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Development of Information System for Managing Scholarship for the Diocese of Bandung, Indonesia

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Abstract

The Diocese of Bandung serves as an ecclesiastical territory of the Roman Catholic Church in West Java, Indonesia, comprising 30 parishes. The Diocese oversees various social services, including the Peduli Pendidikan (Pelikan) community. Pelikan's primary objective is to empower high-achieving young Catholics through scholarship and mentorship programs. The scholarship management process traditionally relied on manual, paper-based workflows, leading to inefficiencies in data tracking and communication between parishes, students, and the central administration. To address these challenges, this community engagement project aimed to design and implement SI Pelikan, an integrated information system to streamline the scholarship lifecycle. The system was developed using a hybrid method, combining Waterfall and Agile system development. SI Pelikan was launched at the Parahyangan Catholic University Data Center in February 2026 and has since been accessed via the internet by its active users. Results from an evaluation involving users from 26 parishes revealed high user satisfaction. The system successfully transitioned users into a digital ecosystem by using all features provided for them. While infrastructural constraints like internet connectivity persist, the project achieved its goals by establishing a sustainable platform. Future sustainability will focus on data portability and automated notifications to further enhance the scholarship program's impact on the community.

Keywords: *agile, hybrid method development, management information system, waterfall model*

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Introduction

The Church maintains a steadfast commitment to uplifting those in need, viewing such support not merely as an act of charity, but as a profound expression of compassion, justice, and social solidarity (Franciscus, 2020; Wright, 2017). By facilitating access to higher education for disadvantaged individuals, particularly students from low-income families, the Church fosters both individual empowerment and the holistic growth of the community. Within the diocesan structure, this mission is frequently realized through organized scholarship programs dedicated to supporting congregants who face financial barriers to academic advancement.

The Diocese of Bandung serves as an ecclesiastical territory of the Roman Catholic Church, encompassing the eastern and central regions of Parahyangan in West Java. Comprising 27 parishes, the Diocese is strategically organized into five deaneries:

a. West Bandung: Consists of 5 parishes situated across the city of Bandung, Cimahi, and the West Bandung Regency.
b. East Bandung: Comprises 4 parishes located within Bandung city.
c. Southern Bandung: Includes 6 parishes in Bandung city and its surrounding regency.
d. Priangan: The largest deanery, featuring 9 parishes across the cities and regencies of Cirebon and Tasikmalaya, the regencies of Kuningan, Garut, Indramayu, and Ciamis.
e. Pantura: Comprises 6 parishes located within the Karawang, Subang, and Purwakarta regencies.

The geographical boundaries of these parishes are delineated in Figure 1.

Fig. 1. Map of Diocese of Bandung with its parishes' boundaries in West Java

The Diocese of Bandung oversees various social service initiatives, most notably the *Peduli Pendidikan (Pelikan)* community. Established as a living implementation of the Diocese's core mission, *"One Heart, One Soul, Sharing Joy,"* Pelikan serves as a concrete manifestation of *Ut Diligatis Invicem,* a call to love one another through dedicated service to those in need. The community manages an educational assistance program characterized by its charitable, non-binding nature, providing essential support to the youth of the church.

Pelikan's primary objective is to empower high-achieving young Catholics, distinguished by both academic excellence and diverse talents, through comprehensive scholarship and mentorship programs. The community maintains an active digital presence via Instagram to disseminate information and engage with the congregation. To qualify, candidates must demonstrate academic merit and a consistent record of service within church and civic organizations. The selection process is rigorous, involving document verification, interviews, and preliminary mentoring sessions. Once admitted, recipients are bound by a commitment to accountability and are encouraged to participate in community-led events designed to cultivate the next generation of church leaders.

Prior to the development of the proposed information system, Pelikan's administrative workflows were managed manually through the following stages:

a. Registration: Applicants submitted their credentials either through their respective parishes or directly to the Diocese of Bandung.
b. Selection: The Diocese assumed full responsibility for the evaluation and vetting of all candidates.
c. Monitoring: Continuous oversight of the recipients' academic progress was shared between the individual parishes and the Diocese.

During the application phase, students provide essential documentation, including baptismal certificates, academic transcripts, and verified proof of household income. The selection committee evaluates these submissions alongside interview performance, prioritizing academic potential, financial necessity, and organizational involvement. Continued funding is contingent upon semi-annual academic reviews; those who maintain the required standards are granted subsequent scholarship awards, ensuring a sustained path toward their educational goals.

The current manual management of scholarship provisions within the Diocese of Bandung has given rise to several critical challenges:

a. Information inaccessibility: Prospective students in need often face significant barriers in accessing timely and accurate information regarding available scholarship opportunities.
b. Administrative complexity: Managing documentation for applicants and recipients across diverse parishes in West Java is increasingly difficult, leading to fragmented data retrieval.
c. Transparency and accountability gaps: The lack of a centralized system hinders the ability to provide transparent financial oversight, which is essential for maintaining donor trust.
d. Ineffective academic monitoring: Tracking the progress of recipients is hampered by unorganized and scattered records, making it difficult to ensure the program's educational goals are being met.
e. Reporting inefficiencies: Producing comprehensive reports for management and stakeholders is a labor-intensive and inefficient process due to unsystematic data organization.

These systemic issues result in significant consequences for Pelikan stakeholders:

a. Equitable access: Deserving students with genuine financial needs may be inadvertently overlooked by the program.
b. Operational delays: Administrative bottlenecks may prevent the timely disbursement of funds, potentially disrupting a student's academic standing.
c. Donor retention: Without visible evidence of recipient progress or fund efficacy, donors may experience a loss of confidence, leading to a potential decline in the contributions necessary to sustain the program.

Modern organizations have increasingly embraced computer-based information systems (CBIS) as a strategic necessity to refine their managerial functions, including planning, coordination, and high-level decision-making. By leveraging these systems, organizations transform raw data into high-quality, actionable intelligence that supports critical analysis and operational oversight. Furthermore, the automation of business processes and the resulting enhancement in workflow efficiency allow institutions to remain resilient and competitive within dynamic environments. Research indicates that the effective implementation of a CBIS leads to more structured information management, a significant reduction in human error, and

optimized resource utilization, ultimately driving superior operational outcomes and peak work performance (Gupron, 2024).

By synthesizing the aforementioned challenges and their systemic impacts with the proven advantages of a CBIS, a collaborative partnership has been established between the service team and the Diocese of Bandung. This initiative aims to modernize and resolve existing scholarship management issues through the development and implementation of a robust, integrated information system.

The primary objective of this community service initiative is to develop a centralized CBIS, titled SI Pelikan. This web-based platform will serve as a unified hub for the Pelikan Scholarship Team, parish administrators, donors, and student applicants throughout the Diocese of Bandung. To ensure operational efficiency, the system provides tailored functionality for each user group: parish users can digitize and upload applicant data; the Scholarship Team can review, approve, or decline applications through a structured workflow; and both students and parishes can track application status in real time. Furthermore, the system enables continuous academic monitoring by allowing students to upload their results for immediate review by the relevant authorities.

By deploying this integrated information system, the project seeks to resolve previous systemic inefficiencies, achieving the following outcomes:

a. Universal accessibility: Prospective students can easily access scholarship information and eligibility criteria regardless of their location.
b. Centralized document management: Digital archiving eliminates the risks associated with scattered physical paperwork and simplifies data retrieval.
c. Proactive academic oversight: Real-time monitoring of recipient performance ensures that educational goals are tracked and maintained consistently.
d. Enhanced stakeholder transparency: Automated reporting provides donors with timely, accurate insights into the impact of their contributions, thereby fostering long-term trust and program sustainability.

To date, no similar system appears to have been documented as an outcome of a community service project. Information systems (IS) that have been developed for dioceses and parishes

generally provide features for managing church profiles, disseminating church-related information (such as worship schedules and announcements), and supporting the management of church activities (Frisca et al., 2023; Norotama & Chernovita, 2026; Nugroho et al., 2024). In the Philippines, Barlis et al. (2020) developed a centralized information system for a diocese and its parishes to facilitate faster information retrieval, report generation, and the preservation of valuable records. Therefore, the novelty of this community service project lies in the development of a dedicated information system for managing scholarship programs within a diocese, a domain that has received little attention in previous studies.

Methods

Throughout this community service project, the team engaged in a collaborative partnership with the system's key stakeholders within the Diocese of Bandung. This direct interaction involved the Pelikan Community leadership, parish administrators responsible for application processing, mentors providing student guidance, and the scholarship recipients themselves.

These interactions were essential for a comprehensive development lifecycle, facilitating precise user requirements analysis, the evaluation of iterative prototypes, and rigorous user acceptance testing (UAT). Following the system's launch, continued engagement allowed for the administration of user satisfaction surveys to ensure long-term efficacy. In the final phase, the service team coordinated with the Directorate of Digitalization at Parahyangan Catholic University (UNPAR) to successfully deploy and host the information system within UNPAR's professional data center infrastructure.

The Odoo framework was selected as the foundational technology for developing SI Pelikan, guided by the following strategic considerations:

a. Systemic integration and continuity: As the Diocese of Bandung already operates several other information systems built on Odoo, utilizing the same framework ensures technical consistency. This alignment facilitates seamless data exchange and interoperability between SI Pelikan and existing diocesan platforms, creating a unified digital ecosystem.
b. Rapid development and modular architecture: Odoo is a robust, open-source platform optimized for the rapid deployment of enterprise resource planning (ERP) solutions. Its

modular design allows for the seamless consolidation of diverse business processes, such as finance, logistics, and human resources, into a single interface.

c. Customization and scalability: Developed primarily in Python with a PostgreSQL backend, the framework empowers developers to either tailor existing modules or engineer entirely new ones to meet the Diocese's unique requirements. This flexibility ensures high data integrity and eliminates organizational silos through real-time data synchronization.

Developing a CBIS can be achieved through two primary paradigms, which are the traditional Waterfall model or the modern Agile methodology (Maharao, 2022; Widyantoro et al., 2025). The Waterfall follows a linear and sequential process and focuses on detailed documentation and extensive planning, while Agile methodologies focus on prioritizing collaboration, flexibility, and iterative development. However, to gain the advantages of both paradigms, a hybrid model can be adopted (Shukla, 2021).

The hybrid model for information system development integrates the structured, linear progression of the Waterfall methodology with the iterative, flexible nature of Agile to maximize project success and sustainability (Leong et al., 2023). In this approach, high-level phases such as initial requirement gathering, architectural design, and final deployment often follow a traditional sequential structure to ensure clear documentation and a defined scope (Fujita, 2023). Simultaneously, the core development and testing phases are executed using Agile frameworks like Scrum, allowing for rapid iterations, continuous stakeholder feedback, and the ability to respond to changing requirements (Shukla, 2021). By leveraging the "best of both worlds", the hybrid model provides the rigorous planning necessary for complex or regulated environments while maintaining the speed and adaptability required to deliver high-quality software in dynamic markets (Leong et al., 2023).

Building upon our previous community service initiatives, which successfully implemented CBIS solutions for retreat house room reservations (Moertini et al., 2024) and financial management (Moertini et al., 2025), we have refined our developmental approach. While those earlier projects utilized a traditional Waterfall methodology due to their stable and well-defined requirements, the complexity of the SI Pelikan project necessitates a more adaptive strategy. Although the overarching objectives and core procedures are established at the outset, the granular requirements, particularly those of the Diocesan Scholarship Team and the varying

technical capacities of parish users, are expected to evolve throughout the development lifecycle.

To address this duality, the development of SI Pelikan adopts a hybrid model that integrates the structural clarity of Waterfall with the iterative flexibility of Agile. The project is organized into three high-level sequential phases following the Waterfall structure, while allowing for internal iterations to accommodate evolving needs:

a. Requirement elicitation: A comprehensive phase dedicated to defining system goals, administrative procedures, user roles, data capture specifications, and reporting outputs.
b. Database and software development: An iterative phase involving the design of user interfaces, database architecture, and both front-end and back-end programming, punctuated by continuous testing.
c. User acceptance testing and deployment: The final phase focused on user training, system evaluation, and the official launch of SI Pelikan within the UNPAR Data Center.

The agile component of the project is executed through iterative cycles, as illustrated in Figure 2. Based on the initial requirements, a comprehensive product backlog is established to delineate detailed tasks and target milestones. For each development cycle, specific items are prioritized and moved from the general backlog into a sprint backlog. These tasks are then executed in focused bursts, supported by regular meetings to ensure alignment and the continuous delivery of an incremental product. This iterative loop allows the team to refine features and address user feedback dynamically before the final deployment.

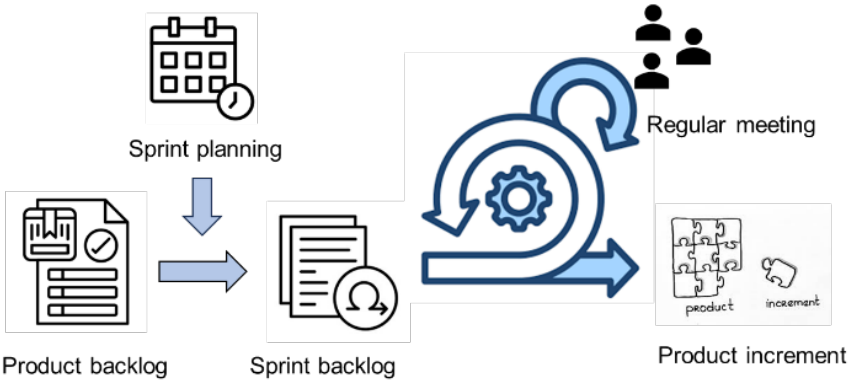

Fig. 2. Stages of system development using Agile paradigm

The following are the discussions of the activities on each of the three stages.

a. Requirement elicitation

The initial phase focused on harvesting comprehensive requirements from key stakeholders, specifically the Diocesan Scholarship Team, parish priests, and current scholarship recipients. To ensure a holistic understanding of the system's needs, the service team conducted a series of on-site surveys and virtual meetings with these primary user groups (see Figure 3).

Fig. 3. Requirement gathering meeting

By synthesizing the feedback and operational needs identified during this analysis, the service team designed a streamlined systemic procedure. This workflow is tailored to harmonize the interactions between the Diocese, the various parishes, and the individual applicants and recipients, as summarized below. Examples of procedures are as follows.

Procedure 1: Initial Scholarship Application (New Applicants)

For students seeking a scholarship for the first time, the application process is initiated through their respective parishes according to the following workflow:

1. Account creation and documentation: The student approaches the parish administration to request a scholarship application. The administrator creates a formal applicant account after which the student or the administrator uploads all necessary documents.
2. Parish verification: The parish administrator conducts a preliminary review to ensure the completeness and accuracy of the submitted documents. Once verified, the application is officially forwarded to the Diocesan Scholarship Team.
3. Diocesan evaluation: The Scholarship Team evaluates the application materials. Following this review, they may either provide a formal recommendation to the Chairperson/Deputy Chairperson or reject the application with specific feedback.

4. Final adjudication: The Chairperson or Deputy Chairperson of the Scholarship Team renders the final decision. If approved, they determine the scholarship amount; if declined, the application is returned with an explanatory note.
5. Disbursement: Upon approval, the treasurer executes the fund transfer to the recipient and uploads the proof of payment to the system for record-keeping.

Procedure 2: Scholarship Extension Application

For existing recipients seeking to renew their financial support, the extension process is integrated into the system as follows:

1. Submission of progress: Recipients formally apply for an extension by uploading their latest academic achievements.
2. Routing and approval: If the extension is processed via the parish, the workflow follows the verification and recommendation steps outlined in Procedure 1. Conversely, if handled directly by the Diocese, the process follows the evaluative steps applied in the Diocese.

Based on the designed procedures, SI Pelikan provides a comprehensive suite of features tailored to the specific responsibilities of each user category.

Administrative and Management Features

1. Main Administrator: Acts as the system's primary controller, with the authority to manage user data (including chaperones, students, and applicants), parish information, and university databases. The Administrator also governs user access rights and, due to their oversight role, can perform functions typically reserved for the Scholarship Team and the Treasurer.
2. Scholarship Team Leader: Holds the final executive authority within the system. Their features include managing institutional data, tracking the real-time status of all applications, and making the final determination on scholarship approvals. Additionally, they are responsible for generating critical financial reports and organizing diocesan-level mentoring events.
3. Scholarship Team (Pelikan Community): Operates as the evaluative body. Members can track application progress, manage university data, and provide formal

recommendations. They also have the tools to coordinate large-scale mentoring events for all recipients.

Operational and Financial Features

1. Parish Users: Serve as the local bridge to the students. They are equipped to enter data for new applicants and mentors, officially submit applications to the Diocese, and organize localized mentoring events within their respective parishes.
2. Treasurer: Focuses on financial transparency by utilizing specialized tools to generate and transmit official proof of payment directly to scholarship recipients upon the successful disbursement of funds.

Features for Students

Scholarship Students and Applicants: The system empowers students to take ownership of their academic journey. They can independently upload required documentation, apply for scholarship extensions, and track the status of their applications in real time. Furthermore, students can register for events or mentoring sessions and maintain a personal log of their achievements through the "My Activities" feature.

b. Iterative Database and Software Development

The development of SI Pelikan was executed through a series of one- to two-week sprints, each focusing on a specific functional increment of the system. This iterative structure allowed the team to build the platform progressively, as evidenced by the following sprint examples:

1. Sprints 1 and 2: Focused on the User Interface (UI) mock-up designs for parishes, students, and the Diocesan Scholarship Team.
2. Sprint 3: Dedicated to the architectural design of the database schema. Figure 4 shows the activity of reviewing the database schema.
3. Sprint 4: Development of the front-end code for student applicant profiles.
4. Sprint 5: Engineering the back-end engine required for the secure storage of applicant documentation.

Given that the development team included students working on a part-time basis, the team adopted weekly synchronization meetings rather than daily stand-ups. The sprints were completed within a six-month timeframe.

Fig. 4. Reviewing database schema activity

At the conclusion of every three to five sprints, a usable prototype was demonstrated to the Diocesan representatives and key users. These incremental releases were rolled out in the following order:

1. Main Administrator module: Features for managing master data and system settings.
2. Student/Applicant module: Functionality for document uploads and application tracking.
3. Parish module: Tools for local administration and document verification.
4. Diocesan module: Comprehensive features for the Scholarship Team and leadership.

These demonstrations functioned as a form of continuous testing, where stakeholder feedback was immediately integrated into the next sprint's backlog. This iterative loop was vital in ensuring the system remained user-friendly and fit-for-purpose, effectively mitigating the risk of over-engineering, a common challenge in digital transformation projects within the non-profit and faith-based sectors (Rigby et al., 2022).

c. User Acceptance Testing (UAT) and Deployment

Once the core features for all user categories were fully developed, the project transitioned into the final phase of testing and environmental integration. This stage was organized into several specialized sprints to ensure the system's reliability and performance:

1. Sprint 1 - UAT scenario preparation: The team developed comprehensive testing scenarios based on real-world cases to simulate the actual scholarship application. Examples of the scenarios for login, submitting an application, and tracking the submitted application are provided in Table 1.
2. Sprint 2 - UAT implementation and refinement: Stakeholders engaged in hands-on testing of the platform. Feedback gathered during this phase was immediately used to refine features and optimize the user experience.
3. Sprint 3 - Deployment environment preparation: The technical team configured the production environment within the Parahyangan Catholic University (UNPAR) Data Center, ensuring all server specifications and security protocols were met.
4. Sprint 4 - System deployment and production testing: SI Pelikan was officially deployed to the live server (the announcement is shown in Figure 5), followed by final production testing to verify that all integrations and data exchange functioned correctly in the live environment.

Table 1. Example of UAT scenario and form for parishes

No	Scenario	Steps	Expected Results	Test Result	Status (Pass/Fail)	Notes
1	Login as parish user	Enter given username and password	User logged in and get dashboard page			
2	Fill and submit application form	1. Log in as a Parishioner 2. Select "Scholarship Application" menu 3. Click "New" button 4. Fill the application form 5. Submit application (to the Scholarship Team)	Submission data is saved and sent to the Scholarship Team.			
3	Track application status	1. Select "Scholarship Application" menu. 2. Click on a student record 3. View status on top right corner of page.	Student application status is clearly displayed			

Fig. 5. Announcement of the system launching in the Diocese of Bandung office

d. System Evaluation

After the SI Pelikan was launched and utilized, an evaluation was conducted to measure the effectiveness of its features. The study utilized both quantitative and qualitative research methods (Soesana et al., 2023; Ardiansyah et al., 2023), which are summarized as follows:

1. Population Sample: The study sampled users of the SI Pelikan across the parishes of the Diocese of Bandung
2. Primary Data Collection: To minimize costs and facilitate rapid data collection, an online survey using Google Forms was distributed to users throughout all parishes of the Diocese of Bandung:
   - A quantitative approach was employed to evaluate SI Pelikan's usability by adopting the methodology proposed by Sauro and Lewis (2011). This approach modifies the original System Usability Scale by utilizing positively-worded items, which are more easily comprehended by the parishioners. The questionnaire assessed six core dimensions:
     - User interface: clarity and ease of use of the menus
     - Data input: can be performed smoothly
     - Application tracking: can be performed correctly
     - Efficiency improvements: the process is more efficient compared to the previous paper-based methods
     - Digital document management: easy and effective
     - Event coordination features: the system streamlines the process of inviting recipients to workshops, training, and mentoring sessions

Respondents rated these aspects on a 5-point Likert scale (1 = least satisfying, 5 = most satisfying).

- Regarding the qualitative component, insights were gathered through online questionnaires featuring open-ended questions rather than traditional, live interviews. This approach aligns with Harris et al. (2024), who stated that open-ended online questionnaires can effectively substitute traditional interviews for smaller sample sizes. Given that the study involved fewer than 40 respondents, this methodology was deemed appropriate. The open-ended format enabled participants to freely elaborate on their evaluations of the SI Pelikan and offer recommendations for future system development, thereby generating a rich text-based dataset.

3. Data Analysis: Numerical data analysis was conducted using a descriptive statistical approach, where the average score for each of the 6 questions was calculated to measure the success and effectiveness of the evaluated features. Textual data analysis was performed using a text summarization approach to identify key themes, subject groups, and corresponding user sentiments.

Results and Discussions

Following the successful completion of all development phases, every feature designed for the various user groups is now fully operational. SI Pelikan has been live on the Parahyangan Catholic University (UNPAR) Data Center server since February 2026, serving as the primary digital infrastructure for scholarship management within the Diocese.

Currently, users from the Diocesan office, various universities, and as many as 30 parishes access the system via the internet using a range of devices, including desktops, laptops, and mobile platforms (see Figure 6). This widespread adoption marks a significant transition from manual processes to a streamlined, integrated digital ecosystem, ensuring that the scholarship program can scale effectively while maintaining high standards of coordination and accessibility.

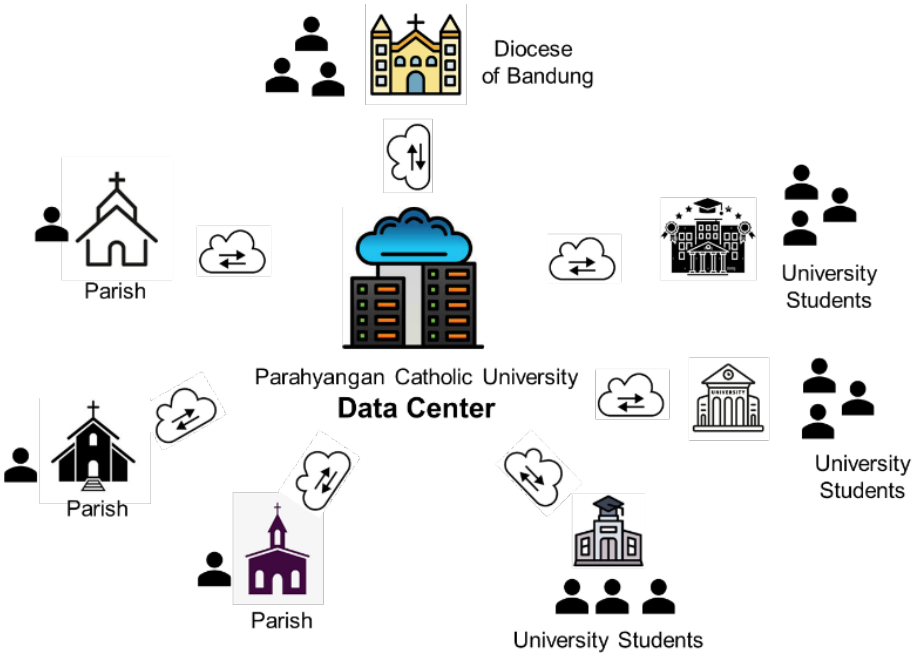

Fig. 6. Users accessing SI Pelikan via the internet

The following figures provide a representative overview of the SI Pelikan user interfaces, demonstrating the platform's role-specific design:

a. Main administrator interface: This module provides the central tools required for managing parish-level master data, ensuring that the diocesan organizational structure is accurately reflected within the system. As shown in Figure 7, the Administrator can add parish data (Figure 7a and 7b) and browse the existing parishes (Figure 7c and 7d).
b. Parish submission portal: Designed for local administrators, this interface streamlines the scholarship application process, allowing for the efficient upload of student credentials and the formal submission of files to the Diocese. As shown in Figure 8, users can fill out application form (Figure 8a and 8b) and then submit the form (Figure 8c).
c. Scholarship Team Leader dashboard: This high-level interface enables the Team Leader to review pending recommendations, perform final evaluations, and officially finalize scholarship applications with built-in accountability (Figure 9).

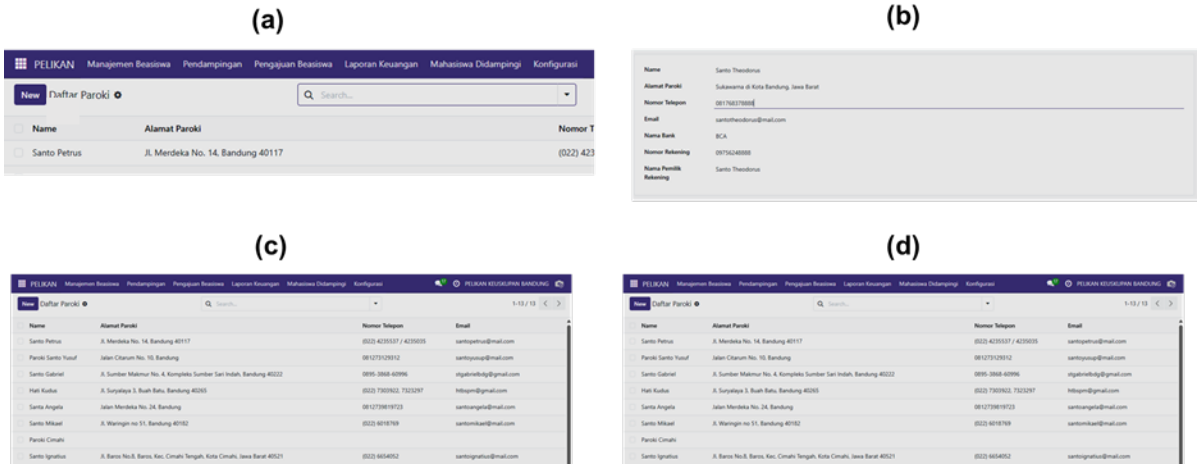

Fig. 7. Managing parishes data: (a) New button, (b) Form used to input a new parish, (c) List of parishes stored in the database, (d) Detailed information of a parish

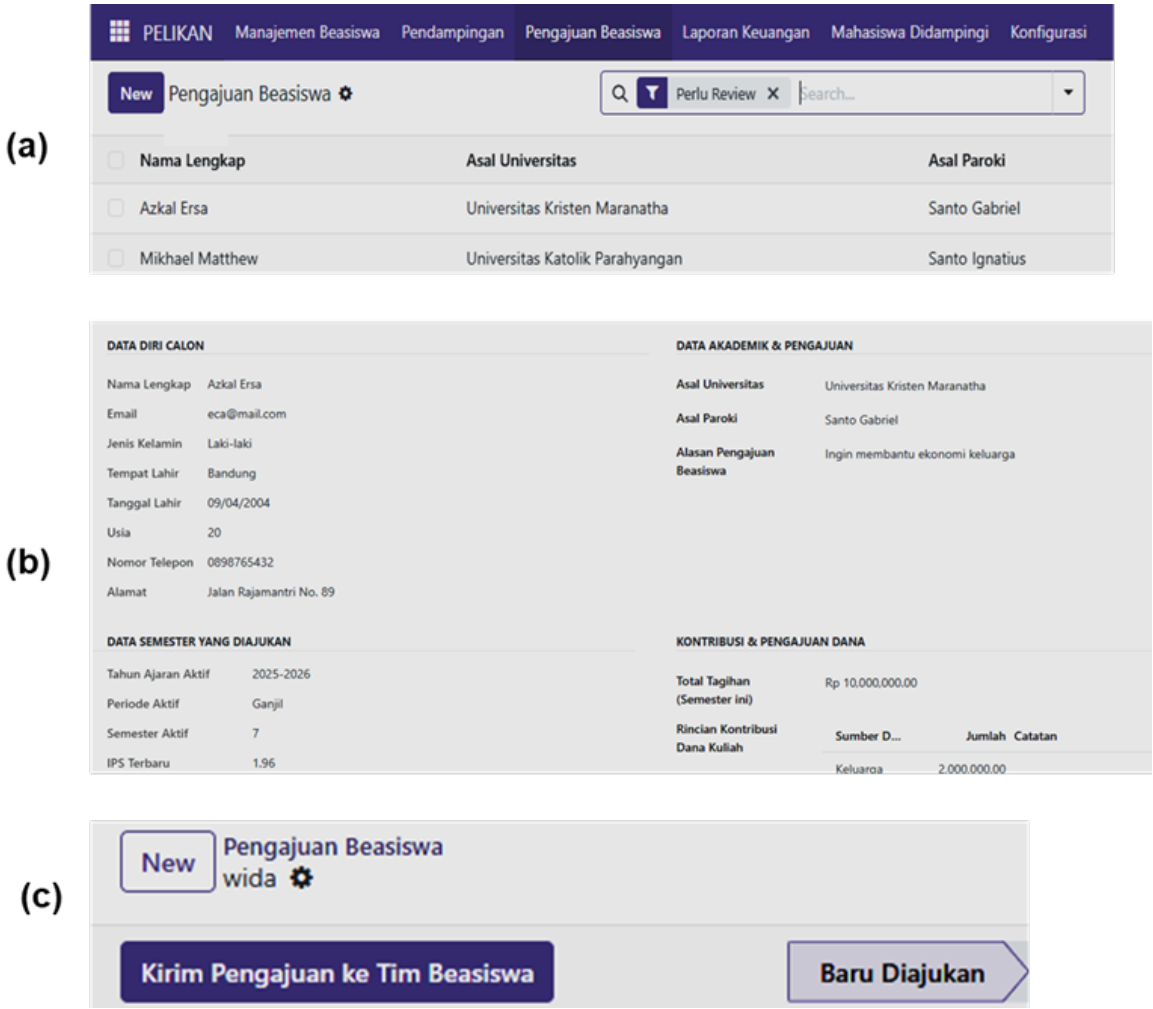

Fig. 8. Parish feature for submitting scholarship application: (a) New button, (b) Form used to input applicant, (c) Submit to the Team of Scholarship button

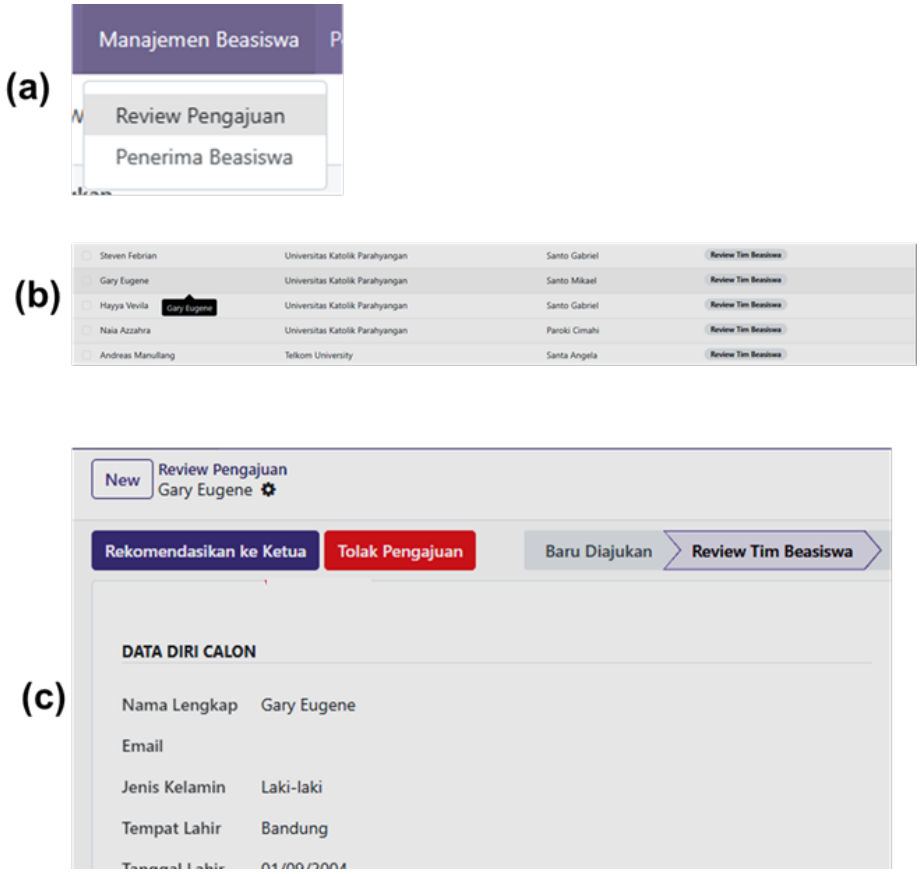

Fig. 9. Scholarship team leader feature: (a) Review application menu, (b) List of applicants submitted by parishes, (c) Button to send the application to the Head of the team

Active User Engagement and System Adoption

As of March 2026, analytics derived from the SI Pelikan database demonstrate significant engagement and adoption across the Diocese of Bandung. The following metrics highlight the system's operational reach:

a. Parish participation: A total of 30 parishes have transitioned to the platform, actively utilizing its features for scholarship administration. Out of 128 registered users, 91 are actively accessing the system.
b. Student and institutional reach: The database currently records 52 students (comprising both active scholarship recipients and new applicants) and 51 participating universities.
c. Application pipeline: There are currently 20 scholarship applications in the system, distributed across various stages of the review and approval workflow.
d. Mentorship integration: 5 mentors are actively using the platform to monitor student progress and provide academic guidance.

System Evaluation Results

The survey was conducted in March 2026 and successfully captured data from representatives across 26 participating parishes (examples are depicted in Table 2).

Table 2. Example of respondent parishes

No	Parish	Location	No	Parish	Location
1	St. Fransiskus Xaverius	Dayeuhkolot	6	St. Mikael	Indramayu
2	St. Yohanes	Ciamis	7	St. Laurentius	Bandung
3	Kristus Sang Penabur	Subang	8	Hati Kudus Yesus	Tasikmalaya
4	Salib Suci	Purwakarta	9	St. Yusuf	Cirebon
5	St. Theresia	Ciledug Cirebon	10	St. Yohanes	Ciamis

Quantitative Survey Results

The quantitative analysis of the survey results reveals a high level of user satisfaction across all measured dimensions. The key findings are summarized below:

a. Exceptional satisfaction levels: For every metric discussed in the System Evaluation sub-section (1 through 6), the median response was 5, the highest possible score on the Likert scale.

b. Strong performance averages: The average score for each metric consistently exceeded 4.4, indicating a broad consensus among users regarding the system's effectiveness.

c. Visual data representation: The specific distribution of these satisfaction metrics is detailed in Figure 10, which illustrates the average scores for the user interface, data input, tracking, process efficiency, document management, and event coordination.

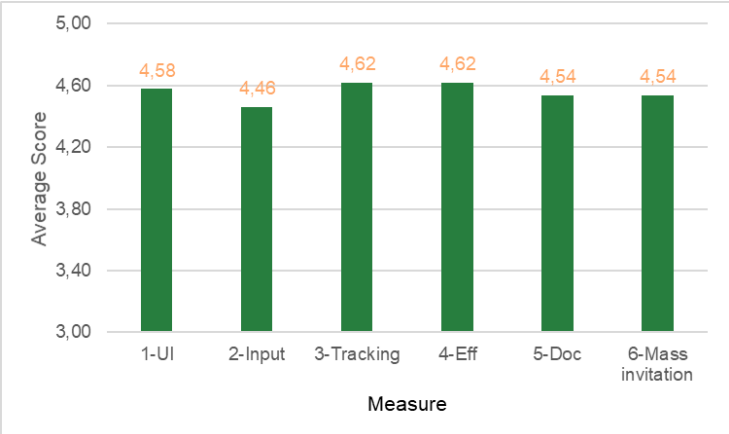

Fig. 10. The summary of quantitative survey results

These results strongly suggest that:

a. User requirements have been satisfied. By implementing the Agile development method, where each sprint provides users with the opportunity to test system features and provide feedback on any shortcomings or errors, the final features launched have successfully satisfied the users.
b. The transition from manual processes to SI Pelikan has been well-received by the parish administrators. The high scores in both navigation and efficiency confirm that the hybrid development approach successfully addressed the practical needs of the community while maintaining a user-friendly experience.

Qualitative Survey Results

All participants wrote reviews or feedback on the provided Google Form. The collected text data were carefully read, examined, and then categorized into five distinct themes. The reviews or testimonials for each theme were then interpreted based on their significance or user sentiment. The results are presented in Table 3.

Table 3. Summary of users' feedback

Theme	Example of User Feedback/Testimonials	Significance/User Sentiment
Operational impact	"Practical, no longer need to send physical files"; "Coordination with the center is very smooth"; "We can now focus on service, not paperwork."	High: Primary benefit noted by almost all respondents.
System usability	"Initially confusing, but very helpful once used"; "English terms like 'Save Manually' are unfamiliar"; "The cloud icon is confusing."	Moderate: Indicates a need for better UI (user interface).
Technical issues	"Upload fails for large files"; "Buttons sometimes don't respond immediately"; "Loading is slow on poor internet connections."	Moderate: Highlights infrastructure/backend needs.
Transparency	"Scholarship tracking feature is very helpful"; "Data is centralized, nothing goes missing"; "Ensures transparency of funds."	High: Key factor in maintaining institutional trust.
Future requests	"Add Excel export feature"; "Include video tutorials and visual flowcharts"; "Automatic email notifications for status updates."	High: Can be used as the roadmap for future actions and development.

The findings reveal that the system's greatest strengths lie in its operational impact and transparency, both of which were rated with high significance by the users. Conversely, themes such as system usability and technical issues were identified as areas of moderate significance, with specific feedback noting:

a. Interface clarity: Some users found specific terminology and button placements

occasionally confusing.

b. External constraints: Persistent internet connectivity issues within certain user environments remain a challenge, though this is recognized as an infrastructural factor external to the software itself.

As for future development roadmap, the findings reveal that users proactively identified several high-priority features for future updates, including:

a. Data portability: The ability to export system data into Excel files for offline analysis.
b. Automated notifications: Real-time status updates delivered via email to students and administrators.
c. Enhanced guidance: The creation of more informative tutorials, specifically utilizing flowcharts and instructional videos to support diverse user capacities.

By allowing users to freely provide testimonials and feedback, new insights not found in the quantitative surveys were uncovered. These include persistent internet infrastructure challenges, inconsistent terminology in the menus, and requested additional features for future system development. Users also provided valuable suggestions for the ongoing development of SI Pelikan. This indicates that they experience the benefits of the system's current capabilities, which consequently drives a demand for new features to further improve it.

Conclusion

The development and implementation of SI Pelikan mark a successful digital transformation for the scholarship management system within the Diocese of Bandung. By transitioning from manual, paper-based processes to a centralized, role-based digital platform, the project has effectively streamlined communication between the Diocese, parishes, and students. As of March 2026, the high adoption rate, spanning 30 parishes and dozens of universities, coupled with user satisfaction scores (averaging above 4.4/5.0) underscores the system’s clinical utility and administrative value.

The successful execution of this community engagement project was shaped by several critical factors, including the hybrid model information development selection, collaboration between the service team and the Pelikan community, as well as institutional collaborations between

the Diocese of Bandung and Parahyangan Catholic University. There was a constraint, however, which is that internet connectivity in certain parish environments is unstable.

To ensure the long-term viability of SI Pelikan, the project emphasizes two pillars of sustainability:

a. Technical scalability: Hosted on a university-grade data center, the system is built to accommodate an increasing number of applicants and parishes without performance degradation.
b. Iterative enhancement: Further development is based on user feedback.

In summary, SI Pelikan has not only optimized the scholarship lifecycle but has also established a transparent, data-driven foundation for the Pelikan community's future growth.

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