Digital Competence of Barangay Information Officers in Managing Facebook Pages In A City In Laguna, Philippines: Basis For a Proposed Training Design

Abstract

The increasing reliance on social media for grassroots governance underscores the need for digitally competent public information personnel. This study assessed the digital competence of Barangay Information Officers (BIOs) in San Pablo City, Laguna, Philippines, as a basis for developing a targeted training design to strengthen information dissemination through official Facebook pages. Specifically, the study examined the BIOs' demographic profile, level of digital competence across five domains—information and data literacy, communication and collaboration, digital content creation, safety, and problem-solving—and the challenges encountered in managing online information. A quantitative descriptive research design was employed, involving all 80 BIOs in the city through total enumeration sampling. Data were collected using a researcher-developed questionnaire that underwent face and content validation, pilot testing, and reliability analysis. Descriptive and inferential statistics were used for data analysis. Results revealed that BIOs demonstrated an overall high level of digital competence (M = 3.64), indicating that they are generally capable of managing Facebook pages for public communication. Respondents exhibited the strongest competence in information verification and accuracy (M = 3.93), while digital content creation, particularly the application of visual design principles, emerged as a relative area for improvement (M = 3.44). Major challenges identified included inconsistent internet connectivity, difficulties in managing and growing Facebook pages, and responding effectively during crisis situations. No statistically significant association was found between digital competence and demographic variables. Based on these findings, a competency-based training design focusing on digital content creation and strategic Facebook management was developed and subsequently evaluated as Very Acceptable by City Information Officers. The study contributes empirical evidence to digital governance literature and offers a practical training model to enhance grassroots communication and community engagement.

Keywords: *Barangay Information Officers; Digital competence; Facebook management; Information dissemination; Training design*

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Introduction

The widespread adoption of social media has reshaped public communication, particularly within local governance. In the Philippines, Facebook has become the primary platform for rapid, accessible, and wide-reaching information dissemination at the community level. Barangay Information Officers (BIOs), designated by the Philippine Information Agency as grassroots information frontliners, play a critical role in managing official barangay Facebook pages and serving as communication bridges between government institutions and local communities. As citizen engagement increasingly occurs in digital spaces, the effective management of these platforms has become an essential function of barangay governance.

Local government units have embraced Facebook as a cost-effective channel for public advisories, announcements, and community updates. However, studies have shown that government-managed Facebook pages are often used primarily for one-way information dissemination rather than interactive communication (David, 2016; Roengtam et al., 2017). Kemp (2019) further highlights Facebook's strategic value in the Philippine context due to its extensive reach and high user penetration. While the platform offers significant potential for public communication, its effectiveness largely depends on the digital competence of the personnel responsible for managing and curating online content.

Despite their institutional importance, the relatively recent establishment of the BIO position raises concerns regarding their readiness to meet the demands of digital communication. Digital competence—recognized as one of the eight key competences for lifelong learning—encompasses the knowledge, skills, attitudes, and ethical considerations required for the confident and responsible use of digital technologies (Council of the European Union, 2018). In public-sector contexts, digital competence is particularly crucial, as information officers are expected to ensure accuracy, protect data privacy, manage public interaction, and respond to digital challenges. Organizations that invest in continuous learning and digital transformation are better positioned to equip personnel with competencies necessary for navigating rapidly evolving digital environments (Deloitte, 2020).

This study is anchored on the Digital Competence Framework for Citizens (DigComp) developed by the European Commission, which conceptualizes digital competence across five domains: information and data literacy, communication and collaboration, digital content creation, safety, and problem-solving. DigComp was selected due to its comprehensive structure, strong empirical grounding, and widespread application in education, workforce, and public-sector research. Its multidimensional approach allows for a systematic assessment of both technical and socio-ethical competencies, making it particularly suitable for evaluating digital roles within local governance and public information management.

To ensure contextual relevance, the DigComp framework is adapted to the functional responsibilities of Barangay Information Officers. Information and data literacy is contextualized to include verifying government information prior to posting, while communication and collaboration focus on managing public announcements and online interactions with constituents. Digital content creation is framed around producing clear, appropriate, and visually engaging Facebook content, whereas the safety domain emphasizes data privacy, account security, and responsible information handling. Problem-solving is adapted to assess BIOs' ability to address misinformation, technical challenges, and evolving platform demands. Guided by this adapted framework, the study assesses the digital competence of BIOs in a city in Laguna, Philippines, and serves as the basis for a proposed training design aimed at strengthening grassroots digital governance and community engagement.

Methodology

This study employed a quantitative descriptive research design to assess the level of digital competence of Barangay Information Officers (BIOs) in managing official Facebook pages for information dissemination in a city in Laguna, Philippines. The design was appropriate for describing existing conditions and systematically quantifying the respondents' competencies in using digital tools relevant to their official communication functions.

The respondents consisted of eighty (80) Barangay Information Officers from San Pablo City, Laguna, who are directly responsible for managing and disseminating information through their respective barangay Facebook pages.

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Total enumeration sampling was utilized, wherein the entire population of BIOs was included in the study to ensure comprehensive coverage and eliminate sampling bias.

Data were collected using a researcher-developed survey questionnaire anchored on the adapted DigComp framework. Prior to administration, the instrument underwent face and content validity evaluation by a panel of three subject-matter experts in digital literacy, public administration, and communication. Content validity was established using the Content Validity Index (CVI). The scale-level CVI (S-CVI/Ave) yielded a value of 0.94, while item-level CVI (I-CVI) values ranged from 0.86 to 1.00, indicating excellent content validity. Inter-rater agreement among the validators was high, with an inter-rater reliability coefficient of 0.89, reflecting strong consistency in expert judgments.

The questionnaire consisted of three sections: (1) demographic profile of the respondents, (2) digital competence of Barangay Information Officers in managing Facebook pages for information dissemination, and (3) challenges and issues encountered in page management. The digital competence items were operationalized according to the adapted DigComp domains, while the challenges section focused on technical, organizational, and platform-related concerns.

Following validation, the instrument was subjected to pilot testing involving a group of respondents with characteristics similar to the study population. Internal consistency reliability was assessed using Cronbach's alpha (α). The overall scale yielded a Cronbach's α of 0.92, indicating excellent reliability. Subscale reliability coefficients ranged from 0.84 to 0.90, exceeding the acceptable threshold of 0.70 for social science research. Based on the pilot results, minor wording refinements were made to improve item clarity. The finalized questionnaire was then administered to the respondents for full-scale data collection.

Formal permission to conduct the study was obtained from the City Information Office prior to data collection. The survey questionnaires were distributed using a hybrid data collection approach, combining online and face-to-face administration.

Google Forms was utilized for the online survey to facilitate efficient data management, while in-person distribution was conducted in barangays where responses had not yet been submitted. Personal visits were made to ensure full participation of all eighty respondents.

The study adhered to established ethical research standards. Respondents were fully informed of the study's purpose and procedures, and voluntary informed consent was obtained prior to participation. Confidentiality and anonymity of responses were strictly maintained, and all data were used solely for academic and research purposes to safeguard the well-being and rights of the participants.

Data were analyzed using descriptive and inferential statistical techniques. Descriptive statistics, including mean and frequency, were used to determine the level of digital competence and identify common challenges encountered by the BIOs. Responses were measured using a four-point Likert scale to capture the respondents' perceptions and experiences. To examine the association between digital competence and demographic variables, the chi-square (χ^2) test of independence was employed. Data were systematically tabulated and analyzed to ensure accuracy and reliability, and the findings served as the basis for the proposed training design.

Results and Discussion

Table 1 presents the demographic profile of the Barangay Information Officers (BIOs) in San Pablo City, Laguna, categorized according to age, sex, highest educational attainment, and length of service as BIOs.

Table 1. Profile of the Barangay Information Officers

Variable	Category	*f*	%
Age	20-29 years old	46	57.50%
	30-39 years old	10	12.50%
	40-49 years old	19	23.75%
	>= 50 years old	5	6.25%
Sex	Male	38	47.50%
	Female	42	52.50%
Educational Attainment	High School Graduate	15	18.75%
	Vocational/Technical Course	4	5.00%
	College Level	21	26.25%
	College Graduate	40	50.00%
Length in Service as BIO	1-6 months	10	12.50%
	6 months-1 year	31	38.75%
	1-2 years	26	32.50%
	2-3 years	13	16.25%

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As shown in Table 1, the majority of the respondents are relatively young, with 46 BIOs (57.50%) aged 20–29 years, followed by those aged 40–49 years (23.75%) and 30–39 years (12.50%). Only 6.25% of the respondents belong to the 50 years and above age group. This distribution indicates that the barangay information workforce in San Pablo City is predominantly composed of young adults. Prior studies suggest that younger individuals generally demonstrate higher exposure to and familiarity with digital technologies, which may positively influence digital competence and platform engagement. Moroney and Jarvis (2020) noted that older individuals are more likely to exhibit hesitancy toward digital tools due to concerns related to digital security and information privacy, which may partially explain the lower representation of older BIOs in digital information roles.

In terms of sex, the respondents are almost evenly distributed, with 42 females (52.50%) and 38 males (47.50%). This near parity reflects balanced representation in barangay information leadership roles. Such distribution supports inclusive governance and enables diverse communication styles and decision-making approaches in public information dissemination. Supporting this observation, Shen and Joseph (2020) reported that female leaders tend to exhibit greater caution and deliberation in leadership and communication-related decisions, which may be advantageous in managing official information platforms.

Regarding educational attainment, half of the respondents (50.00%) are college graduates, while 26.25% have reached the college level. A smaller proportion are high school graduates (18.75%) and vocational or technical course completers (5.00%). This indicates that the majority of BIOs possess a solid educational background. Empirical evidence suggests that higher levels of formal education are positively associated with stronger digital competence, as education enhances individuals' capacity to acquire, process, and apply digital skills effectively (Portillo et al., 2020).

With respect to length of service, most BIOs are relatively new in their roles, with 38.75% serving for 6 months to 1 year and 32.50% for 1 to 2 years. Only 16.25% have served for 2 to 3 years, while 12.50% have less than 6 months of experience.

This distribution suggests that many BIOs are still in the early stages of their professional roles, underscoring the need for structured capacity-building initiatives. Stofkova et al. (2022) emphasize that targeted training programs are essential for equipping employees with the competencies required to perform effectively, particularly in roles shaped by rapid digital transformation.

The demographic profile of the Barangay Information Officers suggests a workforce that is relatively young, well-educated, gender-balanced, and largely new to the position. These characteristics present both opportunities and challenges for digital governance at the barangay level. While youth and educational attainment may facilitate adaptability to digital platforms, limited tenure highlights the need for systematic and continuous training interventions. Tailored professional development programs grounded in digital competence frameworks are therefore essential to ensure that BIOs—regardless of age, sex, or length of service—are adequately equipped to manage official Facebook pages effectively, responsibly, and sustainably in support of community information dissemination.

Table 2. Summary table of the level of Digital Competence

Variables	Mean	Verbal Interpretation
Information and Data Literacy	3.75	Highly Competent
Communication and Collaboration	3.62	Highly Competent
Digital Content Creation	3.54	Highly Competent
Safety	3.67	Highly Competent
Problem-solving	3.63	Highly Competent
Overall	3.64	Highly Competent

N=80; Legend: 4.00-3.26 Strongly Agree (SA)/Highly Competent; 3.25-2.51 Agree(A)/Advanced; 2.50-1.76 Disagree (D)/Intermediate; 1.75-1.00 Strongly Disagree (SD)/Foundation

The results indicate that BIOs demonstrated a high level of digital competence across all domains, with an overall mean score of 3.64, interpreted as Highly Competent. Among the sub-dimensions, information and data literacy obtained the highest mean (M = 3.75), suggesting that BIOs possess strong competencies in locating, evaluating, verifying, and responsibly handling information prior to online dissemination. This finding underscores their awareness of the importance of accuracy and credibility in managing official Facebook pages. While Bona and Camara (2021) reported that local government officials generally exhibit intermediate digital literacy levels, they likewise emphasized that such competencies were sufficient for effective job performance. The higher competence level observed in the present study suggests a more advanced information-handling capacity among BIOs in Laguna.

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The domains of safety (M = 3.67), problem-solving (M = 3.63), and communication and collaboration (M = 3.62) were likewise rated as Highly Competent. These findings indicate that BIOs are generally capable of safeguarding digital accounts, addressing basic technical concerns, and using Facebook as a platform for disseminating public information and interacting with constituents. Such competencies are essential in minimizing misinformation, protecting data privacy, and maintaining public trust in government-managed social media channels.

Despite the overall high competence level, digital content creation recorded the lowest mean score (M = 3.54), although it remained within the Highly Competent range. This domain reflects BIOs' abilities to create engaging posts, utilize basic digital tools, and develop concise yet informative captions. The relatively lower score suggests that content creation is a developmental area for BIOs. Aldous et al. (2019) emphasized that audiences on social media are less responsive to text-heavy content and are more likely to engage with visually appealing and well-designed posts. Similarly, Ecleo et al. (2023) noted that the effectiveness of barangay-level communication is enhanced when announcements and updates are presented in engaging and audience-centered formats.

Overall, the findings indicate that while Barangay Information Officers in San Pablo City exhibit strong digital competence in managing official Facebook pages, targeted capacity-building initiatives remain necessary, particularly in digital content creation. Enhancing skills in visual communication, multimedia use, and strategic content design may further strengthen citizen engagement and maximize the communicative potential of barangay social media platforms.

The high overall level of digital competence among Barangay Information Officers indicates that BIOs are generally well-equipped to manage official Facebook pages as channels for public information dissemination; however, the comparatively lower competence in digital content creation highlights a critical area for targeted intervention.

This finding implies the need for a structured, competency-based training program that moves beyond basic digital literacy and focuses on advanced content development skills, such as visual communication, multimedia production, audience-centered messaging, and platform-specific engagement strategies. Strengthening these competencies can enhance the effectiveness, clarity, and reach of barangay-level communication, support greater citizen engagement, and reduce the risk of information fatigue or misinterpretation. From a policy and practice perspective, integrating content creation modules aligned with the DigComp framework into local government capacity-building initiatives may contribute to more responsive, transparent, and participatory digital governance at the grassroots level.

Table 3 presents the results of the chi-square (χ^2) tests examining the association between the digital competence of Barangay Information Officers and selected demographic variables, namely age, sex, highest educational attainment, and length of service as a BIO. The results indicate that none of the demographic variables showed a statistically significant association with digital competence ($p > .05$). Specifically, age ($\chi^2 = 3.03$, $p = .39$), sex ($\chi^2 = 0.17$, $p = .68$), educational attainment ($\chi^2 = 5.81$, $p = .12$), and length of service ($\chi^2 = 2.55$, $p = .47$) were all found to be statistically insignificant.

Table 3. Association of Digital Competence when grouped according to Demographic profile

Demographic Profile	χ^2	df	p-value	VI
Age	3.03	3	0.39	Not Significant
Sex	0.17	1	0.68	Not Significant
Educational Attainment	5.81	3	0.12	Not Significant
Length in Service as BIO	2.55	3	0.47	Not Significant

These findings suggest that the level of digital competence among Barangay Information Officers is not influenced by demographic characteristics, indicating a relatively uniform distribution of digital skills across different age groups, sexes, educational backgrounds, and lengths of service. Consequently, the null hypothesis was accepted. This result is consistent with the findings of Nwankwor (2021), who reported that digital competence is not significantly affected by age, gender, or work experience.

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However, the present findings contrast with Benali et al. (2018), who observed that individuals with longer professional experience tend to exhibit higher levels of digital competence. The divergence in findings may be attributed to differences in occupational context, access to digital tools, or the increasing pervasiveness of digital technologies across demographic groups.

The absence of significant associations between digital competence and demographic variables implies that capacity-building initiatives for Barangay Information Officers may be implemented using a standardized training approach, rather than demographic-specific interventions. This suggests that digital competence development should focus on task-based and role-specific skills—such as content creation, platform management, and information verification—rather than on age-, gender-, or experience-based differentiation. Standardized, competency-driven training programs grounded in the DigComp framework may therefore promote equitable skill development, ensure consistent communication quality across barangays, and strengthen the overall effectiveness of grassroots digital governance.

Table 4 summarizes the most frequently reported challenges and issues encountered by Barangay Information Officers (BIOs) in managing official Facebook pages, ranked from the most to the least frequently cited.

Table 4. Common Challenges and Issues of the Barangay Information Officers

Challenges and Issues	*f*
Access to the Internet	43
Managing and growing your Facebook Page	43
Responding effectively during a crisis	35
Lack of sufficient time to discover and create content online	35
Creating Facebook caption with intent	33
Spread of misinformation	22
Lack of computers and mobile devices	18
Poor knowledge of some Facebook terms in use	13

The findings indicate that limited access to the internet and difficulties in managing and growing Facebook pages were the most prevalent challenges, each reported by 43 respondents (53.75%). These results suggest that infrastructural constraints and strategic page management remain significant barriers to effective digital communication at the barangay level. In contrast, Bona and Camara (2021a) observed that when adequate digital resources and connectivity are available, public-sector personnel are better able to utilize online platforms for information dissemination. The prominence of connectivity-related issues in the present study highlights persistent disparities in digital infrastructure within local governance contexts.

Other frequently reported challenges include responding effectively during crisis situations and lack of sufficient time to discover and create online content, each cited by 35 respondents (43.75%), followed by difficulties in creating Facebook captions with clear intent (33 respondents; 41.25%). These findings indicate that beyond access issues, BIOs face practical constraints related to time management, strategic communication, and crisis responsiveness. Such challenges may limit the timeliness, clarity, and engagement potential of barangay-level information dissemination, particularly during emergency situations when accurate and rapid communication is essential.

Conversely, poor knowledge of Facebook-related terms was identified as the least significant challenge (16.25%), suggesting that BIOs generally possess adequate familiarity with platform terminology. Similarly, challenges related to lack of devices (22.50%) and spread of misinformation (27.50%) were less frequently reported, although they remain noteworthy concerns given their potential implications for information credibility and public trust.

Overall, the findings underscore that the challenges faced by Barangay Information Officers are not solely skills-based but are also shaped by structural and operational constraints. These results point to the need for an integrated approach that combines improvements in digital infrastructure, capacity-building programs focused on content strategy and crisis communication, and institutional support mechanisms to enhance the effectiveness of barangay-level digital information dissemination.

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The challenges identified in this study highlight the need for a comprehensive and context-sensitive intervention to strengthen the digital communication capacity of Barangay Information Officers. Persistent issues related to internet access and Facebook page management suggest that training initiatives must be complemented by improvements in digital infrastructure and institutional support at the local government level. Moreover, the difficulties encountered in content creation, crisis communication, and time management indicate that future training programs should emphasize strategic content planning, visual and audience-centered communication, and rapid response protocols for emergency situations. Addressing these challenges through an integrated training design aligned with the DigComp framework may enhance the consistency, effectiveness, and credibility of barangay-level information dissemination, thereby fostering greater citizen engagement and reinforcing public trust in local governance communication channels.

Based on the findings of the study, a competency-based training design is proposed to enhance the digital content creation and social media management skills of Barangay Information Officers (BIOs), with the goal of strengthening community engagement and effective information dissemination. The training is primarily aligned with the DigComp domains of digital content creation, communication and collaboration, safety, and problem-solving, addressing the identified developmental areas while reinforcing existing competencies. By the end of the program, BIOs are expected to demonstrate improved abilities in developing audience-centered content, planning and scheduling Facebook posts, utilizing basic digital editing tools, and implementing effective strategies for crisis communication and online community interaction.

The proposed training spans three weeks and integrates theoretical instruction with applied practice. Week 1 consists of in-person sessions focusing on foundational concepts and hands-on activities related to content strategy, visual communication, ethical information sharing, and page management. Week 2 emphasizes guided application, during which participants create, publish, and manage content on their respective barangay Facebook pages. Week 3 involves online evaluation and feedback sessions, where outputs are reviewed, performance is assessed, and areas for improvement are identified.

This structured, practice-oriented approach ensures that BIOs acquire not only conceptual understanding but also practical experience necessary for sustaining effective digital communication at the barangay level.

Table 5 presents the level of acceptability of the proposed training design as evaluated by the City Information Officers of San Pablo City, Laguna. The assessment provides important insights into the relevance, quality, and practical viability of the proposed intervention.

Table 5. Proposed Training design as assessed by the City Information Officers

Indicators	Mean	VI
Objectives of the Training Design	3.9	Very Acceptable
Content of the Training Design	4.0	Very Acceptable
Topics of the Training Design	4.0	Very Acceptable
Activities of the Training Design	3.7	Very Acceptable
Overall	3.9	Very Acceptable

Legend: 4.00-3.26 Very Acceptable (VA); 3.25-2.51 Acceptable (A); 2.50-1.76 Slightly Acceptable (SA); 1.75- 1.00 Not Acceptable (NA)

The results indicate that the proposed training design was highly acceptable across all indicators, with an overall mean score of 3.9, interpreted as Very Acceptable. Among the indicators, both the content and topics of the training design obtained the highest mean scores (M = 4.0), reflecting strong agreement among evaluators regarding the relevance, clarity, and appropriateness of the materials and subject areas included. This suggests that the proposed training aligns well with the professional needs and operational realities of Barangay Information Officers, particularly in relation to digital content creation and social media management.

The objectives of the training design also received a high acceptability rating (M = 3.9), indicating that the intended outcomes of the program were perceived as clear, relevant, and attainable. Meanwhile, the activities component obtained a slightly lower, yet still very acceptable, mean score (M = 3.7). This finding may indicate opportunities to further enhance the interactive and experiential components of the training, such as increasing hands-on exercises, simulations, or collaborative tasks to strengthen practical skill application.

Overall, the high level of acceptability expressed by the City Information Officers underscores the feasibility and relevance of the proposed training design.

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The incorporation of practitioner feedback in the evaluation process strengthens the credibility of the program and provides a sound basis for its implementation. These findings suggest that the proposed training design is well-positioned to support the professional development of Barangay Information Officers and to enhance the effectiveness of barangay-level digital information dissemination.

The very high level of acceptability of the proposed training design indicates strong institutional readiness and stakeholder support for its implementation at the city level. This suggests that the training program is not only aligned with the operational needs of Barangay Information Officers but is also perceived as feasible, relevant, and responsive to current digital communication demands. The slightly lower rating for training activities further implies an opportunity to enhance experiential learning components, such as hands-on workshops, simulations, and collaborative content development tasks, to maximize skill transfer. Overall, the findings support the scalability and sustainability of the proposed training design and provide a strong justification for its adoption as a structured capacity-building initiative to strengthen grassroots digital governance and community engagement.

Conclusions

This study concludes that Barangay Information Officers (BIOs) in San Pablo City, Laguna are predominantly young adults, with balanced sex representation, relatively high educational attainment, and short to moderate length of service. Despite these demographic characteristics, BIOs demonstrated a high level of digital competence across all DigComp domains, including information and data literacy, communication and collaboration, digital content creation, safety, and problem-solving. These findings indicate that BIOs possess adequate foundational and functional digital skills to manage official Facebook pages and support community-level information dissemination. The analysis further revealed no statistically significant association between digital competence and demographic variables, suggesting that digital skills among BIOs are not constrained by age, sex, educational attainment, or length of service. This indicates a relatively uniform distribution of digital competence within the group.

Recommendations

Based on the study's findings, the implementation of the proposed competency-based training design is strongly recommended. Given its Very Acceptable rating from the City Information Officers, the training program is considered feasible, relevant, and responsive to the operational needs of BIOs. The program should prioritize advanced digital content creation, visual communication, audience-centered messaging, crisis communication strategies, and misinformation management, while reinforcing ethical and responsible digital practices aligned with the DigComp framework. Local government units are further encouraged to strengthen digital infrastructure by improving internet connectivity, providing adequate devices, and offering continuous technical support to ensure uninterrupted online engagement. Training initiatives should be standardized and inclusive, as digital competence was found to be independent of demographic characteristics. A structured seminar-workshop model that integrates in-person instruction with applied practice is recommended to facilitate effective skill transfer. For future research, it is recommended to evaluate the long-term impact of the proposed training design on BIOs' digital performance, content quality, and levels of community engagement. Further studies may also explore emerging digital competencies required of newly appointed BIOs and assess how continuous professional development influences the sustainability of digital governance practices at the barangay level. Strengthening the digital capacity of Barangay Information Officers remains essential for promoting transparent, responsive, and participatory local governance in the digital era.

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