Volume 7 (2) (2024).111-128
Journal of Local Government Issues (LOGOS)
ISSN: 2620-8091 print | 2620-3812 online
Journal Homepage : http://ejournal.umm.ac.id/index.php/LOGOS/index

Interoperability Governance: An Analysis of the Impact of Digitization of Public Services on Local Government

Dyah Mutiarin[1*], Herman Lawelai[1,2], Anwar Sadat[3], Nastia[4], Andy Arya Maulana Wijaya[5], L.M. Azhar Sa'ban[6]

[1]Doctoral Program of Government Affairs and Administration, Jusuf Kalla School of Government, Universitas Muhammadiyah Yogyakarta, Indonesia
[2, 3,4,5,6]Department of Government Studies, Faculty of Social and Political Sciences. Universitas Muhammadiyah Buton, Indonesia
*Corresponding author: mutiarin@umy.ac.id

ABSTRACT

The study highlights the significance of understanding the impact of digitalization on public services in local government organizations, particularly about coordination strategy and digitalization policy. The rapid advancements in information technology have transformed the delivery and acquisition of public services, necessitating a comprehensive understanding of the factors influencing the efficiency of digital services. A quantitative approach was used, with Smart-PLS 3.0 analysis involving respondents from South Buton Regency local government organizations. Data collection was conducted through a direct survey in the field. The results showed a strong relationship between coordination, strategy, and digitalization policy, with a significant relationship between these factors and the effectiveness of digital services. However, no significant relationship between digitalization policy and digital service effectiveness was found. The results of this study provide valuable insights into the dynamics of interoperability governance and the nuanced relationships between coordination, strategy, digitization policy, and digital service effectiveness in local government organizations. Despite the significant influence of coordination and strategy, the role of digitalization policy on digital service effectiveness suggests the need for further evaluation or a change in policy approach.

Article Info :

Article history:

Received : November 11, 2023
Revised : February 20, 2024
Accepted : April 1, 2024

Keywords:
coordination;
digitalization;
local government;
public policy;
public Service

INTRODUCTION

The development of information and communication technology (ICT) has significantly changed public services (Dzator et al., 2023; Fahmi & Mendrofa, 2023; C. Y. Ho et al., 2023), including local government organizations (Arduini et al., 2013; Cordella

Please cite this article as: Mutiarin, D., Lawelai, H., Sadat, A., Nastia, N., Wijaya, A. A. M., & Sa'ban, L. A. (2024). Interoperability Governance: An Analysis of the Impact of Digitization of Public Services on Local Government. *Journal of Local Government Issues*, *7*(2), 111–128. https://doi.org/10.22219/logos.v7i2.30388

& Tempini, 2015; Panagiotopoulos et al., 2023). This digital era encourages technology adoption to improve efficiency and relevance in providing services to the community (Lopez-Carreiro et al., 2020). South Buton Regency, one of the local government entities, has utilized technology in public services, although there are some problems (Abidin et al., 2021).

The government is committed to continuously improving service quality and integrating advanced ICT solutions to enhance the accessibility, transparency, and responsiveness of public services (Yeh, 2017; Zou et al., 2023). By implementing digital transformation, the government aims to improve administrative efficiency and adapt to the evolving needs of modern society (Scupola & Mergel, 2022). Strategic steps in ICT are essential to create a connected, adaptive, and innovative service ecosystem, enabling local governments to respond to public demands for responsive, transparent, and easily accessible services through digital platforms.

The digital age has significantly impacted public expectations of public services (Lawelai et al., 2023; Yigitcanlar et al., 2023), particularly in the South Buton Regency. The global pandemic has accelerated this shift, making it crucial for local governments to adapt to technological trends and innovate in public services (Sarkar, 2021). This includes digitizing information provision, administrative processes, and public transactions.

Understanding the societal changes occurring in the South Buton Regency is vital since the transition toward the digital age is unavoidable. To enhance service quality, the district must persist in implementing innovation by using online platforms, digitizing administrative procedures, and fortifying community engagement tactics in government decision-making. To effectively address the current era's difficulties and improve the quality and responsiveness of its services, South Buton Regency must actively participate in the dynamics of digital technology.

The importance of local governments in fostering a robust technological ecosystem for improved public services (Wei, 2022). This requires significant financial investment in digital infrastructure development, workforce education, and technology-promoting policies (Almgren & Skobelev, 2020). South Buton Regency can contribute to a well-connected, efficient, and competitive society in the digital age by implementing strategic objectives and constructing a comprehensive technology ecosystem. This progressive mindset demonstrates the region's commitment to enhancing its community and socio-economic environment.

In public service literature, digitization in local government organizations has become a significant concern (Gasco-Hernandez et al., 2022; Panagiotopoulos et al., 2023; Trieu et al., 2023). Research by Shahaab et al. (2023) shows that implementing technology in public services can improve operational efficiency, reduce bureaucracy, faster workflows, and optimize resources (Shahaab et al., 2023). Technological innovations like information management systems and online service applications can improve transparency, accountability, and responsiveness (Shamim et al., 2021).

Zhao et al. (2023) state that technology can improve the quality of services provided to the public by integrating information systems, providing personalized services, and responding quickly to public needs (Zhao et al., 2023). Digitalization increases efficiency and enhances the relationship between local governments and the community (Prendiville, 2018). Online service applications allow the public to access

information, apply for services, and interact with government agencies, encouraging transparency and public participation, resulting in more democratic and responsive governance.

Digitizing public services at the local level has significant potential, but challenges need to be overcome (Dănăiaţă et al., 2014). Low digital literacy among the public is a significant challenge, and improving digital education and training approaches is crucial (Ristiandy, 2020). Limited technology infrastructure in some regions can hinder effective digital public services (Wulandari & Anshori, 2012), so local governments should focus on developing technology infrastructure for equitable access.

Technology infrastructure is critical for local governments to enhance their ability to provide efficient public services (Fan & Pan, 2023; Hu et al., 2012). It involves establishing internet networks, procuring advanced equipment, and providing technical training. These strategic measures facilitate digital transformation and enhance organizational capabilities in the contemporary technology age (Nazarenko et al., 2022). Reliable internet networks, advanced hardware, and sufficient technical expertise are essential for achieving efficiency in digital public services (Irani et al., 2023; Madan & Ashok, 2023). Allocating resources for technology infrastructure enhances operational efficiency and enables communities to adapt to the changing digital landscape. Therefore, providing sufficient funding and resources for technology infrastructure is a strategic measure that promotes the attainment of local governments' objectives for digital transformation in an age of enhanced connectivity and technical advancements.

This study will address the problems of digitalization by examining coordination tactics across government agencies and including factors related to digitalization policy. This study aims to examine the impact of the public's digital literacy level and the constraints of technical infrastructure on the efficacy of digital services. The analysis of the correlation between the implementation of digitalization policies, cross-sector coordination, and digital services aims to identify suitable solutions for enhancing digital literacy and improving technological infrastructure. This will enable individuals to access and utilize digital services more efficiently.

South Buton Regency has implemented e-government, integrating communication and information technology into local governance processes in line with central government regulations (Karman et al., 2021). Research on the effectiveness of public service digitization in the South Buton Regency is limited. The focus is on coordination and inter-stakeholder strategy, crucial for successfully implementing digital services. However, there needs to be more in-depth research on improving this coordination. The Regency level has also been under-explored, with limited discussion on digitization policies.

A comprehensive analysis of policy formulation, implementation, and impact of digitalization policies on public services is needed. Solid and supportive policies can encourage innovation and efficiency in service delivery. The effectiveness of digital services in South Buton Regency needs more intensive research. A comprehensive assessment of how the community responds to and uses digital services and their needs and expectations has yet to be fully explored. Analyzing the quality of services, community participation, and socioeconomic impact of digital services would provide a more comprehensive picture.

This research aims to provide insights into factors influencing the success of digitizing public services in South Buton Regency. Implementing a good coordination strategy, appropriate digitalization policies, and increased digital service effectiveness can guide local governments to improve and optimize public service delivery in the digital era. This research seeks to identify key factors for successful public service digitization in South Buton Regency, emphasizing coordination, digital policies, and service effectiveness to enhance government service delivery.

This research aims to evaluate the relationship between coordination and strategy, digitalization policy, and the effectiveness of digital services in the context of interoperability governance, particularly in delivering public services in local government organizations. The coordination and approach variable, derived from organizational coordination theory (Deng et al., 2008), is crucial in understanding how cooperation among organizational elements affects service digitization effectiveness. The digitization policy variable, closely related to innovation diffusion theory (Wonglimpiyarat & Yuberk, 2005), examines how innovations, particularly in digitization, are accepted and spread in society or organizations. Based on service quality management theory (Ghobadian et al., 1994), the digital service effectiveness variable will be explored to understand how these aspects impact the effectiveness of digital services in local government.

The research will detail the extent to which digitization policies are implemented in local government environments and how their acceptance affects progress toward digital service effectiveness. The study will provide deeper insights into the relationship between coordination and strategy, digitalization policies, and digital service effectiveness in the context of interoperability governance, providing a clearer view of how these variables are interrelated and how their implementation affects the efficacy of digitalization in public services.

Based on the research gap analysis previously described, this study provides three main hypotheses to understand the relationship between variables in South Buton Regency:

H1: Coordination and Strategy have an influence on digitalization policy.

H2: Coordination and Strategy have an influence on the effectiveness of digital services.

H3: Digitalization strategy has an influence on the effectiveness of digital services.

The author selected hypotheses to address essential issues in the South Buton District, focusing on coordination, strategy, digitization policy, and effectiveness of digital services. This study was chosen because of the relevance of these variables to the conditions in the research location. Coordination and strategic planning are essential in overcoming limited resources in the region, and digitalization strategies and the effectiveness of digital services are seen as methods to maximize outcomes with limited resources. The local government agenda emphasizes synchronization, plan formulation, and implementation of digital services, and the hypothesis was chosen to represent this focus accurately. Previous studies on the correlation between coordination, strategy, digitization policy, and the effectiveness of digital services in the South Buton Regency need to be revised, highlighting the need for further research.

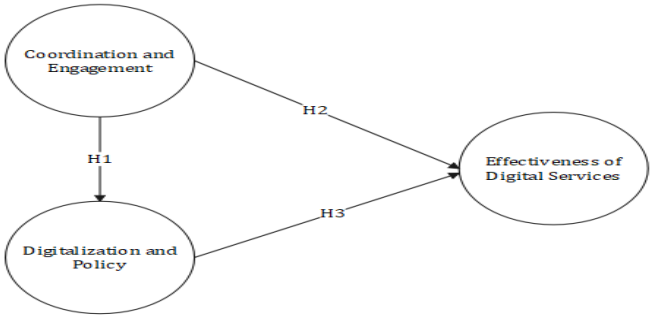

Figure 1. Research Model

METHOD

This research uses a quantitative approach, using Structural Equation Modeling (SEM) techniques (Nugraha et al., 2022), and Smart-PLS 3.0 data analysis tools (Ringle, C.M., Wende, S., Becker, 2015). SEM is a statistical approach to developing and validating statistical models, especially in cause-and-effect interactions. Using a purposeful sampling approach, the data collected for this study is derived from several local government organizations in Buton Selatan Regency. The respondents included include staff or heads of departments as well as technology unit managers from each organization, which is the focus of the research. The data collection process will be conducted directly during the time frame of July to September 2023. A total of 50 respondents, as seen in Figure 2, were included in this study to ensure the validity and reliability of the obtained results.

The research involved 50 respondents from various agencies in the South Buton Regency local government organization, focusing on interoperability governance and the effectiveness of digitization in public service delivery. The diversity of work units in the local government sector provided a comprehensive analysis of interoperability governance practices and the impact of digitization on public service effectiveness.

The diversity of respondents from different agencies also provided a comprehensive picture of the challenges and potential of adopting digital-based public services at the local level, particularly in the South Buton Regency. To understand the barriers and opportunities in implementing digital public services at the local level, specifically in South Buton District, the sub-district and village governments were excluded from the study. This is because higher-level institutions have broader requirements, perspectives, and expectations. In addition, to reduce the potential bias towards a narrow perspective by excluding the sub-district and village government levels.

The factor constructs in this study were assessed using a 5-point Likert scale ranging from 1 to 5. The weight of the alternative questions in the research questionnaire was adjusted to the score of the Likert scale. The number of respondents included in this study was selected based on several known parameters (Geebren et al., 2021). It is important to remember that using an acceptable sample size in SEM is highly recommended to minimize estimation bias.

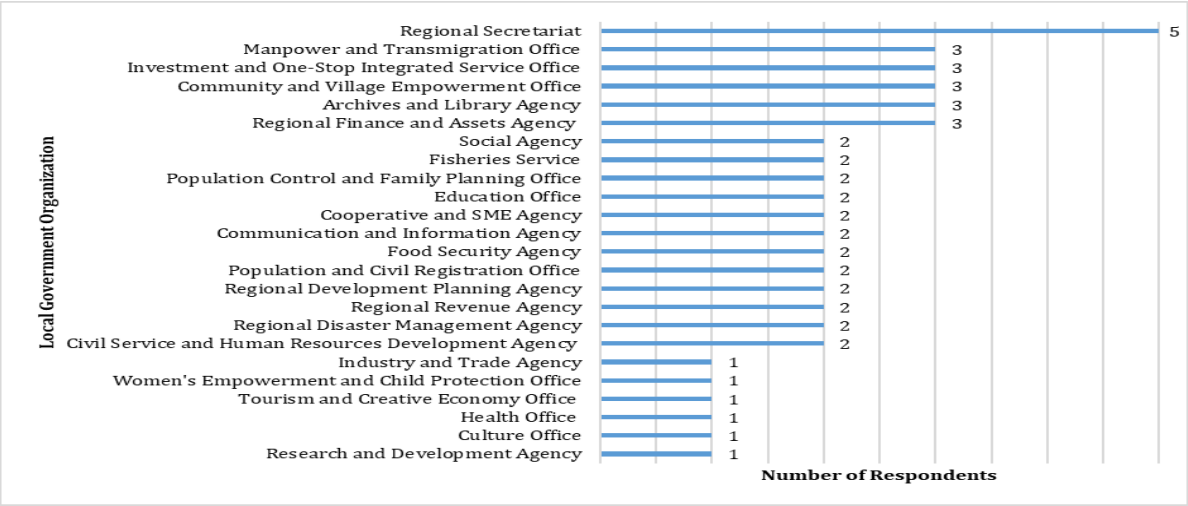

Figure 2. Distribution of Research Samples

Using SEM techniques and Smart-PLS 3.0 data analysis tools, the effectiveness of the digitalization of public services was assessed with several variables described in the research model in Figure 1, such as coordination and approach, digitalization policy, and the effectiveness of digital services. The analysis includes two stages of assessment; first, the construct validity and reliability of each indicator are used to test the measurement model; finally, the model fit is used to test the causal correlation between the latent variables. The question items of the construct variables and the indicator items are shown in Table 1.

Table 1. Description of Research Variables

Variable	Indicator	References	Code
Coordination and Strategy	Is there coordination of digitization with other local governments?	(Liu et al., 2022)	CS1
	Does digitization use a proactive approach with stakeholders?	(Chwiłkowska-Kubala et al., 2023)	CS2
	Has a data integration system been implemented?	(D. H. Ho et al., 2022)	CS3
	Is there a collaborative digital ecosystem within the local government organization?	(Gasco-Hernandez et al., 2022)	CS4
Digitalization Policy	Has the local government organization implemented digitization as a whole?	(Hatuka & Zur, 2020)	DP1
	Do local government leaders require digitization in public services?	(Thompson & Venters, 2021)	DP2
	Is every local government organization connected to data?	(Reggi & Dawes, 2022)	DP3
	How are leaders driving digitalization change in public services?	(Weerakkody et al., 2016)	DP4
Effectiveness of Digital Services	How many services have been digitized?	(van Holstein et al., 2021)	EDS1
	How much digital innovation and collaboration has taken place?	(Tao & Shuliang, 2022)	EDS2
	Are local government digital services user-friendly?	(Gómez-Carmona et al., 2023)	EDS3
	To what extent are public services open in providing data to the public?	(Turner et al., 2022)	EDS4
	Are public services accessible in real-time?	(Silva et al., 2018)	EDS5

RESULTS AND DISCUSSION

Indicator loadings

This study explores the relationship between coordination, involvement, digitalization, policies and digital service effectiveness in South Buton Regency's local government organizations. Using Smart-PLS 3.0, the research aims to understand the interplay between variables and their impacts, as illustrated in Figure 3.

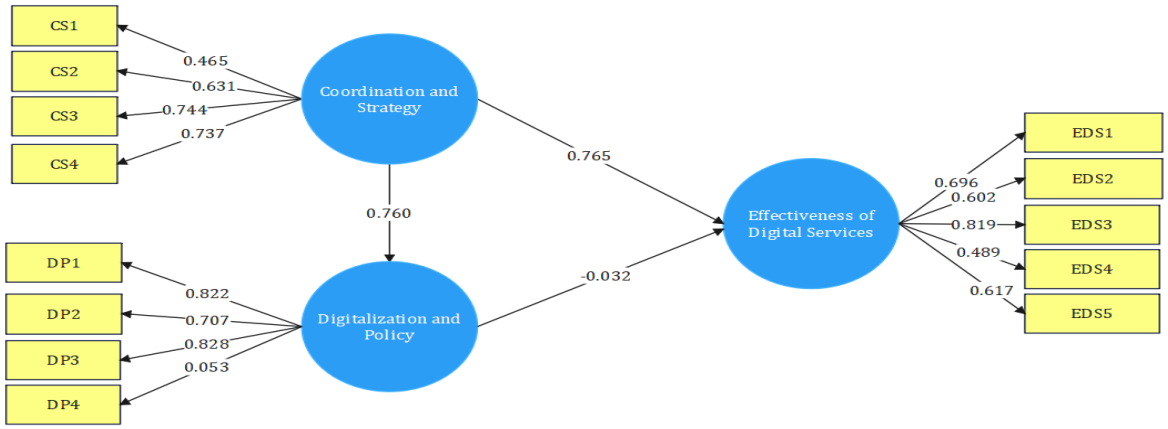

Figure 3. Indicator loading

This study found a significant positive relationship between coordination and Strategy in digitalization and policy has a significant positive relationship of 0.760. This means that the higher the level of coordination and strategy in the context of digitalization and policy, the stronger the positive impact on digitalization and policy.

Furthermore, there is a moderately high positive relationship between coordination and strategy and effectiveness of digital services at 0.740. This indicates that the level of coordination and Strategy also positively affects the effectiveness of digital services. In other words, the better the coordination and Strategy in digital policy implementation the higher the effectiveness of digital services that can be achieved.

On the other hand, there is a weak negative relationship between digitalization and policy and digital service effectiveness of -0.032. Although this relationship is fragile. It implies that the higher the level of digitalization and policy. The effectiveness of digital services tends to decrease slightly. This may indicate other factors affecting the relationship between digitalization and policy and digital service effectiveness that need further consideration.

The results of the Smart-PLS 3.0 (figure 3) analysis show that coordination and strategy have a significant positive impact on digitalization and policies, as well as the effectiveness of digital services. Meanwhile, digitalization and policy have a slightly negative effect on the effectiveness of digital services.

Internal Consistency Reliability

This section delves into the concept of internal consistency reliability, which is crucial in assessing the reliability and consistency of measurement instruments in measuring specific constructs or variables, thus enabling the precise and reliable data analysis and interpretation of research results.

Table 2. Construct Validity and Reliability

Construct	α	rho_A	Composite Reliability	AVE
Coordination and Strategy	0.556	0.585	0.744	0.428
Digitalization and Policy	0.530	0.731	0.731	0.466
Effectiveness of Digital Services	0.664	0.704	0.784	0.428

Source: Analysis using Smart-PLS 3.0

The construct validity and reliability analysis in Table 2 is based on Cronbach's Alpha (α), rho_A, composite reliability, and Average Variance Extracted (AVE) values. These metrics are used to assess the quality of the measurement instruments and the construct validity within the model.

First, Cronbach's Alpha measures the internal reliability of a construct. The coordination and strategy construct has a good consistency (0.556) but can be increased for instrument reliability. The digitalization and policy construct has good reliability (0.530). While the effectiveness of digital services construct has a higher Cronbach's Alpha value (0.664), indicating better reliability than the previous two.

Furthermore, the rho_A measure of construct reliability, which typically yields higher values than Cronbach's Alpha, is used to evaluate constructs such as coordination and strategy (0.585), digitalization and policy (0.731), and the effectiveness of digital services (0.704). These values indicate a higher level of consistency in the measurement of these constructs. Moreover, this consistency suggests that the constructs are reliably capturing the intended dimensions of coordination, digitalization, and service effectiveness, thereby strengthening the overall validity of the research findings

The Composite Reliability measures, which assess construct reliability, yielded strong values for all three constructs: coordination and strategy (0.744), digitalization and policy (0.731), and effectiveness of digital services (0.784). These values indicate that the measurement instruments used for these constructs exhibit adequate reliability. In addition, these robust reliability values suggest that the instruments consistently capture the underlying concepts, enhancing the credibility of the research results.

Finally, AVE measures construct validity by comparing the variance extracted by a construct with the total variance. For coordination and strategy, digitalization, and policy and the effectiveness of digital services, the AVE values are 0.428. 0.466. and 0.428, respectively. While these values indicate acceptable validity, there is room for improvement.

The results of the analysis show that the instrument measuring the digital service effectiveness construct has better reliability and validity than other constructs. However, these values can still be improved to obtain optimal instrument quality for developing e-government service interoperability governance in the South Buton Regency. Furthermore, refining the measurement instruments through iterative testing and validation could lead to even more reliable and valid constructs, thereby supporting the development of a more effective e-government service interoperability framework in South Buton Regency.

Interoperability governance is crucial in the rapid development of technology and digitization of public services. It involves the ability of different systems and applications to communicate and operate together. Analyzing coordination and strategy, digital and

policies and the effectiveness of digital services is essential for local government organizations to integrate various digital systems and services effectively.

The coordination and strategy construct indicates the effectiveness of digital initiatives within organizations. By increasing values for Cronbach's Alpha, rho_A, Composite Reliability, and AVE, stronger strategies can be developed to enhance the management of interoperability between government units.. The digitalization and policy construct reflects the organization's implementation and adoption of digital policies. Clear policies supporting digitalization can drive good interoperability between systems and services.

The effectiveness of digital services construct is crucial in public services. As it measures the success of digital transformation by providing added value and convenience to the public. High levels of reliability and validity in this construct indicate the ability of local government organizations to provide effective and technology-based public services.

Table 3. Discriminant validity: Kriteria Fornell-Larcker

Construct codes	Coordination and Strategy	Digitalization and Policy	Effectiveness of Digital Services
Coordination and Strategy	0.654*		
Digitalization and Policy	0.760	0.683*	
Effectiveness of Digital Services	0.740	0.548	0.654*

Source: Analysis using Smart-PLS 3.0

Discriminant validity analysis is crucial in determining the distinction between different measurement instruments. The Fornell-Larcker Criterion calculated using Smart-PLS 3.0 output (Table 3), measures discriminant validity by comparing the root square value of each construct with the squared correlation between that construct and other constructs. If the square root value of the AVE is higher than the correlation with other constructs then discriminant validity is met.

The results show that the coordination and strategy construct meet the discriminant validity criteria with an AVE value of 0.654. The digitalization and policy construct also meets the discriminant validity criteria with an AVE value of 0.683. The effectiveness of digital services construct also meets the discriminant validity criteria with an AVE value of 0.654.

These results indicate that the measurement instruments for each construct have sufficient discriminant validity as the AVE values are higher than the correlations with other constructs. Strong discriminant validity indicates that the constructs measured by the instruments are well differentiated. Additionally, this strong discriminant validity ensures that each construct is distinct and independently contributes to the overall model, reinforcing the robustness of the research findings.

Structural Model Relationship

The Smart-PLS 3.0 model's structural model relationship with R Square and Adjusted R Square value analysis shows its ability to explain variation in data related to digitalization, policy, and digital service effectiveness. R Square measures the extent to which the dependent variable can be explained by the independent variables, indicating the model's success in explaining most observed factors. Adjusted R Square provides

additional confidence in the model's ability to provide adequate explanation without overfitting.

Table 4. R^2 Values

Constructs	R Square	Adjusted R Square
Digitalization and Policy	0.577	0.571
Effectiveness of Digital Services	0.548	0.535

Source: Analysis using Smart-PLS 3.0

The R^2 values analysis in Table 3 shows that the Smart-PLS 3.0 model explains variations in data related to digitalization, policy, and digital service effectiveness. The R Square for digitalization and policy is approximately 0.577, indicating that the model's variables can explain 57.7% of the variation in digitalization and policy.

The Adjusted R Square value for digitalization and policy is 0.571 (57.1%), reflecting a slightly reduced level of variability despite the adjustment for model complexity, indicating a high level of accuracy in assessing the model's complexity. This adjustment is based on the number of variables in the model.

The R Square for digital service effectiveness is 0.548, indicating that the model's variables can explain 54.8% of the variation in this effectiveness, while the Adjusted R Square is 0.535, showing adjustments for model complexity of 53.5%.

The model effectively predicts and explains data variability in digitalization and digital service effectiveness. Higher R Square and Adjusted R Square values indicate better model explanation. However, these values indicate the variables' ability to explain observed phenomena. Further interpretation of model coefficients and statistical significance can provide deeper insights into the variables' contribution to digitalization, digital service policy, and effectiveness.

This study analyzes the R Square and Adjusted R Square values to understand the model's ability to explain variations in data related to government digitization. High R Square results indicate that the variables incorporated into the model can significantly explain observed phenomena, such as the effectiveness of public services at the local level.

This topic is relevant to current developments in the era of government digitalization, particularly in the South Buton Regency, which provides an in-depth understanding of the implementation of digital public services at the local level. The analysis can provide insights for local governments, stakeholders, and researchers to understand factors influencing the effectiveness of digitization in local governance.

Governance interoperability, which involves seamless collaboration between government entities' systems and applications, can be a particular focus (Gottschalk, 2009). A deep understanding of interoperability in local government strategies can provide insights into the efficiency and effectiveness of digitized public services (Mergel et al., 2019). As government digitalizes, this research emphasizes the importance of developing and implementing policies that support interoperability between government entities. The results of this study can guide policy decisions to improve information technology infrastructure and human resource training and identify areas for further investment.

Hypothesis Testing

Table 5. The Structural Model

Path Coefficient	STDEV	T	P	H	Decision
Coordination and Strategy -> Digitalization and Policy	0.04	20.0	0.00	H_1	accepted
Coordination and Strategy -> Effectiveness of Digital Services	0.10	7.63	0.00	H_2	accepted
Digitalization and Policy -> Effectiveness of Digital Services	0.12	0.26	0.79	H_3	rejected

Source: Analysis using Smart-PLS 3.0

Notes:
STDEV: Standard Deviation
T: Statistics
P: Values
H: Hypothesis

The study's structural model analysis reveals three relationships (as shown in Table 5) between coordination and strategy with digitalization and policy, coordination and strategy with digital service effectiveness, and digitalization and policy with digital service effectiveness.

First, the relationship between coordination and strategy and digitalization and policy shows that the two variables have a strong and substantial relationship. The low standard deviation (0.04) indicates that the measurements in this study are consistent, while the high statistical value (20.0) suggests that the relationship is significant. This implies that policy or hypothesis 1 is accepted and that coordination and Strategy contribute to digitization.

Second, a moderately significant relationship exists between coordination and strategy and digital service effectiveness. The low standard deviation (0.10) indicates consistency in measurement, and the high statistical value (7.63) verifies the strength of the relationship between the two variables. As a result, hypothesis 2 is acceptable, or coordination and Strategy favourably impact digital service effectiveness.

However, the data from the relationship between digitalization and policy and digital service effectiveness does rejected (unsupported) hypothesis 3. The relatively low standard deviation (0.12) indicates measurement consistency, but the low statistical value (0.26) and p-value (0.79) imply that the relationship lacks statistical evidence. Consequently, this finding suggests that, in the context of this study, digitization and policy do not significantly impact the success of digital services.

The results of the path coefficient analysis of this structural model provide insights into the relationships between the variables under study; some hypotheses are accepted while others are rejected and make an essential contribution to understanding the factors that influence digitalization and the effectiveness of digital services. The accepted and rejected hypotheses help clarify key factors influencing digitalization and the effectiveness of digital services.

Focusing on South Buton Regency, this research examines the relationship between coordination, strategy, digitization, policy, and digital service effectiveness in local government organizations. The findings suggest that coordination and Strategy significantly influence digitization and policy in the South Buton Regency. Collaboration

between units or departments is crucial for implementing technological innovations, and this research provides a basis for strengthening collaborative efforts in formulating and executing digital policies.

The research also emphasizes the importance of human aspects in government digital transformation, stating that human resources actively involved in technology and digitalization processes can improve the effectiveness of public services. Authorities in South Buton Regency may consider investing in human resource training and development to maximize the positive impact of digitalization initiatives. Additionally, fostering a culture of adaptability and continuous learning among public servants can further enhance the success of digital transformation efforts

However, the research also highlights that more than implementing digital policies and adopting technology alone is needed to ensure the effectiveness of public services. Local governments must ensure that policies are appropriate to the local context and concretely support the efficacy of digital services. Furthermore, aligning digital policies with the specific needs and challenges of the community will help ensure that technological advancements translate into meaningful improvements in service delivery.

Successful digitalization involves people, policies, and interdepartmental coordination. Understanding these interactions can guide digital transformation efforts more effectively, ensuring better public services and responsiveness to community needs in the South Buton Regency. The findings can serve as a basis for further strategy and policy development to support interoperability governance and improve the effectiveness of public services in the digital era.

This study analyses the relationship between coordination and strategy and digitalization and policy and the effectiveness of digital services in South Buton Regency. The study shows that coordination and strategy significantly influence digitalization and policy in the region. Collaboration between units or departments is essential for implementing technological innovations, and investment in human resource training may be necessary to maximize the positive impact of digitalization initiatives.

The results of this study emphasize the role of human resources in the digital transformation of government, stating that active engagement in technology and digitalization can improve the effectiveness of public services. Local governments should ensure that policies are appropriate to the local context and support the effectiveness of digital services.

Successful digitization involves interactions between people, policies, and interdepartmental coordination (Panagiotopoulos et al., 2023; Sharifi & Zarei, 2004). Understanding these interactions can guide digital transformation efforts more effectively, ensuring better public services and responsiveness to community needs in South Buton Regency. The findings can inform further strategy and policy development to support interoperability governance and improve the effectiveness of public services in the digital era.

Interoperability governance is essential to facilitate cooperation between digital components, support technological innovation and strengthen local policies (Kalogirou et al., 2022; Mora et al., 2023). Human resources that are active and trained in the digitization process ensure that interoperability considers both technological and human aspects (McCaig et al., 2023; Tong et al., 2023). The results can guide the development of better strategies and policies to support interoperability in local governments,

strengthen the implementation of digital technologies, and improve the overall effectiveness of public services.

CONCLUSION

Research on the impact of digitalization on the South Buton Regency public services has revealed three key factors that influence the effectiveness of digital services: strategy and coordination, policy, and digitalization. This research found that coordination, which reflects cooperation between parties, and strategy, which indicates how digital services are utilized, play an essential role in improving service effectiveness. High levels of coordination and strategy positively contribute to the effectiveness of digital services in local governments. Interestingly, this study found that digitalization policies did not have a significant relationship with the effectiveness of digital services. This suggests that improving coordination and strategy may be more important than relying solely on formulating digitalization policies. Therefore, local governments should prioritize efforts to strengthen inter-agency cooperation and encourage active community participation in utilizing digital services to achieve maximum effectiveness in the digital transformation era.

This research highlights the importance of coordination and strategy in improving the quality of digital services but also emphasizes the role of digitalization policies. The study highlights the need for a more focused policy approach and a change in strategy to ensure the successful implementation of digitalization in public services at the local government level. This study identifies specific policies that guide decision-makers in optimizing digital infrastructure and improving the efficiency of public services. The policy aspect of digitization is essential in local governments, where adaptation of complex strategies and policy plans is required to overcome challenges during the digitization process. Emphasizing strategy changes or a more intense focus on specific policies can ensure digital transformation goals are effectively achieved.

The results of this study provide a foundation for concrete steps in realizing digital infrastructure improvements and increased efficiency of public services. The implications of this study for decision-making are clear, as it helps stakeholders to make informed and measurable decisions. By understanding the impact of digitalization policies on successful implementation, local governments can develop responsive policy frameworks in line with community needs. This research offers insights and a foundation for change in digital policy management at the local government level.

The study has limitations due to its small sample size and geographical focus, which may limit its generalizability. The results are based on subjective perceptions of respondents, which may be influenced by personal experiences and expectations. Therefore, the interpretation should consider these elements. It is also necessary to identify other factors influencing the effectiveness of digital services beyond the examined factors to gain a deeper understanding of the digital environment and guide future research. Recognizing these limitations allows the study's results to be accepted with appropriate context and serve as a basis for a more comprehensive analysis.

This study suggests further research with a larger sample and geographical coverage to address the identified limitations. The analysis can also be enriched by including additional variables, such as technical and policy aspects, to understand better the factors that influence the success or failure of digital service implementation in local

governments. This approach would broaden the scope of the findings and provide a solid basis for developing more effective policies. The results can also help improve management practices in implementing digitalization in public services, thus contributing to more targeted and efficient strategies to promote digital innovation in local governments.

REFERENCES

Abidin, Z., Didi, L., & Yuharsi. (2021). Implementasi Kebijakan E-Procurement di Kabupaten Buton Selatan. *Sawala : Jurnal Administrasi Negara*, *9*(2), 155–167. https://doi.org/10.30656/sawala.v9i2.3421

Almgren, R., & Skobelev, D. (2020). Evolution of technology and technology governance. *Journal of Open Innovation: Technology, Market, and Complexity*, *6*(2), 22. https://doi.org/10.3390/JOITMC6020022

Arduini, D., Denni, M., Lucchese, M., Nurra, A., & Zanfei, A. (2013). The role of technology, organization and contextual factors in the development of e-Government services: An empirical analysis on Italian Local Public Administrations. *Structural Change and Economic Dynamics*, *27*, 177–189. https://doi.org/10.1016/j.strueco.2013.06.007

Chwiłkowska-Kubala, A., Cyfert, S., Malewska, K., Mierzejewska, K., Szumowski, W., & Prause, G. (2023). What drives organizational agility in energy sector companies? The role of strategic CSR initiatives and the dimensions of proactive CSR. *Sustainable Futures*, *6*, 100133. https://doi.org/10.1016/j.sftr.2023.100133

Cordella, A., & Tempini, N. (2015). E-government and organizational change: Reappraising the role of ICT and bureaucracy in public service delivery. *Government Information Quarterly*, *32*(3), 279–286. https://doi.org/10.1016/j.giq.2015.03.005

Dănăiaţă, D., Margea, C., Hurbean, L., & Artene, A. S. (2014). Electronic Services for Business Environment. *Procedia - Social and Behavioral Sciences*, *124*, 351–360. https://doi.org/10.1016/j.sbspro.2014.02.496

Deng, X., Chen, T., & Pan, D. (2008). Organizational coordination theory and its application in virtual enterprise. *IFIP Advances in Information and Communication Technology*, *254 VOLUME*, 311–316. https://doi.org/10.1007/978-0-387-75902-9_32

Dzator, J., Acheampong, A. O., Appiah-Otoo, I., & Dzator, M. (2023). Leveraging digital technology for development: Does ICT contribute to poverty reduction? *Telecommunications Policy*, *47*(4), 102524. https://doi.org/10.1016/j.telpol.2023.102524

Fahmi, F. Z., & Mendrofa, M. J. S. (2023). Rural transformation and the development of information and communication technologies: Evidence from Indonesia. *Technology in Society*, *75*, 102349. https://doi.org/10.1016/j.techsoc.2023.102349

Fan, B., & Pan, T. (2023). Does information technology–organizational resource interaction affect E-government performance? Moderating roles of environmental uncertainty. *Government Information Quarterly*, *40*(3), 101830. https://doi.org/10.1016/j.giq.2023.101830

Gasco-Hernandez, M., Nasi, G., Cucciniello, M., & Hiedemann, A. M. (2022). The role of organizational capacity to foster digital transformation in local governments: The case of three European smart cities. *Urban Governance*, *2*(2), 236–246. https://doi.org/10.1016/j.ugj.2022.09.005

Geebren, A., Jabbar, A., & Luo, M. (2021). Examining the role of consumer satisfaction

within mobile eco-systems: Evidence from mobile banking services. *Computers in Human Behavior*, *114*, 106584. https://doi.org/10.1016/j.chb.2020.106584

Ghobadian, A., Speller, S., & Jones, M. (1994). Service Quality Concepts and Models. *International Journal of Quality & Reliability Management*, *11*(9), 43–66. https://doi.org/10.1108/02656719410074297

Gómez-Carmona, O., Buján-Carballal, D., Casado-Mansilla, D., López-de-Ipiña, D., Cano-Benito, J., Cimmino, A., Poveda-Villalón, M., García-Castro, R., Almela-Miralles, J., Apostolidis, D., Drosou, A., Tzovaras, D., Wagner, M., Guadalupe-Rodriguez, M., Salinas, D., Esteller, D., Riera-Rovira, M., González, A., Clavijo-Ágreda, J., … Bujalkova, N. (2023). Mind the gap: The AURORAL ecosystem for the digital transformation of smart communities and rural areas. *Technology in Society*, *74*, 102304. https://doi.org/10.1016/j.techsoc.2023.102304

Gottschalk, P. (2009). Maturity levels for interoperability in digital government. *Government Information Quarterly*, *26*(1), 75–81. https://doi.org/10.1016/j.giq.2008.03.003

Hatuka, T., & Zur, H. (2020). From smart cities to smart social urbanism: A framework for shaping the socio-technological ecosystems in cities. *Telematics and Informatics*, *55*. https://doi.org/10.1016/j.tele.2020.101430

Ho, C. Y., Narins, T. P., & Sung, W. (2023). Developing information and communication technology with the belt and road initiative and the digital silk road. *Telecommunications Policy*, *47*(10), 102672. https://doi.org/10.1016/j.telpol.2023.102672

Ho, D. H., Lee, Y., Nagireddy, S., Thota, C., Never, B., & Wang, Y. (2022). OpenComm: Open community platform for data integration and privacy preserving for 311 calls. *Sustainable Cities and Society*, *83*, 103858. https://doi.org/10.1016/j.scs.2022.103858

Hu, G., Shi, J., Pan, W., & Wang, J. (2012). A hierarchical model of e-government service capability: An empirical analysis. *Government Information Quarterly*, *29*(4), 564–572. https://doi.org/10.1016/j.giq.2012.04.007

Irani, Z., Abril, R. M., Weerakkody, V., Omar, A., & Sivarajah, U. (2023). The impact of legacy systems on digital transformation in European public administration: Lesson learned from a multi case analysis. *Government Information Quarterly*, *40*(1), 101784. https://doi.org/10.1016/j.giq.2022.101784

Kalogirou, V., Stasis, A., & Charalabidis, Y. (2022). Assessing and improving the National Interoperability Frameworks of European Union Member States: The case of Greece. *Government Information Quarterly*, *39*(3). https://doi.org/10.1016/j.giq.2022.101716

Karman, K., Deswanto, R., & Ningsih, S. A. (2021). Implementasi E-Government Pada Pemerintah Daerah. *Jurnal Studi Ilmu Pemerintahan*, *2*(2), 43–50. https://doi.org/10.35326/jsip.v2i2.1525

Lawelai, H., Iswanto, I., & Raharja, N. M. (2023). Use of Artificial Intelligence in Public Services: A Bibliometric Analysis and Visualization. *TEM Journal*, *12*(2), 798–807. https://doi.org/10.18421/TEM122-24

Liu, W., Zhou, W., & Lu, L. (2022). An innovative digitization evaluation scheme for Spatio-temporal coordination relationship between multiple knowledge driven rural

economic development and agricultural ecological environment—Coupling coordination model analysis based on Guangxi. *Journal of Innovation and Knowledge*, *7*(3), 100208. https://doi.org/10.1016/j.jik.2022.100208

Lopez-Carreiro, I., Monzon, A., Lopez, E., & Lopez-Lambas, M. E. (2020). Urban mobility in the digital era: An exploration of travellers' expectations of MaaS mobile-technologies. *Technology in Society*, *63*. https://doi.org/10.1016/j.techsoc.2020.101392

Madan, R., & Ashok, M. (2023). AI adoption and diffusion in public administration: A systematic literature review and future research agenda. *Government Information Quarterly*, *40*(1), 101774. https://doi.org/10.1016/j.giq.2022.101774

McCaig, M., Dara, R., & Rezania, D. (2023). Farmer-centric design thinking principles for smart farming technologies. *Internet of Things (Netherlands)*, *23*, 100898. https://doi.org/10.1016/j.iot.2023.100898

Mergel, I., Edelmann, N., & Haug, N. (2019). Defining digital transformation: Results from expert interviews. *Government Information Quarterly*, *36*(4), 101385. https://doi.org/10.1016/j.giq.2019.06.002

Mora, L., Gerli, P., Ardito, L., & Messeni Petruzzelli, A. (2023). Smart city governance from an innovation management perspective: Theoretical framing, review of current practices, and future research agenda. *Technovation*, *123*, 102717. https://doi.org/10.1016/j.technovation.2023.102717

Nazarenko, A., Vishnevskiy, K., Meissner, D., & Daim, T. (2022). Applying digital technologies in technology roadmapping to overcome individual biased assessments. *Technovation*, *110*, 102364. https://doi.org/10.1016/j.technovation.2021.102364

Nugraha, D. P., Setiawan, B., Nathan, R. J., & Fekete-Farkas, M. (2022). Fintech Adoption Drivers for Innovation for SMEs in Indonesia. *Journal of Open Innovation: Technology, Market, and Complexity*, *8*(4), 208. https://doi.org/10.3390/joitmc8040208

Panagiotopoulos, P., Protogerou, A., & Caloghirou, Y. (2023). Dynamic capabilities and ICT utilization in public organizations: An Empirical testing in local government. *Long Range Planning*, *56*(1), 102251. https://doi.org/10.1016/j.lrp.2022.102251

Prendiville, A. (2018). Amplifying Relationships through Place and Locality in the Design of Local Government Digital Services. *She Ji*, *4*(1), 47–59. https://doi.org/10.1016/j.sheji.2018.02.007

Reggi, L., & Dawes, S. S. (2022). Creating Open Government Data ecosystems: Network relations among governments, user communities, NGOs and the media. *Government Information Quarterly*, *39*(2), 101675. https://doi.org/10.1016/j.giq.2022.101675

Ringle, C.M., Wende, S., Becker, J.-M. (2015). SmartPLS 3. SmartPLS,. In *B¨onningstedt.* (Issue Boenningstedt: SmartPLS, p. http://www. smartpls. com). Boenningstedt.

Ristiandy, R. (2020). Bureaucratic Disrupsion and Threats of Unemployment in the Indsutri 4.0 Revolution. *Journal of Local Government Issues*, *3*(1), 86–97. https://doi.org/10.22219/logos.v3i1.10923

Sarkar, S. (2021). Breaking the chain: Governmental frugal innovation in Kerala to combat the COVID-19 pandemic. *Government Information Quarterly*, *38*(1). https://doi.org/10.1016/j.giq.2020.101549

Scupola, A., & Mergel, I. (2022). Co-production in digital transformation of public administration and public value creation: The case of Denmark. *Government*

Information Quarterly, *39*(1), 101650. https://doi.org/10.1016/j.giq.2021.101650

Shahaab, A., Khan, I. A., Maude, R., Hewage, C., & Wang, Y. (2023). Public service operational efficiency and blockchain – A case study of Companies House, UK. *Government Information Quarterly*, *40*(1), 101759. https://doi.org/10.1016/j.giq.2022.101759

Shamim, S., Yang, Y., Zia, N. U., & Shah, M. H. (2021). Big data management capabilities in the hospitality sector: Service innovation and customer generated online quality ratings. *Computers in Human Behavior*, *121*, 106777. https://doi.org/10.1016/j.chb.2021.106777

Sharifi, H., & Zarei, B. (2004). An adaptive approach for implementing e-government in I.R. Iran. *Journal of Government Information*, *30*(5–6), 600–619. https://doi.org/10.1016/j.jgi.2004.10.005

Silva, B. N., Khan, M., & Han, K. (2018). Towards sustainable smart cities: A review of trends, architectures, components, and open challenges in smart cities. *Sustainable Cities and Society*, *38*, 697–713. https://doi.org/10.1016/j.scs.2018.01.053

Tao, Z., & Shuliang, Z. (2022). Collaborative innovation relationship in Yangtze River Delta of China: Subjects collaboration and spatial correlation. *Technology in Society*, *69*, 101974. https://doi.org/10.1016/j.techsoc.2022.101974

Thompson, M., & Venters, W. (2021). Platform, or technology project? A spectrum of six strategic 'plays' from UK government IT initiatives and their implications for policy. *Government Information Quarterly*, *38*(4), 101628. https://doi.org/10.1016/j.giq.2021.101628

Tong, R., Sui, T., Feng, L., & Lin, L. (2023). The digitization work of cement plant in China. *Cement and Concrete Research*, *173*, 107266. https://doi.org/10.1016/j.cemconres.2023.107266

Trieu, H. D. X., Nguyen, P. Van, Nguyen, T. T. M., Vu, H. T. M., & Tran, K. T. (2023). Information technology capabilities and organizational ambidexterity facilitating organizational resilience and firm performance of SMEs. *Asia Pacific Management Review*, *28*(4), 544–555. https://doi.org/10.1016/j.apmrv.2023.03.004

Turner, M., Kim, J., & Kwon, S. H. (2022). The Political Economy of E-Government Innovation and Success in Korea. *Journal of Open Innovation: Technology, Market, and Complexity*, *8*(3). https://doi.org/10.3390/joitmc8030145

van Holstein, E., Wiesel, I., Bigby, C., & Gleeson, B. (2021). People with intellectual disability and the digitization of services. *Geoforum*, *119*, 133–142. https://doi.org/10.1016/j.geoforum.2020.12.022

Weerakkody, V., Omar, A., El-Haddadeh, R., & Al-Busaidy, M. (2016). Digitally-enabled service transformation in the public sector: The lure of institutional pressure and strategic response towards change. *Government Information Quarterly*, *33*(4), 658–668. https://doi.org/10.1016/j.giq.2016.06.006

Wei, Y. (2022). Reprint of: Regional governments and opportunity entrepreneurship in underdeveloped institutional environments: An entrepreneurial ecosystem perspective. *Research Policy*, *51*(9), 104667. https://doi.org/10.1016/j.respol.2022.104667

Wonglimpiyarat, J., & Yuberk, N. (2005). In support of innovation management and Roger's Innovation Diffusion theory. *Government Information Quarterly*, *22*(3), 411–422. https://doi.org/10.1016/j.giq.2005.05.005

Wulandari, R. F., & Anshori, Y. T. El. (2012). Optimizing Public Service Through E-Gov Services (the Case of Public Service in South Jakarta Munici Pality). *Journal of Government and Politics*, *3*(2), 369–390. https://doi.org/10.18196/jgp.2012.0021

Yeh, H. (2017). The effects of successful ICT-based smart city services: From citizens' perspectives. *Government Information Quarterly*, *34*(3), 556–565. https://doi.org/10.1016/j.giq.2017.05.001

Yigitcanlar, T., Li, R. Y. M., Beeramoole, P. B., & Paz, A. (2023). Artificial intelligence in local government services: Public perceptions from Australia and Hong Kong. *Government Information Quarterly*, *40*(3), 101833. https://doi.org/10.1016/j.giq.2023.101833

Zhao, B., Cheng, S., Schiff, K. J., & Kim, Y. (2023). Digital transparency and citizen participation: Evidence from the online crowdsourcing platform of the City of Sacramento. *Government Information Quarterly*, *40*(4), 101868. https://doi.org/10.1016/j.giq.2023.101868

Zou, Q., Mao, Z., Yan, R., Liu, S., & Duan, Z. (2023). Vision and reality of e-government for governance improvement: Evidence from global cross-country panel data. *Technological Forecasting and Social Change*, *194*, 122667. https://doi.org/10.1016/j.techfore.2023.122667