

Digital Transformation Implementation in Provincial Veterinary Office Services: Challenges, Opportunities, and its Impact on Service Delivery in Masbate Province

Christine Mae A. Columna

Livestock Inspector II- PLGU-Masbate-Provincial, Veterinary Office, Masbate, Philippines

Email of Corresponding Author: christinemae.cmc@gmail.com

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Abstract

This study evaluated the digital transformation of Provincial Veterinary Office (PVO) services in Masbate Province, focusing on its implementation, challenges, opportunities, perceived impact on service delivery, and strategic interventions. Employing a descriptive-survey research design, data were gathered using a researcher-made questionnaire administered to 47 respondents, including PVO personnel, LGU employees, and livestock raisers or farmers, and analyzed through frequency, percentage, and weighted mean. Findings indicated strong implementation across online service delivery systems, digital record management, communication technologies, and data collection systems. Despite these achievements, challenges persist regarding technological infrastructure, digital literacy, budget constraints, and technical support. However, respondents strongly acknowledged opportunities to enhance service speed, accessibility, transparency, and modern technology integration, noting positive impacts on overall service delivery efficiency, record accuracy, and client satisfaction. To sustain these improvements, respondents strongly supported strategic interventions, particularly continuous employee training, upgraded ICT infrastructure, and the adoption of integrated digital systems.

Keywords: Digital Transformation, Provincial Veterinary Office, Service Delivery, Veterinary Services, Masbate Province

1. Introduction

Digital transformation in public administration extends beyond simple computerization to fundamentally reform organizational processes, information management, communication, and service delivery, creating more efficient, accessible, transparent, and responsive user-driven public services. Internationally, organizations like the OECD (2021), World Bank (2022), and UN DESA (2022) emphasize that effective digital government requires strategic governance, reliable infrastructure, digital skills, and institutional capacity alongside technology adoption. In the Philippines, this movement aligns with national mandates such as Republic Act No. 11032 (Ease of Doing Business Act of 2018) and Republic Act No. 7160 (Local Government Code of 1991), driving local government units to streamline operations despite widespread challenges regarding budget limitations, internet connectivity, technical skills, and user adoption (De Leon, 2023; Espiritu et al., 2023). In specialized local sectors such as veterinary and livestock services, digital technologies enhance disease surveillance, field monitoring, reporting, and record management, though success hinges on organizational readiness and stakeholder digital literacy (El Idrissi et al., 2021; Fuentes et al., 2022; Villaseñor, 2024). To address these dynamics, this study evaluates the

implementation, challenges, opportunities, and service delivery impacts of digital transformation within the Provincial Veterinary Office of Masbate Province, aiming to inform targeted strategic interventions.

2. Material and methods

2.1 Research Design

This study employed a descriptive research design, specifically a descriptive-survey research approach, to determine the extent of digital transformation in the services of the Provincial Veterinary Office (PVO) in Masbate Province and to assess the challenges, opportunities, and service delivery implications of digital transformation. The descriptive research design was appropriate because the study focused on describing the existing conditions, practices, experiences, and perceptions of the respondents without manipulating the variables under investigation. Descriptive research is intended to provide a systematic description of a population, situation, or phenomenon as it naturally occurs (McCombes, 2022). Similarly, Miksza et al. (2023) explained that descriptive research designs are appropriate for answering questions concerning what exists or what is occurring and commonly employ surveys or observational methods to gather information. The study gathered data through a structured questionnaire administered to the respondents. The questionnaire covered the respondents' demographic profile in terms of age, sex, position/occupation, and length of service or years of engagement with PVO services. It also measured the extent of digital transformation implementation in terms of online service delivery systems, digital record management, communication technologies, and data collection and monitoring systems. These areas correspond to the dimensions examined in the study. Furthermore, the study examined the challenges encountered in implementing digital transformation, particularly in terms of technological infrastructure and connectivity, digital literacy of employees and clients, budget and resource constraints, and system usability and technical support. It also assessed the opportunities for improving digital transformation through service efficiency and speed, transparency and accountability, accessibility of services, and integration of modern technologies. The study likewise determined the perceived impact of digital transformation on PVO service delivery in terms of service efficiency and speed, accessibility of services, accuracy and management of records, and client satisfaction. The results served as the basis for identifying strategic interventions and recommendations intended to strengthen digital transformation initiatives and improve the delivery of Provincial Veterinary Office services in Masbate Province. The data gathered were analyzed using appropriate descriptive statistical tools, particularly frequency and percentage for the demographic profile and weighted mean for the assessment of digital transformation implementation, challenges, opportunities, perceived impact, and proposed strategic interventions. This approach is consistent with the descriptive nature of the study, in which survey data may be summarized using frequencies, averages, and other descriptive measures (McCombes, 2022).

2.2 Locale of the Study

The study will be conducted in the Province of Masbate, particularly at the Provincial Veterinary Office (PVO). Masbate is one of the six provinces comprising the Bicol Region in the Philippines. Based on the 2024 Census of Population (2024 POPCEN), the Province of Masbate has a total population of 910,813 as of July 1, 2024. Administratively, the province consists of 20 municipalities and one city, Masbate City, with a total of 550 barangays (Philippine Statistics Authority [PSA], 2024). Masbate City, the provincial capital, is the only city in the province and recorded a population of 104,011 based on the 2024 POPCEN. As the provincial capital, it serves as an important administrative and service center where various provincial government offices operate. The location of the Provincial Veterinary Office within this provincial government setting makes it an appropriate locale for examining the use of digital technologies in the delivery and management of veterinary-related public services. Masbate has communities engaged in agriculture and livestock-related activities, making veterinary services an important component of local government service delivery. The Provincial Veterinary Office provides veterinary and livestock-related services to stakeholders such as livestock raisers, farmers, local government personnel, and other beneficiaries. The delivery of these services involves communication, record management, data collection, monitoring, coordination, and other administrative activities that may benefit from the appropriate use of digital technologies. The Provincial Veterinary Office was selected as the specific locale of the study because it provides a relevant local government setting for examining digital transformation in public veterinary services. The study focuses on digital transformation in terms of online service delivery systems, digital record management, communication technologies, and data collection and monitoring systems. It also examines the challenges encountered, opportunities presented, perceived impact on service delivery, and strategic interventions that may strengthen the office's digital transformation efforts. The respondents of the study will include Provincial Veterinary Office employees, local government unit employees, and livestock raisers or farmers who have direct experience or engagement with Provincial Veterinary Office services. Their experiences and perspectives will provide relevant information regarding the implementation of digital technologies, the challenges associated with their use, the opportunities they provide, and their perceived contribution to the delivery of veterinary services. The selection of the Province of Masbate, particularly the Provincial Veterinary Office, as the locale of the study is therefore appropriate because it provides a specific provincial government context in which digital transformation can be examined in relation to public service delivery. The findings of the study may provide

useful information for understanding the existing digital practices of the office and may serve as a basis for identifying appropriate strategies to improve the efficiency, accessibility, accuracy, and responsiveness of Provincial Veterinary Office services.

2.3 Respondents of the Study

The respondents of the study were the 47 individuals involved in or directly engaged with the services of the Provincial Veterinary Office (PVO) in Masbate Province. They included 13 PVO employees, 15 LGU employees, and 19 livestock raisers or farmers. These respondents were considered appropriate because they have direct experience with, or involvement in, the delivery, administration, utilization, or implementation of Provincial Veterinary Office services. The respondents were also described according to their age, sex, position or occupation, and length of service or years of engagement with PVO services. These characteristics were included to provide a clear description of the participants and to contextualize their perceptions regarding digital transformation, the challenges encountered, the opportunities presented, and its perceived impact on PVO service delivery.

2.4 Sample and Sampling Procedure

The study employed total enumeration sampling, also referred to as census sampling or complete enumeration, wherein all members of the identified population were included as respondents. According to the Australian Bureau of Statistics (2023), a census involves studying every unit, person, or element in a population and is therefore considered a complete enumeration. This sampling approach was appropriate for the present study because the identified population was relatively small and manageable, consisting of 47 individuals directly involved in or engaged with the services of the Provincial Veterinary Office in Masbate Province. Thus, rather than selecting only a portion of the population, the researcher included all qualified members of the identified population to obtain a comprehensive representation of their perspectives. Thus, the study had a total of 47 respondents, comprising PVO employees, LGU employees, and livestock raisers or farmers. The use of total enumeration ensured that the views of all identified members of the study population were represented in assessing the extent of digital transformation, challenges, opportunities, perceived impact on service delivery, and proposed strategic interventions. A total of forty-seven (47) survey questionnaires were distributed to the selected respondents, and all were successfully retrieved, resulting in a 100% retrieval rate. The responses obtained provided sufficient and reliable data for statistical analysis, enabling the researcher to describe the respondents' perceptions regarding digital transformation in Provincial Veterinary Office services and assess its implementation, challenges, opportunities, and perceived impact on service delivery in Masbate Province.

2.5 Research Instrument

The study utilized a researcher-made structured survey questionnaire as the primary instrument for gathering the necessary data. The questionnaire was developed based on the objectives and specific areas of the study concerning digital transformation in Provincial Veterinary Office services, challenges, opportunities, and service delivery in Masbate Province. It was designed to obtain quantitative data from the 47 respondents regarding their experiences, perceptions, and assessment of the existing digital transformation initiatives of the Provincial Veterinary Office. The questionnaire consisted of six parts. Part I gathered the demographic profile of the respondents in terms of age, sex, position or occupation, and length of service or years of engagement with PVO services. These variables were used to describe the characteristics of the respondents. Part II assessed the extent of digital transformation implementation in the Provincial Veterinary Office in terms of online service delivery systems, digital record management, communication technologies, and data collection and monitoring systems. These dimensions reflected the areas of digital transformation examined in the study. Part III determined the challenges encountered in the implementation of digital transformation, particularly in terms of technological infrastructure and connectivity, digital literacy of employees and clients, budget and resource constraints, and system usability and technical support. Part IV assessed the opportunities presented by digital transformation, including service efficiency and speed, transparency and accountability, accessibility of services, and integration of modern technologies. Part V determined the perceived impact of digital transformation on PVO service delivery in terms of service efficiency and speed, accessibility of services, accuracy and management of records, and client satisfaction. Part VI focused on the strategic interventions or recommendations that may be undertaken to enhance digital transformation in Provincial Veterinary Office services. The indicators covered areas such as ICT infrastructure, employee training, budget allocation, internet connectivity, integrated digital systems, system maintenance, technical support, modern technologies, ICT collaboration, and centralized database systems. The questionnaire used a four-point Likert scale to measure the respondents' level of agreement with the statements presented in Parts II to VI. The responses were assigned corresponding numerical values and verbal interpretations. The gathered data were subsequently summarized and analyzed using frequency, percentage, and weighted mean, consistent with the descriptive nature of the study.

2.6 Data Gathering Procedure

Following expert content validation and necessary revisions, official permission was secured to administer the researcher-made questionnaire. The researcher personally distributed the instruments to all 47 target respondents (PVO personnel, LGU employees, and livestock farmers) along with instructions regarding the study's purpose and completion guidelines. All 47 questionnaires were successfully collected (100% retrieval rate), checked for completeness, organized, and tabulated. The gathered data were then statistically processed using frequency and percentage for demographic profiles and weighted mean for Likert-scale evaluations, with scores translated into corresponding verbal interpretations to examine implementation, challenges, opportunities, impact, and proposed strategic interventions.

2.7 Data Analysis Techniques

The gathered data were organized, tabulated, and analyzed using descriptive statistical measures. Frequency count and percentage were used to summarize the demographic profile of respondents, including age, sex, occupation, and length of service. Weighted mean was employed to assess Likert-scale responses regarding digital transformation implementation, challenges, opportunities, perceived impacts, and strategic interventions, with resulting mean scores mapped to corresponding verbal interpretations. Inferential statistical tests were not applied, as the study focused strictly on describing existing conditions and stakeholder assessments.

2.8 Ethical Considerations

Ethical protocols were strictly observed throughout the study to protect participants and uphold academic integrity. Formal written permission was secured from the Provincial Veterinarian prior to administration, and participation remained voluntary, with respondents explicitly informed of the study's purpose and their right to withdraw at any time without penalty. Participant identities were protected by making name disclosures optional on the survey questionnaire, and all gathered responses were treated with strict confidentiality and processed as aggregated data for academic research purposes. Furthermore, because the researcher serves as a Livestock Inspector II at the Provincial Veterinary Office of Masbate, objectivity was maintained by utilizing an expert-validated research instrument and adhering to unbiased data collection and statistical interpretation procedures to prevent personal or occupational influence.

3. Results and Discussion

3.1 Demographic Profile of the Respondents

Regarding the demographic profile, the largest group of respondents was aged 18 to 25 years old (17 or 36.17%), followed by those aged 26 to 35 years old (13 or 27.66%), indicating a predominantly younger participant base, while the smallest group comprised individuals aged 46 to 55 years old (4 or 8.51%). In terms of sex, males made up the majority with 31 or 65.96% of the total, while females accounted for 16 or 34.04%. Based on position or occupation, livestock raisers or farmers formed the largest sector (19 or 40.43%), followed by LGU employees (15 or 31.91%) and PVO employees (13 or 27.66%), with no respondents classified separately as clients or beneficiaries. Finally, regarding length of engagement with PVO services, most participants had 1 to 3 years of involvement (17 or 36.17%), followed by those with less than one year (12 or 25.53%), whereas only a single respondent (2.13%) reported 7 to 10 years of service.

3.2 Extent of Digital Transformation Implementation in the Provincial Veterinary Office

The evaluation of digital transformation implementation in the Provincial Veterinary Office revealed strong adoption across all assessed dimensions. The use of communication technologies earned the highest composite mean of 3.65 (Strongly Agree), highlighted by the extensive reliance on email for official stakeholder correspondence, which received a weighted mean of 3.85. Data collection and monitoring systems achieved a composite mean of 3.57 (Strongly Agree), led by information monitoring through technological tools at a weighted mean of 3.72. Digital record management recorded a composite mean of 3.54 (Strongly Agree), with respondents rating computerized data retrieval highest at a weighted mean of 3.68. Finally, online service delivery systems obtained a composite mean of 3.46 (Strongly Agree), driven by the wide accessibility of veterinary services via digital platforms at a weighted mean of 3.55.

3.3 Identified Opportunities for Improvement in Enhancing Digital Transformation in PVO Services

Respondents strongly recognized significant opportunities for improvement across all assessed areas of digital transformation. The integration of modern technologies achieved the highest composite mean of 3.57 (Strongly Agree), driven by the belief that advanced digital systems can enhance office operations, which earned a weighted mean of 3.64. Transparency and accountability recorded a composite mean of 3.56 (Strongly Agree), led by improved monitoring of transactions through technology at a weighted mean of 3.66. Service efficiency and speed obtained a composite mean of 3.52 (Strongly Agree), with faster request processing and reduced waiting times both receiving the highest weighted mean of 3.62. Finally, accessibility of services scored a composite mean of 3.47 (Strongly Agree), highlighted by online systems improving service access and digital tools offering greater client convenience, both at a weighted mean of 3.53.

3.4 Impact of Digital Transformation on PVO Service Delivery

Regarding the impact of digital transformation on Provincial Veterinary Office service delivery, respondents reported strong positive outcomes across all evaluated indicators. Client satisfaction achieved the highest composite mean of 3.58 (Strongly Agree), led by client appreciation for faster transaction processing, which scored a weighted mean of 3.64. Accuracy and management of records recorded a composite mean of 3.51 (Strongly Agree), with improved record accuracy receiving the highest weighted mean of 3.64. Accessibility of services obtained a composite mean of 3.49 (Strongly Agree), driven by greater convenience offered through online systems at a weighted mean of 3.57. Finally, service efficiency and speed received a composite mean of 3.48 (Strongly Agree), highlighted by improved work processes through technology at a weighted mean of 3.55.

3.5 Recommendations or Strategic Interventions Proposed to Enhance the Digital Transformation of Provincial Veterinary Office Services in Masbate Province

The findings showed strong support for the proposed interventions. The highest-rated intervention was the adoption of modern technologies to improve service efficiency, with a weighted mean of 3.55, followed by continuous training programs for employees at 3.51. The lowest-rated item was the need for additional budget allocation for digital transformation, with a weighted mean of 3.15, although it was still interpreted as Agree. Overall, the respondents strongly supported measures involving ICT infrastructure, employee training, improved connectivity, integrated digital systems, technical support, modern technologies, ICT collaboration, and a centralized database system.

4. Conclusion & Recommendations

Based on the findings of the study, several conclusions were deduced regarding the digital transformation of Provincial Veterinary Office (PVO) services in Masbate Province. First, the demographic composition reflects adequate representation from both service providers and primary beneficiaries, consisting of PVO employees, LGU personnel, and livestock raisers or farmers who were predominantly male, aged 18 to 35 years old, and engaged with PVO services for 1 to 3 years. Second, digital transformation is strongly implemented across online service delivery systems, digital record management, communication technologies, and data collection and monitoring systems, demonstrating active integration into routine office operations and information retrieval. Third, despite this progress, operational challenges persist, particularly concerning technological infrastructure, digital literacy, budget constraints, and technical support, with financial and resource limitations standing out as the most critical barrier. Fourth, respondents strongly acknowledged opportunities to enhance service speed, transparency, accessibility, and modern technology integration, indicating strong potential for further digital expansion. Fifth, digital transformation was perceived to deliver a substantial positive impact on PVO service delivery by improving operational efficiency, service accessibility, record accuracy, and beneficiary satisfaction. Finally, respondents strongly endorsed the proposed strategic interventions, placing the highest priority on adopting modern technologies and conducting continuous employee training, while viewing additional budget allocation as necessary but secondary to technological and human resource capacity building.

Furthermore, several strategic recommendations are proposed to enhance digital transformation in the Provincial Veterinary Office (PVO) of Masbate Province. First, the PVO should consider the diverse backgrounds and engagement levels of its stakeholders, including employees, LGU personnel, and livestock raisers, by designing inclusive digital platforms and orientation programs tailored for both new and experienced users. Second, existing digital transformation initiatives in online service procedures, digital record management, communication technologies, and data monitoring systems must be sustained and strengthened for consistent operational use. Third, the office should prioritize addressing key challenges such as budget constraints, connectivity, infrastructure, digital literacy, and system usability by providing continuous training, reliable ICT facilities, technical support, and proper resource allocation. Fourth, the PVO must maximize identified opportunities to enhance service speed, transparency, accessibility, and modern technology integration, thereby reducing processing times and expanding service reach. Fifth, the continuous use of digital technologies should be sustained and monitored to evaluate their ongoing impact on service efficiency, record accuracy, and client satisfaction. Finally, the PVO should prioritize implementing strongly supported strategic interventions, particularly adopting modern technologies and employee training programs, backed by upgraded ICT infrastructure, reliable internet, integrated systems, technical assistance, ICT expert collaboration, and a centralized database system to ensure long-term sustainability.

5. Compliance with ethical standards

Ethical protocols were strictly observed throughout the study to protect participants and uphold academic integrity. Formal written permission was secured from the Provincial Veterinarian prior to questionnaire administration, and participation remained entirely voluntary, with respondents explicitly informed of the study's

purpose and their right to withdraw at any time without penalty. Participant identities were protected by making name disclosures optional on the survey instrument, and all gathered responses were treated with strict confidentiality and processed strictly as aggregated data for academic research purposes. Furthermore, because the researcher serves as a Livestock Inspector II at the Provincial Veterinary Office of Masbate, objectivity was maintained by utilizing an expert-validated research instrument and adhering to unbiased data collection and statistical interpretation procedures to prevent personal or occupational influence.

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