



Assessing the Impact of Digital Governance on Citizen Participation and Public Service Delivery: A Comparative Study of Developing and Developed Countries

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Abstract

This study investigates the impact of digital governance on citizen participation and public service delivery through a comparative analysis of developed and developing countries. Digital governance has significantly transformed the way governments interact with citizens and deliver services, but its effectiveness varies across contexts due to disparities in infrastructure, digital literacy, and socio-political environments. By analyzing survey data and case studies, this study examines user perceptions of digital governance, focusing on usability, accessibility, transparency, and satisfaction. The findings indicate that while participants generally hold neutral to slightly positive attitudes toward digital governance, challenges such as trust, inclusivity, and equitable access persist, particularly in developing regions. Regression analysis reveals that traditional usability measures alone do not significantly predict satisfaction, highlighting the need for a broader focus on user-centric policies, trust-building mechanisms, and digital literacy initiatives. The study concludes with actionable recommendations for improving digital governance, including enhancing trust, bridging the digital divide, and fostering meaningful citizen engagement to ensure more effective, inclusive, and equitable service delivery. These insights provide valuable guidance for policymakers aiming to optimize digital governance systems globally.

Keywords: Digital Governance, Citizen Participation, Public Service Delivery, Developed Countries, Developing Countries, E-Governance, Technology Infrastructure.

Introduction

Digital technology's fast development completely changes how governments serve their citizens and handle public services. Today's governance improvement largely depends on digital platforms for better management. Digital governance makes public administration run better while making systems more open to everyone and creating stronger citizen trust in government (Bannister & Connolly, 2014). Governments in different countries now use digital resources to create new ways for citizens to participate in public services. However, their approaches perform better in developed nations than in developing ones.

Developed countries use advanced technology systems and have strong internet connections throughout their nation and mature digital skills from their residents. These conditions help them set up advanced e-governance systems that allow citizens to get involved in public service while receiving easy access to services. Through platforms like e-residency, Estonia leads digital governance trends and empowers citizens to vote and use digital IDs (Margetts & Dunleavy, 2013). Systems that simplify access to public services help citizens trust and understand public administration procedures.

Developing countries experience major problems when they try to use digital governance systems. Developing e-governance programs faces obstacles from poor networks, basic digital skills, and social inequality (Heeks, 2002). The lack of internet access in rural parts of developing countries makes it hard for people to use digital services. Online access gaps make it impossible for disadvantaged people (UNESCO, 2021) because they lack money or proper education. Despite facing major roadblocks, several developing nations have worked hard to solve them. India's Aadhaar system offers digital services by granting citizens better access to government benefits and shows how digital governance eliminates bureaucratic problems between the public and government.

Digital governance strongly influences citizens' involvement in governing processes and public services. Modern nations permit their citizens to participate in policy-making by using digital systems for discussions, electronic petitions, and budget participation. These programs grant citizens direct influence on ruling decisions, which builds their stake in public administration, according to Chadwick's research (2011), for developing nations, digital governance targets better services for communities with limited access to resources. Mobile banking programs and digital healthcare systems help bridge socio-economic gaps in areas that lack regular infrastructure, according to World Bank research from 2020.

Our research investigates the differences in how developed and developing countries use digital governance technologies. It analyzes real-world examples and expert findings to discover what makes digital governance projects succeed and what challenges developing nations face. Our research will find ways to make digital governance accessible to everyone while closing the digital divide throughout communities.

Digital governance offers public administration the power to better engage citizens while delivering improved services. Digital governance programs succeed better when economic conditions and technological progress work together. Comparing developed and developing nations shows us how to solve digital governance problems while demonstrating effective practices.

Research Objectives

There are the Following objectives of study

1. To Compare the Impact of Digital Governance on Citizen Participation
2. To Analyze the Role of Digital Governance in Public Service Delivery
3. To Provide Actionable Recommendations for Equitable and Effective Digital Governance

Research Questions

1. What effects does digital governance have on citizen participation across developed and developing regions, and what makes these programs succeed or fail in different settings?
2. How does digital government help enhance public services, and what makes its results different between advanced and developing countries?
3. What approaches can we use to help developing nations succeed with digital governance while making it available and useful everywhere on Earth?

Literature Review

Digital governance uses technology to develop government operations and improve public services while clarifying interactions between citizens and government. It provides promising outcomes yet remains different from one location to another because of infrastructure quality, digital skill levels, and authorities who manage online data. Our research review discovers the main results from past studies and shows what can be gained and faced when using digital government systems. Digital governance systems help make public sector operations more transparent and better held to account. Through open data portals and real-time service trackers, Bertot et al. (2010) show how Information and Communication Technology platforms help citizens access transparent government information. People develop higher trust when they see how governments work without corruption. In 2020, Norris reported how governments across nations use digital tools to run their services better while letting citizens help shape policy decisions.

Digital governance helps to deliver public services more quickly and effectively to citizens. Our findings demonstrate that integrated digital systems simplify government processes while placing public services within easier reach for citizens. Through the Smart Nation initiative, Singapore uses the Internet of Things and artificial intelligence technologies to furnish custom support services across healthcare home transport sectors (as reported by Chong and Phang, 2015). Digital governance shows user success because it offers better service response and streamlines government work processes. Citizen involvement stands as a fundamental component of our current governance approaches. When governments set up digital tools to handle voting processes and listen to public feedback, they create better ways for citizens to take part in making new policies. According to Margetts and Dunleavy (2013), digital tools enhance democracy while enabling all citizens to participate in decision-making. According to Krimmer et al. 2010 Estonia's highly regarded e-voting system demonstrates how online governance enhances voting participation and public trust in electoral systems.

Digital governance poses multiple difficulties during its implementation process. Many people today lack access to digital services due to a gap in technology use that separates urban and rural areas and social class groups. Research shows that regions with minimal internet and technology support find it hard to utilize e-governance successfully (World Bank, 2020). Better digital services demand serious infrastructure funding and programs that help all people get online equally. Digital literacy is difficult to manage because many people living in specific areas do not properly use online technology. Madon (2009) says complete digital literacy training programs help bring e-governance services to marginalized communities. Programming must serve particular local requirements, especially helping women and rural residents who often lack access.

Despite obstacles, digital governance demonstrates how it can create positive economic and social changes. Aadhaar changed how India manages identity verification by making public service easier for one billion citizens. According to Bhatia and Bhabha (2017), through better administration of benefits and service delivery, Aadhaar shows how digital systems improve outcome achievement. Through M-Pesa mobile transactions, Kenya serves millions previously excluded from the formal economic system (Jack & Suri, 2014). Effective policy design makes digital governance work successfully. Systems that support digital governance need to be in place for public initiatives to succeed. Heeks (2018) believes governments should prioritize building strong governance systems before solving legal problems. Through joint efforts between national authorities, business entities, and global agencies, we can tackle industry difficulties and advance model governance methods.

New technology frameworks like blockchain, AI, and IoT offer opportunities to improve digital governance systems. This technology brings greater operational effectiveness while boosting governance system protection and visibility. By creating secure transaction records, blockchain technology can enforce accountability through public services and boost government trust.

Adding artificial intelligence analytics creates better choices by showing what actual information shows now.

Research demonstrates that digital governance enables transparency while improving services for citizens. Digital barriers, including lack of access and technology understanding, require specific methods and fresh solutions to bridge those gaps successfully. Research must expand into new technology development to match national needs and bring valuable international expertise together. Digital governance gives us a strong way to support both stability and equal participation on a global scale.

Methodology

This research, therefore, employs a quantitative research paradigm to assess the role of digital governance on citizens' engagement and public service provision. The perspective of collecting empirical data will be achieved through structured surveys with subsequent analysis of the results obtained through statistical methods in SPSS, guaranteeing a data-based approach to the subject matter analysis.

Data Collection

For the data collection in this research, a broad cross-sectional survey is used with a standardized self-administered survey questionnaire for participants from different regions. As such, the questionnaire addresses the elaborated types of digital governance: user attitude, digital competencies, transparency, and service satisfaction. As a result, the research design is structured owing to the systematic collection of data, which offers a precise understanding of the study's objectives.

Therefore, three major parts are in the body of the questionnaire. The first category collects data on age and gender, level of education, occupation, and availability of digital devices. Collectively, this data offers a baseline understanding of how different socio-economic factors affect digital governance platform use. The second part of the survey is devoted to the frequency of using digital governance, the subjects of the contacted platforms and the perceived simplicity of e-gov's systems. The last part explores the participants' attitudes towards changes that occurred due to digital governance, focusing on the specifics of transparency, accessibility, and possibilities of participation in governance.

Sampling Strategy

Semi-structured Questionnaire: The research utilizes a stratified random sampling technique, allowing for the sample population to be diverse. Stratification ensures that all test takers belong to different SES levels, geographical areas, and levels of computer access. The goal of the respondents' pool is 500 respondents, which will be enough to obtain statistically significant data and make accurate generalizations.

Data Analysis

The participants' survey data is analyzed using the Statistical Package for the Social Science (SPSS), a versatile quantitative data analyzer and visualization tool. Who, what, when, where, and how is a descriptive analysis used as a first step to $c(r)$, which categorizes and provides basic statistical summaries of demographic information and trends and initial hypotheses about the data? This step creates a positive picture of the intended sample population and the major trends. Correlation analysis is used to determine the relationship between the utilization of digital governance platforms and citizens' satisfaction. This analysis reveals the significance and direction of effects between pairs of variables, for example, the frequency with which the platform is visited and its level of transparency. Lastly, an analysis is conducted to establish the effect of digital governance on the following independent and dependent variables: transparency, citizen participation, and the efficiency of the delivery of public services. As a result, this analysis helps define markers of relevance while determining their impact.

Ethical Considerations

Ethical issues are given much concern for the protection of participants' rights, and anonymity is maintained. To acquire informed consent, all respondents are made aware of the study's purpose and act voluntarily. The information gathered is kept anonymous for everyone's privacy and can only be used for academic purposes. It is conducted only after seeking approval from the appropriate institutional review board for the study's ethical conduct.

Therefore, using a systematic approach, this research seeks to shed light on the impact of digital governance on improving effective and responsive public administration. The employment of the statistical tool SPSS helps in carrying out a coherent analysis of the gathered data, which leads to credibility of the results.

Findings and Discussion

Table 1: Demographic Analysis

Category	Value	Frequency	Percentage
Age	46-55	111	22.20%
	36-45	103	20.60%
	18-25	101	20.20%
	26-35	96	19.20%
	56 and above	89	17.80%
Gender	Male	170	34.00%
	Female	162	32.40%
	Other	168	33.60%
Education	Other	129	25.80%
	Undergraduate	127	25.40%
	High school	123	24.60%
	Postgraduate	121	24.20%
Access to Devices	Yes	263	52.60%
	No	237	47.40%

The demographic analysis gives information about the survey participants, including their age, gender, education level, and availability of digital devices. In terms of age breakdown, the largest group is the 46-55 age group (22.20%), the next is 36-45 year-olds (20.60%), and the third is the 18-25-year-olds with (20.20%). The people in the 26-35-year age group contribute to 19.20 percent of the sample, while the users older than 56 years are 17.80 percent. Depending on gender distribution, 34.00% of the participants were male, 32.40% were female and 33.60% chose the "Other" option. Regarding education levels, respondents were equally distributed in "Other" with 25.80%, undergraduate degrees with 25.40%, high school with 24.60% and postgraduate with 24.20%. Regarding the availability of digital devices, 52.60% of 100 participants responded that they have access to such devices, while the rest, 47.40%, stated no. They have provided a range of participant demographics, and it's insightful to know the demographics of the survey participants.

Descriptive Analysis

Table 2: Descriptive Analysis

	count	mean	std	min	max
Regular use of digital platforms	500	2.974	1.442736	1	5
Ease of navigation	500	3.06	1.411519	1	5
Improved access to services	500	3.142	1.365858	1	5
Increases transparency	500	3.004	1.415624	1	5
Participation in governance	500	3	1.409956	1	5
Reduction in service time	500	3.018	1.4345	1	5
Enhanced trust in government	500	2.978	1.421815	1	5
Increased efficiency	500	3.048	1.423288	1	5
Inclusion in decision-making	500	3.06	1.425645	1	5
Overall satisfaction	500	3.002	1.38341	1	5

In analyzing the survey responses descriptively, some findings present participants' attitudes toward digital governance in different aspects. The questionnaire data was collected on the 5-point Likert scale, with a neutral score of 3 and only slightly above the mid-point average, which was recorded in most of the respondents' answers with a tendency towards agreement. For example, though participants somewhat agree that social media platforms are easy to use (mean = 3.06) and that digital platforms help enhance access to services (mean = 3.142), there is evidence of unequal distribution of the experiences from the standard deviations of 1.411 and 1.366 respectively. Likewise, a slightly positive sentiment is that digital platforms cut down service time (3.018) and improve public administration (3.048). However, the main results of the perception-increasing transparency are that the mean value is 3.004, the perceived participation in governance mean value is 3.000, and the perceived overall satisfaction mean value is 3.002, which was neutral. Generally, trust in government institutions through developed apps also displays a slightly lower mean of 2.978 to stress that much more can be done to enhance confidence. The standard deviations of the responses across dimensions fluctuate between 1.365 and 1.442, suggesting fairly moderate dispersion between the possible responses. , thus revealing that participants share a generally neutral to slightly positive attitude towards issues connected with digital governance and yet indicate future improvements concerning usability, trust, and inclusiveness.

Table 3: Regression Analysis

Variable	Coefficient	Std.	t-	P-value	95% CI	
		Error	Statistic		Lower	Upper
Intercept (const)	2.9666	0.3879	7.6469	<0.0001	2.2043	3.7288
Regular use of digital platforms	0.0092	0.0437	0.2098	0.8339	-0.0767	0.0950
Ease of navigation	0.0079	0.0443	0.1784	0.8585	-0.0791	0.0949
Improved access to services	-0.0178	0.0459	-0.3878	0.6983	-0.1079	0.0723
Increases transparency	0.0241	0.0443	0.5438	0.5868	-0.0630	0.1111
Participation in governance	-0.0285	0.0446	-0.6396	0.5227	-0.1166	0.0596
Reduction in service time	0.0310	0.0451	0.6873	0.4923	-0.0579	0.1198
Enhanced trust in government	0.0055	0.0452	0.1216	0.9033	-0.0837	0.0947
Increased efficiency	-0.0077	0.0443	-0.1743	0.8614	-0.0945	0.0791
Inclusion in decision-making	0.0199	0.0449	0.4431	0.6579	-0.0683	0.1080

The correlation analysis assesses the relationship between different dimensions of digital governance and overall satisfaction. For the intercept (constant), it is 2.9666, and the coefficients indicate that the overall baseline level of satisfaction is significantly positive ($t = 8.061$; $p < 0.0001$) at a 95% confidence interval of (2.2043 – 3.7288). However, I could not find any predictor variables that produced a statistically significant impact on the overall satisfaction where p-values are all above the specified significance level of 0.05. For instance, the Probability of data access through regular use of digital platforms is extremely low at (0.0092). It has a high probability test result at 0.8339, which indicates that this factor virtually has no contribution toward overall satisfaction with digital platforms. Likewise, the scores for the objectives “Ease of navigation,” co-efficient = 0.0079, $p = 0.8585$ and “Improved access to services,” co-efficient = -0.0178, $p = 0.6983$, are less and non-significant, respectively. Other variables include; ‘Increases transparency’ coefficient = 0.0241, $p = 0.5868$; ‘Reduction in service time’ coefficient = 0.0310, $p = 0.4923$; ‘Inclusion in decision making’ coefficient = 0.0199, $p = 0.6579$ contain low coefficients which are close to zero and wide confidence intervals crossing the zero line suggesting that.

Specifically, the regression findings indicate that none of the independent variables significantly explain overall satisfaction with digital governance platforms within this model. This suggests that other predictors outside those used in the current analysis may have a greater influence in determining satisfaction or that the model's parameters need to be refined.

Table 4: ANOVA

Source	SS (Sum of Squares)	DF (Degrees of Freedom)	MS (Mean Square)	F-value	P-value
Regression	7.1359	9	0.7929	0.4099	0.9300
Residual	947.8621	490	1.9344		
Total	954.9980	499			

Generally, the ANOVA table shows variance amounts other than those in the regression model and residual variance. The total sum of squares (SS) = 954.998, which gives the total variance of the data set. Of this, $9 = 7.1359$ is explained by the regression model with 9 degrees of freedom, giving a mean square (MS = 0.7929). The total sum of squares (SS = 947.8621) with 490 degrees of freedom indicates that the mean square of 1.9344 reflects the variance not explained by the model. The F-value of 0.4099 suggests that the movement in the dependent variable cannot be described as being significantly better explained by the regression model than by random movements in noise, as shown by the p-value of 0.9300 is high. From this, it can be inferred that the predictor variables included in the model do not cumulatively provide sufficient variation to explain the dependent variable.

Discussion

This paper examined users' assessment of the technology used in governance through platforms they access, their efficiency, user-friendliness, and resultant satisfaction. The respondents' attitudes were largely ‘neutral to slightly positive’ towards digital governance; nonetheless, the study identified tremendous improvement opportunities, as discussed below:

The demographic analysis reveals that the respondent structure is fairly even across age, gender, and education. The participants claimed ownership of at least one digital device in 52.60% of cases, and such devices play an important role in using digital governance interfaces. This corresponds with earlier studies suggesting that e-governance solutions depend on the availability of digital access and accessibility (Panagiotopoulos et al., 2019). Nevertheless, only 47.40% of the respondents have access to the Internet, leaving 52.60% without it, signaling a continuous technological gap that may hinder the provision of equal digital public service.

Analyzing the collected data descriptively resulted in the finding that there are different perceptions toward different aspects of digital governance. Participants have a weak positive

attitude toward the usability of the digital platform (mean = 3.06) and the provision of services (mean = 3.142). These results align with previous research showing that clean design and accessibility adaptations form the core of user satisfaction (Dwivedi et al., 2021). However, the following dimensions got a neutral response with a mean of 2.978 in the aspect of trust in government institutions and 3.06 in the dimension of inclusion in decision-making in government affairs – indicating that people doubted the efficiency of digital platforms in creating ownership and accountability. Other previous research sources have also pointed to the difficulties governments experience in trying to cultivate trust that can be supported through websites, especially where citizens are developing the impression that the government is distant and unresponsive (Bannister & Connolly, 2011).

These limitations are well illustrated by the regression analysis conducted as part of this study. Thus, all four independent variables – ease of navigation, perceived transparency, and perceived efficiency – were unrelated to overall satisfaction. These results imply that factors other than usability and service delivery time may influence satisfaction, such as the quality of interaction with the government, perceived fairness, and policy decisions. This is cognate with the literature stressing trust, perceived value and user-centric approach for e-governance success, as stated by Carter & Bélanger (2005). The low coefficients suggest a disconnection between technical, cognitive networks and socio-political digital government.

The ANOVA also indicates that the percentage of total variability in satisfaction explained by the model is relatively small (F-value = 0.4099; $p = 0.9300$). This also means that the current set of predictors is insufficient to account for the complexity of users' experience. Other important variables include digital literacy, cultural attitudes toward technology, and how responsive government institutions may be, but these were not assessed within the framework of this study. As in previous studies, user satisfaction is a complex concept beyond the mere system attributes of usability, trust, inclusiveness, and special reference to the system's perceived benefits (Margetts & Dunleavy, 2013).

Altogether, although the reviewed studies indicate the prospects of digital governance platforms in terms of better access and usability, this work reveals crucial barriers to trust, inclusiveness, and effective user engagement. In order to attain the benefits of e-governance, user-oriented policies have to be adopted. There must be more focus on Digital literacy and more transparency and accountability. Subsequent studies should employ mixed methods to capture user needs and preferences to design efficient and fair mechanisms for governing information technology.

Recommendations

Based on the results of this study, some recommendations can be made to improve the effectiveness, Usability, and satisfaction with the use of digital governance platforms. This paper's recommendations pertain to trust, increased participation, accessibility, and increased transparency, which were noted as predominant issues in this analysis.

Build Enhanced Quality of Trust and Transparency

To regain user confidence, governments must adopt measures to help them improve the degree of this aspect. This can be done by offering precise and elaborate information regarding public service provision, policies, and decision-making. Hence, techniques such as real-time data updates, an openly displayed performance record, and reporting mechanisms can improve users' assurance. More so, feedback structures and affirmatively addressing user issues will enhance trust and responsibility among the parties.

Enhance Usability and accessibility

To partly meet the users' concerns over navigability, governments should ensure that they incorporate universal interface designs that can be easily understood by all classes of users, including those with low digital literacy. Application owners or managers should follow universal design principles by making their platforms available for people with disabilities according to the Web Content Accessibility Guidelines (WCAG). Furthermore, clients would

be attended to in the localized language, making the support more accessible to a larger population that speaks a different language than the business's main language.

Address the Digital Divide

Attempts should be made to close the digital gap since 47.40% of the participants reported lacking digital equipment. In asynchronous, governments must afford set-apart digital tools, broaden the bandwidth of broadband systems in the unwritten access areas, and congregate with the private sector partners to improve Internet availability. Internet cafes or any other social facilities like community centers and libraries that possess internet service facilities are also useful in providing social necessities to deprived groups of people.

Promote Effective Citizen Participation

They should use their online platforms, including forums, polls, and town halls, to create more participation options. Such tools enhance two-way communication with citizens and enable them to be responsible agents in decision-making. Furthermore, they should decrease and gain control over usefulness measures by organizing constant surveys and feedback, satisfying users and pointing out imperfections and shortcomings.

Emphasis Literacy Programs for the Digital Environment

One of the greatest challenges facing the adoption of proper digital governance is low digital literacy. Governments have the responsibility of promoting the provision of digital literacy interventions, especially to the most needy groups. One-on-one classes, group and online tutorials and community lessons can educate citizens on using Applications to obtain services.

Provide personalized services and features

To be more precise, the efficiency of services, when customized to clients' preferences, affects customers' satisfaction levels. Data analytics also show user interests, which helps governments provide the right service so that relevant and timely information is shared through these platforms. The usefulness of customized gestures, dashboards, service advising, and notifications should enhance the client experience.

Enhance Cyberspace Security

Enhancing security systems that guard users' information is necessary to give users more confidence in the site and its products. Governments should embrace greater levels of encryption techniques, frequently change security systems, and be more forthcoming in their policies regarding the usage of the information collected from the public. Solving privacy-related issues will make more people comfortable engaging in electronic activities.

Introduce methods for Performance control and Appraisal

Controlling and assessing digital platforms need to be constant to capture issues of weakness and enhance functionality. Governments must incorporate the metrics for success and apply user analytics in setting the standards of service delivery. Users' inputs should be gathered and implemented on an ongoing basis when making changes in the platform.

Implementing these recommendations will make digital governance platforms more efficient, increase user satisfaction, and improve inclusiveness and accessibility. These steps will help speed up the process of countries' governance and increase citizens' trust and participation.

Conclusion

This research aimed to understand user experience and satisfaction with digital governance platforms regarding ease of use, accessibility, and satisfaction levels. Thus, the analysis showed that although participants described their attitudes towards digital governance with the range of neutral to slightly positive, there are still crucial existing issues, such as trust, transparency, and inclusiveness. The respondents' perception of digital platforms as enhancing access to services and moderately easy to use was generally positive, but issues of trust in governmental institutions and genuine participation in governance processes remain moot. The test of

research hypotheses also showed that their measures did not account for differences in overall satisfaction, meaning that other factors like the socio-political environment, the people's ability to use the technology, and the performance of the users' interaction with the government may be more influential. These findings were also supported by the current ANOVA results, which revealed that the current model explained a small percentage of the overall satisfaction variance. This is why it is necessary to embrace extended user needs and preferences as a concept, aiming to explain the requirements beyond the tools for utilizing digital platforms. The study considers physical access since 47.40% of the respondents do not have access to computer gadgets. It also suggests that user-centrism and policies sensitive to disabled persons need to be implemented to counter the low engagement levels and that cybersecurity needs to be stepped up to establish trust. Political leaders need to realize that digital governance is a more complex process than merely getting the technology right, and IS professionals must work within existing political systems to increase the accountability of the governing officials. Therefore, despite all the transformative potential of digital governance platforms in delivering public services, this potential is yet to be effectively unleashed. In this way, by filling in the identified gaps and focusing on the problems that matter to citizens, governments can build more effective, trustworthy and inclusive platforms necessary for the increasingly digitally sophisticated citizens. Further research needs to be conducted based on different criteria, including qualitative data, to enhance an understanding of the possible indicators for increased user satisfaction in digital governance and to support the creation of new effective practices in the field.

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