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Digital System Adaptation and Its Potential Impact on Public Service Delivery in the Department of Agrarian Reform Masbate

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Abstract

This study examined the adaptation of digital systems in the Department of Agrarian Reform (DAR) Masbate and assessed their potential impact on public service delivery. Anchored on the Technology Acceptance Model (Davis, 1989), Diffusion of Innovations Theory (Rogers, 1962), and New Public Management (Hood, 1991), the study explored how digital adoption influences accessibility, efficiency, transparency, and responsiveness in government services. A descriptive-quantitative research design was employed using a structured questionnaire administered to 40 DAR employees selected through convenience sampling. Data were analyzed using frequency, percentage, weighted mean, and Pearson correlation. Findings revealed that respondents were predominantly young, female, single, and technically oriented with high digital literacy. Digital system adaptation was perceived as highly effective across all service delivery dimensions, particularly in reducing physical visits, improving information accessibility, streamlining processes, enhancing transparency through standardized documentation, and facilitating responsive stakeholder interaction. However, significant challenges were identified, including limited internet connectivity, gaps in digital literacy, outdated infrastructure, high implementation costs, and insufficient technical support. A weak but statistically significant relationship ($r = 0.32$) was found between respondents' demographic profile and their perceived impact of digital systems, indicating that individual characteristics slightly influence perceptions of effectiveness. The study concludes that digital systems positively contribute to public service delivery but require strengthened infrastructure, training, policy clarity, and technical support for sustainable implementation. The findings support Sustainable Development Goal (SDG) 16 (Peace, Justice, and Strong Institutions) by promoting transparency, accountability, and efficient public service delivery, and SDG 9 (Industry, Innovation, and Infrastructure) through the adoption of digital technologies in governance. The study contributes to sustainability by strengthening institutional capacity, improving governance practices, and enhancing equitable access to public services, particularly in rural communities.

Keywords: Accessibility, Digital Literacy, Digital System Adaptation, Efficiency, Public Service Delivery, Responsiveness, Transparency

1. Introduction

Government programs aim to improve accessibility, efficiency, and equitable distribution of resources, particularly for vulnerable groups such as agrarian reform beneficiaries. The DAR has introduced initiatives such as administrative reforms, outreach programs, and digital systems to enhance service delivery and ensure timely access to entitlements. Despite these efforts, challenges persist, including bureaucratic inefficiencies, limited access in remote areas, low beneficiary awareness, and resource constraints. These issues complicate service delivery, especially in geographically diverse regions where agrarian reform beneficiaries are often located. Digital transformation has been identified as a solution to these challenges. Djatmiko et al. (2025) emphasized that e-government systems can reduce inequality in service access by minimizing travel barriers and bureaucratic discretion, although digital literacy support is necessary. Similarly, De Castro & De Castro (2022) found that ICT adoption improves accessibility and reduces transaction time in local governments but is hindered by limited internet coverage and resistance to technological change. Villaseñor (2024) further noted that digital platforms enhance citizen engagement, transparency, and satisfaction in public service delivery.

The literature consistently highlights digital transformation as a driver of improved public service delivery. Studies show that digital governance enhances efficiency, reduces administrative costs, and accelerates service processes (Tano, 2024; Espiritu et al., 2024; OECD, 2022). It also strengthens transparency and accountability by enabling traceable and accessible government processes (Setyarto et al., 2025; Dias et al., 2022). Citizen satisfaction and trust are also positively influenced by digital services, as they improve accessibility, responsiveness, and interaction with government institutions (Wang & Ma, 2022). However, these benefits depend on factors such as infrastructure, digital competence, and policy alignment (Yumen, 2025; Andaya et al., 2025). Local studies in the Philippines confirm similar findings. Digital initiatives improve service efficiency, accessibility, and citizen engagement (Villaseñor, 2024), but challenges such as infrastructure gaps,

digital literacy limitations, and policy fragmentation persist (Andaya et al., 2025). Overall, digital governance enhances service delivery, transparency, and participation, but requires inclusive strategies, capacity building, and institutional readiness to ensure equitable outcomes.

Globally, digital transformation has reshaped public administration by improving efficiency, accountability, and citizen engagement across diverse regions (Fischer et al., 2021; Haug et al., 2024). Countries implementing strong digital infrastructure and governance frameworks achieve better service outcomes and higher citizen satisfaction (Haryati & Ismail, 2025). Nationally, the Philippines has adopted e-governance initiatives to modernize public services. While progress has been made, the country still faces challenges related to digital skills, infrastructure, and coordination across government levels (OECD, 2025). Locally, in provinces such as Masbate, digital system adaptation is influenced by geographic dispersion, varying internet connectivity, and resource limitations. These contextual factors affect how digital initiatives are implemented and experienced by both personnel and beneficiaries.

This study is grounded in three key theories. The Technology Acceptance Model (Davis, 1989) explains that system adoption depends on perceived usefulness and ease of use, influencing employees' willingness to utilize digital platforms. Diffusion of Innovations Theory (Rogers, 1962) highlights how innovations spread within organizations based on perceived advantages, compatibility, and complexity. New Public Management (Hood, 1991) emphasizes efficiency, accountability, and customer-oriented service in the public sector. Together, these theories provide a framework for understanding how digital systems are adopted, integrated, and utilized to improve public service delivery, particularly in terms of efficiency, transparency, and responsiveness.

While existing studies emphasize the benefits of digital governance, there is limited research focusing on provincial-level implementation and the lived experiences of public servants and beneficiaries. Many studies concentrate on national programs or urban settings, overlooking local operational realities. In Masbate, digital system adaptation occurs within a context of dispersed communities, varying connectivity, and field-based service delivery. The impact of digital systems on service quality, accessibility, and responsiveness at this level remains insufficiently explored. This study addresses this gap by examining how DAR personnel perceive digital system adaptation and its implications for public service delivery, providing context-specific insights for improving digital governance strategies.

This study aligns with several Sustainable Development Goals (SDGs).
SDG 9 – Industry, Innovation and Infrastructure: Digital system adoption promotes innovation and strengthens institutional infrastructure for efficient service delivery.
SDG 16 – Peace, Justice, and Strong Institutions: Enhancing transparency, accountability, and responsiveness supports effective and inclusive governance.
SDG 8 – Decent Work and Economic Growth: Improved service delivery contributes to efficient public administration and supports economic activities in agrarian communities.
These alignments reflect the role of digital governance in fostering inclusive, efficient, and accountable public institutions.

This study contributes to multiple dimensions of sustainability.
Technological sustainability: It examines how digital systems improve service delivery and institutional efficiency.
Socio-economic sustainability: Improved access to agrarian services supports rural development and beneficiary empowerment. Governance sustainability: Strengthening transparency and accountability enhances trust in public institutions. Community sustainability: Better service delivery promotes equitable access and responsiveness to stakeholder needs. By integrating digital innovation with governance practices, the study supports sustainable public service systems that are inclusive, efficient, and responsive to community needs.

2. Material and methods

2.1 Research Design

The study utilized a descriptive-quantitative research design to systematically assess the adaptation of digital systems and their perceived impact on public service delivery in DAR Masbate. Quantitative methods were applied through structured questionnaires to collect measurable data from respondents. Statistical analysis was conducted to determine the level of impact of digital systems in terms of accessibility, efficiency and timeliness, transparency and accountability, and responsiveness to stakeholders' needs. The design also enabled the identification of challenges and the examination of relationships between respondents' demographic profiles and their perceptions.

2.2 Locale of the Study

The study was conducted at the Department of Agrarian Reform – Masbate Provincial Office located at Acacia Road, Barangay Nursery, Masbate City, Masbate. This office serves as the primary implementing unit of agrarian reform programs in the province, overseeing land distribution, agrarian justice delivery, and support services under the

Comprehensive Agrarian Reform Program (CARP). It caters to beneficiaries across twenty municipalities and one city, including both island and mainland communities. Its role in coordinating agrarian reform initiatives and directly engaging with beneficiaries makes it an appropriate setting for evaluating digital system adaptation and public service delivery outcomes.

2.3 Respondents of the Study

The respondents of the study were employees of the Department of Agrarian Reform Masbate, including both regular and contractual personnel occupying various positions within the agency. They were selected regardless of age, sex, educational attainment, designation, years of government service, and digital literacy level, provided that they were actively engaged in office operations during the conduct of the study. Their participation was essential in providing relevant insights into digital system adaptation and its perceived effects on service delivery.

2.4 Sample and Sampling Procedure

The study employed convenience sampling, a non-probability sampling technique in which respondents were selected based on their availability and willingness to participate. This method was chosen due to the accessibility of respondents within the DAR Masbate office and the practical constraints of time. A total of forty employees participated in the study, representing the accessible population within the agency.

2.5 Research Instrument

The primary instrument used in the study was a structured questionnaire designed to collect data on respondents' demographic profiles and their perceptions of digital system adaptation in public service delivery. The instrument covered variables such as accessibility of services, efficiency and timeliness of processes, transparency and accountability, responsiveness to stakeholders' needs, and challenges in digital system implementation. The questionnaire utilized Likert-scale items to quantify perceptions and ensure consistency in responses. To establish validity, the instrument was reviewed by experts to ensure clarity, relevance, and appropriateness. Reliability was tested through a pilot study involving individuals similar to the target respondents, and statistical measures such as Cronbach's alpha were used to confirm internal consistency. These procedures ensured that the instrument generated accurate and dependable data.

2.6 Data Gathering Procedure

Upon approval of the research proposal, the researcher secured permission to conduct the study from the appropriate authorities in the Department of Agrarian Reform. The questionnaire was prepared, validated, revised, and finalized prior to distribution. Copies of the instrument were then administered to the respondents, and their participation was voluntary. The completed questionnaires were collected after distribution, although delays occurred due to administrative activities and other constraints. The collected data were organized, tallied, and prepared for statistical analysis. The results were subsequently analyzed, interpreted, and used as the basis for discussion and conclusions.

2.7 Data Analysis Techniques

The study employed statistical tools to analyze the collected data. Frequency count and percentage were used to describe the demographic profile of respondents. The weighted mean was applied to determine the level of perceived impact of digital system adaptation on public service delivery across key dimensions. To examine the relationship between respondents' demographic characteristics and their perceived impact of digital systems, Pearson correlation was utilized. This statistical method allowed the researcher to determine the strength and significance of relationships between variables, providing insights into how demographic factors may influence perceptions of digital system effectiveness.

2.8 Ethical Considerations

The study adhered to ethical research standards throughout the data collection process. Permission to conduct the research was obtained from the appropriate authorities, and respondents were informed of the purpose of the study. Participation was voluntary, and all responses were treated with confidentiality. The data collected were used solely for academic purposes to ensure the integrity and ethical conduct of the research.

3. Results and Discussion

3.1 Profile of the Respondents

3.1.1 Age Distribution

The results showed that the majority of respondents were aged 26–30 years, followed by those aged 31–35 years, with smaller proportions in other age groups and none in the youngest and oldest categories. This indicates a predominantly young workforce. This finding suggests that the agency is composed mainly of young professionals who are likely adaptable to digital innovations. Younger employees are generally more receptive to technological changes, which may facilitate smoother adoption of digital systems in government operations.

3.1.2 Sex Distribution

The results revealed that most respondents were female, significantly outnumbering male employees. This indicates a female-dominated workforce within the agency, reflecting possible gender trends in public sector employment. Such composition may influence organizational dynamics but does not inherently affect digital system adoption.

3.1.3 Civil Status

The findings showed that most respondents were single, while a smaller portion were married, with none classified as widowers. This suggests a workforce with potentially fewer family-related responsibilities, which may allow greater flexibility in adapting to organizational changes such as digital transformation.

3.1.4 Position

The majority of respondents held the position of Agrarian Reform Program Technologist, followed by other technical and administrative roles. This indicates that the workforce is largely composed of technical personnel directly involved in program implementation. Their roles may require frequent interaction with digital systems, making their perceptions relevant in assessing system effectiveness.

3.1.5 Years of Service

The results showed that most respondents had less than ten years of service, with the majority falling within the 0–5 year category. This suggests a relatively new workforce that may be more open to adopting modern systems but may still require further training and experience to maximize system utilization.

3.1.6 Digital Literacy Level

The findings indicated that most respondents had high digital literacy, with some demonstrating moderate to very high levels, and none classified as low. This implies that employees are generally capable of using digital tools effectively, which supports successful implementation of digital systems in service delivery.

3.2 Perceived Impact of Digital System Adaptation

3.2.1 Accessibility of Services

The results showed that respondents strongly agreed that digital systems improved accessibility, particularly by reducing the need for physical visits, enabling anytime access, and minimizing location-related barriers. The overall perception reflected high effectiveness in improving service accessibility. These findings indicate that digital systems enhance convenience and broaden service reach. This aligns with Tano (2024), who found that digital platforms improve service accessibility and efficiency by modernizing administrative processes. However, slightly lower ratings on remote access and timely updates suggest the need for further improvements in communication and infrastructure support.

3.2.2 Efficiency and Timeliness of Processes

The results revealed strong agreement that digital systems improved efficiency and timeliness, particularly through faster information retrieval, reduced processing time, minimized paperwork, and streamlined workflows. These findings suggest that digital systems significantly enhance operational performance by automating processes and reducing delays. This supports United Nations (2022),which emphasized the role of digital technologies in improving efficiency, and Andaya (2025), who highlighted the importance of ICT frameworks in strengthening public service delivery. However, lower ratings related to error reduction indicate the need for further system refinement.

3.2.3 Transparency and Accountability

The results indicated strong agreement that digital systems promote transparency and accountability, particularly through standardized procedures, improved monitoring, and traceable records. This suggests that digital systems enhance governance by providing clear documentation and accountability mechanisms. These findings are consistent with Bertot et al. (2010) who noted that digital platforms strengthen transparency, as well as Dias et al. (2022), who highlighted improvements in accountability through digital systems. However, the lower rating on reducing manipulation suggests that additional safeguards may still be necessary.

3.2.4 Responsiveness to Stakeholders' Needs

The findings showed strong agreement that digital systems improve responsiveness, particularly by enabling easy submission of requests, facilitating communication, and providing timely updates. This indicates that digital platforms enhance interaction and service responsiveness. The findings align with Tolbert & Mossberger (2006), who emphasized that technology strengthens public trust when services are responsive to citizen needs. However, the relatively lower rating on prioritizing urgent requests suggests the need for improved system features to address critical cases more effectively.

3.3 Challenges and Limitations in Digital System Implementation

The results showed that respondents strongly agreed on the presence of significant challenges, particularly limited internet connectivity, insufficient digital literacy, outdated systems, unclear policies, and high implementation costs. These findings indicate that despite the benefits of digital transformation, structural and technical barriers persist. This is consistent with United Nations (2022) identified digital gaps as a major limitation who highlighted accessibility issues affecting service equity. Addressing these challenges is essential to ensure effective and inclusive digital system implementation.

3.4 Relationship Between Demographic Profile and Perceived Impact

The results revealed a weak positive but statistically significant relationship between respondents' demographic profile and their perceived impact of digital system adaptation on public service delivery. This suggests that demographic factors such as age, position, and experience may influence perceptions, although the effect is limited. While the relationship is not strong, its significance indicates that individual characteristics still play a role in shaping attitudes toward digital systems, highlighting the importance of considering user diversity in implementation strategies.

4. Conclusion & Recommendations

The study concludes that the Department of Agrarian Reform (DAR) Masbate workforce is predominantly young, female, single, technically oriented, and digitally literate, indicating readiness for digital transformation. The findings show that digital system adaptation is perceived as highly effective in improving accessibility, efficiency, transparency, and responsiveness in public service delivery, particularly in reducing physical visits, accelerating information retrieval, standardizing processes, and facilitating stakeholder interaction. However, despite these positive impacts, significant challenges persist, including limited internet connectivity, gaps in digital literacy, outdated infrastructure, and resource constraints. Furthermore, a weak but statistically significant relationship exists between respondents' demographic profile and their perceptions, suggesting that individual characteristics slightly influence how digital system effectiveness is viewed. Overall, digital system adaptation contributes positively to service delivery but requires strengthened support systems to maximize its full potential.

Based on the findings, it is recommended that the Department of Agrarian Reform strengthen its digital transformation efforts by improving internet connectivity across offices, as this remains the most critical limitation. Continuous digital skills training should be provided to both employees and stakeholders to enhance system utilization and reduce literacy gaps. The establishment of dedicated technical support within the office is necessary to ensure proper system maintenance, troubleshooting, and updates. Additionally, clear policies and guidelines on digital system use should be effectively communicated and implemented to support consistency and compliance. Further studies involving a wider sample and additional locations are also recommended to validate and expand the findings of this research.

Compliance with ethical standards

The authors declare no conflict of interest. This study complied with recognized ethical standards for human-participant research by ensuring voluntary participation with informed consent, the right to withdraw without penalty, and strict confidentiality through anonymous, secure, and aggregated data handling. Given the focus on psychological well-being, procedures were non-invasive, and safeguards were observed to minimize discomfort, with guidance to appropriate support services when needed, and required institutional permissions were secured for instrument use and access to academic records.

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