



RESEARCH ARTICLE

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DEVELOPMENT AND EVALUATION OF CIGA: CYBERNATED INTELLIGENCE FOR GAYS IN ACTION: AN ONLINE RECORD MANAGEMENT SYSTEM FOR THE CITY OF ILAGAN GAY ASSOCIATION

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ABSTRACT

This study aimed to modernize the administrative operations of the City of Ilagan Gay Association (CIGA) by developing "Cybernated Intelligence for Gays in Action," a specialized web-based record management system designed to replace outdated and inefficient manual paper processes. Utilizing an iterative software development methodology, the researcher designed and implemented the platform using PHP, JavaScript, and MySQL, subsequently evaluating its performance with 30 purposively selected respondents—comprising 25 end-users and five IT professionals—against the ISO/IEC 25010 quality model. Evaluation results revealed a weighted grand mean of 4.28, signifying the system is "Highly Compliant" with international software quality standards, specifically excelling in usability (4.41), functional suitability (4.35), and security (4.35). The research concludes that the transition to this digital platform effectively addresses organizational bottlenecks and enhances the capacity for secure, reliable, and transparent administrative management. Future enhancements should prioritize improving interoperability with broader government databases and integrating advanced security protocols like multi-factor authentication to protect sensitive data. Practically, this technological intervention serves as a sustainable management model, providing a scalable template for other marginalized social associations seeking to digitize their unique organizational workflows.



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I. INTRODUCTION

Record management, fundamentally recognized as a Record and Information Management System, involves the systematic and effective control of an organization's records throughout their entire lifecycle [1]. This process begins at the moment of creation or capture and continues through distribution, use, maintenance, and eventual preservation or disposal [2], [3]. International standards such as ISO 15489-1:2001 provide a universal framework for understanding records as legal evidence of organizational activities and corporate memory, which are critical for sharing and reusing information within an entity [4], [5]. Implementing such standards ensures that an organization remains orderly, reduces the frequency of misfiled documents, and significantly minimizes the requirements for physical storage [6]. In the context of global digitalization, technology has dramatically shifted organizational paradigms, influencing how individuals learn, communicate, and manage data across sectors like agriculture and education [7], [8]. Information and Communication Technology has specifically enhanced record management by providing more reliable, accurate, and cost-saving alternatives to traditional methods [9], [10]. Electronic systems are widely considered superior to traditional paper-based record-keeping, which often suffers from limitations such as limited capacity, slow retrieval times, and higher susceptibility to physical loss [11], [12]. Research indicates that electronic health records and digital management platforms provide better clinical and administrative quality than their paper equivalents, facilitating faster data handling and transfer across departments [13], [14]. Despite these benefits, many organizations still face challenges during the transition, including high acquisition costs, disruptions to established workflows, and initial productivity losses during the learning phase [14], [15]. In community-based social service organizations, manual systems are particularly burdensome, as they often result in labor-intensive data processing and inconsistent case ascertainment compared to electronic methods [16], [17].

Recent studies highlight that tailor-fit electronic record management systems are essential for centralizing information and streamlining operations in specific community contexts, such as those serving senior citizens or nonprofit groups [18], [19]. Furthermore, electronic logbooks and records have been shown to improve monitoring, evaluation, and organizational interaction by providing immediate feedback and ensuring educational or operational goals are met [20]. At present, the City of Ilagan Gay Association continues to rely on an outdated manual system for recording member information, which has led to significant operational bottlenecks. As the organization's population grows, the dependence on paper records necessitates unsustainable physical storage space and makes tracking members a highly time-consuming task, as documents must be scanned individually [19]. Additionally, the traditional dissemination of information within CIGA is often prone to inaccuracies and excessive communication overhead. To address these issues, this study developed a web-based platform titled "CIGA: Cybernated Intelligence for Gays in Action", utilizing an iterative development model known for its flexibility and cost-effectiveness in managing scope changes. The system incorporates specialized modules for account settings, registration, services, beneficiary management, and automated report generation. Evaluation of the software was conducted through Alpha and Beta testing, focusing on compliance with ISO/IEC 25010 standards [21], [22]. These standards provide a robust framework for assessing quality across dimensions such as functional suitability, performance efficiency, and usability [23], [24]. Such rigorous evaluation is critical for ensuring that administrative systems meet user requirements and maintain high reliability in diverse public and organizational settings [25], [26]. Ultimately, the developed system achieved a usability mean score of 4.41, interpreted as highly compliant, thereby providing the necessary features to modernize CIGA's administrative workflow and improve service delivery for its members. This digital transformation not only enhances internal operational efficiencies but also significantly contributes to transparent administrative management and responsive client service, akin to advancements seen in other community-based administrative systems [27], [28].

II. THEORETICAL REFERENCE

II.1 CONCEPTUAL FOUNDATIONS OF RECORD MANAGEMENT

Record management is defined as the systematic and scientific control of an organization's information throughout its entire lifecycle, encompassing creation, distribution, maintenance, and eventual disposition [1], [3]. The primary objective of a Record and Information Management System is to provide evidence of business transactions and preserve organizational memory, which is essential for meeting legal, statutory, and community expectations [1], [2]. International standards, particularly ISO 15489:2001, establish a universal framework for managing records as corporate assets, ensuring they are authentic, reliable, and accessible over time [4], [5]. Adopting such standards allows organizations to improve their professional image, optimize the filing of active information, and transition away from chaotic data handling [6], [29]. Effective record-keeping not only protects an organization's knowledge but also facilitates transparent decision-making by providing accurate historical data [2], [7].

II.2 TRANSITION FROM MANUAL TO ELECTRONIC RECORD-KEEPING

The shift from traditional paper-based methods to electronic record management systems is driven by the need for increased efficiency and reliability [29], [30]. Comparative studies consistently demonstrate that electronic systems outperform manual methods in terms of data retrieval speed and accuracy [11], [12]. For instance, digitized systems enable full-text searching and facilitate easy file sharing, which significantly reduces the labor requirements associated with physical scanning and retrieval [30], [31]. While paper-based records are susceptible to physical wear, misplacement, and high storage costs, electronic formats offer robust security, version control, and protection against physical degradation [32], [33]. However, the transition often presents challenges, such as high initial infrastructure costs, the need for advanced technical skills, and potential disruptions to established workflows during the learning phase [14], [15], [33]. Despite these drawbacks, the adoption of computerized records is essential for facilitating information shareability across different departments and ensuring long-term retrievability [13], [34].

II.3 ICT INTEGRATION IN COMMUNITY AND SOCIAL SERVICE ORGANIZATIONS

Information and Communication Technology has become a critical tool for empowering community-based social service organizations by promoting social justice and improving service delivery [16]. In the Philippines, localized administrative units such as barangays have increasingly adopted digital solutions to address the persistent challenges of outdated manual processes and fragmented data systems [35], [36]. Recent initiatives, such as the Electronic Barangay Information Management System and the Web-based Barangay Management System, highlight a trend toward automating workflows to enhance transparency in resident contributions and simplify the reporting of community concerns [28], [36], [37]. Furthermore, specialized systems have been developed to meet the unique needs of specific populations, such as the Office of Senior Citizen Affairs, where web-based ERMS serve to centralize member information and streamline beneficiary tracking [19]. These hyper-local applications leverage social computing technologies to build community engagement and provide more responsive public services [27], [38].

II.4 EVALUATION OF INFORMATION SYSTEMS THROUGH ISO/IEC 25010

Evaluating the quality of developed information systems is paramount to ensuring they meet stakeholder expectations and technical requirements [21], [23]. The ISO/IEC 25010 standard serves as a comprehensive quality model, categorizing software product quality into eight primary characteristics: functional suitability, performance efficiency, compatibility, usability, reliability, security, maintainability, and portability [39], [40], [41]. Functional suitability measures the extent to which a system provides functions that meet stated needs, while usability assesses the degree of user satisfaction and effectiveness [22], [40]. Research across various domains—including public administration, education, and healthcare—demonstrates that rigorous evaluation using these metrics leads to higher software quality and better user acceptance [26], [42], [43].

For example, community-based management systems that undergo systematic testing and evaluation are more likely to be adopted by local officials because they offer verified reliability and functional integrity [24], [27].

II.5 THE RESEARCH GAP

Despite the proliferation of digital record management systems for local government units and health sectors, a significant gap remains in addressing the specific administrative needs of social community associations, particularly those representing marginalized groups [16], [44]. While extensive research exists for broad public administration in the Philippines, such as barangay-level systems [35], [36], there is insufficient literature regarding specialized, web-based management platforms for organizations like the City of Ilagan Gay Association. Many community-based groups still operate within traditional paper-based frameworks due to a lack of technical expertise or specialized software that accounts for their unique membership structures and information dissemination challenges [8], [44]. Furthermore, current studies often emphasize the general practice of record-keeping theories rather than their practical application in localized social associations [45]. This study addresses this knowledge gap by developing and evaluating a tailor-fit, ISO 25010-compliant online record management system designed specifically for the administrative and social dynamics of CIGA.

III. METHODOLOGY

The methodology of this study employs a developmental research design focused on the creation and systematic evaluation of the "CIGA: Cybernated Intelligence for Gays in Action" online record management system. To address the operational inefficiencies of the City of Ilagan Gay Association, the researcher utilized the Iterative Model of the Systems Development Life Cycle, a framework recognized for its flexibility in accommodating evolving user requirements through repeated cycles of refinement [27], [37]. This methodological approach was structured into six progressive stages: requirement analysis, system design, development, testing, deployment, and maintenance [27]. By adopting this iterative process, the study ensured that the web-based platform was tailor-fit to the unique administrative workflows of the association, mirroring successful digital initiatives in community-based record management in the Philippines [19], [28]. Furthermore, the final stage of the methodology involved a rigorous quality assessment using the ISO/IEC 25010 international standard to evaluate the system's functional suitability, performance efficiency, and usability, ensuring the product meets global benchmarks for software excellence [23], [24], [26].

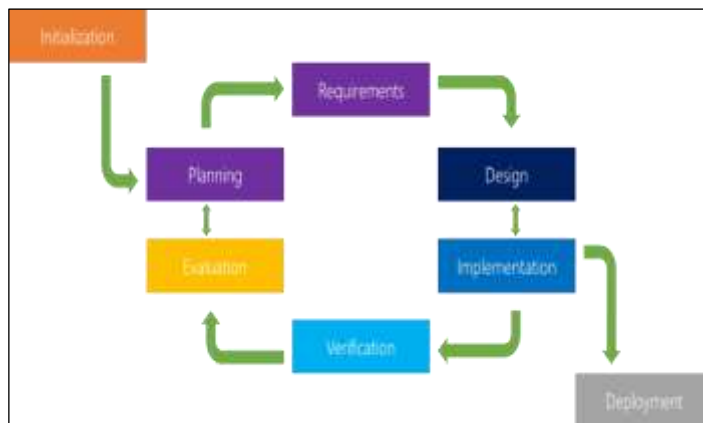


Figure 1: Iterative Software Development Methodology.
Source: [46].

The Iterative software development methodology as shown in figure 1 is a cyclic process that allows for the continuous refinement and progressive improvement of a system through repeated cycles of development. The methodology is structured into the following eight distinct phases:

III.1 INITIALIZATION PHASE

The initialization phase involves the initial brainstorming and conceptualization of the system, focusing on defining the overarching objectives and establishing a baseline for the project [47]. During this stage, the developer conduct feasibility studies, allocate resources, and determine the initial budget to ensure the project is viable [47]. This phase is critical for deciding the total number of iterations required to meet the project's scope [48].

III.2 PLANNING

The planning phase centers on defining the detailed project scope, timeline, and specific milestones [47]. Researcher develop a comprehensive project plan and schedule that identifies the roles and responsibilities of the team members [49]. This stage also includes the identification of procurement requirements and coordination with relevant stakeholders to ensure the development process aligns with organizational needs [47], [49]. To inform this planning process with empirical grounding, the researcher conducted direct observations and structured interviews with CIGA personnel. These investigative activities aimed to systematically document existing organizational processes, particularly those pertaining to information dissemination, records management, and other operational workflows identified for digitization through the proposed CIGA system. The insights gathered during this phase directly informed functional requirements and system design priorities.

III.3 REQUIREMENTS

This phase involves the systematic gathering and analysis of user requirements, including functional goals and content specifications [47]. To manage these requirements effectively, a Project Control List is often developed, which serves as a living document of all tasks and functionalities that must be present in the system [50]. If new requirements emerge during later stages, they are integrated back into the PCL to be addressed in subsequent iterations [50]. The successful implementation of the system necessitated specific software and hardware infrastructure to support development activities. Tables 1 and 2 present the technical requirements utilized during the development phase.

Table 1: Software Requirements for Development.

Description	Software
Browser	Google Chrome
Text Editor	Visual Studio Code
Local server	XAMPP
Database Engine	MySQL
Programming Language	PHP and JavaScript
Operating System	Windows 11

Source: Author, (2026).

Table 2: Hardware Requirements.

Description	Used
Computer	Desktop or Laptop
Processor (CPU)	Intel Core i5, 2.0 GHz or higher
RAM	16GB
Storage SSD	512 GB

Source: Author, (2026).

III.4 DESIGN

The design phase translates gathered requirements into a detailed application architecture, including system architecture, database schemas, and user interface designs [49], [51]. The output of this stage is a set of clear specifications that emphasize a physical solution to the user's needs, often resulting in a prototype that can be evaluated in the following stages [49], [51].

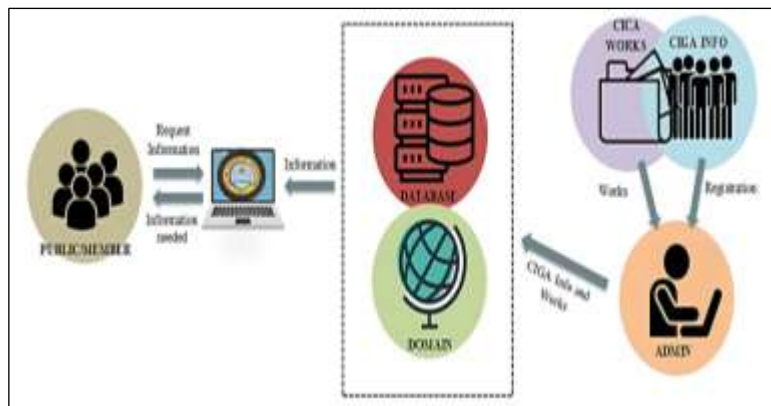


Figure 2: System Architecture.

Source: Author, (2026).

Figure 2 presents the system architecture of the CIGA: Cybernated Intelligence for Gays in Action online record management system. The architecture illustrates how users, administrators, and the system infrastructure interact to manage and retrieve organizational records. At the user level, public members access the system through a web-based interface using internet-enabled devices. Users can request and view information related to the organization, including membership details, services, and other relevant updates. The system processes these requests and provides the necessary information through the web application. The administrator manages the core functions of the platform. Through the administrative interface, authorized personnel handle member registration, update organizational records, and manage information related to CIGA activities and services. The administrator ensures that the information stored in the system remains accurate and updated. At the backend level, the system operates through a domain connected to a centralized database. The domain enables online access to the system, while the database serves as the primary repository for storing member information, organizational records, and service-related data. When users request information or when administrators update records, the system retrieves or stores the necessary data within the database. Overall, the architecture follows a web-based client-server structure where users interact with the system through an online interface, while the backend infrastructure manages data processing and storage. This design supports efficient record management, centralized data storage, and improved accessibility for both administrators and members of the City of Ilagan Gay Association.

III.4.1 Context Diagram

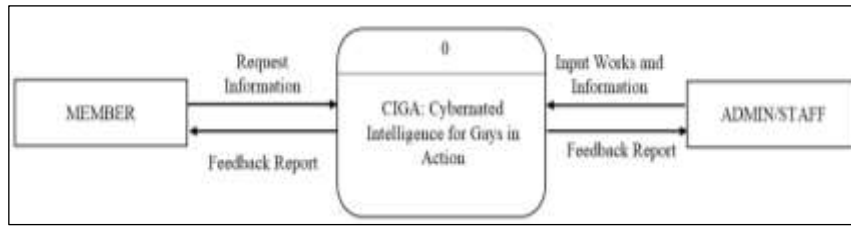


Figure 3: Context Diagram of the proposed CIGA: Cybernated Intelligence for Gays in Action.

Source: Author, (2026).

Figure 3 presents the context diagram of the CIGA: Cybernated Intelligence for Gays in Action system, illustrating the interaction between the system and its external entities. A context diagram provides a high-level representation of how data flows between users and the system without showing internal processing details. In the diagram, the CIGA system is represented as a single central process labeled 0, which serves as the primary platform for managing records and information related to the organization. The system interacts with two external entities: Members and Admin/Staff. On the left side of the diagram, Members interact with the system by submitting information requests. These requests may involve accessing organizational updates, membership information, or available services provided by the association. In response, the system processes the request and returns the corresponding feedback or information report to the member. This interaction enables members to conveniently obtain relevant information from the organization through the digital platform. On the right side of the diagram, Admin/Staff are responsible for managing and maintaining the system's data. Administrators input works and organizational information into the system, including member records, activities, and service-related data. After processing these inputs, the system generates feedback reports that allow administrators to monitor records and verify the accuracy of stored information. Overall, the context diagram demonstrates that the CIGA system acts as a centralized information management platform that facilitates communication between members and administrators. By enabling members to request information and allowing administrators to manage records efficiently, the system supports improved information accessibility, record management, and service delivery within the City of Ilagan Gay Association.

III.4.2 Data Flow Diagram

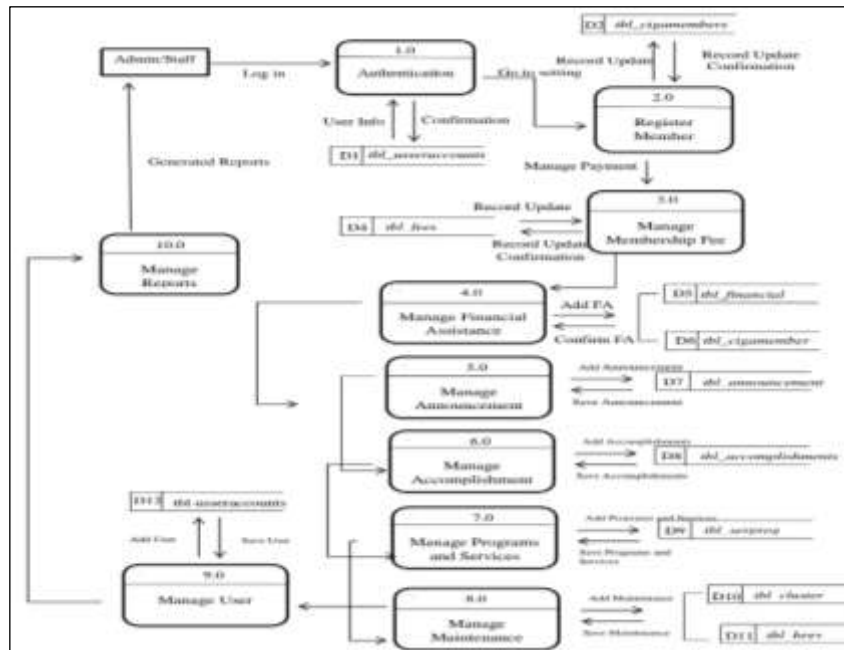


Figure 4: User Admin/Staff Data Flow Diagram of the CIGA: Cybernated Intelligence for Gays in Action.

Source: Author, (2026).

The diagram as shown in figure 4 illustrates a comprehensive Record and Information Management System for organizational administration, detailing the flow of operations from authentication to reporting. Admin and staff initiate the process through secure login (1.0 Authentication), which verifies user information against `tbl_usseraccounts` (D1) and directs subsequent actions such as member registration (2.0) linked to `tbl_cigamembers` (D2), membership fee management (3.0) with `tbl_fees` (D4), and financial assistance administration (4.0) interfacing with `tbl_financial` (D5) and member records (D6). The system further supports announcement management (5.0) via `tbl_announcement` (D7), accomplishment tracking (6.0) through `tbl_accomplishments` (D8), program and service oversight (7.0) with `tbl_serprog` (D9), and maintenance handling (8.0) connected to `tbl_cluster` (D10) and `tbl_brev` (D11). User administration (9.0) ensures account control, while report generation (10.0) consolidates outputs for decision-making, demonstrating an integrated, data-driven framework that enhances operational efficiency, accountability, and real-time management within the organization.

III.4.3 Entity Relationship Diagram

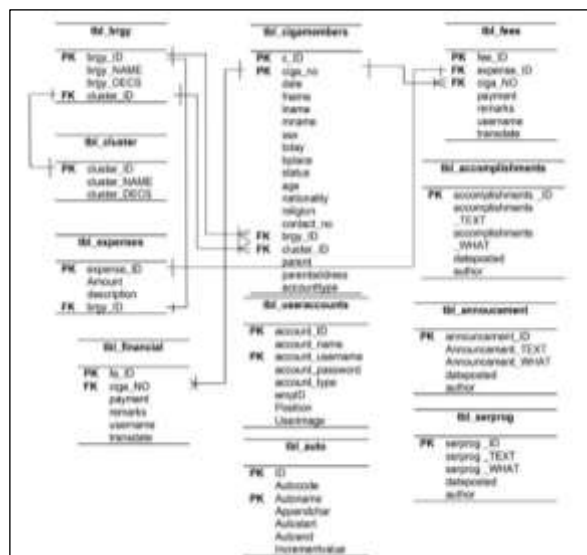


Figure 5: Entity Relationship Diagram of the CIGA: Cybernated Intelligence for Gays in Action.
Source: Author, (2026).

The Entity-Relationship Diagram presented in Figure 5 illustrates the relational data model underpinning the CIGA information system, structured around core entities that address the organization's operational requirements for member management, financial tracking, geographical administration, and content dissemination. The central *tbl_cigamembers* repository captures comprehensive demographic data for each beneficiary, featuring a recursive parent foreign key that enables representation of hierarchical relationships such as family heads and dependents functionality impossible to implement in the legacy paper-based system. This table establishes foreign key connections to *tbl_brgy* and *tbl_cluster*, positioning each member within a two-tier geographical framework where multiple barangays belong to higher-level administrative clusters, providing the structural foundation for location-based data aggregation. Financial transactions are managed through *tbl_expenses* for organizational expenditures linked to specific barangays, and *tbl_fees* as a transaction log connecting members to fee obligations with comprehensive audit trails via username and transdate fields. Parallel tables *tbl_language* and *tbl_financial* segregate different transaction categories while maintaining identical audit structures. Communication functions are supported by three structurally parallel tables *tbl_accomplishments*, *tbl_announcement*, and *tbl_serprog* each containing fields for substantive content, categorization, publication date, and author attribution. This relational integration transforms previously disparate manual processes into a cohesive electronic system, providing the essential data infrastructure required to support CIGA's digital transformation and enable improved service delivery through efficient, auditable operations.

III.5 IMPLEMENTATION

During the implementation phase, the system was developed using PHP and JavaScript, utilizing the XAMPP stack for local server management and MySQL for relational database architecture [51]. This phase involves the actual coding of modules and subsystems according to the established design patterns and user stories [48], [52]. Developers focus on creating the necessary database structures and implementing core functionalities to produce a working version of the software [51].

III.6 VERIFICATION

The verification phase consists of rigorous testing to identify defects and ensure the software aligns with the specified technical requirements and quality standards [53]. This involves documenting bugs, usability issues, and mismatches between expected and actual behavior, which are then queued for resolution in the next iteration [54]. The goal is to ensure that each module is stable and meets the criteria for functional reliability [54].

III.7 EVALUATION

In the evaluation phase, the outcomes of each development iteration were systematically reviewed to determine whether the objectives established during the initial stages of the project were achieved [55]. Performance results obtained from system testing were analyzed to identify potential areas for improvement, unresolved issues, or missing functionalities [52]. This phase also enabled stakeholders to provide feedback and allowed the researcher to collect empirical data from pilot testing environments. Through this process, the system progressively evolved toward a refined version that satisfies both technical requirements and user-centered objectives [52], [54]. Respondents of the study who will be evaluating the developed system is composed of the end-user, administrators and IT Professionals. The evaluation of the developed system involved selected respondents consisting of end-users and information technology (IT) professionals. These participants were chosen because of their familiarity with record management processes and their capability to assess system functionality, usability, and technical performance. Purposive sampling was employed to select the respondents who participated in the system evaluation. A total of 30 respondents were involved in the study, including 25 end-users and 5 IT professionals. The classification of respondents who participated in the software evaluation is presented in Table 1.

Table 3: Classification of Respondents Participating in the Software Evaluation.

Respondents	Frequency	Percentage
End-User	25	83.33%
IT Professionals	5	16.67%
TOTAL	30	100

Source: Author, (2026).

To evaluate the developed system, a structured questionnaire aligned with the ISO/IEC 25010 software quality model was utilized. The instrument assessed the system's compliance with recognized software quality characteristics, ensuring that the developed application meets established standards for software quality and performance. Data were collected through questionnaires distributed to the selected respondents after they interacted with the developed system. The responses were subsequently tabulated, analyzed, and interpreted by the researcher. Descriptive statistical methods, including frequency distribution, mean, and weighted mean, were used to analyze the collected data. A five-point Likert scale was employed to measure the respondents' level of agreement regarding the system's compliance with the ISO/IEC 25010 quality criteria. The interpretation of the Likert scale used in the study is presented in Table 2.

Table 4: Likert Scale.

Numerical Scale	Range	Interpretation
5	4.21–5.0	Highly Compliant
4	3.41–4.20	Compliant
3	2.61–3.40	Neither Compliant/nor Not Compliant
2	1.81–2.60	Not Compliant
1	1.0–1.80	Very Not Compliant

Source: Author, (2026).

The study was conducted at the City of Ilagan Gay Association (CIGA), located in the City of Ilagan, Isabela, Philippines. The organization serves as a community-based association that supports and represents members of the LGBTQ+ community within the city. The association manages member records, service requests, and beneficiary information, which previously relied on manual paper-based processes.

III.8 DEPLOYMENT

The deployment phase involves putting the developed and validated solution into production [51], [55]. This includes configuring hardware and software components, installing the system, and performing any necessary initial maintenance tasks [51]. Additionally, this phase often encompasses user training, the creation of user manuals, and the generation of final reports to facilitate the successful transition of the system into operational use [48], [55], [56].

IV. RESULTS AND DISCUSSIONS

IV.1 DEVELOPED CIGA: CYBERNATED INTELLIGENCE FOR GAYS IN ACTION

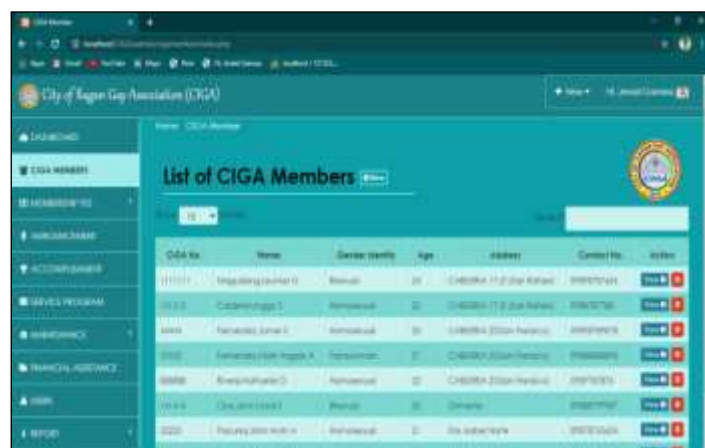
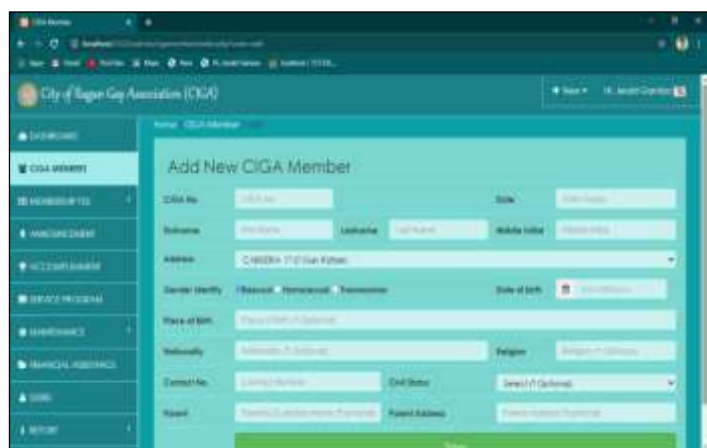


Figure 6: CIGA Members Management Module.

Source: Author, (2026).

This module provides the user with comprehensive member management capabilities. It facilitates the registration of new members by capturing their personal data into the system. Once registered, the interface allows for the viewing, modification, and deletion of individual member accounts. Furthermore, to support offline data needs and reporting requirements, the module includes a functionality for generating a hard copy of member lists, as illustrated in Figure 6.

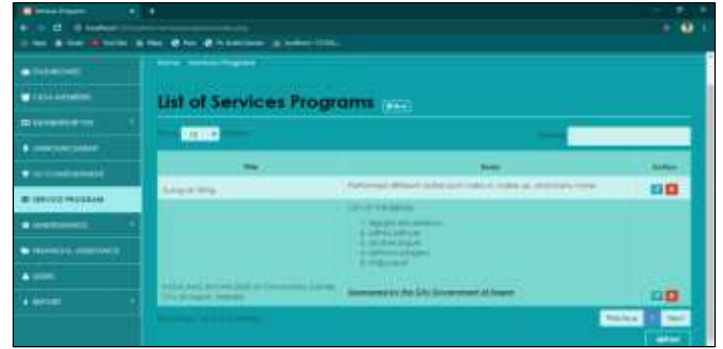
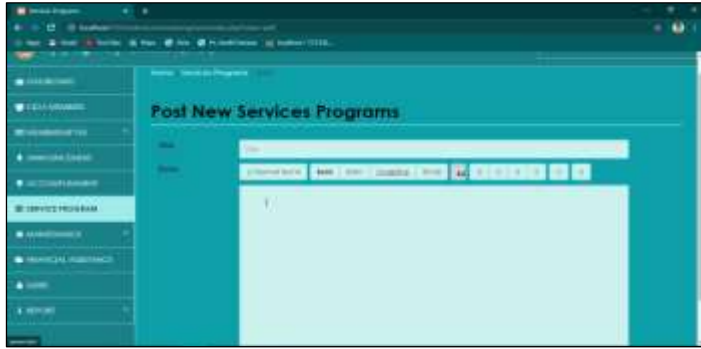


Figure 7: Listing and Posting of Services Management Module.
Source: Author, (2026).

The Services module, illustrated in Figure 7, provides comprehensive management capabilities for organizational service offerings. Users can perform full CRUD (Create, Read, Update, Delete) operations, enabling the addition of new services, modification of existing entries, and removal of outdated listings. To accommodate reporting requirements and offline documentation needs, the module includes functionality for generating hard copies of the complete services list, ensuring that service information remains accessible regardless of system availability.

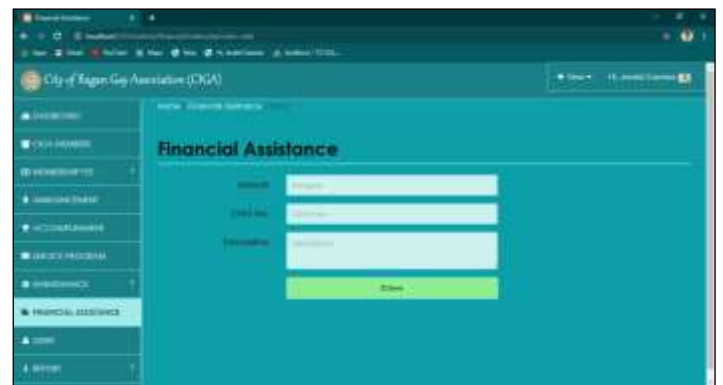


Figure 8: Financial Assistance Management Module.
Source: Author, (2026).

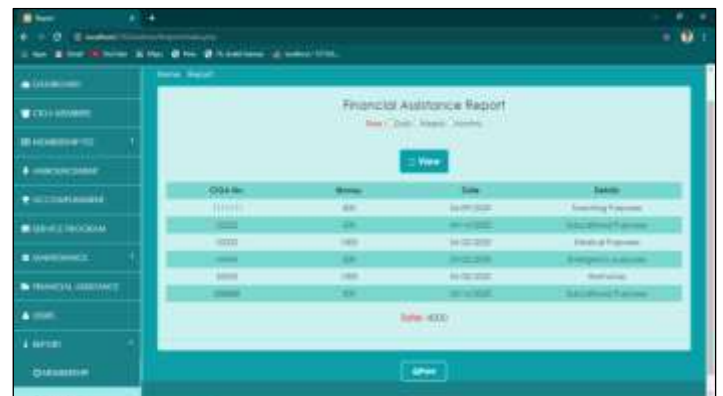
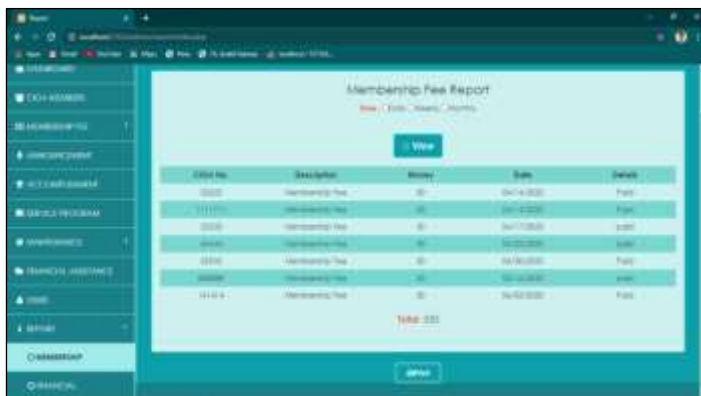


Figure 9: Report Generation Module.
Source: Author, (2026).

Figure 8 presents the Financial Assistance Management Module, which facilitates the administration of financial support provided to CIGA members. The interface enables users to perform complete record management operations, including the addition of new financial assistance entries, updating of existing records to reflect changes in disbursement or status, and deletion of erroneous or duplicate transactions. Each financial assistance record is linked to a specific member through the member identifier, ensuring accurate attribution of benefits. To support reporting requirements and external auditing needs, the module includes functionality for generating a printed list of beneficiaries, providing tangible documentation for organizational records and stakeholder transparency. Figure 9 presents the Report Generation Module, which provides comprehensive financial reporting capabilities for organizational monitoring and evaluation. The interface enables users to view collection records filtered by specified date parameters, encompassing both membership fees and financial assistance disbursements. This temporal filtering functionality allows administrators to track revenue streams and benefit distributions across specific periods, supporting cash flow analysis and program assessment. The module further addresses documentation requirements through an integrated printing function that produces hard copies of generated reports, facilitating external audits, board presentations, and permanent record-keeping in compliance with organizational policies.

IV.2 QUALITY ASSESSMENT OF THE DEVELOPED CIGA SYSTEM BASED ON ISO/IEC 25010 STANDARDS

The quality of the developed CIGA: Cybernated Intelligence for Gays in Action was rigorously evaluated using the ISO/IEC 25010 software quality model, which provides a standardized framework for assessing software products across eight distinct quality characteristics. The evaluation involved respondents who assessed the system using a Likert-scale instrument, with mean scores interpreted using the following scale: 3.50–4.49 as "Compliant" and 4.50–5.00 as "Highly Compliant." Tables 5 through 12 present the detailed mean ratings for each quality characteristic, while Table 13 provides a consolidated summary of the overall evaluation results.

Table 5: Functional Suitability.

Criteria	Mean	Description
Functional Completeness	4.21	Highly Compliant
Functional Correctness	4.67	Highly Compliant
Functional Appropriateness	4.17	Compliant
Weighted Mean	4.35	Highly Compliant

Source: Author, (2026).

As shown in Table 5, the functional suitability of the CIGA system achieved a weighted mean of 4.35, interpreted as Highly Compliant. This indicates that the system successfully delivers the functions required to address the organizational needs identified during the requirements analysis phase. Among the sub-characteristics, Functional Correctness received the highest rating (4.67, Highly Compliant), demonstrating that the system accurately performs its intended tasks without errors. Functional Completeness (4.21, Highly Compliant) confirms that all necessary functions identified in the Project Control List were successfully implemented, while Functional Appropriateness (4.17, Compliant) indicates that the provided functions suitably address user needs. These results validate that the system effectively digitizes the core processes of member management, financial tracking, and information dissemination identified during the planning phase.

Table 6: Performance Efficiency.

Criteria	Mean	Description
Time Behaviour	4.14	Compliant
Resource Utilization	4.67	Highly Compliant
Capacity	4.13	Compliant
Weighted Mean	4.31	Highly Compliant

Source: Author, (2026).

Table 6 presents the performance efficiency evaluation, which attained a weighted mean of 4.31, interpreted as Highly Compliant. Resource Utilization scored 4.67 (Highly Compliant), reflecting the system's efficient use of underlying hardware and software resources during operation. Time Behavior (4.14, Compliant) and Capacity (4.13, Compliant) both received compliant ratings, indicating acceptable response times and the ability to handle expected user loads. These findings suggest that the system performs efficiently under normal operating conditions, addressing the organizational requirement for a responsive digital platform capable of supporting daily administrative activities.

Table 7: Compatibility.

Criteria	Mean	Description
Co-existence	4.09	Compliant
Interoperability	4.01	Compliant
Weighted Mean	4.05	Compliant

Source: Author, (2026).

The compatibility evaluation, detailed in Table 7, yielded a weighted mean of 4.05, interpreted as Compliant. Both sub-characteristics—Co-existence (4.09, Compliant) and Interoperability (4.01, Compliant)-received compliant ratings, indicating that the system can operate alongside other software applications without adverse interference and can successfully exchange information with external systems. While these ratings are slightly lower than other quality characteristics, they remain within the compliant range, confirming that the system meets basic compatibility requirements for integration within the existing organizational technology environment.

Table 8: Usability.

Criteria	Mean	Description
Appropriateness Recognizability	4.14	Compliant
Learnability	4.67	Highly Compliant
Operability	4.67	Highly Compliant
User Error Protection	4.11	Compliant
User Interaction Aesthetics	4.67	Highly Compliant
Accessibility	4.22	Highly Compliant
Weighted Mean	4.41	Highly Compliant

Source: Author, (2026).

Table 8 reveals that usability emerged as the highest-rated quality characteristic, achieving a weighted mean of 4.41, interpreted as Highly Compliant. Several sub-characteristics received exceptional ratings of 4.67 (Highly Compliant), including Learnability, Operability, and User Interaction Aesthetics.

These results demonstrate that users found the system intuitive to learn, easy to operate, and visually appealing in its interface design. Accessibility (4.22, Highly Compliant) confirms that the system accommodates users with diverse needs, while Appropriateness Recognizability (4.14, Compliant) and User Error Protection (4.11, Compliant) indicate that users can readily understand the system's purpose and are protected from common operational mistakes. The high usability ratings directly address the identified problem of transitioning users from manual to digital processes, confirming that the system's design successfully minimizes the learning curve and promotes user adoption.

Table 9: Reliability.

Criteria	Mean	Description
Maturity	4.14	Compliant
Availability	4.67	Highly Compliant
Fault Tolerance	4.25	Highly Compliant
Recoverability	4.03	Compliant
Weighted Mean	4.27	Highly Compliant

Source: Author, (2026).

The reliability evaluation, presented in Table 9, achieved a weighted mean of 4.27, interpreted as Highly Compliant. Availability (4.67, Highly Compliant) and Fault Tolerance (4.25, Highly Compliant) received particularly strong ratings, indicating that the system remains accessible when needed and can continue operating properly in the event of component failures. Maturity (4.14, Compliant) and Recoverability (4.03, Compliant) both fell within the compliant range, suggesting that while the system demonstrates stability, there remains opportunity for enhancement in its ability to restore functionality after disruptions. Overall, the reliability ratings confirm that the system provides the dependable performance required for critical organizational record-keeping functions.

Table 10: Security.

Criteria	Mean	Description
Confidentiality	4.14	Compliant
Integrity	4.45	Highly Compliant
Non-repudiation	4.36	Highly Compliant
Accountability	4.67	Highly Compliant
Authenticity	4.15	Compliant
Weighted Mean	4.35	Highly Compliant

Source: Author, (2026).

As shown in Table 10, the security evaluation attained a weighted mean of 4.35, interpreted as Highly Compliant. Accountability received the highest rating (4.67, Highly Compliant), reflecting the system's robust audit trail capabilities documented through username and transaction date fields in the financial modules. Integrity (4.45, Highly Compliant) and Non-repudiation (4.36, Highly Compliant) also received strong ratings, confirming that data remains protected from unauthorized modification and that transactions cannot be denied by involved parties. Confidentiality (4.14, Compliant) and Authenticity (4.15, Compliant) scored within the compliant range, indicating adequate but improvable protection of sensitive information and verification of user identities. These security ratings validate that the system adequately protects member information and financial records, addressing the transparency and accountability requirements identified during stakeholder interviews.

Table 11: Maintainability.

Criteria	Mean	Description
Modularity	4.20	Compliant
Reusability	4.45	Highly Compliant
Analyzability	4.67	Highly Compliant
Modifiability	4.01	Compliant
Testability	4.11	Compliant
Weighted Mean	4.28	Highly Compliant

Source: Author, (2026).

Table 11 presents the maintainability evaluation, which achieved a weighted mean of 4.28, interpreted as Highly Compliant. Analyzability received the highest rating (4.67, Highly Compliant), indicating that the system's code and structure facilitate effective diagnosis of issues when they arise. Reusability (4.45, Highly Compliant) and Modularity (4.20, Compliant) suggest that system components are designed for potential reuse in future applications. Modifiability (4.01, Compliant) and Testability (4.11, Compliant) received compliant ratings, confirming that the system can be modified and tested with reasonable effort. These results indicate that the system was developed with sound software engineering practices that will facilitate future enhancements and maintenance activities.

Table 12: Portability.

Criteria	Mean	Description
Adaptability	4.25	Highly Compliant
Installability	4.30	Highly Compliant
Replaceability	4.28	Highly Compliant
Weighted Mean	4.27	Highly Compliant

Source: Author, (2026).

The portability evaluation, detailed in Table 12, achieved a weighted mean of 4.27, interpreted as Highly Compliant. All three sub-characteristics—Adaptability (4.25, Highly Compliant), Installability (4.30, Highly Compliant), and Replaceability (4.28, Highly Compliant)—received highly compliant ratings. These results demonstrate that the system can be effectively adapted to different environments, installed efficiently on target platforms, and can potentially replace existing systems with minimal disruption. The high portability ratings confirm that the web-based architecture, implemented using PHP and JavaScript with a MySQL database, successfully delivers the cross-platform accessibility required for organizational deployment.

Table 13: ISO/IEC 25010 Mean Quality Evaluation Results.

Criteria	Mean	Description
Functional Suitability	4.35	Highly Compliant
Performance Efficiency	4.31	Highly Compliant
Compatibility	4.05	Compliant
Usability	4.41	Highly Compliant
Reliability	4.27	Highly Compliant
Security	4.35	Highly Compliant
Maintainability	4.28	Highly Compliant
Portability	4.27	Highly Compliant
Weighted Grand Mean	4.28	Highly Compliant

Source: Author, (2026).

Table 13 provides a consolidated summary of the ISO/IEC 25010 evaluation results, revealing a weighted grand mean of 4.28 across all eight quality characteristics, interpreted as Highly Compliant. Usability emerged as the strongest characteristic (4.41), followed by Functional Suitability and Security (both 4.35). Compatibility received the lowest rating (4.05), though still within the compliant range. The consistently high ratings across all quality dimensions demonstrate that the CIGA system successfully meets international software quality standards, validating the effectiveness of the iterative development approach employed. The results confirm that the system adequately addresses the identified organizational challenges of manual record-keeping, inefficient information dissemination, and lack of financial transparency, providing a robust digital platform that enhances administrative efficiency and service delivery for the City of Ilagan Gay Association. The high compliance ratings, particularly in usability and functional suitability, suggest strong potential for successful adoption by end users and sustainable integration into organizational workflows.

V. CONCLUSIONS

The research successfully developed and evaluated the "CIGA: Cybernated Intelligence for Gays in Action" online record management system, effectively transitioning the City of Ilagan Gay Association from an inefficient manual framework to a robust digital platform. By utilizing an iterative software development methodology, the project addressed the organization's specific administrative needs, including member registration, financial tracking of fees and assistance, and streamlined information dissemination. The system's performance, evaluated against ISO/IEC 25010 standards, achieved a weighted grand mean of 4.28, interpreted as "Highly Compliant". Exceptional ratings in usability (4.41) and functional suitability (4.35) confirm that the web-based architecture (built on PHP, JavaScript, and MySQL) is not only technically sound but also highly intuitive for end-users. Ultimately, this research demonstrates that a tailor-fit electronic system can successfully modernize organizational workflows, providing the security, reliability, and accessibility necessary for sustainable community management.

VI. FUTURE WORKS

Building on the "Highly Compliant" performance of the CIGA system, future research should prioritize enhancing compatibility (4.05) and interoperability (4.01) to facilitate seamless data exchange with broader government or social service databases. Given the sensitivities involved in managing records for marginalized communities, subsequent studies must address the lower-rated security sub-characteristics of confidentiality (4.14) and authenticity (4.15) through the integration of advanced encryption and multi-factor authentication protocols. The system's architecture could also be evolved from a web-based client-server model into a Progressive Web Application (PWA) or a dedicated mobile app to improve offline accessibility and real-time communication for members with limited internet connectivity. Additionally, incorporating data analytics and visualization within the Report Generation Module would allow administrators to perform more sophisticated trend analyses on member demographics and financial disbursements. Finally, a longitudinal study involving a larger sample size and more diverse stakeholders is recommended to assess the system's long-term impact on organizational transparency and its potential scalability as a template for other marginalized community-based organizations that are currently underserved by existing ICT solutions.

VII. AUTHOR'S CONTRIBUTION

Conceptualization: Jhoan Valdez Paguirigan.

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Investigation: Jhoan Valdez Paguirigan.

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