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RESEARCH ARTICLE

DESIGN, DEVELOPMENT, AND DEPLYMENT OF ARCHIVAL INFORMATION MANAGEMENT SYSTEM (AIMS) FOR THE LOCAL CIVIL REGISTRY OF LASAM, CAGAYAN

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[1]Princess Dianne B. Brunio/ [2]Billy S. Javier, PhD., DIT

[1]Student -Author, Graduate School, CSU – Aparri / [2]Co-Author, College of Information and Computing Sciences Cagayan State University at Aparri

Abstract

Civil registration is essential for establishing legal identity and ensuring access to public services; however, many local civil registry offices, particularly in rural areas, continue to rely on manual, paper-based systems, resulting in inefficiencies, delays in service delivery, difficulty in record retrieval, and increased risk of data loss or damage. This study addressed these challenges by developing an Archival Information Management System (AIMS) tailored to the operational needs of the Local Civil Registry of Lasam, Cagayan. The study aimed to determine how a digital archival system could improve the efficiency, accuracy, and accessibility of civil registry records. Using a descriptive-analytical research design and developmental approach, data were gathered through interviews, observations, and document analysis. The system was developed using the Agile Software Development Model under the System Development Life Cycle (SDLC) and evaluated using ISO 25010:2023 standards and the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2). Results revealed that AIMS significantly improved record management through faster data encoding, efficient storage, and quick retrieval of records, demonstrating very high quality and high user acceptance. The study concludes that AIMS enhances operational efficiency and public service delivery and is recommended for adoption in other local government units.

Keywords: *archival information system, civil registry, digital transformation, ISO 25010, UTAUT2*

*Corresponding author: princessdianne0102@gmail.com

INTRODUCTION

Civil registration is the official, continuous, and compulsory process for documenting vital life events such as births, deaths, and marriages, which are essential for establishing legal identity and accessing social services, including education, healthcare, employment, and protection of human rights. In the Philippines, Republic Act No. 3753 mandates the establishment of a civil register to record acts, events, legal instruments, and court decrees concerning civil status. However, the Local Civil Registry of Lasam, Cagayan, currently manages records manually using hard-bound folders, resulting in document misplacement, damage, difficulty in locating records, and time-consuming retrieval processes, leading to delays and inefficiencies in service delivery.

This study addressed these challenges by designing, developing, and deploying an Archival Information Management System focused on birth, death, and marriage records. While previous studies highlight the theoretical advantages of digital archiving, this research implemented a functional system tailored for a rural local government unit. The system supports UNDP Sustainable Development Goals, particularly SDG 9, SDG 10, and SDG 16, by promoting innovation, reducing inequalities, and strengthening institutions.

The system offers low-cost development using VB.NET and MySQL Server, adaptability for digitizing existing records, improved data protection, backup features, access control, and reduced human errors. Evaluation from IT experts and end-users provided feedback for system refinement, demonstrating its potential for adoption in other municipalities facing similar challenges.

OBJECTIVES OF THE STUDY

This study aimed to design, develop and deploy an ARCHIVAL INFORMATION MANAGEMENT SYSTEM (AIMS) for the local civil registry of Lasam, Cagayan.
Specifically, the study sought to:

1. determine the current practices, procedures, policies and challenges faced by the Local Civil Registry of Lasam in managing civil registry record;
2. design and develop a digital archival information management system (AIMS) addressing the identified challenges and issues;
3. determine the assessment level of the developed AIMS among IT Experts in terms of:
   - 3.a. functional suitability,
   - 3.b. performance efficiency,
   - 3.c. compatibility,
   - 3.d. usability,
   - 3.e. reliability,
   - 3.f. security,
   - 3.g. maintainability, and
   - 3.h. portability, and
4. determine the assessment level of the developed AIMS among End Users in terms of:
   - 4.a. performance expectancy,
   - 4.b. effort expectancy,
   - 4.c. social influence,
   - 4.d. facilitating conditions,

4.e. hedonic motivation,
4.f. habit,
4.g. behavioral intention,
4.h. perceived ease of use,
4.i. perceived usefulness,
4.j. self-efficacy,
4.k. response efficacy, and
4.l. adoption intentions.

CONCEPTUAL FRAMEWORK

The foundation of this study is grounded in national laws and policies governing civil registration, data protection, records management, and government digitalization, which collectively support the development of an Archival Information Management System (AIMS) for the Local Civil Registry of Lasam. Republic Act No. 3753 mandates that civil registry documents be recorded accurately, stored safely, and made accessible, with the Local Civil Registrar responsible for proper record management. Republic Act No. 9470 requires government offices to implement systematic records management and preservation practices, while Republic Act No. 10173 ensures the security and confidentiality of personal and sensitive data. In addition, Philippine Statistics Authority Memorandum Circular No. 2016-31 provides guidelines on the management, storage, indexing, and retrieval of civil registry documents, and Executive Order No. 429 promotes digital transformation, data standardization, and secure, interoperable government systems.

This study was guided by ISO 25010:2023 Software Quality Model and the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) in developing and evaluating AIMS. It utilized the Agile approach within the System Development Life Cycle (SDLC) and applied the Input-Process-Output (IPO) model, from identifying limitations of manual record-keeping to system design, development, deployment, and evaluation. IT experts assessed system quality using ISO standards, while end-user acceptability was evaluated through UTAUT2.

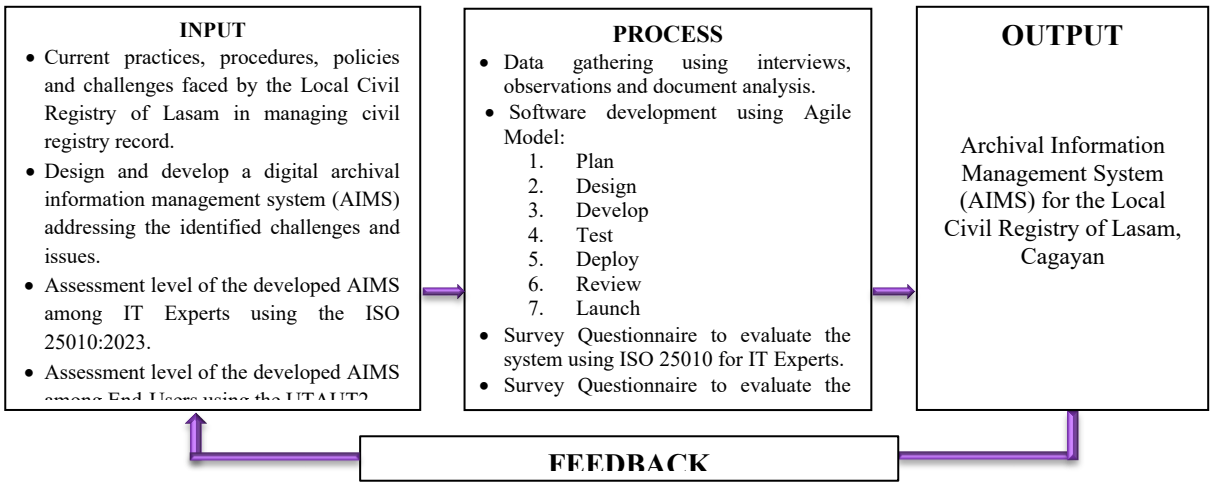

Figure 1 : Input-Process-Output Diagram

Figure 1 presents the Input-Process-Output framework that supported the design, development, deployment, and assessment of the Archival Information Management System (AIMS) for the Local Civil Registry of Lasam, Cagayan. The input phase includes data collection on the current practices, procedures, and challenges encountered by local civil registry staff in handling records, as well as the design and development of AIMS to address these issues, and the establishment

of evaluation criteria based on ISO 25010:2023 for IT experts and the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) for end-users. The process phase involves data gathering through interviews, observations, and document analysis, alongside the development of AIMS using Agile software development, which includes iterative planning, designing, developing, testing, deploying, reviewing, and launching. ISO 25010:2023 and UTAUT2 survey questionnaires were administered to measure system quality and user acceptance. The output phase is the successful design, development, and deployment of AIMS customized to the operational requirements of the local civil registry, while the feedback mechanism supports continuous system enhancement based on evaluation results and user input, ensuring efficiency, usability, and improved accuracy and accessibility of civil registry records.

METHODOLOGY

This study employed a descriptive-analytical research design and developmental approach to document and describe the current processes of the Local Government Unit of Lasam, identify specific strengths and issues in the workflow through semi-structured interviews, and analyze collected data to determine what is working, what is not, and why automation should be implemented. A SWOT analysis was utilized to evaluate the strengths, weaknesses, opportunities, and threats within the existing workflow. For the developmental approach, the Agile model under the System Development Life Cycle (SDLC) framework was used for system development. Following the analysis phase, the system was developed in response to the data gathered, incorporating suggested improvements and addressing the identified strengths and weaknesses of the current workflow process.

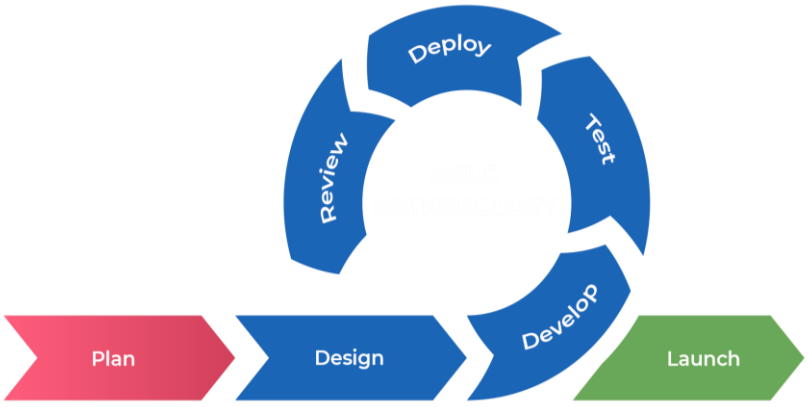

Figure 2 : Agile Model for system development

The development of the Archival Information Management System (AIMS) for the Local Civil Registry of Lasam, Cagayan utilized the Agile Software Development Model to ensure continuous improvement and alignment with user requirements. The planning phase defined system objectives and requirements based on existing manual processes, while the design phase established the system architecture, database structure, and interface, considering usability, security, and scalability. In the development phase, the system was built in modular components with continuous feedback from IT experts and staff. The testing phase verified accuracy, reliability, and responsiveness to meet software quality standards. Deployment was conducted gradually to minimize operational disruption, followed by a review phase that incorporated user feedback for improvement. The launch phase marked full implementation, supported by training and user orientation to facilitate the transition from manual to digital processes.

This study employed a purposive sampling procedure targeting end-users from the Local Civil Registry Office of Lasam, composed of five (5) staff members who served as respondents for the semi-structured interviews and UTAUT2 survey, as they directly interact with the current workflow

and provide first-hand feedback on the system's functionality, particularly in data input, storage, and retrieval. Additionally, ten (10) IT experts participated as respondents for the ISO 25010:2023 quantitative survey, contributing specialized knowledge in databases, programming, system design, development, and information systems management to evaluate the quality of the developed Archival Information Management System (AIMS).

Data collection began with securing permission from the Municipal Mayor of Lasam, followed by semi-structured interviews with Civil Registry staff and the distribution of survey questionnaires to both respondent groups. The instruments were based on ISO 25010:2023 for IT experts and the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) for end-users. The researcher personally administered the surveys, explained the purpose of the study, ensured informed consent, and collected and verified the responses for completeness before classification and analysis.

This study adhered to ethical standards by securing approval from the Cagayan State University Ethics Review Board (ERB) prior to data collection. Informed consent was obtained from all respondents, and participation was voluntary. To ensure privacy and confidentiality, no personal information was disclosed, and all data were used solely for academic purposes. All information gathered was handled securely and responsibly in accordance with ethical guidelines for managing sensitive data.

RESULTS AND DISCUSSION

Current Practices, Procedures, Policies and Challenges in Civil Registry Office of Lasam

The findings revealed four key themes in the Local Civil Registry of Lasam: current practices and procedures, reliance on manual systems, challenges in accessibility and delays, and the need for digital transformation. Respondents follow a clear and regular workflow in handling birth, death, and marriage records, including recording, checking, filing, storing, and retrieving documents; however, these procedures remain traditional and slow, with delays commonly experienced, reflecting that civil registration is a continuous and regulated process guided by legal frameworks (Celeste et al., 2021). The office continues to rely heavily on manual tools such as logbooks, folders, and filing cabinets, resulting in repetitive tasks, increased workload, and inefficiencies, especially during high client demand, which supports findings that manual systems are time-consuming and less efficient when handling large volumes of data (Manun-og, 2023). Respondents also reported difficulties in locating records, particularly older files, and delays when multiple requests occur, highlighting issues in accessibility and service delivery, which are common in resource-limited and rural settings with inadequate systems (Espiritu et al., 2023; Andaya et al., 2025). Furthermore, respondents expressed the need for a centralized and computerized system to improve efficiency, organization, and retrieval of records, aligning with studies that emphasize the role of digital transformation in enhancing accuracy, accessibility, and overall effectiveness of civil registration systems (UNECA, 2024). Overall, the findings highlight the need for a digital Archival Information Management System (AIMS) to improve efficiency, accuracy, accessibility, security, and long-term preservation of civil registry records.

Developed Archival Information Management System (AIMS)

The development of the Archival Information Management System (AIMS) responds directly to the operational limitations of manual record-keeping in the Local Civil Registry Office of Lasam. Effective records management is critical to organizational performance, as it underpins efficient service delivery and accountability in the public sector (Patimo & Maribojoc, 2021). However, as the volume of records increases, reliance on physical documents becomes increasingly difficult to manage, often resulting in delays and reduced service quality, thereby necessitating the adoption of centralized digital systems to enhance administrative efficiency (Requinto et al., 2019). The transition toward digital governance is further reinforced by the implementation of computerized systems that improve the collection, storage, and processing of information, addressing

inefficiencies associated with manual handling (Libadia et al., 2025). Moreover, automation enhances processing speed and data accuracy while reducing human error, particularly when supported by systematic planning that ensures data accessibility and integrity (Wagan et al., 2025). In the context of civil registration in the Philippines, the need to improve accuracy and streamline data entry for vital records such as birth, marriage, and death certificates has been emphasized (Guzman & Tamayo, 2024). Computerized and data-capturing systems facilitate faster and more reliable information retrieval compared to manual logbooks, while also supporting proper documentation necessary for establishing legal identity and access to services (Libadia et al., 2025). Furthermore, electronic management systems offer greater reliability and cost efficiency than traditional methods, strengthening the case for digital transformation in records management (Nordhan & ELBREN, 2025). These findings collectively substantiate the development of AIMS, particularly its emphasis on automated reporting, secure data handling, and role-based access control, as a viable solution for improving efficiency, accuracy, and long-term preservation of civil registry records.

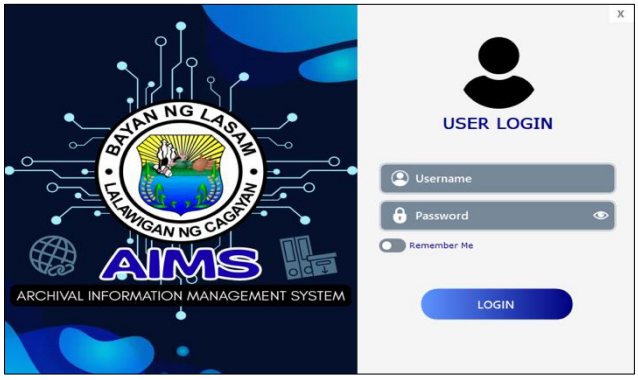

Figure 3: User Authentication Interface

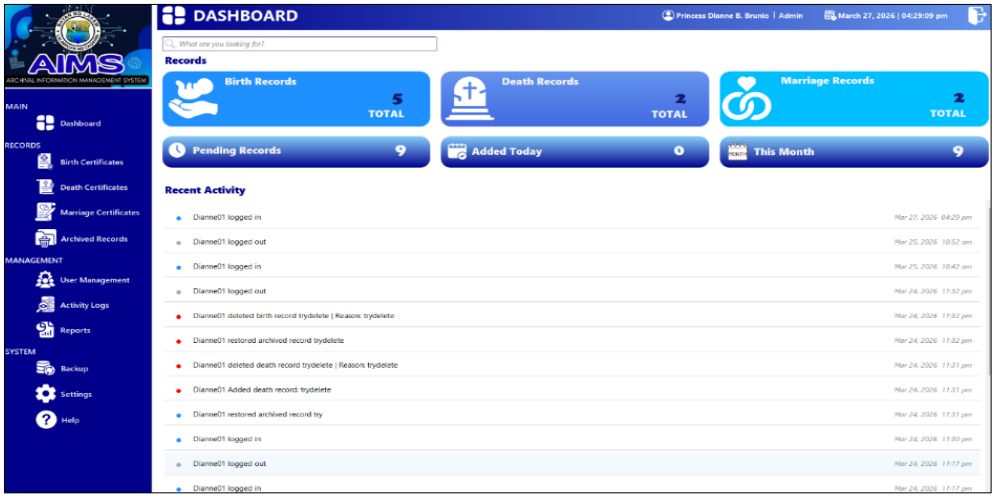

Figure 4: System Dashboard

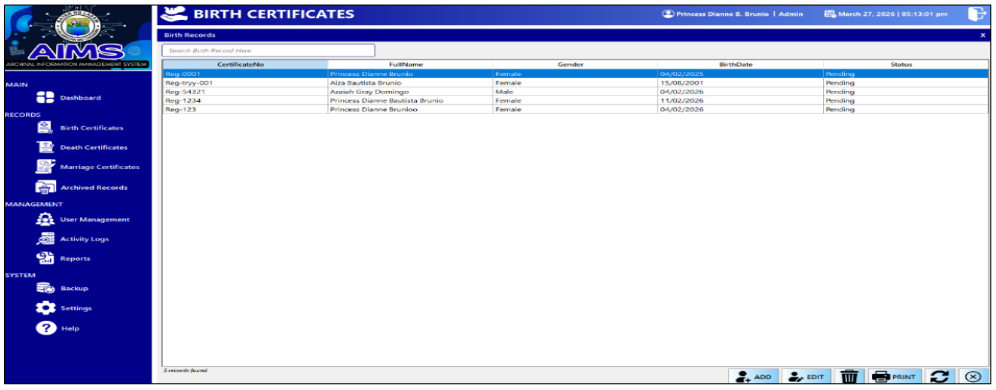

Figure 5: Birth Certificate Module Interface

Figure 6: Add and Edit Birth Record Interface

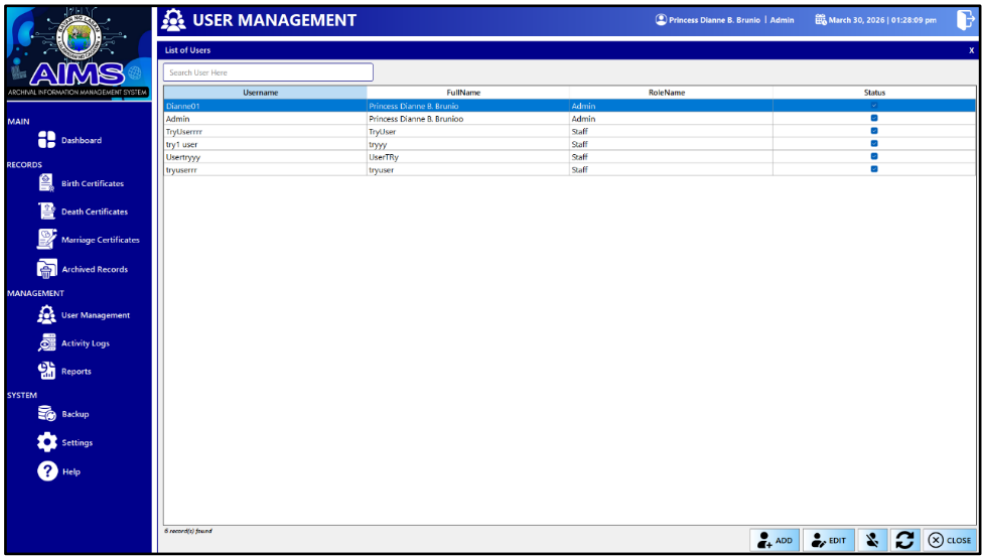

Figure 7: User Management Module Interface

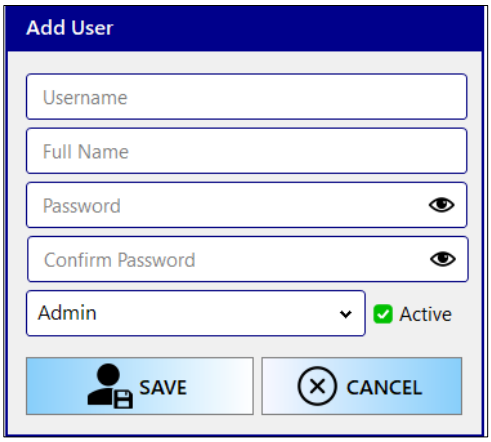

Figure 8: Add and Edit User Interface

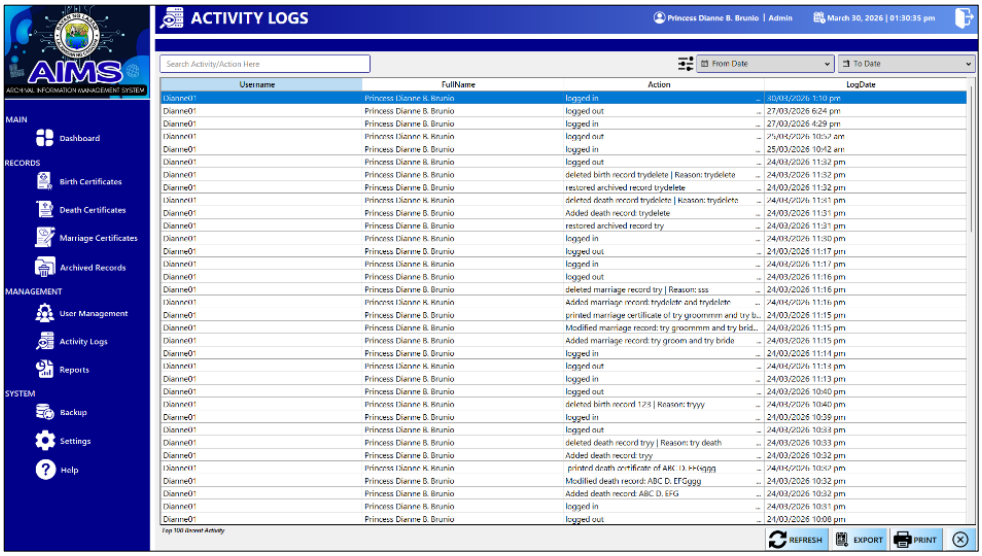

Figure 9: User Activity Logs Interface

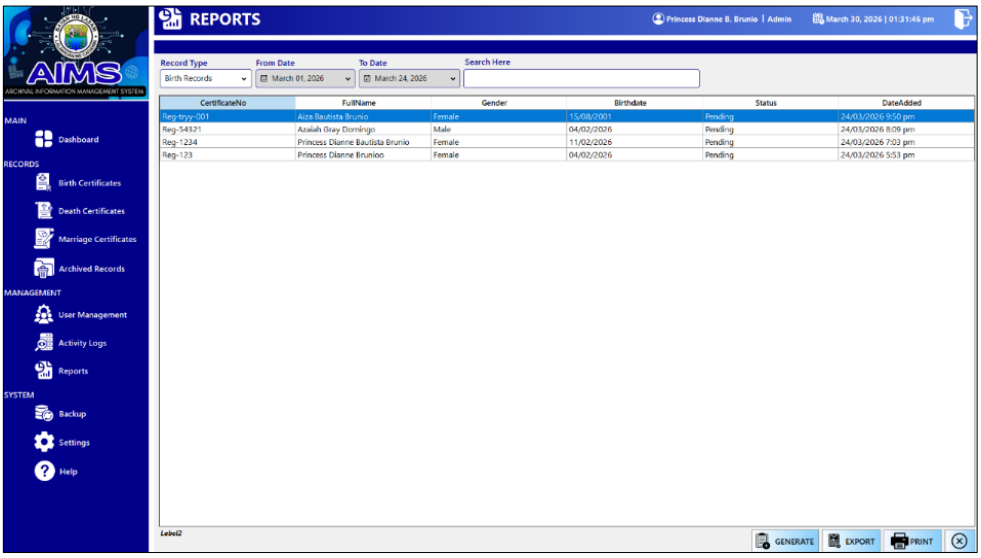

Figure 10 : Report Generation Interface

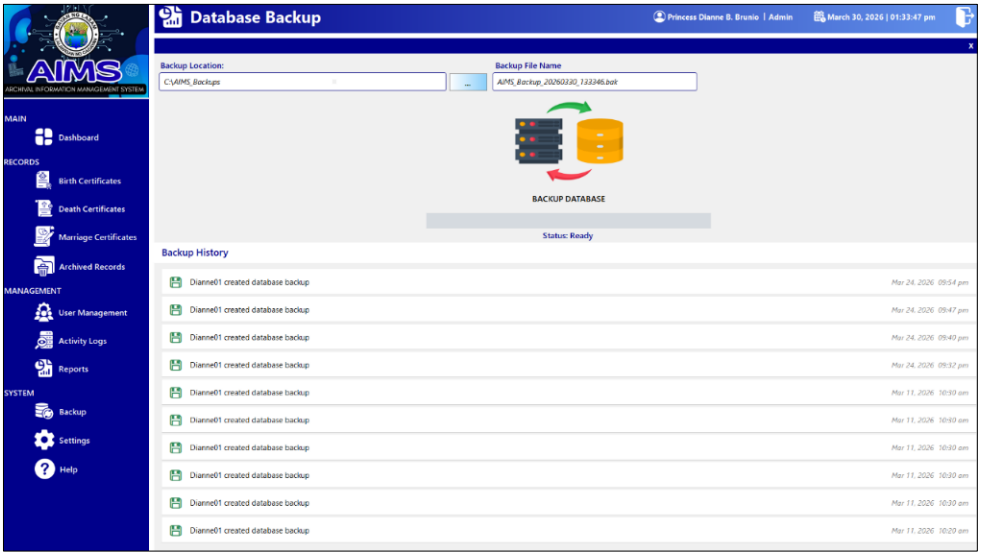

Figure 11 : Database Backup Interface

Descriptive Analysis of the IT Experts' Assessment Level of the Developed AIMS

Table 1. *Summary of IT Experts' Assessment Level of the Developed AIMS*	**Weighted Mean**	**Descriptive Value**
A. **Functional Suitability**	4.63	Very High Extent
B. **Performance Efficiency**	4.73	Very High Extent
C. **Compatibility**	4.3	Very High Extent
D. **Usability**	4.74	Very High Extent
E. **Reliability**	4.48	Very High Extent
F. **Security**	4.56	Very High Extent
G. **Maintainability**	4.64	Very High Extent
H. P**ortability**	4.17	High Extent
General Weighted Mean	**4.53**	**Very High Extent**

Table 1 presents the IT experts' assessment of the Archival Information Management System (AIMS) based on the ISO 25010:2023 software quality model, with an overall weighted mean of 4.53, interpreted as "Very High Extent," indicating strong system performance and high acceptability. Usability (4.74) received the highest rating, reflecting ease of use and a positive user experience, while portability (4.17) obtained the lowest, though still within "High Extent," suggesting minor limitations in adaptability. Overall, the system is highly functional, efficient, and user-friendly. The findings further indicate that users can easily understand and utilize the system, contributing to user satisfaction, consistent with studies showing that automated systems enhance efficiency and reduce workload (Torab-Miandoab et al., 2025). High ratings across other components confirm that the system meets user needs, as functional suitability remains a key indicator of system effectiveness (Moumane et al., 2024). Although portability scored relatively lower, it still falls within acceptable levels and indicates an area for improvement, which is common in initial system implementations (Pérez-Castillo et al., 2022). Overall, the results emphasize the importance of reliable software in supporting digital transformation (Lagstedt et al., 2021).

Descriptive Analysis of the End Users' Assessment Level of the Developed AIMS

Table 2. *Summary of End Users' Assessment Level of the Developed AIMS (Acceptability and Usability)*	**Weighted Mean**	**Descriptive Value**
A. Performance Expectancy	5	Strongly Agree
B. Effort Expectancy	5	Strongly Agree
C. Social Influence	4.93	Strongly Agree
D. Facilitating Conditions	4.95	Strongly Agree
E. Hedonic Motivation	4.7	Strongly Agree
F. Habit	4.6	Strongly Agree
G. Behavioral Intention	5	Strongly Agree
H. Perceived Ease of Use	5	Strongly Agree
I. Perceived Usefulness	5	Strongly Agree

J. Self-Efficacy	5	Strongly Agree
K. Response Efficacy	5	Strongly Agree
L. Adoption Intentions	5	Strongly Agree
General Weighted Mean	**4.91**	**Strongly Agree**

Table 2 presents the overall summary of the system's acceptability and usability based on UTAUT2, with a general weighted mean of 4.91, interpreted as "Strongly Agree," indicating a very high level of user acceptance of the developed system. The highest-rated constructs were Performance Expectancy, Effort Expectancy, Behavioral Intention, Perceived Ease of Use, Perceived Usefulness, Self-Efficacy, Response Efficacy, and Adoption Intentions, all with a perfect mean of 5.00, showing that users strongly perceive the system as useful, easy to use, and effective in supporting their tasks. Meanwhile, the lowest mean was observed in Habit (4.60), followed by Hedonic Motivation (4.70), although both are still interpreted as "Strongly Agree," suggesting that system use is not yet fully habitual and may still be improved in terms of user engagement and routine integration. These findings are consistent with studies indicating that performance expectancy and effort expectancy significantly influence behavioral intention and system use (Tamilmani et al., 2021). The strong ratings in perceived usefulness and ease of use further indicate that users are more likely to adopt and continuously use the system, as usability significantly affects user satisfaction and system effectiveness (Januhari et al., 2025). This is further supported by studies emphasizing that user acceptance plays a critical role in the successful implementation of information systems, particularly when systems are perceived as useful and easy to use (Javier et al., 2023). Overall, the results confirm that the developed AIMS for the Local Civil Registry of Lasam is highly usable, effective, and well accepted by users, with strong potential for continued use and adoption.

CONCLUSION

The study aimed to address the challenges of the local civil registry of Lasam in managing their records using manual processes through the development of an Archival Information Management System (AIMS) that offers a more organized and efficient way of handling archival processes. The system includes key features such as secure user authentication, dashboard monitoring, record management for birth, death, and marriage certificates, advanced search and retrieval, document upload and scanning, user access control, activity logging, report generation, and database backup and recovery. The findings revealed that the system is functional, efficient and reliable. It also met the ISO 25010 software quality standard and received very high ratings in terms of acceptability and usability. Users likewise found the system useful and easy to its intended setting. These findings suggest that the system can be adopted and maintained easily. Overall, AIMS helps improve the organization, efficiency, and accessibility of record management. However, the system's portability is one area that still needs improvement so that it can be adapted to different platforms such as mobile devices accessing the system through web. Continuous evaluation and enhancement of the system is also recommended, to ensure that the system remains responsive and stay updated with users' needs and technological changes.

RECOMMENDATIONS

The findings of the study are further used to recommend the following:

1. Institutions should consider adopting the developed Archival Information Management System (AIMS) to improve the efficiency and organization of their record management processes. Proper orientation and training should also be provided to users to ensure effective utilization of the system.

2. Developers should continue to monitor and evaluate the system's performance to ensure its sustainability. Also, regular updates and maintenance should be made to further address emerging technical issues and to enhance system functionality.
3. Users are encouraged to continuously utilize the system in their daily tasks to maximize its benefits. As such, familiarity with the system should further improve efficiency and contribute to the development of habitual use.
4. Future enhancements of the system should focus on improving portability to allow easier adaptation across different platforms and environments including the optimization of system compatibility and ensuring that it can function effectively under different conditions.

REFERENCES

Andaya, Eduardo & Orlina, Russel & Ilustre, Ramil. (2025). Digital governance in the Philippines: a scoping review of current challenges and opportunities. Global Sustainability Research. 4. 89-111. 10.56556/gssr.v4i1.1204.

Andaya, E., Orlina, R., & Ilustre, R. (2025). Digital governance in the Philippines: A scoping review of current challenges and opportunities. Global Sustainability Research, 4, 89–111. https://doi.org/10.56556/gssr.v4i1.1204

Celeste, J. G., & Caelian, M. V. (2021). Civil registration awareness, compliance, purpose, and challenges among municipal residents in the Philippines. Philippine Social Science Journal, 4(2), 104–114. https://doi.org/10.52006/main.v4i2.332

Espiritu, P., Manzon, R., & Florencondia, N. (2023). Digital transformation adoption in the local government unit (LGU) of the Science City of Muñoz, Nueva Ecija: The challenges and best practices. The QUEST: Journal of Multidisciplinary Research and Development, 2. https://doi.org/10.60008/thequest.v2i3.137

Guzman, E., & Tamayo, M. (2024). Effectiveness of civil registration services in one Philippine component city: Basis for action plan. Asia Pacific Journal of Management and Sustainable Development, 12(2), 162. https://doi.org/10.70979/zqre5242

Javier, B. S., Paliuanan, L. P., Agpalza, J. K. A., & Agoto, J. S. (2023). MangngalApp -- An integrated package of technology for COVID-19 response and rural development: Acceptability and usability using TAM. arXiv (Cornell University). https://doi.org/10.48550/arxiv.2301.02893

Januhari, N. N. U., Setyanto, A., Kusrini, K., Utami, E., & Martínez-Béjar, R. (2025). Evaluation of e-learning usability based on ISO 25010 with Hofstede's cultural dimensions as moderation: A PLS-SEM study in higher education. Applied Information System and Management (AISM), 8(1), 159. https://doi.org/10.15408/aism.v8i1.45738

Lagstedt, A., Dirin, A., & Williams, P. (2021). Quality practitioners' differing perspectives on future software quality assurance practices. International Journal of Interactive Mobile Technologies (iJIM), 15(24), 134. https://doi.org/10.3991/ijim.v15i24.20123

Libadia, M., Botangen, K. A., Lucero, P. J., & Tecson, J. (2025). Development of a web-based records management system: An ERMS initiative for the Office of Senior Citizen Affairs in the Philippines. Records Management Journal, 35(2), 160. https://doi.org/10.1108/rmj-06-2023-0031

Manun-Og, M., & Flores, J. B. (2023). Optimizing registry of inhabitants' record management: the development of municipal consolidation system for local governance. *SciEnggJ*, *17*(1), 1–7. https://doi.org/10.54645/vthw47150

Moumane, K., Idri, A., Aouni, F. E., Laghnimi, J., Benabdellah, N. C., & Hamal, O. (2024). ISO/IEC 25010-based quality evaluation of three mobile applications for reproductive health services in Morocco. Clinical and Experimental Obstetrics & Gynecology, 51(4). https://doi.org/10.31083/j.ceog5104088

Nordhan, U., & Elbren, A. (2025). SRSYS: A web-based solution for efficient school record management. Zenodo. https://doi.org/10.5281/zenodo.15500889

Patimo, D. M., & Maribojoc, R. P. (2021). University electronic records management system for Northwest Samar State University, Calbayog City. Logic Jurnal Rancang Bangun Dan Teknologi, 21(1), 1. https://doi.org/10.31940/logic.v21i1.2145

Pérez-Castillo, R., Paiva, A. C. R., & Cavalli, A. (2022). Special issue on information systems quality for digital transformation. Software Quality Journal, 30(4), 953. https://doi.org/10.1007/s11219-022-09608-y

Requinto, A. M. R., Macapagal, R. A. C., Cortez, C. A., Pineda, A. A., Canlas, F. Q., & Natividad, R. (2019). Implementing document management system (DMS) technology in Barangay Paligui, Apalit, Pampanga. Zenodo, 2(1), 1. https://doi.org/10.5281/zenodo.5209762

Tamilmani, K., Rana, N. P., & Dwivedi, Y. K. (2020). Consumer acceptance and use of information technology: A meta-analytic evaluation of UTAUT2. Information Systems Frontiers, 23(4), 987. https://doi.org/10.1007/s10796-020-10007-6

Torab-Miandoab, A., Samad-Soltani, T., Jodati, A., Akbarzadeh, F., & Rezaei-Hachesu, P. (2025). The impact of electronic medical records on clinical documentation: A case study. Journal of Education and Health Promotion, 14(1), 246. https://doi.org/10.4103/jehp.jehp_320_24

United Nations Economic Commission for Africa. (2024). Linking civil registration to vital statistics and legal identity system is essential for inclusive governance. https://www.uneca.org

Wagan, M. A. A., Briones, J., Baldovino, F. P., & Refozar, R. F. G. (2025). Digital transformation in the records management of a private higher education institution in the Philippines. International Journal of Marketing and Digital Creative, 3(1), 18. https://doi.org/10.31098/ijmadic.v3i1.2878