The reliability results confirm that the questionnaire items were sufficiently stable and capable of producing dependable responses for quantitative analysis. This consistency suggests that respondents interpreted the questionnaire items in a relatively uniform manner, thereby strengthening the credibility of the collected data.

The successful validity and reliability testing procedures indicate that the measurement indicators used in this study were appropriate for representing the conceptual dimensions of digital governance and public service innovation. As a result, the dataset can be considered statistically dependable for subsequent inferential analysis, including regression testing and hypothesis examination. The instrument quality supports the robustness of the study findings and enhances confidence in the interpretation of the relationship between digital governance and public service innovation in Bone Bolango Regency during 2025.

### Classical Assumption Testing

Classical assumption testing was conducted to ensure that the data met the statistical requirements for multiple linear regression analysis.

#### Normality Test

The normality test employed the Kolmogorov–Smirnov method. The significance value obtained was 0.200, exceeding the minimum requirement of 0.05. Therefore, the data distribution was considered normal and appropriate for parametric analysis.

#### Multicollinearity Test

Multicollinearity testing was performed using Variance Inflation Factor (VIF) and tolerance values. All VIF values were below 10, while tolerance values exceeded 0.10, indicating that no multicollinearity problems existed among the independent variables.

### **Heteroscedasticity Test**

The heteroscedasticity test was conducted using the Glejser method. All predictor variables produced significance values above 0.05, indicating the absence of heteroscedasticity in the regression model. The classical assumption tests confirmed that the dataset fulfilled the requirements for multiple linear regression analysis.

### **Multiple Linear Regression Analysis**

Multiple linear regression analysis was conducted to determine the influence of digital governance dimensions on public service innovation in Bone Bolango Regency during 2025. The analysis examined the simultaneous effects of efficiency, transparency, accountability, and participation on innovation outcomes. The regression equation used in this study is formulated as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$$

Y = Public Service Innovation

X<sub>1</sub> = Efficiency

X<sub>2</sub> = Transparency

X<sub>3</sub> = Accountability

X<sub>4</sub> = Participation

The regression results are summarized in Table 5

Table 5. Multiple Linear Regression Results in 2025

Predictor Variable	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

Source: Primary Survey Data Processed by the Researcher (2025)

The findings presented in Table 5 demonstrate that digital governance dimensions collectively contributed significantly to public service innovation in Bone Bolango Regency during 2025. The regression model indicates that the implementation of digital governance has become an important institutional mechanism in improving administrative performance and encouraging innovation in local public services. The relatively strong explanatory power of the model suggests that governance modernization through digital systems played a substantial role in shaping service innovation outcomes within the regency. Among the predictor variables, efficiency emerged as the most dominant factor influencing public service innovation. This finding suggests that the adoption of digital systems successfully streamlined administrative procedures, reduced bureaucratic complexity, and accelerated service delivery processes. The strong contribution of efficiency reflects the importance of operational effectiveness in supporting innovation within public administration. Digital platforms enabled public institutions to provide faster, more accessible, and more responsive services, thereby increasing the overall effectiveness of service delivery.

Transparency also demonstrated a meaningful contribution to innovation in public services. The findings indicate that greater openness in information dissemination and improved accessibility to governmental data strengthened institutional responsiveness and public trust. Digital transparency mechanisms, such as online monitoring systems and information portals, created a governance environment that encouraged continuous improvement and accountability in service provision. Accountability showed a positive and significant influence on innovation, although its contribution was relatively more moderate compared to efficiency and transparency. This finding suggests that digital reporting systems, complaint management platforms, and administrative monitoring tools supported institutional responsibility and improved service performance. The

existence of traceable digital mechanisms encouraged public officials to maintain service standards and respond more effectively to community needs.

Participation, however, did not demonstrate a statistically significant influence on public service innovation. This result implies that although participatory digital platforms were available, citizen involvement in governance processes remained relatively limited and had not yet become a major driver of innovation. The findings indicate that digital governance implementation in Bone Bolango Regency during 2025 was still primarily oriented toward administrative modernization rather than collaborative governance. Limited public engagement, uneven digital literacy, and restricted utilization of participatory platforms may explain the weaker contribution of participation compared to other governance dimensions. The regression analysis confirms that digital governance significantly strengthened innovation in public service delivery, particularly through improvements in efficiency, transparency, and accountability. The findings further suggest that sustainable innovation in local governance requires not only technological advancement but also stronger institutional strategies to enhance citizen participation and collaborative digital engagement.

The findings demonstrate that digital governance significantly influenced public service innovation in Bone Bolango Regency during 2025. Efficiency, transparency, and accountability emerged as the primary dimensions contributing to innovation in local public administration. Digital systems improved administrative effectiveness, strengthened openness, and enhanced institutional responsiveness, thereby supporting innovative public service delivery. The relatively weak contribution of participation indicates that digital governance implementation remained predominantly administrative rather than collaborative. Although participatory platforms were available, public engagement in governance processes remained limited. These findings suggest that future digital governance policies should focus not only on technological efficiency but also on strengthening participatory mechanisms and digital civic engagement to support sustainable and inclusive public service innovation.

### Digital Public Service Utilization Frequency

The first additional dataset illustrates the frequency of digital public service utilization among respondents during 2025. This information is important because the intensity of digital service usage may influence respondents' perceptions toward governance effectiveness and innovation.

Table 6. Frequency of Digital Public Service Utilization in 2025

Frequency of Use	Number of Respondents	Percentage (%)
Very Frequently	38	31.7
Frequently	49	40.8
Occasionally	24	20.0
Rarely	9	7.5
Total	120	100

The findings demonstrate that most respondents actively utilized digital public services in Bone Bolango Regency. Respondents categorized as “frequently” using digital services represented 40.8%, followed by “very frequently” at 31.7%. Only 7.5% reported rarely using digital services. These results indicate that digital governance systems introduced in 2025 had achieved relatively broad adoption among the community and civil servants. High utilization rates also support the validity of respondent perceptions regarding the effectiveness of digital governance implementation.

### Types of Digital Public Services Most Frequently Accessed

Additional analysis was conducted to identify which digital services were most frequently utilized by respondents.

Table 7. Most Frequently Accessed Digital Public Services in 2025

Digital Service Type	Frequency	Percentage (%)
Population Administration Services	36	30.0

Online Licensing Services	31	25.8
Public Complaint Services	24	20.0
Health Service Administration	18	15.0
Tax and Retribution Services	11	9.2
Total	120	100

Source: Primary Survey Data Processed by the Researcher (2025)

The data reveal that population administration services were the most frequently accessed digital services in Bone Bolango Regency during 2025, accounting for 30% of total responses. Online licensing services ranked second at 25.8%, followed by public complaint services at 20%. These findings suggest that digital transformation was particularly effective in administrative sectors requiring rapid service processing and public accessibility. The high utilization of population administration and licensing services also supports the earlier finding that efficiency emerged as the strongest predictor of public service innovation. Digitalization significantly simplified administrative procedures and reduced bureaucratic complexity in these service sectors.

### Perceived Benefits of Digital Governance

To further strengthen the descriptive findings, respondents were also asked to evaluate the primary benefits generated by digital governance implementation during 2025.

Table 8. Perceived Benefits of Digital Governance in 2025

Perceived Benefit	Mean Score	Interpretation
Faster Service Delivery	4.32	Very High
Easier Access to Services	4.25	Very High
Increased Transparency	4.14	High
Reduced Administrative Costs	4.08	High
Increased Public Trust	3.97	High
Improved Citizen Participation	3.85	Moderate-High

Source: Primary Survey Data Processed by the Researcher (2025)

The findings indicate that respondents perceived faster service delivery as the greatest benefit of digital governance implementation, with a mean score of 4.32. Easier access to services also received a very high evaluation ( $M = 4.25$ ). These findings reinforce the regression analysis results showing that efficiency had the strongest contribution to public service innovation. Improved citizen participation received the lowest mean score ( $M = 3.85$ ), although it still remained within the moderate-to-high category. This finding further confirms that participatory dimensions of digital governance in Bone Bolango Regency during 2025 had not yet developed optimally compared to administrative and technical improvements.

### Additional Regression Model Summary

To strengthen the interpretation of the inferential statistical findings, additional regression model indicators were analyzed to evaluate the overall quality and explanatory power of the regression equation used in this study. The regression model summary provides important information regarding the strength of the relationship between independent and dependent variables, the predictive capability of the model, and the overall significance of the statistical analysis.

In quantitative research, these indicators are essential for determining whether the proposed regression model is sufficiently robust to explain the phenomenon under investigation. The model summary also helps confirm the extent to which the dimensions of digital governance collectively contribute to public service innovation in Bone Bolango Regency during 2025. The statistical indicators presented in Table 9 therefore serve as an important foundation for validating the reliability and explanatory capacity of the regression analysis.

Table 9. Regression Model Summary in 2025

Model Indicator	Value
R	0.748

R Square (R <sup>2</sup> )	0.560
Adjusted R Square	0.545
F-value	34.87
Significance	0.000

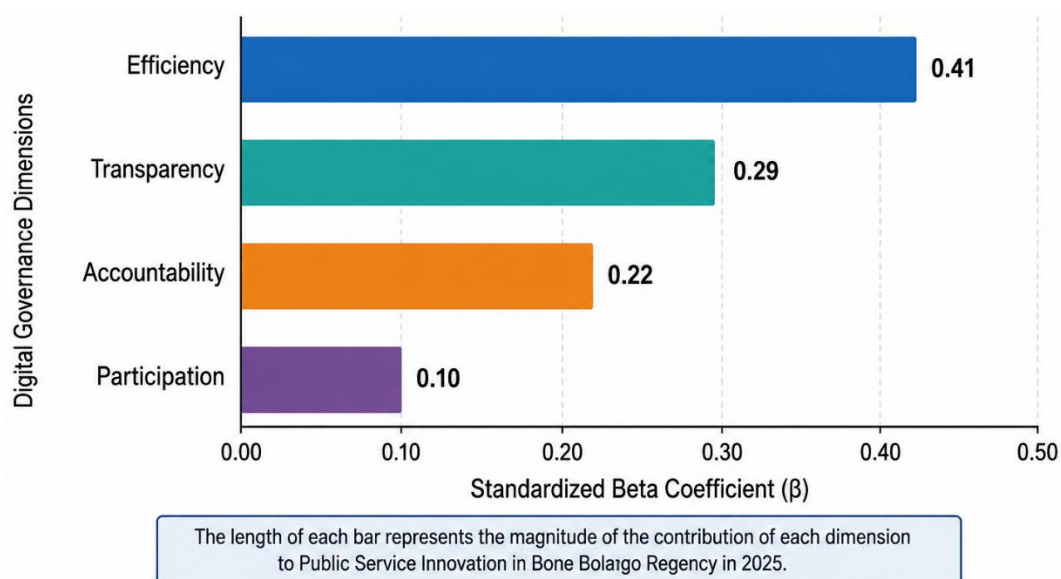
Source: Primary Survey Data Processed by the Researcher (2025)

The regression model possessed a strong and statistically significant relationship between digital governance and public service innovation. The model demonstrates that the independent variables collectively provided substantial explanatory power in understanding variations in innovation performance within public services. This suggests that digital governance dimensions played an important role in shaping institutional innovation and administrative transformation in Bone Bolango Regency during 2025.

The consistency between the coefficient values and the significance level indicates that the regression model remained statistically stable and appropriate for explaining the relationship among the research variables. The model's overall significance confirms that the dimensions of digital governance collectively contributed meaningfully to innovation outcomes, thereby supporting the study's conceptual framework and research hypotheses. Overall, the regression summary strengthens the conclusion that digital governance implementation has become a significant driver of public service innovation within the local government context.

### Figure of Digital Governance Dimension Contributions

The following figure summarizes the contribution of each digital governance dimension to public service innovation based on standardized beta coefficients obtained from the regression analysis.



**Figure 1.** Contribution of Digital Governance Dimensions to Public Service Innovation in 2025

The figure demonstrates that efficiency contributed most strongly to innovation outcomes, followed by transparency and accountability. Participation produced the weakest contribution and did not achieve statistical significance. These findings indicate that digital governance implementation in Bone Bolango Regency during 2025 was predominantly oriented toward administrative modernization and service acceleration rather than collaborative governance and participatory policymaking.

### Citizen Satisfaction toward Digital Public Services

An additional analysis was conducted to evaluate the level of citizen satisfaction regarding the performance of digital public services in Bone Bolango Regency during 2025. Measuring citizen satisfaction is important because it reflects how effectively digital governance systems meet public expectations in terms of service quality, accessibility, responsiveness, and communication. In the

context of digital governance, citizen satisfaction serves as an important indicator of institutional performance and public acceptance toward technological transformation in government services.

The analysis of satisfaction indicators also provides complementary evidence to support the regression and descriptive findings presented earlier. By examining public perceptions of service experiences, the study is able to identify the strengths and limitations of digital public service implementation within the regency. The results of the citizen satisfaction analysis are presented in Table 10.

Table 10. Citizen Satisfaction toward Digital Public Services in 2025

Satisfaction Indicator	Mean Score	Interpretation
Service Speed	4.28	Very High
Accessibility	4.20	High
Information Clarity	4.09	High
Complaint Handling	3.96	High
Interactive Communication	3.82	Moderate–High

Source: Primary Survey Data Processed by the Researcher (2025)

The findings presented in Table 10 generally indicate that respondents expressed positive perceptions toward the quality and performance of digital public services implemented in Bone Bolango Regency during 2025. The results suggest that digital governance systems successfully improved administrative responsiveness, accessibility, and service efficiency within local government institutions. Public satisfaction toward digital services reflects the growing effectiveness of technology-based governance in simplifying administrative procedures and enhancing service delivery quality.

The consistently positive evaluations across most indicators demonstrate that digital transformation initiatives have contributed to improved public trust and institutional performance. Respondents perceived that digital-services were increasingly capable of providing faster, clearer, and more accessible administrative processes. These findings strengthen the earlier regression results showing that efficiency and transparency played significant roles in supporting public service innovation.

The relatively lower evaluation of interactive communication indicates that participatory and collaborative aspects of digital governance still require further improvement. Although digital platforms facilitated service delivery and complaint management, opportunities for two-way interaction and citizen engagement remained comparatively limited. This finding reinforces the broader conclusion that digital governance implementation in Bone Bolango Regency during 2025 was more successful in improving administrative efficiency than in strengthening participatory governance mechanisms. Overall, the satisfaction analysis confirms that digital governance has positively influenced public service quality while simultaneously highlighting the need for more inclusive and interactive digital engagement strategies.

## Discussion

### ***The Role of Digital Governance in Strengthening Public Service Innovation***

The findings of this study demonstrate that digital governance plays a substantial role in enhancing public service innovation in Bone Bolango Regency during 2025. The regression analysis confirmed that the dimensions of efficiency, transparency, and accountability significantly influenced innovation in local public administration. These findings support the theoretical perspective proposed by Tomasz Janowski, which emphasizes that digital governance contributes to administrative modernization through technology-based institutional transformation. The implementation of online licensing systems, electronic population administration, and digital complaint services illustrates how local governments increasingly utilize digital platforms to improve service responsiveness and operational effectiveness.

Efficiency emerged as the strongest predictor of public service innovation. This finding indicates that the success of digital governance in Bone Bolango Regency was primarily associated with improvements in administrative speed, procedural simplification, and accessibility of public

services. The descriptive analysis also showed that respondents highly appreciated faster service delivery and easier access to government services. Such findings indicate that digital transformation has reduced bureaucratic complexity and enhanced institutional responsiveness. The high frequency of digital public service utilization further strengthens this conclusion, demonstrating that citizens increasingly rely on digital systems for administrative needs. The effectiveness of efficiency-oriented governance reforms reflects the practical benefits of integrating information technology into public administration processes (Elatmani & El, 2025; Maulida et al., 2025; Meuleman, 2021; Harake, 2025; Sukma & Yamnill, 2025).

Transparency also contributed significantly to innovation outcomes. The availability of accessible digital information systems and public monitoring mechanisms strengthened institutional openness and increased public trust toward local government services (Fadrial et al., 2024; Ramadhani et al., 2025; Pandey, 2023; Schmidhuber et al., 2021). Respondents perceived that digital governance improved access to administrative information and enhanced governmental accountability in service provision. These findings align with governance theories emphasizing that transparency is essential for improving institutional legitimacy and strengthening citizen confidence in public administration. Digital transparency mechanisms in Bone Bolango Regency therefore functioned not only as administrative tools but also as instruments for promoting institutional credibility and service quality improvement.

Accountability demonstrated a positive influence on public service innovation, although its contribution was relatively moderate compared to efficiency and transparency. According to Nayasari (2025) and Xun et al. (2025), the implementation of digital complaint management systems, reporting platforms, and monitoring mechanisms enabled greater traceability of administrative processes and encouraged more responsible governance practices. These findings suggest that accountability within digital governance frameworks contributes to improving institutional performance by encouraging public officials to maintain service standards and responsiveness. The presence of accountable digital systems also supports more effective supervision and evaluation of governmental activities, thereby strengthening administrative reliability and innovation capacity.

The regression model summary confirmed that digital governance dimensions collectively possessed substantial explanatory power in influencing public service innovation (Peralta & Rubalcaba, 2021; Fathi et al., 2025; Belkhamza, 2025). The strong relationship between governance modernization and innovation outcomes suggests that technological integration has become an important institutional strategy for improving local public administration. The findings imply that digital governance implementation in Bone Bolango Regency successfully facilitated organizational adaptation toward more efficient, transparent, and responsive governance practices. Public satisfaction toward digital public services further supports this interpretation, particularly regarding service speed, accessibility, and clarity of information delivery.

### ***Challenges of Participatory Digital Governance and Institutional Sustainability***

Although digital governance demonstrated strong contributions to administrative innovation, the findings also revealed important limitations regarding participatory governance mechanisms. Participation was the only dimension that did not produce a statistically significant influence on public service innovation. This finding suggests that the implementation of digital governance in Bone Bolango Regency during 2025 remained predominantly administrative rather than collaborative. Digital platforms successfully facilitated service delivery and bureaucratic efficiency; however, they were less effective in encouraging active citizen engagement in governance processes and policymaking activities.

The descriptive findings reinforce this interpretation by showing that participation consistently received the lowest evaluations among the governance dimensions and satisfaction indicators. Respondents acknowledged the existence of digital participation platforms, such as complaint systems and online communication channels, yet their utilization remained relatively limited. Interactive communication between citizens and government institutions was also evaluated less positively compared to service speed and accessibility (Joshi, P. R., & Islam, 2018). These findings

indicate that digital interaction within the local governance system still functioned primarily as a one-way administrative communication mechanism rather than as a participatory governance framework.

Several institutional and social factors may explain the relatively weak influence of participation. Differences in digital literacy, limited public awareness regarding participatory platforms, and unequal access to digital infrastructure may reduce the effectiveness of citizen engagement initiatives (Khalid, 2025; Asimakopoulos et al., 2025; Kozaman & İnal, 2025). The dominance of efficiency-oriented reforms may also contribute to the prioritization of administrative modernization over collaborative policymaking processes. As a result, citizen participation remains secondary within the broader digital governance agenda. This condition reflects challenges commonly experienced by local governments during digital transformation, where technological adoption progresses more rapidly than institutional adaptation toward participatory governance cultures.

The findings indicate that sustainable public service innovation requires not only technological capability but also stronger institutional commitment to collaborative governance. Digital governance systems should therefore evolve beyond procedural automation toward more inclusive forms of civic engagement. Expanding public participation through digital consultation forums, interactive communication platforms, and citizen feedback integration may strengthen the democratic dimension of digital governance. Increasing digital literacy programs and improving accessibility to participatory technologies may also encourage broader community involvement in governance processes (Prasastiningtyas et al., 2024; Afzalan & Muller, 2018; Tripathi, S., & Singh, 2024).

Citizen satisfaction findings further demonstrate that while digital governance successfully improved operational performance, public expectations regarding communication and engagement continue to grow. Respondents perceived that administrative services became more efficient and accessible, yet opportunities for collaborative interaction with government institutions remained relatively limited. This suggests that future digital governance strategies should focus on balancing administrative efficiency with participatory inclusiveness. Institutional sustainability in digital governance depends not only on technological advancement but also on the ability of public institutions to foster trust, collaboration, and citizen involvement in public decision-making processes.

The study therefore highlights that digital governance in Bone Bolango Regency has entered a phase of functional administrative modernization, characterized by improvements in efficiency, transparency, and accountability. The next stage of governance development requires strengthening participatory dimensions to ensure that digital transformation produces not only effective services but also inclusive and citizen-centered public administration.

## **CONCLUSION**

Digital governance significantly influences public service innovation in Bone Bolango Regency during 2025, particularly through the dimensions of efficiency, transparency, and accountability. The implementation of digital governance systems has successfully improved administrative responsiveness, accelerated service delivery, strengthened institutional openness, and enhanced accountability mechanisms within local public administration. Efficiency emerged as the most dominant factor contributing to innovation, indicating that digital transformation has effectively reduced bureaucratic complexity and increased accessibility to public services. Transparency and accountability also contributed positively by improving public trust and institutional performance. Participation, however, did not demonstrate a significant influence on innovation, suggesting that citizen engagement within digital governance processes remains relatively limited and has not yet developed into a collaborative governance model. These findings indicate that digital governance in Bone Bolango Regency has been successful in supporting administrative modernization and service effectiveness, yet stronger efforts are still required to expand participatory governance mechanisms and digital civic engagement. Sustainable public service innovation therefore depends not only on technological advancement but also on the capacity of local institutions to foster inclusive, interactive, and citizen-centered governance practices.

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