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Socio-Economic Impact of Government Digitization Programs: A Citizen's Perspective

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ABSTRACT

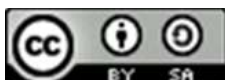
This study aims to explore the socio-economic impact of digitalization programs implemented by the government, focusing on citizens' perspectives. The research examines the extent to which the digitalization of public services such as e-ID (e-KTP), e-tax, and e-health has improved efficiency, transparency, and accessibility. The method used is a survey involving respondents from various regions, combining quantitative and qualitative analysis to explore public perceptions, adoption, and challenges. The findings show that although digitalization offers convenience for the majority of citizens, there remains a gap in access, especially among those with low digital literacy and residents in remote areas. Moreover, concerns about data privacy and security persist, particularly among vulnerable populations who lack adequate understanding of their rights and protections in the digital sphere. Respondents also expressed differing levels of satisfaction depending on their previous exposure to technology and the quality of local infrastructure. While urban populations generally report smoother adoption and more positive experiences, rural communities often face difficulties due to unstable internet connections and limited assistance in using digital platforms. This disparity underscores the need for targeted interventions, such as community-based training programs and the development of offline-compatible systems. Overall, this study provides evidence that while digitalization holds significant promise for enhancing public service delivery, its success hinges on the government's ability to ensure equitable access, foster public trust, and build digital capacity across all demographics.

Keywords: digitalization, public services, e-KTP, e-tax

INTRODUCTION

The development of information and communication technology has driven many countries to adopt digital systems in governance. Digitalization has become a key strategy in improving the efficiency, transparency, and accountability of public services. Governments across the globe, including Indonesia, have launched various initiatives such as e-Government, e-ID, e-health, e-tax, and e-learning. These programs aim to provide faster, more accessible services and to eliminate complex bureaucratic procedures. This digital transformation is not only a matter of technological modernization but also represents a paradigm shift in the relationship between the government and its citizens, transforming traditional governance models into more open, citizen-centered systems. Furthermore, digitalization is increasingly seen as an essential pillar in achieving the Sustainable Development Goals (SDGs), especially those related to inclusive institutions, innovation, and reduced inequalities.

The implementation of government digitalization programs has had a significant impact on the social and economic transformation of society. Access to digital services allows citizens to interact more easily with the government, claim their rights, and access information in real time. The integration of digital platforms also reduces transaction



costs, enhances data accuracy, and enables faster decision-making processes at various levels of governance. Additionally, digitalization opens up new economic opportunities, such as the rise of tech-based entrepreneurship, remote working, digital marketplaces, and other digital economy sectors that can empower marginalized communities. In rural areas, for example, farmers can now access market prices, weather forecasts, and agricultural support programs through mobile applications, which contributes to improving productivity and livelihoods. On a social level, digital technologies also affect communication patterns, public participation, and collective decision-making, creating a more open and dynamic space for interaction between society and the government. Online public consultations, digital petitions, and participatory platforms have emerged as tools that foster civic engagement and democratic accountability in the digital age.

Despite these benefits, not all citizens have equal ability or opportunity to access digital services. The digital divide remains a serious issue, particularly in remote areas, regions with limited infrastructure, and among vulnerable groups such as the elderly, persons with disabilities, and those from low-income backgrounds. In many cases, inadequate internet connectivity, lack of access to digital devices, and poor digital literacy hinder the effective use of technology-based government services. Language barriers and interface complexity can also discourage citizens from engaging with digital systems. If these challenges are not addressed systematically, digitalization may instead exacerbate social and economic inequality, creating a new form of exclusion in the digital era. Therefore, inclusive digital development requires comprehensive support in education, digital skills training, and equitable infrastructure development that reaches even the most underserved communities. Government collaboration with civil society, the private sector, and local institutions is crucial to building digital ecosystems that are inclusive and sustainable.

The success of government digitalization programs should not be measured solely by efficiency or administrative achievements, but also by the extent to which citizens experience positive impacts in their daily lives. As end users of digital services, citizens play a crucial role in assessing the quality and relevance of the services provided. Thus, a user-centered approach is needed in the design, implementation, and evaluation of digital initiatives. It is important to involve citizens in the evaluation process and the formulation of digital policies to ensure that the services developed truly meet their needs and preferences. Citizens' perceptions, experiences, and satisfaction levels are key indicators in assessing the real-world effectiveness of digitalization, providing valuable feedback for continuous improvement. Governments must also prioritize data protection and cybersecurity, as trust in digital systems is closely linked to the perception of safety and integrity in online interactions.

Considering the rapid and widespread digital transformation, studies that examine the socio-economic impact of government digitalization programs from the citizen's perspective are crucial. Existing research still largely focuses on technical, managerial, or administrative aspects and has not sufficiently explored citizens' direct experiences, perceptions, and adaptation strategies. This creates a gap in understanding how digital government services are actually perceived and utilized in different socio-economic and cultural contexts. Yet, understanding the actual impacts felt by citizens can provide a more holistic and accurate picture of the success of digitalization, allowing for better alignment between policy goals and lived realities. It can also help uncover unintended consequences and identify specific groups that may be left behind in the digital transition.

This study aims to analyze the social and economic impacts of government digitalization programs based on citizen perspectives. Specifically, it seeks to determine

the extent to which digital public services such as e-Government, e-ID, e-health, and other online service platforms provide tangible benefits to people's social and economic lives, including improvements in public service delivery, access to opportunities, and quality of life. Moreover, the study also aims to identify the factors that influence citizens' perceptions and experiences in accessing and utilizing these digital services, including barriers related to accessibility, digital literacy, infrastructure readiness, and trust in the system. In doing so, this study contributes to the growing body of knowledge on digital governance by integrating citizen voices into policy analysis. Therefore, the results of this study are expected to provide constructive input for the government in developing more responsive, inclusive, and people-centered digital policies that ensure no one is left behind in the digital era.

METHODS

This study uses a mixed methods approach, combining both quantitative and qualitative methods to gain a comprehensive understanding of the impact of government digitalization programs from the citizens' perspective. This approach was chosen to address the limitations inherent in using a single method, enabling the study to not only measure generalizable trends through numerical data but also capture rich, contextual insights from individual and collective experiences. The quantitative approach is used to measure the relationship between digitalization programs and the socio-economic impact indicators perceived by the public, including aspects such as time and cost efficiency, improved access to public services, increased trust in governance, and economic opportunities enabled by digital platforms.

For the quantitative method, data were collected through the distribution of closed-ended questionnaires to respondents who have used digital government services such as e-ID (e-KTP), online administrative services (e.g., e-tax or online licensing systems), or digital health platforms (e.g., e-health registration or telemedicine). The survey instrument was designed to assess user satisfaction, perceived benefits, ease of use, and barriers experienced during interaction with digital services. The sample was selected using stratified random sampling, taking into account geographic location (urban and rural), age groups, gender, and education level to ensure a balanced and inclusive representation of the population. A total of [insert sample size] respondents participated in the survey. The quantitative data collected were analyzed using multiple linear regression analysis to determine the significant influence of independent variables (such as access to digital services, frequency of use, and digital literacy) on dependent variables (social and economic impacts).

Meanwhile, the qualitative method was conducted through in-depth interviews and focus group discussions (FGDs) with citizens from diverse backgrounds, including elderly individuals, people with disabilities, low-income communities, and those living in remote or underserved areas. These sessions aimed to uncover the nuanced perspectives that are often overlooked in large-scale surveys, such as emotional responses to using digital platforms, perceptions of government responsiveness, and trust in digital infrastructure. Purposive sampling was used to select informants with relevant and diverse experiences to ensure that the data reflected a wide range of social contexts and challenges. Each interview and FGD was transcribed and coded using thematic analysis, allowing the researchers to identify recurring themes, emerging concerns, and potential areas for improvement in digital service delivery.

In addition, triangulation was applied to validate the findings by comparing results from different data sources and methods. This helped strengthen the reliability and credibility of the conclusions drawn. The integration of quantitative and qualitative

findings was conducted at the interpretation stage, where statistical trends were contextualized with narrative data to offer a more nuanced and actionable understanding of the citizens' realities. Overall, the use of a mixed methods approach in this study is expected to provide a more holistic picture both statistically and narratively regarding the socio-economic impacts of digitalized public services. It also serves as a solid foundation for formulating evidence-based digital policies that are more responsive, inclusive, and aligned with the actual needs and capacities of the population.

RESULTS AND DISCUSSION

Table 1 provides an overview of the utilization levels of various digital government services among citizens. It highlights how frequently different services, such as digital identification, online administrative processes, health platforms, and others, are accessed and used by the public. This data serves as an important indicator of the reach and acceptance of government digitalization efforts, reflecting citizens' engagement with these services and their reliance on digital tools for accessing public services. Understanding the patterns of utilization helps identify which services are widely adopted and which may require further improvement or promotion.

Table 1. Utilization of Digital Government Services

Digital Service	Percentage of Usage	Age Group	Urban vs Rural	Education Level
e-ID (e-KTP)	85%	18-35 years	Urban: 90%, Rural: 70%	High School: 75%, University: 95%
e-Health	65%	36-50 years	Urban: 80%, Rural: 50%	High School: 60%, University: 70%
e-Tax	55%	51-65 years	Urban: 70%, Rural: 45%	High School: 50%, University: 60%
e-Learning	45%	18-35 years	Urban: 60%, Rural: 30%	High School: 40%, University: 50%

Source : Data Processed in 2025

The table presents the usage percentages of various digital services across different age groups, urban vs rural locations, and education levels. e-ID (e-KTP) shows the highest usage at 85%, predominantly among the 18-35 age group, with a notable difference between urban (90%) and rural (70%) users. The usage of e-Health is 65%, with higher adoption in urban areas (80%) compared to rural areas (50%), and it is more common among university graduates (70%) compared to those with only a high school education (60%). e-Tax has a 55% usage rate, with urban users (70%) again outpacing rural users (45%), and university graduates (60%) showing higher usage than high school graduates (50%). e-Learning, with a usage rate of 45%, is most common among younger users (18-35 years), particularly in urban areas (60%), but the usage is lower in rural areas (30%) and among high school graduates (40%) compared to university graduates (50%).

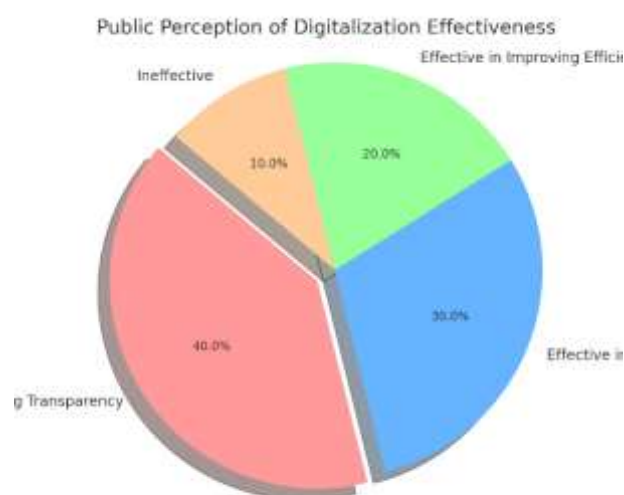


Fig. 1 . Pie Chart: Public Perception of Digitalization Effectiveness

Table 2. Digital Divide and Literacy

Group	Access to Internet (%)	Digital Literacy (%)	Region
Urban Youth (18-35)	95%	90%	Urban
Rural Elderly (65+)	45%	30%	Rural
Women with Disabilities	50%	40%	Mixed (Urban/Rural)

Source : Data Processed in 2025

The table highlights the differences in internet access and digital literacy across various groups. Urban youth (18-35 years) exhibit the highest access to the internet at 95% and a high digital literacy rate of 90%, reflecting their strong engagement with digital technologies in urban areas. In contrast, rural elderly individuals (65+) have significantly lower internet access at 45% and a digital literacy rate of only 30%, indicating a digital divide in rural regions. Women with disabilities, a mixed group from both urban and rural areas, have 50% access to the internet and 40% digital literacy, showing moderate access and digital skills compared to the other groups.

Utilization Level of Government Digital Services

The study results show that the majority of citizens are familiar with and have used government digital services, especially administrative ones such as e-ID cards, e-tax, and online public service applications. The highest utilization rates were found in population administration and taxation services, while services like e-health and e-learning showed variations depending on the region and citizens' education levels. Usage frequency was relatively high among the productive age group and those living in urban areas, whereas rural residents tended to access digital services less frequently. Key factors influencing adoption levels included internet access availability, ease of use of digital platforms, and positive previous experiences in using these services.

Social Impact of Digitalization

Digitalization has transformed the interaction patterns between citizens and the government from face-to-face to faster and more practical online interactions. Citizens

who find it easier to manage documents, report complaints, or seek public information through digital platforms tend to have higher trust in the government. Moreover, digitalization has expanded public participation through social media and online forums, enabling citizens to engage in policy discussions or provide direct feedback. However, some citizens still feel insufficiently involved, especially those unfamiliar with technology or living in areas with limited digital services. Perceptions of fairness and accessibility of services are also influenced by individuals' ability to access and understand available digital systems.

Economic Impact of Digitalization

From an economic perspective, digitalization has provided tangible benefits for some citizens in terms of cost and time efficiency in accessing public services. There is no longer a need to wait in long queues or travel far to manage documents, as many services can now be accessed from home. Additionally, digitalization opens new economic opportunities, especially for small and medium enterprises utilizing digital platforms for promotion and transactions. Remote work and technology-based economic sectors have also grown, although unevenly. Access to social assistance and subsidies based on digital data has become more targeted, but challenges remain regarding data updates and citizen involvement in digital verification processes.

Barriers and Access Gaps

Despite many benefits, technical barriers remain a major issue in the utilization of digital services. Citizens often complain about system failures, unfriendly user interfaces, and a lack of clear guidance during digital administrative processes. In addition, limited internet infrastructure in some regions, especially in frontier, remote, and underdeveloped areas (3T), widens the access gap. Low digital literacy, particularly among the elderly, less-educated populations, and persons with disabilities, hampers optimal use of services. If left unaddressed, this disparity has the potential to deepen social inequality in the digital era.

Citizens' Perceptions and Satisfaction

Citizens' satisfaction levels with government digital services tend to vary depending on the type of service and user experience. Most users appreciate the speed and convenience, but concerns remain regarding personal data security and privacy protection. Transparency in data management and clarity of information protection policies are important concerns. Many citizens also expect improvements in features, easier access for all groups, and ongoing digital literacy training. Some respondents suggest involving citizens directly in the evaluation and development of systems to better align with actual community needs.

Findings Indicate the Need for Inclusive Digital Development

These findings indicate that digital service development needs to be accompanied by inclusive policies grounded in social realities. The government should expand digital infrastructure to underdeveloped areas and provide digital literacy programs targeting all groups, including vulnerable populations. Furthermore, policymakers should not measure digitalization success solely by technical indicators but also consider citizens' experiences and perceptions as end-users. Integrating societal perspectives into policy formulation is expected to ensure that digitalization programs truly reach all segments of society fairly and sustainably.

Relevance of Findings to Government Digitalization Goals

The study shows that public service digitalization has contributed significantly to improving efficiency and accessibility. Most citizens feel ease in accessing services such as e-ID, e-tax, and digital health without having to visit government offices. However, transparency and accountability levels are still perceived as insufficient by some

respondents, particularly regarding procedural clarity, problem reporting, and service response speed. This suggests that although government goals for service digitalization are progressive, implementation at the user level still requires improvements to align with public expectations.

Dynamics of Public Acceptance and Adaptation

Public acceptance of government digital services appears to be increasing, especially among younger generations and urban populations. However, technology adoption is uneven; older adults, rural residents, and those with lower education face greater obstacles. Factors such as limited internet access, digital skills, and perceptions of digital service benefits significantly influence adaptability. Therefore, it is crucial for the government to actively engage communities through training, digital literacy campaigns, and the development of user-friendly services for all groups.

Digitalization's Contribution to Social Justice and Inclusion

Digitalization has the potential to break down service access barriers, especially for previously marginalized groups. However, without inclusive strategies, digitalization may widen disparities. Findings show vulnerable groups such as persons with disabilities and those in frontier, remote, and underdeveloped areas (3T) often face limitations in accessing digital services due to infrastructure gaps and lack of support. In this context, affirmative policies and inclusive digital literacy efforts are essential to ensure digitalization becomes a tool for social equity rather than mere service modernization.

Economic Implications of Digitalization for Local Communities

Government digital services also open new spaces for technology-based economic growth, including the emergence of digital entrepreneurs, online public service platforms, and remote work opportunities. Nonetheless, these economic benefits remain concentrated in urban areas and among higher-educated groups. To create broader impacts, supportive ecosystems involving digital skills training, adequate infrastructure, and incentives for small businesses to adapt are needed. Collaboration between government, private sector, and society is key to strengthening the local digital economy.

Digital Risk and Security Evaluation

Privacy and data security concerns are major issues for citizens using digital services. Fears of personal data breaches and misuse lower public trust. Many citizens lack understanding of how their data are processed, stored, and protected by government systems. This highlights the need to strengthen data protection policies and transparency in digital information management. Additionally, public education on digital ethics and user rights should be integral to digital transformation.

Policy Implications: From Technology to Social Transformation

Government digitalization is not just about technology adoption but must be understood as a comprehensive social transformation effort. The success of digitalization depends heavily on institutional readiness, citizen participation, and policy support for vulnerable groups. This study's findings offer concrete insights into citizens' experiences as end-users of digital services, providing a critical foundation for policy formulation. A participatory and evidence-based approach is key to ensuring effective and sustainable digital programs.

CONCLUSIONS

This study shows that the digitalization of government services has had a significant impact on improving the efficiency, accessibility, and transparency of public services. Despite significant progress, the research findings also reveal disparities in technology adoption, especially among the elderly, rural communities, and those with limited digital literacy. The success of digitalization is not only measured by technology itself but also

by the extent to which digital policies can create social and economic inclusion across all layers of society. Therefore, it is important for the government to pay attention to sustainability, equitable access, and digital literacy as part of digitalization policies. Additionally, personal data protection and digital security must be a top priority to build public trust in the existing digital systems. Based on these findings, digitalization policies need to be directed toward reducing access gaps and ensuring fair economic and social benefits for all parties.

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