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SEAL OF GOOD LOCAL GOVERNANCE FOR BARANGAY (SGLGB) MANAGEMENT SYSTEM FOR THE DILG OF CITY OF SANTA ROSA

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ABSTRACT

The Seal of Good Local Governance for Barangay (SGLGB) is an annual performance assessment and recognition system that evaluates barangays based on various governance areas to encourage local service improvement through recognition and incentives. This study explores the city-level administration of the SGLGB program with a primary focus on the operations conducted by the Department of the Interior and Local Government (DILG) office in the City of Santa Rosa. Through a descriptive developmental research approach, the study probes the current manual procedures employed by the Component City/Municipality Performance Assessment Team (CC/M PAT) in manual document verification, record-keeping, and tracking. Prior findings reveal that the existing manual paperwork processes are labor-intensive, prone to errors, and contribute to the office's space constraints, prompting the researchers to propose and develop the SGLGB Management System. To guarantee the effectiveness of the said system, the researchers conducted usability testing sessions with barangay secretaries in selected barangays, alongside the assessment team in the DILG office, to evaluate the acceptance level of the system's functionality, usability, and security aspects based on ISO 25010 Software Product Quality. Subsequent findings indicate that the users favor and accept the developed system due to its alignment with their tasks. Therefore, the researchers recommend implementing the SGLGB Management System to optimize operational efficiency in the DILG office. The findings also suggest considering additional security measures and adaptability for future scalability. Further research is recommended to evaluate the system's usability across all barangays in the City of Santa Rosa to ensure its effectiveness.

Keywords: *Audit System, submission portal, information management system, local government unit, document management, DILG, SGLGB, ISO Software Characteristics*

INTRODUCTION

Nature and Scope of the Problem Investigated

Based on the Local Government Code of 1991, the Philippines establishes the system and defines the powers of provincial, city, municipal, and barangay. Local Government Units (LGUs) serve as administrative units responsible for the well-being of their community. To guarantee adherence to their responsibilities, LGUs are under the control and supervision of the Department of the Interior and Local Government (DILG). This executive department is tasked with the mandate to promote peace and order, ensure public safety, and strengthen local government capability aimed at the effective delivery of basic services to the citizenry, in accordance with the Republic Act 6975, otherwise known as the Department of the Interior and Local Government (DILG) Act of 1990. Pursuant to the DILG mandate, the Seal of Good Local Governance for Barangay (SGLGB) was introduced in 2018 with the objective of promoting excellence in local governance through recognition and incentives. Following two pilot assessment rounds in 2019 and 2021, a third and final pilot test took place in 2022. The SGLGB program evaluates barangays on a “3+1” principle, which requires compliance and fulfillment with three indicators in Core Governance Areas and at least one in Essential Governance Areas. The initial screening of barangay participants is conducted at the city-level, where this study is focused on.

As observed by the researchers and expressed by the assessment team in the DILG office, the form of submission by the barangays raises concerns about the efficiency of document verification, tracking of their validity, and their contributions to the limited space in the office. In light of these, the researchers developed the SGLGB Management System, a web-based information management system proposed to ameliorate the challenges experienced by the DILG office in the City of Santa Rosa. The system features submission portals, form automation, integrated communication mechanisms, and document management, tracking, and organization.

Research Objectives

1. Identify the current strategies implemented by the DILG office regarding barangay submissions of Means of Verifications (MOVs) and Documentary Checklists in terms of document verification, record-keeping, and document tracking.
2. Determine the efficiency level of standard manual procedures in the assessment process in the DILG office.
3. Identify the communication mechanisms utilized by the DILG office and barangays to address concerns regarding the SGLGB program.

4. Determine the acceptance level of the proposed system based on ISO 25010 Software Product Quality in terms of functionality, usability, and security.

Research Framework

The Input-Process-Output (IPO) model was used to determine the activities guiding the researchers in designing and developing the SGLGB Management System.

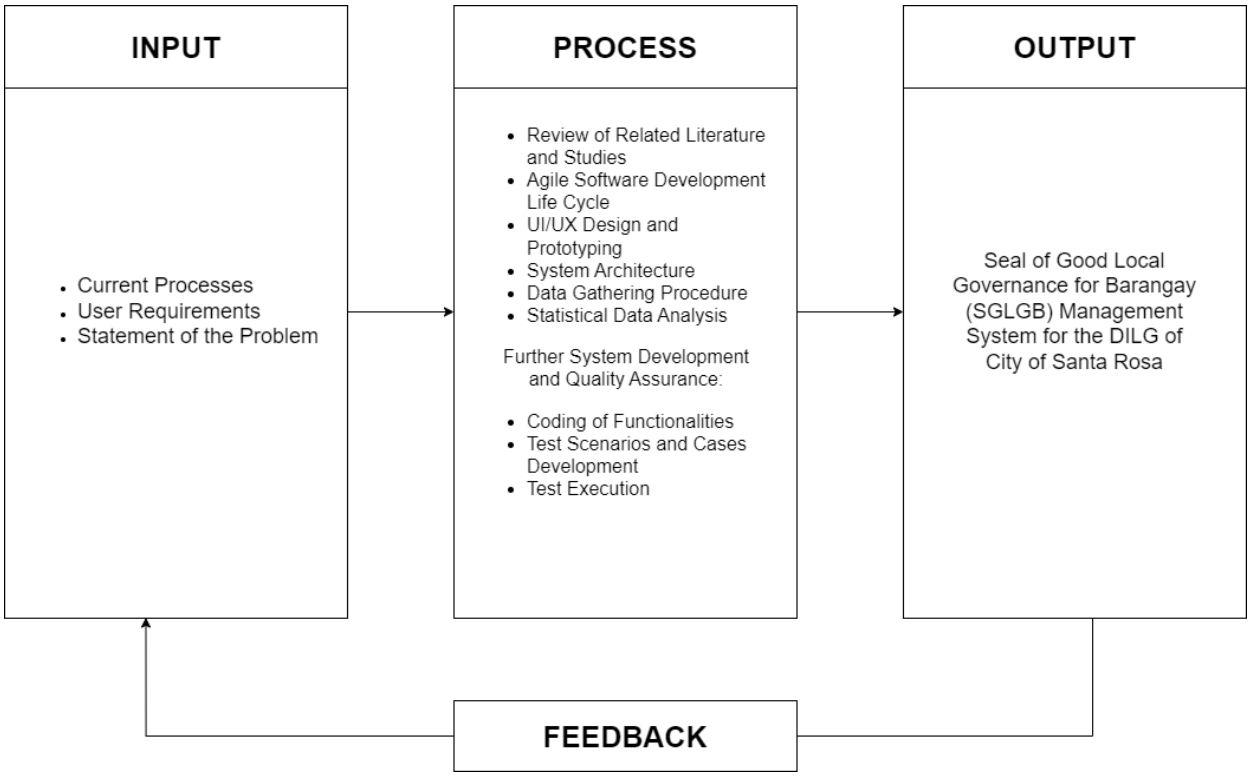

Figure 1: Research Framework

The input frame shows the initial action to be taken, such as knowing the DILG office's current processes, initial user requirements, and statement of the problem. The subsequent phase, which is the process phase, illustrates the review of existing related literature and studies, the concept model of Agile software development life cycle (SDLC), user interface/user experience (UI/UX) design, the creation and architecture of the system, the data gathering plan, and the treatment of data. Further system development and quality assurance measures include coding and building the system's functionalities, the creation of test scenarios and cases, and test execution.

The proceeding phase, denoted by the output frame, results in the development and production of the SGLGB Management System. While the development of the system is finished, the feedback loop acts as an iterative component that will further guarantee that the system does not only cater to the initial user requirements but is also adaptable to changing needs, which is aligned with the concept of the Agile model.

Research Significance

This study contributes to the growing body of knowledge, particularly the success of integrating information systems as innovative solutions into government administrative procedures. The proposed system is also positioned to provide assistance to government officials involved in the SGLGB program implementation at the city level.

Scope and Limitation

The primary sources of data came from the seven members of the assessment team in the DILG office. Regarding the evaluation of the proposed system's acceptance level, the constraints associated with geographical proximity, availability at a given time, and willingness to participate, it was deemed impractical to reach all barangays in the City of Santa Rosa. As a result, the sources of data came from barangay secretaries in six select barangays.

As for the developed system, it caters to three types of users: administrators in the DILG office, comprising the members of the CC/M PAT, serving as the SGLGB Assessors; a super administrator that will be managed by the C/MLGOO or a trusted member of the CC/M PAT; and barangay users, specifically barangay secretaries, within the jurisdiction of the City of Santa Rosa. The proposed system functionalities are only confined to aiding the responsibilities of the SGLGB Assessors and the compliance of the barangay assesses at the city-level assessment. It also does not extend to the submission of SGLGB Assessment Forms to provincial and other various administrative levels due to the complexity of the SGLGB program responsibilities.

Review of Pertinent Literatures

Good governance practices, such as transparency, accountability, and responsiveness, are fundamental for fostering public trust in the local government (Beshi & Kaur, 2020). However, the effectiveness of local governance and the delivery of basic services are also impacted by the efficiency of administrative procedures in government offices. One problem that has been pointed out by Caprio (2020) is the conduct of manual operations, which leads to inefficiency, delays, and the risk of human error and process flaws. In particular, manual handling and submission of documents to government offices contribute to physical storage and space constraints, which calls for innovative solutions (Paliwal et al., 2022).

In government settings, information systems (IS) are innovative solutions that holds the potential to address such challenges. Recent studies have shown that several information management systems have been developed to improve efficiency and effectiveness in government operations. In response to manual document submission, Tortor et al. (2019) developed an online workflow management system featuring submission portals and tracking modules for a centralized form of submission. Additionally, Reguindin and Sabay's (2021) creation of the DILG Negros Occidental Contact Tracer Information Management System (CTIMS), simplifies data collection, optimizes reporting processes,

and eliminates the consolidation of reports from various offices. And lastly, Muhammad et al.'s (2023) development of a tailored IS enables easier archiving and real-time tracking of document status with related parties.

To guarantee the viability of these information systems, studies have also shown that developers should also consider their usability. Velmonte (2022) states that IS should be designed with user-friendliness in mind, as individuals in the late middle age range of 47–60 often exhibit hesitance towards using e-portal services of the government, which is likely associated with gaps in technological literacy. As of today, there is a need for a more intuitive user interface and a user-centric emphasis on web applications in the digital world due to their significant implications on users' satisfaction and long-term usage (Omonigho, 2023). An indication of good usability means meeting the users' needs, and this can be achieved by designing a visually appealing website that enables ease of access to valid information and a seamless experience (Fhalosa et. al., 2023).

METHODOLOGY

Research Design

This study employed a descriptive developmental research methodology. This approach is a type of non-experimental design that aims to systematically describe the nature of the situation or phenomenon, which will serve as the basis for the evaluation, tracking of changes, and development of instructional products suited for real-life applications (Richey & Klein, 2005). In the context of this study, the situation and current processes conducted by the CC/M PAT in the DILG office and barangays regarding the city-level implementation of the SGLGB in the City of Santa Rosa were identified and used as a guide for the design, development, and evaluation of the proposed and developed SGLGB Management System.

Research Locale

The study was conducted in the DILG office situated within the City Hall of Santa Rosa, specifically located on the 2nd floor of the building. It served as the epicenter and based location to determine the select barangays to be part of the study.

Population and Sampling Design

The researchers applied convenience sampling to address practical constraints associated with the time and cost of the study. Convenience sampling is a non-probability sampling technique where the selection of respondents is determined due to their ease of access to the researchers. In this regard, selected barangays include Aplaya, Kanluran, Labas, Market Area, Tagapo, and Macabling. The total population of seven of the SGLGB Assessors comprised by the CC/M PAT and the sample of six barangay secretaries from six selected barangays sum up the 13 total respondents of this study.

Research Instrument

This study used questionnaires and interviews to collect pertinent data. Interviews were aimed at identifying the DILG office's existing strategies implemented regarding MOVs and Documentary Checklist's verification, record-keeping, and tracking, as well as the establishment of communication mechanisms to keep in touch with the barangays. On the other hand, Likert scale questionnaires were used to evaluate the efficiency level of the standard manual procedures by the DILG office. Answered by both the assessment team in the DILG office and barangay secretaries in select barangays, this instrument was also used to evaluate the acceptability of the proposed system and whether it meets the criteria adapted from ISO 25010 Software Product Quality in terms of functionality, usability, and security.

Data Gathering Procedure

The researchers handed out consent letters to both the DILG office and barangays, stating the data gathering intention with the usability testing and demonstration of the proposed and developed system, signed by the student researchers and Fundamentals of Research's (FOR) adviser and facilitator. The initial plan was conducted through the distribution of prepared checklist questionnaires and scheduled interviews with the CC/M PAT, specifically the C/MLGOO in the DILG office, to identify and determine the efficiency of the current processes of the city-level administration of the SGLGB program. Simultaneously, the researchers sought support from the office in reaching out to the six selected barangays, who were also the target respondents of this study. Upon contact and permission of these barangays, barangay secretaries and the members of the assessment team answered and evaluated the proposed system through a set of prepared checklist questionnaires. Following this, the researchers promptly collected the questionnaires, and the obtained responses underwent statistical data analysis to draw conclusions and meaningful insights.

RESULTS AND DISCUSSION

Objective 1. Current Strategies Implemented by the DILG Office Regarding Barangay Submission of Means of Verifications (MOVs) and Documentary Checklist in terms of Document Verification, Record-Keeping, and Document Tracking. The document verification is guided by Technical Notes. The assessment team in the DILG office sequentially verifies submissions per governance area by inspecting the respective barangay's submitted Means of Verification (MOV) folders and cross-referencing them with the Documentary Checklist and Data Capture Form (DCF). Each member of the CC/M PAT is assigned to a specific governance area, with the Component City/Municipal Local Government Operations Officer (C/MLGOO) sometimes aiding in verification.

Record-keeping involves consolidating MOVs and Documentary Checklists for on-site audits, followed by the encoding on the SGLGB Google Sheet of assessment results.

Passed barangay documents are uploaded to Google Drive for backup and shared on the SGLGB Google Drive for further assessment at the provincial level. Meanwhile, ineligible submissions are promptly returned. As for document tracking, it includes granting extensions, utilizing communication channels like phone calls and Messenger, and relying on Google Sheets.

Objective 2. Level of Efficiency of Standard Manual Procedures in the Assessment Process in the DILG Office. The researchers utilized the five-point Likert scale to calculate and interpret the data obtained from disseminated questionnaires, where for Table 1, an agreement scale of strongly agree, agree, uncertain, disagree, and strongly disagree is applied. For Table 2, the manageability scale is categorized by choices such as very manageable, manageable, uncertain, challenging, and very challenging. The summary of responses and their corresponding verbal interpretation (VI) per weighted mean (WM) is shown in the tables below.

Table 1. Evaluation by the DILG Office through Agreement Scale

Statements	Weighted Mean	Verbal Interpretation
1. Paper-based MOV documents do not occupy a significant amount of office space.	1.71	Disagree
2. Scanning and re-scanning paper-based MOV documents is not time-consuming.	1.71	Disagree
3. The documents manually submitted by barangays always have no mistakes, and follow-up notices are not needed.	2.43	Disagree
Overall Weighted Mean	**1.95**	**Disagree**

With an overall WM and efficiency level of 1.95, indicating disagreement, the findings in Table 1 reveal the disadvantages of manual procedures in document handling. Respondents disagreed with the statement regarding space constraints (WM = 1.71), the time consumption of scanning and re-scanning (WM = 1.71), and the error potential of barangays manual submission denoted with a weighted mean of (WM = 2.43).

Table 2. Evaluation by the DILG Office through Manageability Scale

Statements	Weighted Mean	Verbal Interpretation
1. Managing and organizing paper-based SGLGB MOVs documents in the office is:	2.00	Challenging
2. Waiting for other personnel to finish their assigned tasks before being able to input changes in completing the Data Capture Form in Excel is:	2.43	Challenging
Overall Weighted Mean	**2.21**	**Challenging**

With an overall WM and efficiency level of 2.21, shows general awareness of challenges in document management and collaborative data entry. As shown in Table 2, managing and organizing documents in the office was perceived as challenging (WM = 2.00). Furthermore, a WM of 2.43 expressed the challenges of waiting for other workers to finish their assigned tasks before inputting changes in the Data Capture Form in Excel.

Objective 3. Communication Mechanisms Utilized by the DILG Office and Barangays to Address Concerns Regarding the SGLGB Program. Messenger is the communication tool used by the assessment team in the DILG office and barangays to address concerns regarding the SGLGB program. They utilize the features the application has to offer, such as video, phone calls, sending images, and group chat creation with barangay captains and secretaries. Private messaging through Messenger as well as real-time disclosure during on-site audits are used.

Objective 4. Acceptance Level of the Proposed System Based on ISO 25010 Software Product Quality in terms of Functionality, Usability, and Security. In summarization of the barangay secretaries and the CC/M PAT responses, the researchers employed weighted mean (WM) to compute the average of responses over the three evaluation criteria, with a general evaluation to entirely assess the effectiveness and acceptance level of the proposed system. The respondents corresponding verbal interpretation (VI) per weighted mean is shown in the tables below.

Table 3: Evaluation by the Barangay Secretaries of the Proposed System's Functionality

Statements	Weighted Mean	Verbal Interpretation
1. SGLGB Portal allows me to upload documents quickly.	4.50	Strongly Agree
2. Filling up the Documentary Checklist consumes less time in the SGLGB Portal.	4.33	Agree
3. SGLGB Portal inbox/chat simplifies the messaging and communication with the DILG office.	4.33	Agree
4. SGLGB Portal enables the fast-tracking of documents that need to be submitted.	4.50	Strongly Agree
5. SGLGB Portal gives me the status of my submissions.	4.50	Strongly Agree
Overall Weighted Mean	**4.43**	**Agree**

The findings yielded a high level of acceptance in various aspects of the proposed system's functionality. It was deemed highly effective in efficient document management (WM = 4.50). Respondents strongly agreed that it allows for quick document uploads and provides a clear status of submissions. Furthermore, they find that the proposed system enables them to accomplish the Documentary Checklist swiftly and that the communication through integrated inbox/chat is simplified, both with a WM of 4.33.

Table 4: Evaluation by the CC/M PAT of the Proposed System's Functionality

Statements	Weighted Mean	Verbal Interpretation
1. SGLGB Portal provides real-time responses to document submissions.	4.43	Agree
2. SGLGB Portal instant chat/messaging simplifies communication with barangays.	4.14	Agree
3. Verifying submitted MOVs is easier to achieve in the SGLGB Portal.	4.00	Agree
Overall Weighted Mean	**4.19**	**Agree**

The evaluation by the CC/M PAT on the proposed system's functionality reveals a generally positive perception as shown in Table 4 with an overall WM and acceptance level of 4.19. Respondents agree that the system provides real-time responses to document submissions (WM = 4.43). They also find the instant chat/messaging feature, simplifies communication with barangays (WM = 4.14). Moreover, respondents agree that verifying submitted MOVs is easier to achieve within the system (4.00).

Table 5: Evaluation by the Barangay Secretaries of the Proposed System's Usability

Statements	Weighted Mean	Verbal Interpretation
1. The design of the SGLGB Portal is clean and easy to understand.	4.67	Strongly Agree
2. The SGLGB Portal provides the features required for my tasks.	4.33	Agree
3. The SGLGB Portal minimizes the steps required to accomplish my tasks.	4.33	Agree
4. I don't encounter any problems in the SGLGB Portal.	4.50	Strongly Agree
Overall Weighted Mean	**4.46**	**Agree**

The usability of the proposed system shows general satisfaction and acceptability (WM = 4.46). Its design was strongly perceived as clean and easy to understand (WM = 4.67). In addition, the respondents expressed agreement that the proposed system adequately provides the necessary features for their tasks and minimizes the steps needed to accomplish them, with a WM of 4.33 for both statements. Regarding potential system errors (WM = 4.50), the majority of respondents strongly agreed that they encountered no problems while using the system.

Table 6: Evaluation by the CC/M PAT of the Proposed System's Usability

Statements	Weighted Mean	Verbal Interpretation
1. The design of the SGLGB Portal is clean and easy to understand.	4.71	Strongly Agree
2. The SGLGB Portal minimizes the number of steps required to accomplish my tasks	4.14	Agree

3. I don't encounter any problems in the SGLGB Portal.	4.29	Agree
Overall Weighted Mean	**4.38**	**Agree**

In terms of the acceptance level of the proposed system's usability, the evaluation by the CC/M PAT was found to be very satisfactory and efficient (WM = 4.38). Respondents strongly agree that the system's design is clean and easy to understand (WM = 4.71). Further, respondents agree that the proposed system reduces the number of steps to complete tasks (WM = 4.14). Also, the majority agree that they have not encountered problems while using the system (WM = 4.29).

Table 7: Evaluation by the Barangay Secretaries of the Proposed System's Security

Statements	Weighted Mean	Verbal Interpretation
1. SGLGB Portal verifies user credentials to prevent unauthorized actions.	4.67	Strongly Agree
2. The documents in the SGLGB Portal are accurate.	4.50	Strongly Agree
3. The activity logs help trace potential unauthorized use of accounts in the SGLGB Portal.	4.67	Strongly Agree
Overall Weighted Mean	**4.61**	**Strongly Agree**

The respondents' evaluation of the proposed system's security indicates a high level of confidence and certainty with an overall WM and acceptance level of 4.61. They strongly agreed that the system properly verifies and authenticates user credentials to prevent unauthorized actions (WM = 4.67). Likewise, respondents strongly agreed that the documents maintained within the system are accurate (WM = 4.50). Remarkably, the presence of activity logs was highly recognized, with respondents strongly agreeing that they help in tracing unauthorized use of accounts (WM = 4.61).

Table 8: Evaluation by the CC/M PAT of the Proposed System's Security

Statements	Weighted Mean	Verbal Interpretation
1. SGLGB Portal verifies user credentials to prevent unauthorized actions.	4.14	Agree

2. The documents in the SGLGB Portal are accurate.	4.00	Agree
3. SGLGB Portal shows correct and identifiable barangay document ownership.	4.29	Agree
Overall Weighted Mean	**4.14**	**Agree**

The evaluation of the proposed system's security by the CC/M PAT reflects a generally positive sentiment, with an overall WM and acceptance level of 4.14. They agreed that the system adequately verifies and authenticates user credentials to prevent unauthorized actions (WM = 4.14). Additionally, the respondents agreed on the accuracy of documents stored in the system, (WM = 4.00). Furthermore, they agreed that the system correctly identifies barangay document ownership (WM = 4.29).

Table 9: General Evaluation of the Proposed System

Evaluation Criteria	Weighted Mean	Verbal Interpretation
Functionality	4.34	Agree
Usability	4.42	Agree
Security	4.38	Agree
Overall Weighted Mean	**4.38**	**Agree**

Table 9 presents the general evaluation of the proposed system adapted from ISO 25010 Software Quality Product, combining the evaluation made by both the barangay secretaries and the CC/M PAT across three evaluation criteria: functionality, usability, and security. In terms of functionality, respondents agree that the system effectively manages documents, provides real-time responses, and simplifies communication (WM = 4.34). The usability criteria garnered a WM of 4.42 after receiving favorable feedback, with respondents finding the design intuitive and efficient. Security measures implemented within the system are also well-received, with both respondents expressing confidence in the system's capability to verify and authenticate user credentials, maintain accurate documents, and prevent unauthorized access (WM = 4.38), resulting in an overall weighted mean and acceptance level of 4.38.

Conclusions

The existing procedures by the assessment team in the DILG office regarding the administration of the SGLGB at the city level include repetitive manual tasks and labor to guarantee the accuracy of the barangay's documents. However, despite these efforts, occasional discrepancies persist and remain a challenge. Alongside this challenge, manual document handling, inefficient collaboration, and space constraints are also impeding the office's workflow efficiency.

To ameliorate these challenges, the assessment team has shown a strong preference for utilizing existing digital platforms that are user-friendly and offer real-time access and information distribution. Based on this, an opportunity for the proposed SGLGB Management System was introduced. Developed by the researchers, this web-based information management system presents a promising solution to address the said challenges.

The barangay secretaries and the CC/M PAT in the DILG office favor the developed system in terms of its functionality, usability, and security aspects. The general evaluation results suggest its viability to aid in the administration of the SGLGB program at the city level.

In line with the results of this study, the researchers recommend the implementation of the SGLGB Management System in the DILG office and barangays to alleviate the challenges of manual procedures. With support from the assessment team, barangay secretaries are also encouraged to utilize and maximize the functionalities of the developed system, especially the submission portal, integrated inbox/chat, and automation of the Documentary Checklist.

This study also suggests potential future enhancements to the developed system. Given the sensitive nature of the SGLGB program, multi-factor authentication (MFA) is advised for an additional and increased layer of security. For enhanced user experience (UX), incorporating a split-screen feature by allowing simultaneous viewing of the Documentary Checklist and Data Capture Form (DCF) is recommended for easier cross-referencing. Lastly, further research covering all barangays in the City of Santa Rosa that were not included in this study is strongly recommended to gather comprehensive insights and inform potential enhancements.

Recommendations

In line with the results of this study, the researchers recommend the implementation of the SGLGB Management System in the DILG office and barangays to alleviate the challenges of manual procedures. With support from the assessment team, barangay secretaries are also encouraged to utilize and maximize the functionalities of the developed system, especially the submission portal, integrated inbox/chat, and automation of the Documentary Checklist.

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Compliance with Ethical Standards

The researchers complied with the basic standards of research ethics and also followed the Data Privacy Act in the collection and process of data gathered.

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