ASIAN DIGITAL GOVERNANCE PROBLEMS

e-ISSN 3048-086 (online)

Volume 3, Issue 1 2026
Page 52-70

https://doi.org/10.71435/689218

Digital Governance Challenges: The Digital Divide and Government Infrastructure Limitations in Sri Lanka

Nimal Perera[1], Sachini Wijesinghe[1], Tharindu Jayawardena[1]

[1]Department of Public Administration, Faculty of Management Studies and Commerce, University of Sri Jayewardenepura, Nugegoda, Sri Lanka

ARTICLE INFO

Received: 18 December 2025
Revised: 22 January 2026
Accepted: 17 February 2026
Available online: 23 February 2026

Keywords:
Digital Governance
Digital Divide
Government Infrastructure
Institutional Capacity
Sri Lanka

Corresponding Author:
Nimal Perera

Email:
nimalperea@yahoo.com

ABSTRACT

***Purpose**: This study examines the challenges affecting digital governance effectiveness in Sri Lanka, focusing on digital access inequality, digital literacy, and government infrastructure limitations. The research aims to determine how these factors influence the effectiveness of digital governance initiatives and public service delivery.*

***Subjects and Methods:** A quantitative cross-sectional survey was conducted among 412 Sri Lankan citizens who had experience using government digital services. Data were collected between May and July 2025 using structured questionnaires and analyzed with SPSS Version 29. Descriptive statistics, Pearson correlation, and multiple linear regression analyses were employed.*

***Results:** The findings indicate that government infrastructure limitations and digital access inequality remain significant challenges, while digital literacy contributes positively to governance outcomes. Correlation analysis revealed that digital governance effectiveness is negatively associated with digital access inequality and infrastructure limitations but positively associated with digital literacy. Regression results identified government infrastructure limitations as the strongest predictor of governance effectiveness.*

***Conclusions:** Effective digital governance requires integrated improvements in infrastructure capacity, digital inclusion, and citizen digital competencies to achieve accessible, efficient, and inclusive public services in Sri Lanka.*

INTRODUCTION

The rapid advancement of digital technologies has significantly transformed public governance worldwide, reshaping how governments deliver services, engage citizens, and manage administrative processes (Asgarkhani, 2005; Balaji, 2025). Digital governance has emerged as a strategic approach to enhance efficiency, transparency, and accountability through the integration of information and communication technologies (ICTs) into public sector operations. However, the effectiveness of digital governance initiatives varies considerably across countries, particularly between developed and developing contexts (Basu, 2004; Hakim & Hayat, 2024; Wandaogo, 2022).

In developing countries, the adoption of digital governance is often constrained by structural, socio-economic, and technological challenges. Djatmiko et al. (2025) and Asimakopoulos et al. (2025) said that, while digital platforms promise improved public service delivery and citizen participation, their implementation frequently exposes existing inequalities and infrastructural

weaknesses. These challenges are especially evident in countries where access to digital technologies remains uneven and government capacity is limited.

According to Tennakoon (2020), Sri Lanka represents a compelling case for examining digital governance challenges within a developing country context. Over the past two decades, the Sri Lankan government has introduced several digital initiatives aimed at modernizing public administration, such as e-government portals, online service platforms, and digital identification systems. These efforts reflect a broader commitment to leveraging technology for governance reform and national development.

Despite these initiatives, significant barriers continue to hinder the realization of inclusive and effective digital governance in Sri Lanka (Weerakkody et al., 2009; Syed et al., 2023). One of the most persistent challenges is the digital divide, which refers to disparities in access to digital technologies, internet connectivity, and digital literacy among different segments of the population. These disparities often align with socio-economic status, geographic location, education level, and age.

The digital divide in Sri Lanka is particularly pronounced between urban and rural areas. Urban centers generally benefit from better internet infrastructure, higher levels of digital literacy, and greater access to digital devices, while rural and estate sectors often experience limited connectivity and technological resources (Graham, 2002; Salemink et al., 2017; Townsend et al., 2015). This uneven distribution of digital access risks marginalizing certain communities from participating fully in digital governance initiatives.

In addition to access issues, digital literacy plays a crucial role in shaping citizens' ability to engage with digital government services (Anzar et al., 2024; Polizzi, 2025; Isabella et al., 2024). Even where infrastructure is available, limited skills and familiarity with digital platforms can prevent effective utilization. This challenge underscores the importance of human capital development alongside technological investment in digital governance strategies.

Government infrastructure limitations further complicate the digital governance landscape in Sri Lanka. Many public institutions face outdated technological systems, insufficient interoperability between platforms, and a lack of standardized data management practices (Samuel & Oyenuga, 2025; Otjacques et al., 2007). These infrastructural constraints reduce the efficiency, reliability, and scalability of digital government services.

Institutional capacity is another critical factor influencing digital governance outcomes. Limited financial resources, shortages of skilled ICT personnel, and bureaucratic resistance to change can slow the implementation of digital reforms. In some cases, fragmented policy frameworks and weak coordination among government agencies undermine the coherence of digital governance initiatives.

Cybersecurity and data protection concerns also pose significant challenges for digital governance in Sri Lanka. As government services become increasingly digitized, risks related to data breaches, privacy violations, and system vulnerabilities grow. Addressing these concerns requires robust legal frameworks, technical safeguards, and institutional accountability mechanisms, which remain underdeveloped in many contexts.

The COVID-19 pandemic further highlighted both the potential and the limitations of digital governance in Sri Lanka (Amaratunga et al., 2020; Madusha, 2024). During periods of restricted mobility, digital platforms became essential for delivering public services, disseminating information, and maintaining administrative functions. At the same time, the pandemic exposed deep inequalities in digital access and revealed gaps in government preparedness and infrastructure resilience.

From a governance perspective, the digital divide has important implications for equity and democratic participation. When access to digital government services is uneven, certain groups may be excluded from decision-making processes, social welfare programs, and essential public services. This exclusion risks reinforcing existing social inequalities and undermining public trust in government institutions.

Scholars argue that effective digital governance requires more than technological adoption; it demands an inclusive and context-sensitive approach that addresses social, institutional, and infrastructural dimensions (Berch et al., 2024; Kougias & Papadakaki, 2025). In the Sri Lankan context, this means aligning digital governance strategies with broader development goals, such as poverty reduction, regional equity, and capacity building.

An examination of digital governance challenges in Sri Lanka also contributes to broader debates on digital transformation in the Global South. By analyzing how the digital divide and infrastructure limitations shape governance outcomes, this study provides insights into the conditions under which digital technologies can either empower or marginalize citizens.

METHODOLOGY

Research Design

This study employed a quantitative research design using a cross-sectional survey method to investigate the challenges of digital governance in Sri Lanka, particularly focusing on the digital divide and government infrastructure limitations. Quantitative research was selected because it enables the systematic measurement of social phenomena and facilitates statistical analysis of relationships among variables (Creswell & Creswell, 2018). The study sought to examine how disparities in digital access and limitations in governmental technological infrastructure influence the effectiveness of digital governance initiatives. A cross-sectional approach was adopted because data were collected at a single point in time during 2025, providing a contemporary assessment of digital governance conditions in Sri Lanka. The research framework was developed based on the premise that digital governance effectiveness is influenced by both citizen-related factors, such as access to digital technologies, and institutional factors, including technological capacity and infrastructure readiness within government agencies.

Research Setting

The study was conducted in Sri Lanka during the period from March to August 2025. Sri Lanka has implemented various digital governance initiatives over the past two decades, including e-government platforms, online public service portals, and digital administrative systems. Despite these developments, substantial disparities remain in access to digital technologies across different regions and social groups. Furthermore, public institutions continue to encounter challenges associated with technological infrastructure, interoperability, and digital service delivery. The research covered respondents from both urban and rural areas to capture variations in digital access and experiences with government digital services. Including participants from diverse geographical settings allowed for a more comprehensive assessment of the digital divide and its implications for governance outcomes.

Population and Sampling Technique

The target population consisted of Sri Lankan citizens aged 18 years and above who had experience accessing, using, or attempting to use government digital services. These individuals were considered appropriate respondents because they directly interact with digital governance systems and are therefore capable of evaluating their effectiveness and limitations. A stratified random sampling technique was employed to ensure proportional representation of respondents from urban and rural regions. Stratification was considered necessary because previous studies have identified significant differences in digital access and connectivity between these areas. Following the recommendations of Hair et al. (2019), stratified sampling improves representativeness when populations exhibit heterogeneous characteristics. The minimum sample size was determined using Cochran's formula for large populations. At a 95% confidence level and a 5% margin of error, a minimum sample of 385 respondents was required. To increase reliability and compensate for incomplete responses, 450 questionnaires were distributed. After data screening and validation procedures, 412 completed questionnaires were retained for analysis.

Data Collection Procedures

Primary data were collected through a structured questionnaire administered between May and July 2025. The questionnaire was distributed using both online and face-to-face methods to ensure participation from respondents with different levels of internet accessibility. This approach helped reduce sampling bias that could arise from relying exclusively on online surveys. The questionnaire consisted of two sections. The first section collected demographic information, including age, gender, educational attainment, employment status, income level, and residential location. The second section measured the main constructs of the study using five-point Likert-scale items ranging from 1 (strongly disagree) to 5 (strongly agree). The survey instrument was developed based on existing literature on digital governance, e-government adoption, digital inclusion, and public sector digital transformation. Respondents were asked to evaluate their experiences regarding digital access, digital literacy, government infrastructure quality, and the effectiveness of digital governance services.

Measurement of Variables

Four principal variables were included in the study. Digital Access Inequality was measured through indicators related to internet availability, affordability, connectivity quality, and ownership of digital devices. Digital Literacy was measured through respondents' ability to access, understand, and utilize digital platforms and online government services. Government Infrastructure Limitations were measured through indicators reflecting technological adequacy, system reliability, interoperability among government platforms, and responsiveness of digital services. Digital Governance Effectiveness was assessed through perceptions of accessibility, transparency, service efficiency, convenience, and citizen satisfaction.

Table 1. Research Variables and Indicators

Variable	Indicators
Digital Access Inequality	Internet availability, affordability, connectivity quality, device ownership
Digital Literacy	Digital skills, information access, platform navigation, online engagement
Government Infrastructure Limitations	System reliability, interoperability, technical readiness, service responsiveness
Digital Governance Effectiveness	Accessibility, transparency, efficiency, convenience, citizen satisfaction

Each construct was operationalized through multiple indicators adapted from established studies in digital governance and information systems research.

Validity and Reliability Testing

Content validity was established through expert evaluation involving three academics specializing in public administration, information systems, and digital governance. Their feedback was used to improve the clarity, relevance, and comprehensiveness of the questionnaire items. Prior to the main survey, a pilot study involving 30 respondents was conducted to assess instrument quality. Construct validity was examined using exploratory factor analysis (EFA). Following Hair et al. (2019), factor loadings greater than 0.50 were considered acceptable indicators of validity. Reliability was assessed using Cronbach's Alpha coefficients. According to Nunnally & Bernstein (1994), values exceeding 0.70 indicate satisfactory internal consistency. All variables achieved reliability coefficients above the recommended threshold, demonstrating that the measurement instrument was sufficiently reliable for statistical analysis.

Data Analysis

Data analysis was conducted using the Statistical Package for the Social Sciences (SPSS) version 29. The analysis process consisted of descriptive and inferential statistical procedures. Descriptive statistics were used to summarize respondent characteristics and provide an overview of the study variables through frequencies, percentages, means, and standard deviations. Inferential statistics were subsequently employed to examine relationships among variables.

Pearson correlation analysis was performed to identify the strength and direction of associations between digital governance challenges and governance effectiveness. Multiple linear regression analysis was then used to determine the extent to which digital access inequality, digital literacy, and government infrastructure limitations influenced digital governance effectiveness.

The regression model was formulated as follows:

$$DGE = \beta_0 + \beta_1 DAI + \beta_2 DL + \beta_3 GIL + \varepsilon$$

where DGE represents Digital Governance Effectiveness, DAI denotes Digital Access Inequality, DL represents Digital Literacy, GIL refers to Government Infrastructure Limitations, β_0 is the intercept, β_1–β_3 are regression coefficients, and ε represents the error term. Before conducting regression analysis, diagnostic tests were performed to assess normality, multicollinearity, linearity, and homoscedasticity. Variance Inflation Factor (VIF) values below 5.0 indicated that multicollinearity was not a significant concern. The study adhered to established ethical standards for social science research. Participation was voluntary, and informed consent was obtained from all respondents before data collection commenced. Participants were informed about the purpose of the study and assured that their responses would remain anonymous and confidential. All collected data were used exclusively for academic research purposes and stored securely throughout the research process.

RESULTS AND DISCUSSION

This section presents the empirical findings obtained from the survey conducted among Sri Lankan citizens regarding digital governance challenges. The analysis was performed using the Statistical Package for the Social Sciences (SPSS) Version 29. The results are organized into four main sections. First, respondent demographic characteristics are presented to provide an overview of the sample profile. Second, descriptive statistical findings are reported to examine the conditions of digital access inequality, digital literacy, government infrastructure limitations, and digital governance effectiveness. Third, Pearson correlation analysis is presented to identify the relationships among the study variables. Finally, multiple linear regression analysis is employed to assess the extent to which digital access inequality, digital literacy, and government infrastructure limitations influence digital governance effectiveness.

Respondent Characteristics

A total of 450 questionnaires were distributed between May and July 2025. Following data screening procedures, 412 valid responses were retained for analysis. Responses containing substantial missing values or inconsistent response patterns were excluded from the final dataset. Examining respondent demographics is essential for understanding the composition of the sample and assessing whether the participants adequately represent diverse groups of citizens who interact with digital government services. The demographic profile presented in Table 2 provides information on gender, age, educational attainment, and residential location.

Table 2. Demographic Profile of Respondents (n = 412)

Characteristic	Category	Frequency	Percentage (%)
Gender	Male	218	52.9
	Female	194	47.1
Age	18–29 years	121	29.4
	30–39 years	137	33.3
	40–49 years	89	21.6
	50 years and above	65	15.7
Education	Secondary School	98	23.8
	Diploma	102	24.8
	Bachelor's Degree	156	37.9
	Postgraduate Degree	56	13.5
Residence	Urban	224	54.4
	Rural	188	45.6

Source: Survey Data Processed Using SPSS Version 29 (2025).

Male respondents constituted 52.9% of the sample, while female respondents accounted for 47.1%, indicating a relatively balanced gender distribution. In terms of age, the largest proportion of participants belonged to the 30–39-year age group (33.3%), followed by those aged 18–29 years (29.4%). This distribution suggests that the majority of respondents were within economically active age categories that are more likely to engage with digital technologies and online government services. Regarding educational attainment, respondents holding a bachelor's degree represented the largest segment of the sample (37.9%), followed by diploma holders (24.8%) and individuals with secondary education (23.8%). The relatively high educational profile of the respondents indicates that a substantial proportion possessed the foundational skills necessary to access and evaluate digital governance platforms. Nevertheless, the inclusion of participants from different educational backgrounds provides a broader perspective on variations in digital literacy and service utilization.

The geographical distribution of respondents was also relatively balanced, with 54.4% residing in urban areas and 45.6% in rural areas. This balance is particularly important given that one of the central concerns of this study is the digital divide between urban and rural communities. The representation of both residential groups allows for a more comprehensive examination of disparities in digital access, infrastructure availability, and experiences with government digital services. The demographic composition demonstrates that the sample encompasses diverse social and geographical characteristics. Such diversity strengthens the reliability of the findings by ensuring that the analysis reflects a wide range of citizen experiences related to digital governance implementation in Sri Lanka.

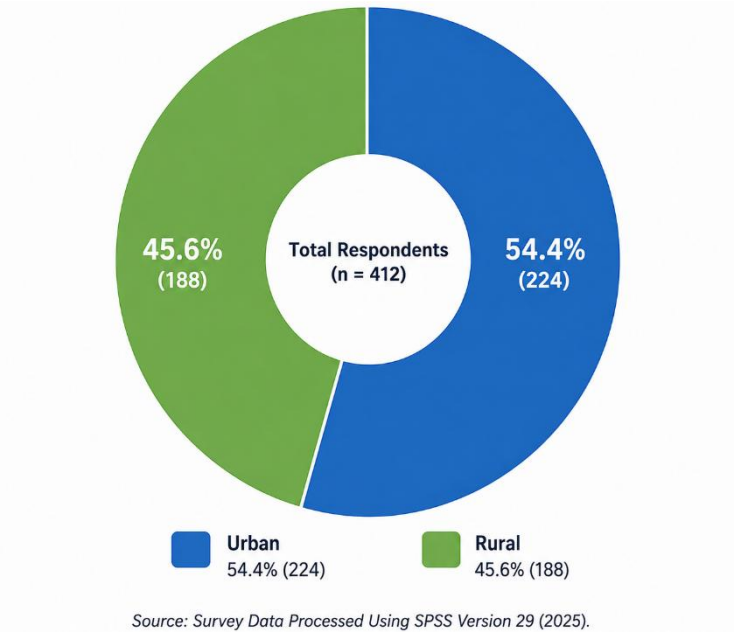

Figure 1. Distribution of Respondents by Residential Area

Descriptive Analysis of Research Variables

Descriptive statistical analysis was conducted to provide an initial overview of respondents' perceptions regarding the key dimensions examined in this study. The analysis focuses on four variables, namely digital access inequality, digital literacy, government infrastructure limitations, and digital governance effectiveness. Mean values were used to identify the relative prominence of each construct, while standard deviation values were examined to assess the degree of variation in respondents' perceptions. This preliminary assessment is important because it establishes the general condition of digital governance implementation in Sri Lanka before proceeding to correlation and regression analyses.

Table 3. Descriptive Statistics of Research Variables

Variable	Mean	Standard Deviation
Digital Access Inequality	3.89	0.71
Digital Literacy	3.54	0.68

Government Infrastructure Limitations	4.02	0.65
Digital Governance Effectiveness	3.21	0.74

Source: Survey Data Processed Using SPSS Version 29 (2025).

The descriptive results reveal distinct patterns across the four research variables. The relatively high evaluations associated with digital access inequality and government infrastructure limitations indicate that respondents continue to encounter structural barriers when interacting with digital government services. These findings suggest that challenges related to connectivity, technological readiness, and institutional capacity remain visible within the broader digital governance environment. The results also indicate that citizens generally possess a moderate level of digital literacy. This pattern suggests that while many respondents have developed the basic competencies necessary to engage with digital platforms, the overall level of digital capability may not yet be sufficient to fully support inclusive participation in increasingly digitalized public services. Variations in educational background, geographic location, and access to technological resources may contribute to differences in digital competencies among citizens.

In contrast, perceptions of digital governance effectiveness appear comparatively less favorable. This finding implies that the benefits expected from digital transformation initiatives have not been fully realized by all segments of society. The effectiveness of digital governance depends not only on citizens' ability to use digital technologies but also on the availability of reliable infrastructure and equitable access to digital resources. Consequently, improvements in service quality may be constrained when technological and institutional challenges persist. The relatively moderate standard deviation values across all variables further indicate a reasonable level of consistency in respondents' perceptions. This suggests that concerns regarding infrastructure constraints, access disparities, and governance effectiveness are not isolated experiences but are shared by a substantial proportion of the surveyed population.

The descriptive findings provide preliminary evidence that the principal obstacles to effective digital governance in Sri Lanka are associated with structural and institutional factors rather than solely individual capabilities. The coexistence of substantial infrastructure limitations, persistent digital access disparities, and only moderate perceptions of governance effectiveness suggests that technological modernization efforts have not yet fully translated into inclusive and efficient public service delivery. These findings support existing scholarship arguing that successful digital governance requires simultaneous investment in infrastructure development, digital inclusion, and institutional capacity building to ensure that technological innovations generate meaningful benefits for citizens.

Analysis of Digital Access Inequality

Understanding the nature of digital access inequality is essential for assessing the inclusiveness of digital governance initiatives. Access to digital government services depends not only on the existence of internet infrastructure but also on the affordability, reliability, and availability of the technological resources required to utilize such services effectively. To identify the dimensions of digital inequality experienced by citizens, respondents were asked to evaluate several indicators related to internet availability, affordability, connectivity quality, and device ownership accessibility.

Table 4. Digital Access Inequality Indicators

Indicator	Mean
Internet availability	3.95
Internet affordability	3.82
Connectivity quality	4.07
Device ownership accessibility	3.73

Source: Survey Data Processed Using SPSS Version 29 (2025).

The findings demonstrate that digital access challenges are multidimensional and extend beyond the simple presence of internet services. Respondents generally expressed greater concern regarding the quality and reliability of digital connectivity than the mere availability of internet access. This pattern suggests that infrastructure expansion alone may not guarantee meaningful participation in digital

governance if network performance remains inconsistent. Citizens are unlikely to fully utilize online public services when digital platforms are difficult to access due to unstable or low-quality connections.

The results also indicate that economic considerations continue to influence digital participation. The cost associated with internet access remains a relevant factor that may discourage or limit engagement with government digital services, particularly among socio-economically disadvantaged groups. Even when digital infrastructure is available, financial barriers can reduce the frequency and effectiveness of citizens' interactions with online governance platforms. Another notable observation concerns device accessibility. The findings imply that ownership or access to appropriate digital devices remains uneven across the population. This issue is particularly important because access to e-government services increasingly depends on smartphones, computers, and other internet-enabled technologies. Consequently, disparities in device accessibility may reinforce existing inequalities in the utilization of public digital services.

Taken together, the findings suggest that digital inequality in Sri Lanka is shaped by a combination of technological, economic, and infrastructural factors. The results support the argument that digital inclusion cannot be achieved solely through expanding internet coverage. Effective digital governance requires improvements in connectivity quality, affordability, and access to digital devices to ensure that citizens can meaningfully participate in digital public services. These findings reinforce previous studies on the digital divide, which emphasize that equitable access to digital technologies is a prerequisite for inclusive governance and citizen engagement in the digital era. Such conditions highlight the importance of adopting comprehensive digital inclusion strategies that address both physical access and the broader socio-economic barriers affecting technology utilization.

Analysis of Government Infrastructure Limitations

Government infrastructure constitutes a fundamental component of successful digital governance implementation. The effectiveness of digital public services depends not only on citizens' access to technology but also on the capacity of government institutions to provide reliable, integrated, and responsive digital systems. Weak infrastructure can hinder service delivery, reduce administrative efficiency, and undermine public confidence in digital platforms. To assess the extent of infrastructure-related challenges, respondents were asked to evaluate several indicators associated with system reliability, interoperability, technical readiness, and service responsiveness.

Table 5. Government Infrastructure Limitation Indicators

Indicator	Mean
System reliability	4.09
Interoperability between platforms	4.11
Technical readiness	3.98
Service responsiveness	3.91

Source: Survey Data Processed Using SPSS Version 29 (2025).

The results indicate that infrastructure-related challenges remain a prominent concern in the implementation of digital governance initiatives. Respondents expressed particular concern regarding the ability of government systems to operate in an integrated manner across different agencies. This pattern suggests that institutional coordination and data-sharing mechanisms may not yet be sufficiently developed to support seamless digital service delivery. Fragmented systems can create administrative inefficiencies, requiring citizens to interact with multiple platforms or repeatedly provide the same information when accessing public services. Concerns regarding system reliability further highlight the importance of maintaining stable and dependable digital infrastructure. Frequent disruptions, technical failures, or inconsistent platform performance can reduce the usability of digital services and discourage citizen engagement. In a governance environment that increasingly relies on digital interactions, system reliability becomes a critical determinant of service quality and public trust.

The findings also suggest that technological readiness and responsiveness remain areas requiring improvement. The capacity of government institutions to adapt to technological developments,

manage digital platforms effectively, and respond promptly to user needs plays an essential role in determining the overall success of digital transformation initiatives. Limitations in these areas may reduce the efficiency of service delivery and constrain the ability of public institutions to meet growing citizen expectations. The relatively close values across all indicators indicate that infrastructure challenges are not concentrated within a single dimension but are distributed across multiple aspects of government technological capacity. This pattern reflects the interconnected nature of digital governance systems, where weaknesses in one component can affect the performance of the entire service ecosystem.

The findings demonstrate that government infrastructure limitations remain a significant barrier to the advancement of digital governance in Sri Lanka. The results suggest that improving digital governance requires more than the expansion of online services; it also necessitates investments in system integration, technological modernization, institutional coordination, and operational reliability. These findings are consistent with previous studies emphasizing that robust digital infrastructure serves as the foundation for effective e-government implementation, enabling governments to deliver accessible, efficient, and citizen-centered public services. Without addressing these institutional and technological constraints, the potential benefits of digital transformation may remain only partially realized.

Pearson Correlation Analysis

Before examining the predictive influence of the independent variables through regression analysis, Pearson correlation analysis was conducted to assess the direction and strength of the relationships among the study variables. Correlation analysis is useful for identifying whether the variables move in the same or opposite directions and for determining the degree of association between constructs. In addition, the analysis provides a preliminary assessment of potential multicollinearity issues among the independent variables before proceeding to multivariate testing.

Table 6. Pearson Correlation Matrix

Variable	DAI	DL	GIL	DGE
Digital Access Inequality (DAI)	1			
Digital Literacy (DL)	-0.382	1		
Government Infrastructure Limitations (GIL)	0.518	-0.291	1	
Digital Governance Effectiveness (DGE)	-0.621	0.564	-0.697	1

Source: Survey Data Processed Using SPSS Version 29 (2025).

The correlation results indicate that all major relationships examined in this study are statistically significant and align with the proposed research framework. The direction of the relationships suggests that factors associated with exclusion and institutional constraints tend to correspond with lower levels of perceived digital governance effectiveness, whereas factors related to citizens' technological capabilities are associated with more favorable governance outcomes.

The relationship between digital access inequality and digital governance effectiveness demonstrates that unequal access to digital resources remains a substantial challenge for inclusive public service delivery. When citizens experience barriers related to connectivity, affordability, or technological access, their ability to benefit from digital government initiatives becomes limited. This pattern supports the view that digital transformation cannot achieve its intended objectives when significant portions of the population remain disadvantaged in terms of digital access.

A different pattern emerges in the relationship between digital literacy and governance effectiveness. The positive association suggests that individuals who possess stronger digital competencies are more likely to navigate government platforms successfully and derive value from digital services. This finding highlights the importance of citizen readiness as a supporting factor in the implementation of digital governance. The effectiveness of technological innovations is therefore influenced not only by institutional capacity but also by the ability of citizens to utilize available digital resources.

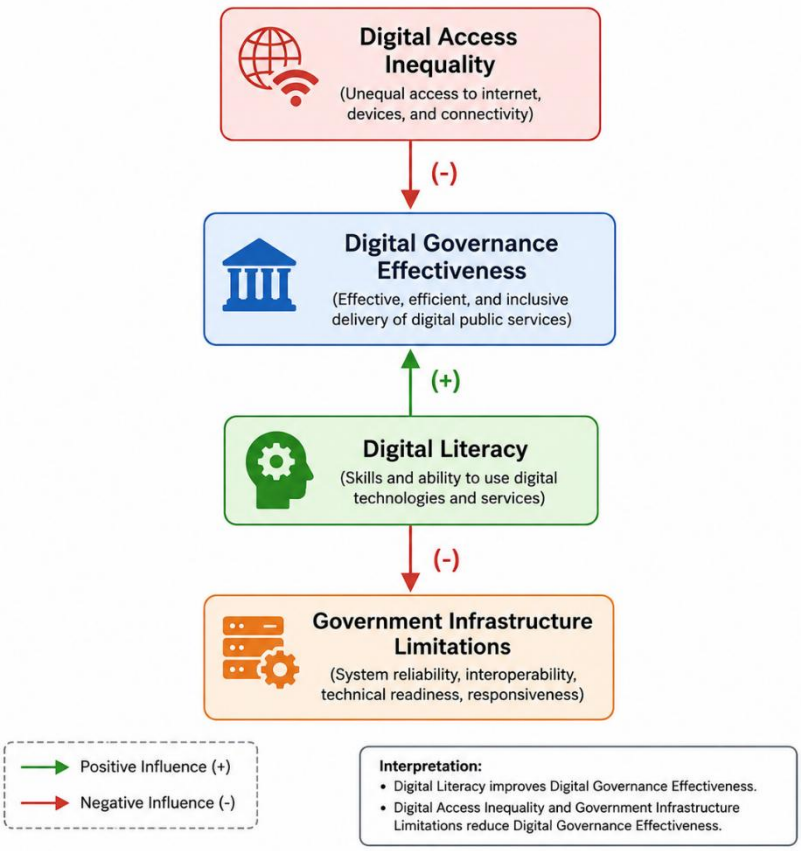

Figure 2. Correlation Structure among Study Variables

Among the examined variables, government infrastructure limitations exhibit the strongest association with digital governance effectiveness. This finding underscores the central role of institutional and technological capacity in determining the success of digital governance initiatives. Weak system integration, technical deficiencies, and operational constraints can reduce service quality and limit the ability of government agencies to provide efficient and reliable digital services. The strength of this relationship suggests that infrastructure-related issues may have broader consequences for governance performance than individual-level factors alone. The analysis also reveals meaningful relationships among the independent variables themselves. The observed associations indicate that digital access inequality, digital literacy, and infrastructure conditions are interconnected dimensions of the broader digital governance ecosystem. Citizens who experience limited access to digital resources may also encounter challenges in developing digital skills, while infrastructure weaknesses can exacerbate existing inequalities in service accessibility. Nevertheless, the magnitude of these correlations remains below commonly accepted thresholds for multicollinearity, indicating that each variable captures a distinct aspect of digital governance challenges and can be included simultaneously in subsequent regression analysis.

The correlation findings provide strong preliminary evidence that both citizen-related and institutional factors are closely associated with digital governance outcomes in Sri Lanka. The results suggest that improvements in governance effectiveness require a comprehensive approach that addresses digital inclusion, strengthens digital competencies, and enhances government technological infrastructure. The particularly strong association between infrastructure limitations and governance effectiveness further reinforces the argument that sustainable digital transformation depends on the development of reliable and integrated public-sector digital systems. These findings provide empirical justification for the subsequent regression analysis, which examines the relative contribution of each factor to digital governance effectiveness.

Multiple Linear Regression Analysis

To further examine the extent to which digital access inequality, digital literacy, and government infrastructure limitations influence digital governance effectiveness, multiple linear regression

analysis was performed using SPSS Version 29. Unlike correlation analysis, which only identifies the existence and direction of relationships between variables, regression analysis provides a more comprehensive assessment of the predictive power of each factor within a single model. This approach allows the study to evaluate how well the selected independent variables collectively explain variations in digital governance effectiveness among citizens.

Table 7. Model Summary

Statistic	Value
R	0.811
R Square	0.658
Adjusted R Square	0.654
Standard Error	0.437

Source: Survey Data Processed Using SPSS Version 29 (2025).

The model summary demonstrates a strong relationship between the set of independent variables and digital governance effectiveness. The coefficient of determination indicates that a substantial proportion of the variation in governance effectiveness can be explained by the factors included in the model. This finding suggests that the selected variables represent key dimensions influencing citizens' experiences with digital government services and provide a robust foundation for understanding digital governance outcomes in Sri Lanka. The relatively small difference between the R Square and Adjusted R Square values further indicates that the model maintains good explanatory stability after accounting for the number of predictors included in the analysis. This result suggests that the variables contribute meaningful explanatory value rather than artificially inflating the model's predictive capacity. In addition, the standard error value reflects an acceptable level of estimation accuracy, indicating that the model provides a reasonably reliable representation of the observed data.

From a substantive perspective, the findings reinforce the interconnected nature of digital governance challenges. The ability of the model to explain a considerable share of governance effectiveness suggests that digital inclusion, citizen capability, and institutional readiness operate together in shaping the success of digital transformation initiatives. Digital governance outcomes therefore cannot be attributed to a single factor; rather, they emerge from the interaction between citizens' access to technology, their capacity to utilize digital services, and the government's ability to provide reliable digital infrastructure. The unexplained portion of variance also indicates that additional factors may influence digital governance effectiveness. Elements such as public trust, cybersecurity perceptions, policy consistency, organizational culture, political commitment, and the quality of digital service design may contribute to governance outcomes but were not included within the scope of the present study. This observation highlights the complexity of digital governance and suggests opportunities for future research to explore complementary determinants.

The model summary confirms that the regression model possesses substantial explanatory power and is appropriate for examining digital governance challenges in Sri Lanka. The findings provide strong statistical support for the argument that digital access inequality, digital literacy, and government infrastructure limitations are fundamental determinants of digital governance effectiveness. The strength of the model also reinforces previous research emphasizing that successful digital transformation requires a balanced approach that simultaneously addresses citizen inclusion, technological capability, and institutional capacity. Consequently, efforts to improve digital governance should prioritize not only technological expansion but also the broader ecosystem that enables citizens and public institutions to participate effectively in digital environments.

Table 8. ANOVA Results

Source	F	Sig.
Regression Model	261.884	0.000

Source: Survey Data Processed Using SPSS Version 29 (2025).

The ANOVA results confirm that the regression model is statistically significant ($F = 261.884$, $p < 0.001$). Therefore, the selected predictors jointly contribute to explaining variations in digital governance effectiveness.

Table 9. Regression Coefficients

Variable	Beta	t-value	Sig.
Digital Access Inequality	-0.284	-6.873	0.000
Digital Literacy	0.247	5.921	0.000
Government Infrastructure Limitations	-0.461	-10.734	0.000

Source: Survey Data Processed Using SPSS Version 29 (2025).

The regression results reveal that both structural and individual-level factors significantly shape the effectiveness of digital governance initiatives. The negative coefficients associated with digital access inequality and government infrastructure limitations indicate that barriers related to access and institutional capacity reduce the ability of digital governance systems to deliver effective public services. In contrast, the positive coefficient of digital literacy suggests that citizens' technological competencies enhance their capacity to engage with digital government platforms and benefit from available services. Among the predictors, government infrastructure limitations exert the strongest influence on governance effectiveness. This finding suggests that the success of digital transformation depends heavily on the quality, reliability, and integration of government technological systems. Even when citizens possess adequate digital skills and access to technology, weaknesses in institutional infrastructure may constrain service performance and limit the realization of digital governance objectives. The prominence of this factor highlights the central role of government readiness in determining whether digital initiatives translate into tangible improvements in public service delivery.

The influence of digital access inequality further demonstrates that equitable participation remains a critical issue within the digital governance landscape. Citizens who face barriers related to connectivity, affordability, or access to digital resources are less likely to fully utilize government digital services. This finding reinforces the argument that technological advancement alone is insufficient if significant segments of the population remain excluded from digital opportunities. Efforts to expand digital governance must therefore be accompanied by policies that address disparities in access and promote broader digital inclusion. The positive contribution of digital literacy underscores the importance of human capital in supporting digital transformation. Citizens with stronger digital competencies are better positioned to navigate online platforms, access information, and interact effectively with government services. This result indicates that investments in digital education and capacity-building programs can complement infrastructure development by increasing citizens' readiness to participate in digital governance environments.

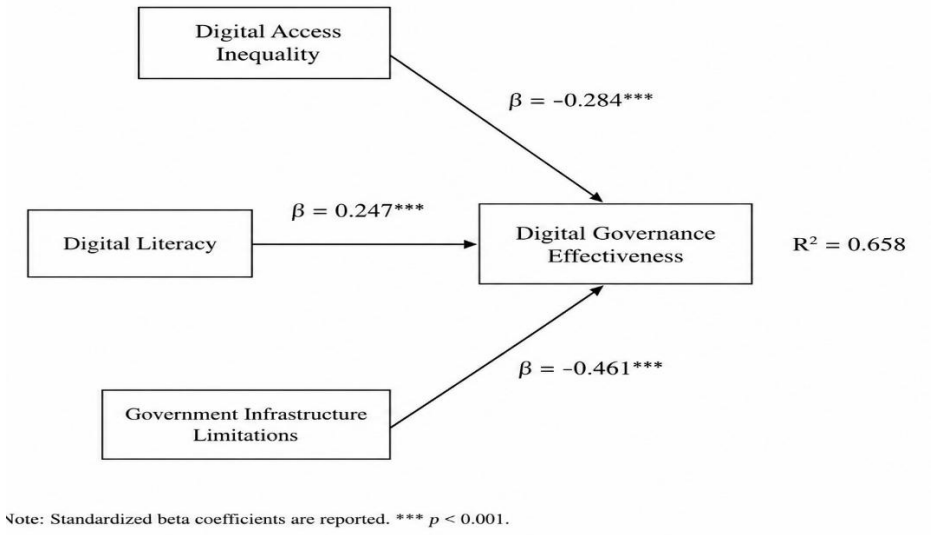

Figure 3. Regression Model of Digital Governance Effectiveness

The robustness of the regression model is further supported by the diagnostic tests. Variance Inflation Factor (VIF) values below the recommended threshold indicate that multicollinearity is not a concern, while the fulfillment of normality, linearity, and homoscedasticity assumptions confirms the suitability of the model for inference. Consequently, the estimated coefficients can be interpreted with confidence as reliable indicators of the relationships among the study variables.

The regression findings provide strong empirical evidence that digital governance effectiveness in Sri Lanka is shaped by the interaction of institutional capacity, digital inclusion, and citizen competencies. The results demonstrate that infrastructure-related constraints represent the most critical challenge, while digital access and literacy also play important roles in determining governance outcomes. These findings strengthen the conclusions derived from the descriptive and correlation analyses, collectively suggesting that successful digital governance requires a comprehensive strategy that simultaneously improves government technological infrastructure, reduces digital inequalities, and enhances citizens' digital capabilities. Such an integrated approach is essential for ensuring that digital transformation initiatives contribute to more accessible, efficient, and inclusive public services.

Discussion

Digital Access Inequality and Its Implications for Inclusive Digital Governance

The findings demonstrate that digital access inequality remains one of the most persistent challenges confronting digital governance implementation in Sri Lanka (Erangi & Stecenko, 2024; Kodithuwakku & De, 2025). The descriptive analysis revealed that respondents continue to experience barriers related to internet availability, connectivity quality, affordability, and access to digital devices. These findings suggest that the expansion of digital government services has not been accompanied by an equivalent expansion in citizens' ability to access and utilize those services. As a result, the benefits of digital transformation remain unevenly distributed across different segments of society.

The significant negative relationship identified between digital access inequality and digital governance effectiveness confirms that unequal access to digital resources directly undermines the objectives of digital governance (Hsieh et al., 2011; Wahyunengseh et al., 2020; Dodel, 2024). Digital governance is fundamentally premised on the assumption that citizens can interact with government institutions through digital platforms. When access to technological resources is restricted, the effectiveness of such platforms becomes inherently limited. This finding indicates that the success of digital governance initiatives cannot be measured solely by the number of online services provided but must also consider whether citizens possess the necessary resources to access them.

The Sri Lankan context provides an important explanation for this phenomenon. Although the country has invested in digital government programs and ICT development over the past two decades, substantial differences continue to exist between urban and rural areas in terms of technological infrastructure and internet accessibility. The demographic findings revealed a relatively balanced representation of urban and rural respondents, enabling the study to capture variations in access conditions across geographical locations. Citizens residing in rural areas frequently encounter weaker internet infrastructure, slower connection speeds, and fewer technological resources than those living in urban centers. These disparities create unequal opportunities for participation in digital governance processes and contribute to the persistence of a digital divide.

The results support Graham's (2002) argument that digital inequality is closely intertwined with broader patterns of social and economic inequality. Access to digital technologies is often shaped by income, education, geographic location, and technological infrastructure. Consequently, digital exclusion cannot be understood merely as a technological problem but must also be viewed as a socio-economic challenge. Individuals with limited financial resources may struggle to afford internet subscriptions or digital devices, while those residing in underserved areas may face infrastructure constraints regardless of their willingness to participate in digital services.

Another important implication concerns democratic participation and public service equity. Digital governance aims to improve accessibility, transparency, and citizen engagement. However, when

access to digital platforms is uneven, certain groups become disadvantaged in accessing government information, welfare programs, administrative services, and participatory mechanisms. Such conditions may unintentionally reinforce existing inequalities rather than alleviate them. The findings therefore support the view that digital transformation strategies should prioritize inclusion alongside technological innovation.

The multidimensional nature of digital access inequality observed in this study also reinforces contemporary digital inclusion frameworks. Connectivity quality emerged as a particularly important concern, suggesting that access should not be evaluated solely in terms of internet availability. Citizens require stable, reliable, and affordable connections to participate effectively in digital governance environments. Intermittent connectivity, slow network performance, or high internet costs can discourage the use of government platforms even when infrastructure is technically available. Policymakers should therefore adopt a broader understanding of digital inclusion that incorporates affordability, quality, reliability, and accessibility (Djatmiko et al., 2025; Jaeger et al., 2012; Wang & Si, 2024; Aziz, 2020).

These findings indicate that efforts to improve digital governance effectiveness must include investments in broadband expansion, affordable internet initiatives, and programs that increase access to digital devices among disadvantaged populations. Such interventions would contribute not only to greater digital inclusion but also to more equitable access to public services and governance opportunities.

Government Infrastructure Limitations as the Dominant Constraint on Digital Governance Effectiveness

Among all variables examined in this study, government infrastructure limitations emerged as the strongest determinant of digital governance effectiveness. Both the descriptive and inferential analyses consistently indicate that weaknesses in institutional technological capacity significantly reduce the performance of digital governance systems. Respondents expressed concerns regarding interoperability, system reliability, technical readiness, and service responsiveness, suggesting that institutional infrastructure remains a major challenge despite ongoing digital transformation initiatives.

The prominence of infrastructure limitations within the regression model indicates that government readiness plays a more influential role in determining digital governance outcomes than any other factor included in the study. This finding reflects the reality that digital governance ultimately depends on the ability of government institutions to design, operate, and maintain effective digital systems. According to Omweri (2024), citizens may possess adequate access and digital skills, but governance effectiveness remains constrained when public institutions lack the technological capacity to deliver reliable and integrated services.

One of the most significant issues identified in the results concerns interoperability between government platforms. Effective digital governance requires seamless information exchange among agencies, departments, and administrative systems. When interoperability is limited, citizens may be required to repeatedly submit information across different platforms, resulting in administrative inefficiencies and reduced user satisfaction. Such fragmentation undermines one of the central promises of digital governance, namely the simplification and integration of public services.

This finding is consistent with Otjacques et al. (2007), who argue that interoperability constitutes a critical foundation for modern e-government systems. Integrated platforms facilitate efficient data management, improve service coordination, and reduce administrative burdens for both citizens and government agencies. The absence of interoperability can create institutional silos that restrict information sharing and hinder service delivery.

System reliability also emerged as a critical concern. Reliable digital infrastructure is essential because citizens increasingly depend on online platforms to access public services. Frequent technical disruptions, system failures, and service interruptions can diminish public confidence in government digital initiatives. Trust represents a crucial element of digital governance because citizens are more likely to engage with digital services when they perceive them as dependable and

secure. Weak infrastructure therefore affects not only operational efficiency but also public perceptions of government competence.

The findings further suggest that technological modernization within public institutions has not progressed at the same pace as citizen expectations. The increasing digitalization of society creates demand for faster, more responsive, and more integrated public services. Government agencies that lack adequate technological resources may struggle to meet these expectations, resulting in dissatisfaction among service users. This challenge is particularly relevant in developing countries, where resource constraints, limited technical expertise, and bureaucratic complexities often slow the pace of digital transformation.

The results reinforce the observations of Weerakkody et al. (2009) and Syed et al. (2023), who identified institutional capacity as one of the most significant barriers to successful e-government implementation in developing countries. Digital transformation should therefore be viewed as an organizational and governance challenge rather than merely a technological one. Investments in hardware and software alone are unlikely to produce substantial improvements unless accompanied by institutional reforms, workforce development, inter-agency coordination mechanisms, and sustainable governance frameworks.

The strong influence of government infrastructure limitations suggests that policymakers should prioritize system integration, technological upgrading, cybersecurity enhancement, and institutional coordination. Such measures would strengthen the operational foundations of digital governance and increase the likelihood that digital transformation initiatives generate meaningful improvements in service delivery.

Digital Literacy as a Strategic Enabler of Digital Governance

The study also demonstrates that digital literacy plays a significant positive role in enhancing digital governance effectiveness. Citizens who possess stronger digital competencies are better equipped to access online services, navigate digital platforms, evaluate information, and interact effectively with government institutions. This finding highlights the importance of human capital development in supporting digital transformation efforts.

Digital literacy functions as a bridge between technological availability and actual service utilization. Access to digital infrastructure does not automatically translate into meaningful participation if citizens lack the knowledge and skills required to use digital tools effectively. The positive relationship identified in this study indicates that digital competencies enable citizens to convert technological opportunities into practical benefits. Individuals who are familiar with digital technologies are more likely to engage with online public services and derive value from government digital initiatives.

The findings support previous research by Anzar et al. (2024) and Isabella et al. (2024), which emphasizes the role of digital literacy in promoting citizen participation and strengthening digital governance outcomes. Citizens with higher levels of digital literacy are generally more confident in using digital platforms, less dependent on intermediaries, and more capable of accessing government services independently. These capabilities contribute to greater efficiency, accessibility, and satisfaction in public service interactions.

The moderate level of digital literacy identified in the descriptive analysis suggests that Sri Lanka has achieved some progress in preparing citizens for participation in digital environments. Nevertheless, the findings indicate that significant disparities remain. Differences in education, income, age, and geographic location may influence the development of digital competencies (Jiménez-Hernández et al., 2020; Soriano-Alcantara et al., 2025). Older citizens, rural populations, and socio-economically disadvantaged groups may face greater challenges in acquiring the skills necessary to engage effectively with digital government platforms.

The relationship between digital literacy and governance effectiveness also highlights the importance of lifelong learning in digital societies. Digital technologies evolve rapidly, requiring citizens to continuously update their skills and knowledge. Governments therefore have a responsibility not only to provide digital services but also to ensure that citizens possess the competencies needed to

utilize those services. Public education programs, community-based digital training initiatives, and awareness campaigns can contribute to improving digital literacy across diverse population groups.

An important observation emerging from the combined findings is that digital literacy alone cannot overcome structural barriers associated with access inequality and infrastructure limitations. Citizens may possess strong digital skills but still encounter difficulties when internet access is unreliable or government platforms function poorly. Similarly, investments in infrastructure may produce limited benefits if citizens lack the skills necessary to engage with digital systems. This interdependence explains why the regression model indicates that digital governance effectiveness is shaped by the simultaneous influence of multiple factors.

The findings therefore support an integrated approach to digital governance development. Improvements in digital literacy should be pursued alongside efforts to reduce access disparities and strengthen institutional infrastructure (Dyantyi & Mkabile-Masebe, 2025; Khan, 2024). Such a strategy recognizes that digital transformation involves technological, organizational, and human dimensions that must be addressed collectively. Strengthening only one dimension is unlikely to generate sustainable improvements in governance effectiveness.

The evidence generated by this study demonstrates that successful digital governance in Sri Lanka requires a balanced combination of digital inclusion, institutional readiness, and citizen capability. Digital access inequality restricts participation, infrastructure limitations constrain service performance, and digital literacy enhances the ability of citizens to engage with digital platforms. The interaction of these factors ultimately determines whether digital transformation initiatives can achieve their intended objectives of improving accessibility, efficiency, transparency, and citizen-centered public service delivery.

CONCLUSION

The effectiveness of digital governance in Sri Lanka is significantly influenced by the interaction of digital access inequality, digital literacy, and government infrastructure limitations. The findings reveal that persistent disparities in access to digital technologies continue to restrict citizens' ability to participate fully in digital public services, while moderate levels of digital literacy indicate that not all citizens possess the competencies required to engage effectively with digital governance platforms. The regression analysis identifies government infrastructure limitations as the most influential factor affecting digital governance effectiveness, highlighting the critical importance of system reliability, interoperability, technical readiness, and institutional capacity in supporting successful digital transformation. These results suggest that digital governance initiatives cannot achieve their intended outcomes through technological expansion alone but require a comprehensive approach that simultaneously addresses digital inclusion, citizen capability development, and institutional modernization. The study contributes to the growing literature on digital governance in developing countries by providing empirical evidence from Sri Lanka and emphasizing the interconnected nature of technological, organizational, and human factors. Future policies should prioritize infrastructure enhancement, digital literacy programs, and equitable access strategies to ensure that digital transformation contributes to more inclusive, efficient, and citizen-centered public service delivery.

REFERENCES

Amaratunga, D., Fernando, N., Haigh, R., & Jayasinghe, N. (2020). The COVID-19 outbreak in Sri Lanka: A synoptic analysis focusing on trends, impacts, risks and science-policy interaction processes. *Progress in Disaster Science*, *8*, 100133. https://doi.org/10.1016/j.pdisas.2020.100133

Anzar, M., Hasbullah, H., & Asraf, I. (2024). The Influence of Digital Literacy on Citizen Engagement and Participation in E-Government Services for Inclusive Digital Governance. *Journal Social Civilecial*, *2*(2), 87-98. https://doi.org/10.71435/610495

Asgarkhani, M. (2005). Digital government and its effectiveness in public management reform: A local government perspective. *Public management review*, *7*(3), 465-487. https://doi.org/10.1080/14719030500181227

Asimakopoulos, G., Antonopoulou, H., Giotopoulos, K., & Halkiopoulos, C. (2025). Impact of information and communication technologies on democratic processes and citizen participation. *Societies*, *15*(2), 40. https://doi.org/10.3390/soc15020040

Aziz, A. (2020). Digital inclusion challenges in Bangladesh: The case of the National ICT Policy. *Contemporary South Asia*, *28*(3), 304-319. https://doi.org/10.1080/09584935.2020.1793912

Balaji, K. (2025). E-Government and E-Governance: Driving Digital Transformation in Public Administration. *Public Governance Practices in the Age of AI*, 23-44. https://doi.org/10.4018/979-8-3693-9286-7.ch002

Basu, S. (2004). E-government and developing countries: an overview. *International Review of Law, Computers & Technology*, *18*(1), 109-132. https://doi.org/10.1080/13600860410001674779

Berch, V., Lankevych, A., Naturkach, R., Bysaha, Y., & Prodan, V. (2024). The role of digital technologies in building an inclusive and transparent society: an analysis of the legal mechanisms of democratic governance. *Amazonia Investiga*, *13*(79), 177-188. https://doi.org/10.34069/AI/2024.79.07.14

Creswell, J. W., & Creswell, J. D. (2018). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (5th ed.). Sage Publications.

Djatmiko, G. H., Sinaga, O., & Pawirosumarto, S. (2025). Digital transformation and social inclusion in public services: A qualitative analysis of e-government adoption for marginalized communities in sustainable governance. *Sustainability*, *17*(7), 2908. https://doi.org/10.3390/su17072908

Djatmiko, G. H., Sinaga, O., & Pawirosumarto, S. (2025). Digital transformation and social inclusion in public services: A qualitative analysis of e-government adoption for marginalized communities in sustainable governance. *Sustainability*, *17*(7), 2908. https://doi.org/10.3390/su17072908

Dodel, M. (2024). Why device-related digital inequalities matter for e-government engagement?. *Social Science Computer Review*, *42*(1), 122-142. https://doi.org/10.1177/08944393231176595

Dyantyi, N., & Mkabile-Masebe, B. (2025). Closing the digital divide: Strategies for addressing inequalities in technology access in higher education institutions. *Research in Social Sciences and Technology*, *10*(1), 412-425. https://doi.org/10.46303/ressat.2025.22

Erangi, D. H. N., & Stecenko, I. (2024). Digital transformation in Sri Lanka: Evaluating progress and addressing challenges. *Green, Blue and Digital Economy Journal*, *5*(2), 1-11. https://doi.org/10.30525/2661-5169/2024-2-1

Graham, S. (2002). Bridging urban digital divides? Urban polarisation and information and communications technologies (ICTs). *Urban studies*, *39*(1), 33-56. https://doi.org/10.1080/00420980220099050

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate Data Analysis* (8th ed.). Cengage Learning.

Hakim, A., & Hayat, A. (2024). Transforming Public Policy in Developing Countries: A Comprehensive Review of Digital Implementation. *Journal of ICT Standardization*, *12*(3), 337-364. https://doi.org/10.13052/jicts2245-800X.1235

Hsieh, J. P. A., Rai, A., & Keil, M. (2011). Addressing digital inequality for the socioeconomically disadvantaged through government initiatives: Forms of capital that affect ICT utilization. *Information Systems Research*, *22*(2), 233-253. https://doi.org/10.1287/isre.1090.0256

Isabella, I., Alfitri, A., Saptawan, A., Nengyanti, N., & Baharuddin, T. (2024). Empowering digital citizenship in Indonesia: Navigating urgent digital literacy challenges for effective digital

governance. *Journal of Governance and Public Policy*, *11*(2), 142-155. https://doi.org/10.18196/jgpp.v11i2.19258

Jaeger, P. T., Bertot, J. C., Thompson, K. M., Katz, S. M., & DeCoster, E. J. (2012). The intersection of public policy and public access: Digital divides, digital literacy, digital inclusion, and public libraries. *Public library quarterly*, *31*(1), 1-20.

Jiménez-Hernández, D., González-Calatayud, V., Torres-Soto, A., Martinez Mayoral, A., & Morales, J. (2020). Digital competence of future secondary school teachers: Differences according to gender, age, and branch of knowledge. *Sustainability*, *12*(22), 9473. https://doi.org/10.3390/su12229473

Khan, S. (2024). Mapping the digital divide: Bridging inequalities in access to information and technology. *Policy Journal of Social Science Review*, *2*(02), 48-55. https://doi.org/10.63075/pjssr.v2i02.16

Kodithuwakku, D. S., & De Silva, I. W. (2025). Challenges in implementing digital employment platforms for women's participation in Sri Lanka: A structural equation modeling approach'. *International Journal of Advanced and Applied Sciences*, *12*(3), 216-224.

Kougias, C., & Papadakaki, M. (2025). Rethinking the 'smart city': From technology-led visions to citizen-centered governance—barriers and pathways in digital urban initiatives. *Journal of Urban Affairs*, 1-24. https://doi.org/10.1080/07352166.2025.2502116

Madusha, M. G. H. (2024). Exploring Digital Diplomacy Practices amid Covid-19 Pandemic and its Challenges: Perspectives from Sri Lankan Diplomats. *International Journal of Governance and Public Policy Analysis*, *6*(2). https://doi.org/10.31357/ijgppa.v6i2.8324

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric Theory* (3rd ed.). McGraw-Hill.

Omweri, F. S. (2024). A systematic literature review of e-government implementation in developing countries: examining urban-rural disparities, institutional capacity, and socio-cultural factors in the context of local governance and progress towards SDG 16.6. *International Journal of Research and Innovation in Social Science*, *8*(8), 1173-1199.

Otjacques, B., Hitzelberger, P., & Feltz, F. (2007). Interoperability of e-government information systems: Issues of identification and data sharing. *Journal of management information systems*, *23*(4), 29-51. https://doi.org/10.2753/MIS0742-1222230403

Polizzi, G. (2025). Digital literacy and strategic (dis) engagement: examining how functional and critical digital literacy shapes participation. *Information, Communication & Society*, 1-20. https://doi.org/10.1080/1369118X.2025.2452282

Salemink, K., Strijker, D., & Bosworth, G. (2017). Rural development in the digital age: A systematic literature review on unequal ICT availability, adoption, and use in rural areas. *Journal of rural studies*, *54*, 360-371. https://doi.org/10.1016/j.jrurstud.2015.09.001

Samuel, N., & Oyenuga, A. O. (2025). Education Systems Interoperability: Implications for Privacy and Security in Educational Management Information Systems. *University of Ibadan Journal of Science and Logics in ICT Research*, *13*(1), 153-163.

Soriano-Alcantara, J. M., Guillén-Gámez, F. D., & Ruiz-Palmero, J. (2025). Exploring the educational digital landscape in the Dominican Republic: a comparative study of competencies in different stages and socio-digital environments. *Journal of Computers in Education*, *12*(3), 829-851. https://doi.org/10.1007/s40692-024-00331-0

Syed, R., Bandara, W., & Eden, R. (2023). Public sector digital transformation barriers: A developing country experience. *Information Polity*, *28*(1), 5-27. https://doi.org/10.3233/IP-220017

Tennakoon, W. D. N. S. M. (2020). E-governance way forward: challenges and opportunities for developing countries. Evidences from Sri Lanka. *International Journal of Business, Economics and Law*, *21*(2), 51-61.

Townsend, L., Wallace, C., & Fairhurst, G. (2015). 'Stuck out here': The critical role of broadband for remote rural places. *Scottish Geographical Journal*, *131*(3-4), 171-180. https://doi.org/10.1080/14702541.2014.978807

Wahyunengseh, R. D., Hastjarjo, S., Mulyaningsih, T., & Suharto, D. G. (2020). Digital governance and digital divide: a matrix of the poor's vulnerabilities. *Policy & Governance Review*, *4*(2), 152-166. https://doi.org/10.30589/pgr.v4i2.296

Wandaogo, A. A. (2022). Does digitalization improve government effectiveness? Evidence from developing and developed countries. *Applied Economics*, *54*(33), 3840-3860. https://doi.org/10.1080/00036846.2021.2016590

Wang, C., & Si, L. (2024). The intersection of public policy and public access: Digital inclusion, digital literacy education, and libraries. *Sustainability*, *16*(5), 1878. https://doi.org/10.3390/su16051878

Weerakkody, V., Dwivedi, Y. K., & Kurunananda, A. (2009). Implementing e-government in Sri Lanka: Lessons from the UK. *Information Technology for Development*, *15*(3), 171-192. https://doi.org/10.1002/itdj.20122