Design of the BAZNAS Santripreneur Application for Strengthening Digital-Based Student Technopreneurship

Muhammad Romadhona Kusuma [1]
Faculty Science and Technology , Systems Study Program And Technology Information , Darunnajah University ,

Abstract

The Santripreneur Program is an initiative of Badan Amil Zakat Nasional (BAZNAS), the official National Zakat Agency of Indonesia, aimed at empowering final-year students and alumni of Islamic boarding schools in the field of entrepreneurship. This article aims to design a supporting digital application to strengthen the implementation of the Santripreneur program in response to the evolving landscape of technopreneurship. This study uses a user-centered software engineering approach, by identifying key features to support entrepreneurship training, product marketing, access to business assistance, and mentoring. The design results consist of web-based and mobile systems that provides a training dashboard, halal product catalog, consultation modules, and a business performance evaluation system. This application is expected to support the sustainability of the Santripreneur program and expand the reach of its benefits in Islamic boarding schools nationally. With the support of digital infrastructure, students are encouraged to become independent, productive, and globally competitive technopreneurs, The final design also shows strong potential to enhance program impact through an integrated and scalable digital ecosystem tailored to the needs of santri communities.

Keywords: Santripreneur, BAZNAS, Technopreneurship, Application Design, Sharia Economics, Digitalization of Islamic Boarding Schools

Introduction

The advancement of digital technology has opened up a large space for economic empowerment in various sectors, including in the Islamic boarding school environment (Winarsih et al., 2019; Zh et al., 2024). Students who were previously associated only with religious education are now encouraged to become independent business actors and able to adapt to the times (Zh, 2021). BAZNAS through the Santripreneur program is committed to positioning students as key agents of economic development for the community.

Santripreneur BAZNAS not only fosters conventional entrepreneurship, but also provides training in digital marketing, sharia-compliant financial management, business planning competitions, and access to business capital. To expand the impact of this program, a digital system is needed that integrates training, promotion, evaluation, and business access into a single, user-friendly platform. This study aims to design an application that serves as an interactive medium for Santripreneur participants, with a focus on user needs, sharia values, and seamless integration into a broader digital ecosystem

Technopreneurship in the Context of Islamic Boarding Schools Technopreneurship is a combination of technology and entrepreneurship that produces an innovation-based business model. In the Islamic boarding school environment, this approach provides opportunities for students to become creative entrepreneurs but still based on Islamic values. Islamic boarding schools as traditional educational institutions are now transforming into centers for

developing community-based micro-businesses. BAZNAS Santripreneur Program Santripreneur is a strategic program that includes: Entrepreneurship training for students, Increasing digital capacity and soft skills, Student business idea competition, Provision of capital assistance, Formation of business networks between Islamic boarding schools, However, in its implementation, limited access to technology, mentors, and reporting systems are challenges that can be overcome by digitizing the program system.

Figure 1. Visual promotion of the BAZNAS Santripreneur program and documentation of the Santri Business Planning Competition

This approach is also supported by Islamic values that emphasize the balance between worldly efforts and the hereafter. As the Qur'an states:

وَابْتَغِ فِيمَآ اٰتٰىكَ اللّٰهُ الدَّارَ الْاٰخِرَةَ وَلَا تَنْسَ نَصِيْبَكَ مِنَ الدُّنْيَا وَاَحْسِنْ كَمَآ

"And seek by means of what Allah has granted you the Hereafter, but do not forget your share of the world" (QS. Al-Qashash: 77)

This verse reminds us that although the ultimate goal of a Muslim is the Hereafter, Islam also encourages engagement in worldly affairs. Economic empowerment, entrepreneurship, and the pursuit of worldly success are permissible,even encouraged,so long as they are guided by spiritual awareness and a sincere intention to use one's wealth and resources for the common good.

Methods

This study uses a user-centered design software engineering approach with a descriptive method. The purpose of this study is to design a supporting application for the BAZNAS Santripreneur program that can strengthen the technopreneurship of students digitally and in an integrated manner. The stages carried out in designing the application are as follows:

1. Functional Requirements Analysis
   This stage is carried out by reviewing the BAZNAS Santripreneur program documents, field operational needs, and program flow schemes. This analysis produces a list of functional needs that form the basis for system design.

2. System Diagram Design
   Based on the identified needs, the researcher compiled a number of diagrams to model the system, including:
   a. Use Case Diagram to describe system actors and interactions
   b. Activity Diagram to explain the flow of user activities

c. Class Diagram to show data structure and relationships between components
d. Sequence Diagram to explain the process flow between application modules

3. Application Implementation Design
   After the system diagram is complete, the application is designed directly using a web-based and mobile approach. The interface mockups were not prototyped with external tools; instead, the development directly referred to system diagrams. The development process is carried out by considering the principles of ease of access, compliance with sharia values, and national scalability.

The main focus of this approach is to produce an application design that is functional, realistic, and in accordance with the needs of Santripreneur participants without going through the prototyping-based visual simulation stage.

Results

The results of this study are in the form of a digital application design aimed at supporting the implementation of the BAZNAS Santripreneur program. This application was developed by referring to the needs of program participants and paying attention to the principles of technopreneurship based on sharia values. The design results are detailed in the following aspects:

A. The Santripreneur application is designed to meet the following main needs:

1. Providing structured and standardized digital-based entrepreneurship training facilities.
2. Providing a marketplace to promote MSME products produced by students.
3. Facilitate interaction between participants and mentors through integrated communication features.
4. Improving accountability of students' efforts through a periodic evaluation and performance reporting system.
5. To be the official information center regarding the BAZNAS Santripreneur program, including funding and activity schedules.

B. Key Features Designed

Eight key features have been designed into the application system to support the above functions:

1. Student Dashboard – Presents user activity data, training status, and program notifications.
2. Halal Product Marketplace – Digital catalog to display and market participating MSME products.
3. Interactive Training Module – Digital entrepreneurship curriculum-based learning feature.
4. Mentoring & Consultation – Interaction space between participants and BAZNAS mentors.
5. Business Performance Report – A feature to record and monitor the business performance of each participant.

6. Program and Fund Notifications – Automated notification system for programs, activities, and funding.
7. Santri Business Competition Feature – A module that supports the organization of competitions and selection of business ideas.
8. Evaluation and Certification Module – Final assessment of participants and awarding of training certificates.

C. System Architecture

The application system is designed based on three main architectural layers:

1. Presentation Layer: Handles user interface display and feature navigation.
2. Application Layer: Handles business logic, training processes, evaluation, and content management.
3. Data Layer: Manage participant database, MSME products, mentoring activities, and evaluation results.

D. Application Ecosystem Design

The Santripreneur application is designed as a digital ecosystem that facilitates collaboration among key stakeholders, including:

1. Participants (students)
2. Mentors or program coaches, supported by an online mentoring system and digital learning platform
3. Central and regional BAZNAS, and Islamic boarding schools
4. Partner institutions (for training, marketing, and capital support)
5. Halal product marketplace and database for Santri-based MSMEs
6. This ecosystem integrates key features such as a business performance dashboard, competition and evaluation module, and a program reporting and analytics system.

The Santripreneur application's digital ecosystem integrates key stakeholders to ensure collaborative and efficient program implementation. The structure and module relationships are illustrated in Figure 2.

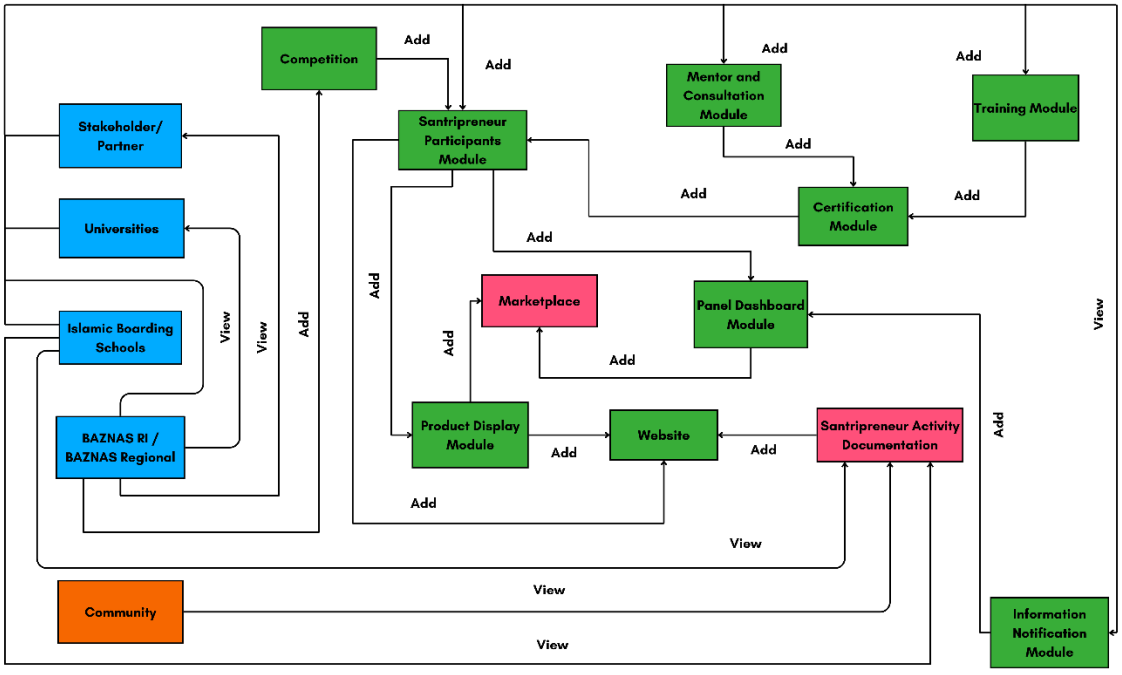

Figure 2. Digital Ecosystem Architecture Diagram of the BAZNAS Santripreneur Application

This image shows the digital ecosystem of the BAZNAS Santripreneur application that connects various stakeholders such as central and regional BAZNAS, Islamic boarding schools, universities, partners, and communities. In the system, there are a number of main modules such as the Santripreneur Participant Module, Marketplace, Training Module, Consultation and Mentoring, and Certification Module that are integrated with each other. Each module plays a role in supporting the training process, activity documentation, promotion of santri MSME products, and delivery of program information and notifications. This ecosystem is designed to create a collaborative and effective workflow in supporting santri technopreneurship digitally and sustainably.

The interaction between the main users of the application, such as students, mentors, and BAZNAS admins, as well as the relationship between the main modules of the application can be visualized in Figure 3 below.

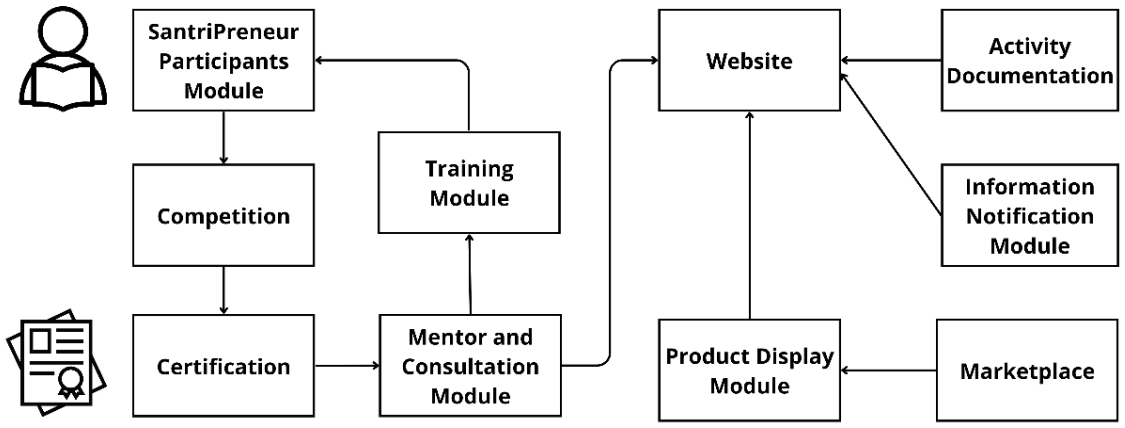

Figure 3. Component Diagram of the BAZNAS Santripreneur Application

This component diagram depicts the modular architecture of the BAZNAS Santripreneur application, showcasing the integration of its core functional modules, namely the Participants Module, Training Module, Mentoring and Consultation Module, Certification Module, and Competition Module. These modules are designed to work in synergy, enabling a seamless operational flow that supports the program's objectives, from participant registration and skill development to certification and product showcasing.

The outputs generated by these core modules are directed toward the presentation layers, which include the main website interface and the Product Display Module. These layers are further interconnected with supporting components such as the Marketplace, Activity Documentation Module, and Information Notification Module. This interconnected structure ensures continuous user engagement, facilitates effective communication, and enhances the visibility of participant products to a wider audience.

By adopting this modular architecture, the system benefits from improved scalability, streamlined maintenance, and long-term adaptability, allowing it to evolve in line with the changing needs of various stakeholders. To understand the flow of participant activities in running the Santripreneur application, a visualization of the overall activity stages can be seen in Figure 4.

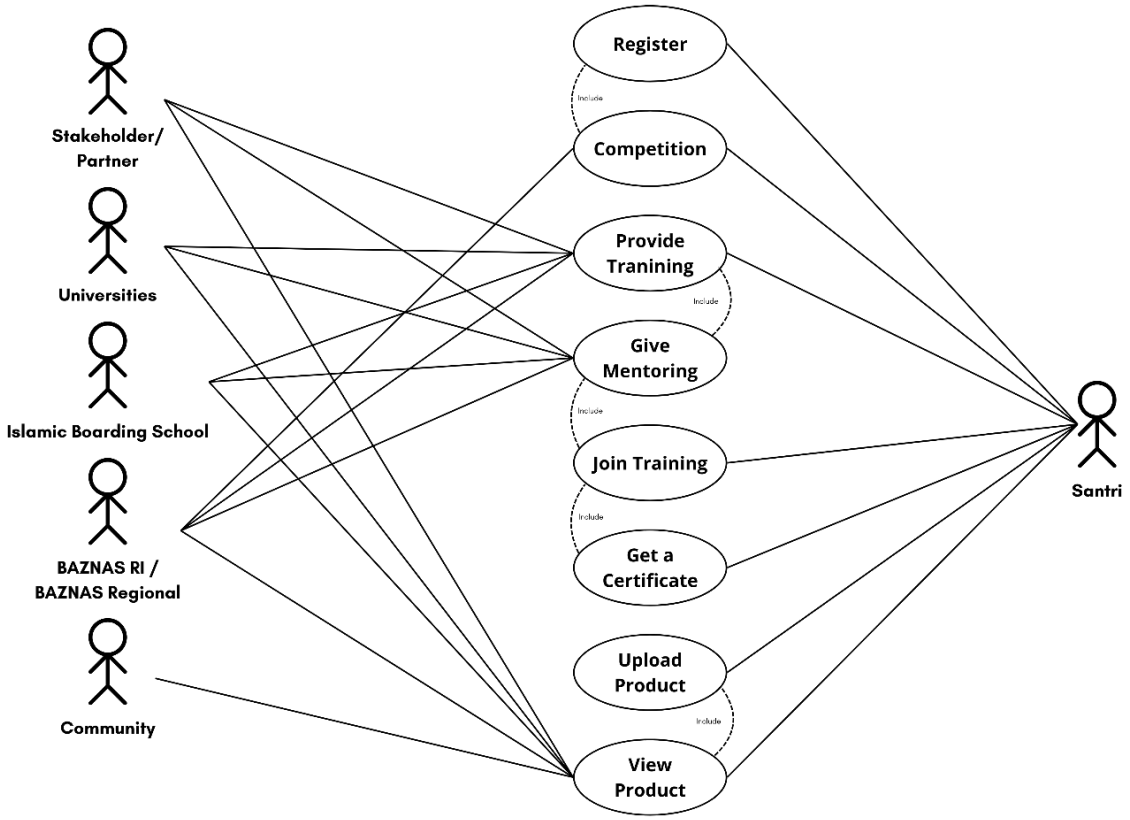

Figure 4. Sequence Diagram of the BAZNAS Santripreneur Application

This sequence diagram illustrates the chronological interactions between key components in the BAZNAS Santripreneur application, specifically focusing on the flow from user registration to product publication in the marketplace. The process begins when a santri (student) submits a registration form to join the program. The system verifies the provided data and, upon successful validation, grants the user access to the main dashboard.

After logging in, the participant can access a series of digital training modules provided by the application. These modules cover essential topics such as entrepreneurship, financial literacy aligned with sharia principles, and product development strategies. Upon completion of the training materials, the participant submits the required assignments or quiz results, which are then recorded and stored by the system.

Once the training phase is completed, the user proceeds to upload product-related information, including product name, images, descriptions, and halal certification if available. The system stores this information in its internal database for further review. The product data is then examined by the application or designated administrators to ensure compliance and completeness.

Following a successful review, the verified product is published and becomes visible in the application's marketplace module, enabling broader public access and promotion.

This sequence reflects a structured and logical progression of user activities, emphasizing the importance of completing training before product publication. It also demonstrates the integrated flow of real-time interactions between users, system modules, and administrators, which together form the backbone of the Santripreneur digital ecosystem.

To illustrate the data structure and relationships between entities in the application system, Figure 5 presents the deployment diagram, illustrating the physical architecture of the BAZNAS Santripreneur application, including nodes and the distribution of software components across the system.

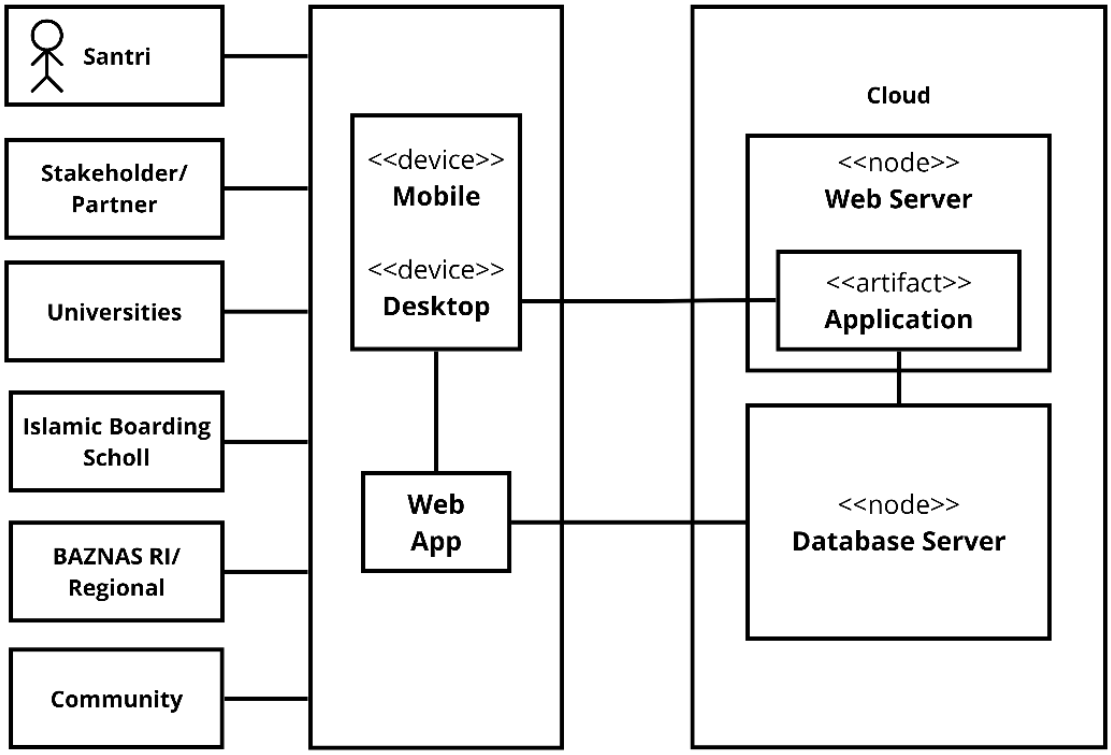

Figure 5. Deployment Diagram of the BAZNAS Santripreneur Application

This Deployment Diagram illustrates the physical architecture of the BAZNAS Santripreneur application ecosystem. It shows how various user groups—such as students, community members, and stakeholders—access the system through mobile or desktop devices. These devices connect to a web application hosted in a cloud environment, where the application resides on a web server and interacts with a centralized database server. The diagram highlights the structure and distribution of components required for application delivery and execution.

To explain the flow of user and system interactions in the registration process to product publication, Figure 6 presents a sequence diagram that describes the chronological sequence of activities.

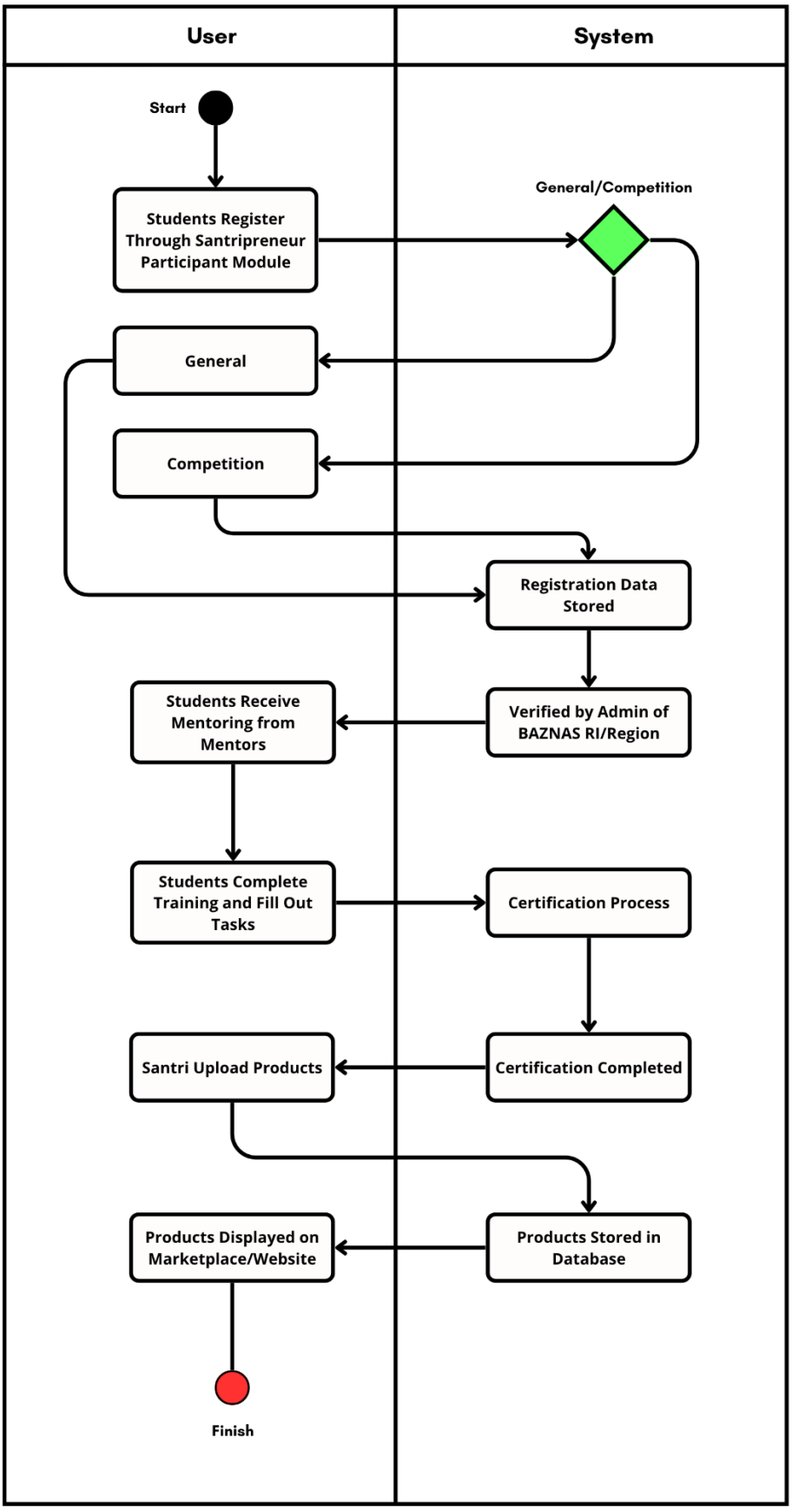

Figure 6. Activity Diagram of the BAZNAS Santripreneur Application Product Registration, Training, and Publication Process

This image shows a activity diagram that illustrates the interaction flow and process sequence in the BAZNAS Santripreneur application system. Starting from participant registration through the Santripreneur module, the process is verified by the central or regional BAZNAS admin, then participants take training and receive guidance from mentors. After completing the training tasks and certification process, participants can upload products to the system. Products that have been stored in the database will be displayed in the marketplace or application website. This diagram visualizes the time relationship and dependencies between processes in sequence to illustrate how the system works end-to-end from a user perspective.

To illustrate the communication flow between application modules from the user's perspective, Figure 7 presents a sequence diagram that displays system interactions in a structured manner from start to finish.

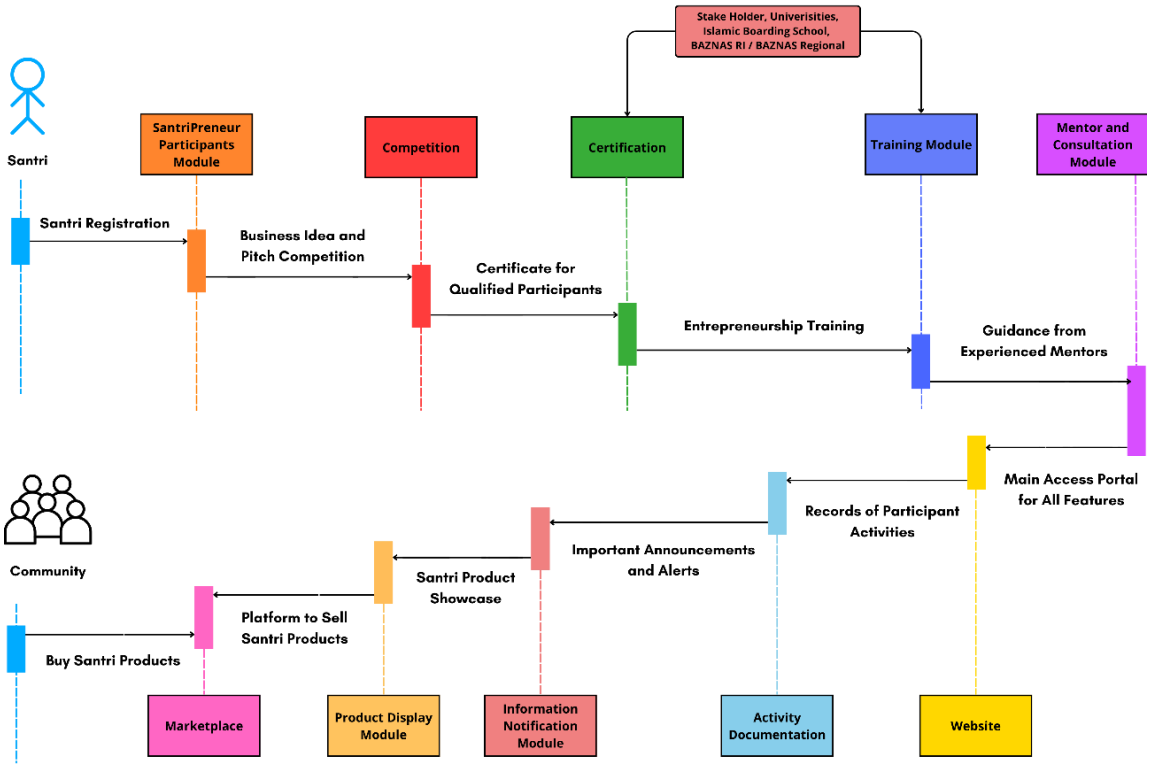

Figure 7. Interaction Sequence Diagram Between Modules in the BAZNAS Santripreneur Application

This image is a sequence diagram that visualizes the sequence of interactions between users (santri) and various system modules in the BAZNAS Santripreneur application. Interactions start from the registration process through the competition module, followed by access to the training module, consultation with mentors, uploading products to the display module, to storing product data into the database. This diagram shows the flow of communication between system components in a structured manner based on time, and illustrates the role of each module in supporting the overall digitalization process of the santri technopreneurship program.

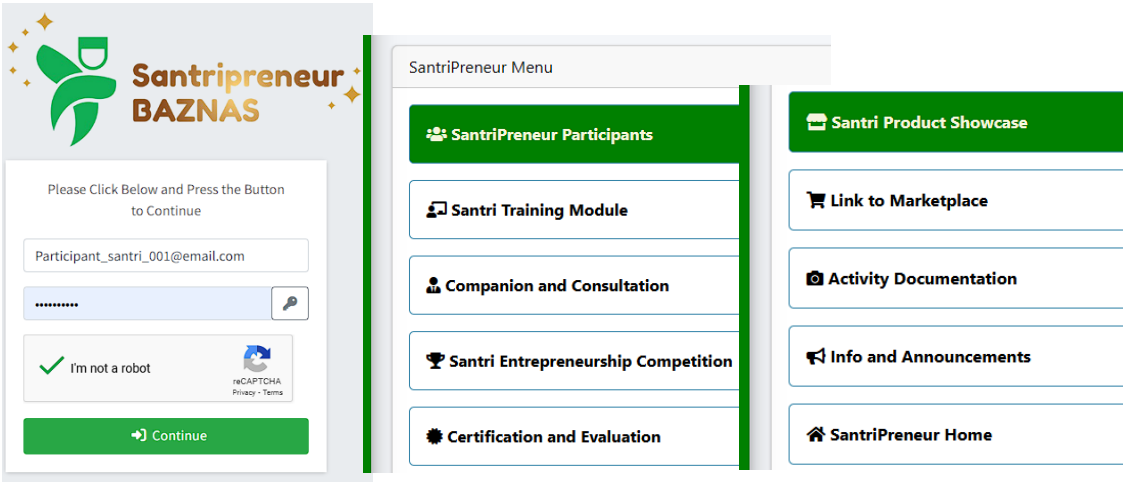

Figure 8. Features of the BAZNAS Santripreneur Application

The application highlights a user interface designed to support digital entrepreneurship among students (santri) in Islamic boarding schools. After logging in, users are presented with a main menu that includes key modules such as the Santri Training Module, Companion and Consultation for mentoring, Santri Entrepreneurship Competition for submitting business ideas, and Certification and Evaluation for assessing progress and issuing certificates. The application also features a Santri Product Showcase, which provides access to the online marketplace, activity documentation, program announcements, and a homepage for easy navigation. These integrated features collectively form a user-centered ecosystem that facilitates learning, mentoring, competition, certification, and product promotion within a single digital platform.

Table1. User Testing of the BAZNAS Santripreneur Application

No	User	Islamic Boarding School (Pesantren)	Features Tested	Ease of Use Rating (1–5)	User Feedback
1	User 1	Madinatunnajah Islamic Boarding School, Mamuju Tengah, West Sulawesi	Santri Training Module, Certification and Evaluation	5	"The training materials are structured, and the certificate appears directly in my account."
2	User 2	Daarussalaam Islamic Boarding School, Depok City, West Java	Mentoring and Consultation, Santri Product Showcase	4	"Consultation is easy to access, product display is interesting but still needs a search feature."
3	User 3	Darunnajah Islamic Boarding School, South Jakarta, DKI Jakarta	Santri Business Competition, Marketplace Link	5	"The competition process is clear, and I can submit ideas directly. The marketplace link works well."
4	User 4	Al-Ikhlas Islamic Boarding School, Banda Aceh City, Aceh	Activity Documentation, News and Announcements	4	"Well-organized documentation, suitable for portfolios. Announcements are easy to follow."

This early-stage user testing was conducted to assess how easily users—students and alumni from various Islamic boarding schools (pesantren)—could navigate and utilize the features of the Santripreneur BAZNAS application. Four anonymous testers (User 1–4) each focused on different modules, such as training, mentoring, business competitions, product showcases, and program announcements. The ease of use was rated on a scale from 1 (very difficult) to 5 (very easy), with an average score of 4.5, reflecting a generally positive user experience. Users praised the application's structured design, clear content, and mobile-friendly interface. However, several suggestions emerged, including the need for search or filter features and more interactive guidance in certain modules. Overall, the evaluation confirms that the Santripreneur application is practical, accessible, and well-received by its target users. Further testing with a broader audience and refinement of prototypes is recommended for the next phase of development.

The following image captures real-world activities of BAZNAS Santripreneur participants, clearly and vividly illustrating how the innovative program has been effectively implemented within Islamic boarding schools nationwide."

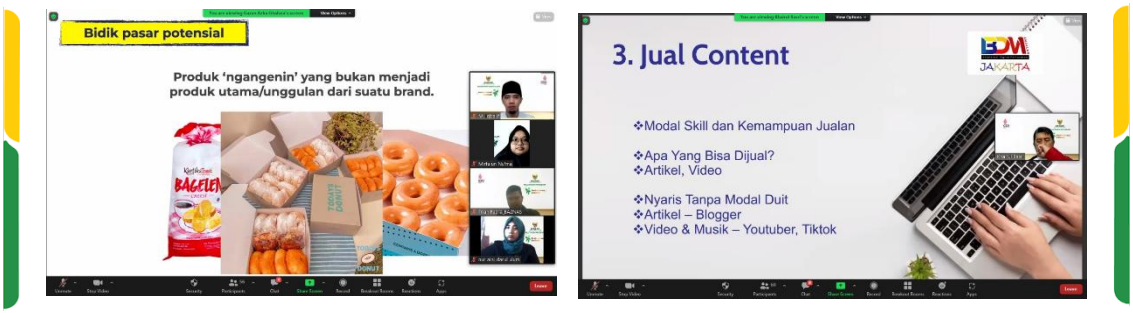

Figure 9. Online Training Market Strategy and Digital Content Sales in the Santripreneur Program

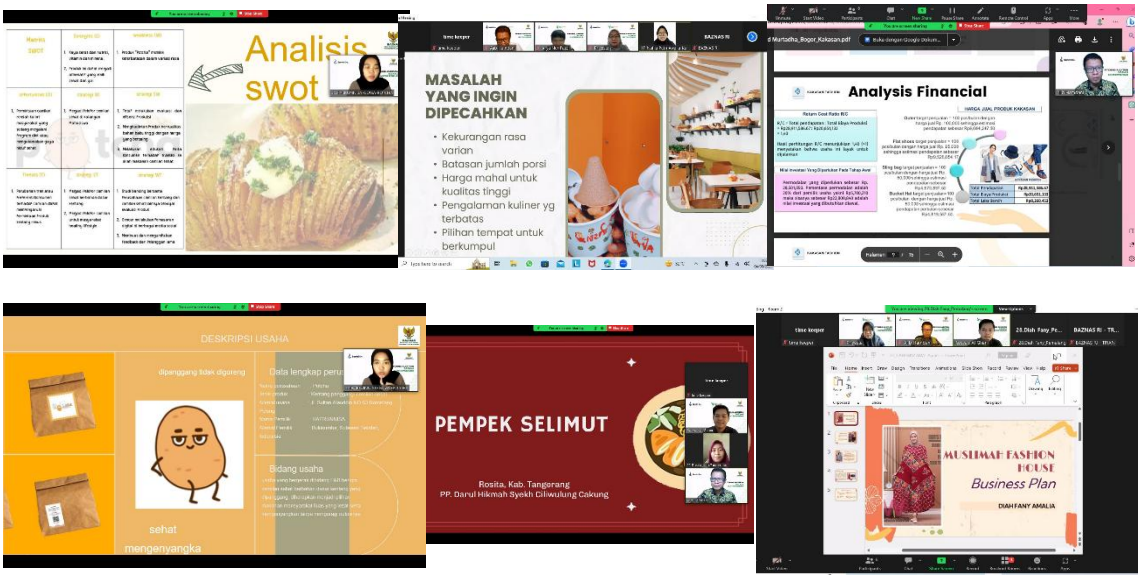

Figure 10. Business Plan Presentations of BAZNAS Santripreneur Participants

This image presents an online business presentation delivered by students participating in the BAZNAS Santripreneur program. The slides highlight key components such as product innovation, SWOT analysis, financial planning, and branding, effectively showcasing the creativity, innovation, and entrepreneurial insight of the participants nationwide.

Figure 11. Documentation of Business Activities by Participants of the BAZNAS-Supported Santripreneur Program

This image illustrates various micro-business initiatives developed by Islamic boarding school students as part of the BAZNAS Santripreneur program, reflecting their entrepreneurial spirit and real-world application of the training they received.

Discussion

The results of this study indicate that the design of the BAZNAS Santripreneur application is able to respond to the real needs of the technopreneurship-based santri economic empowerment program. Key features such as digital training, halal product marketplace, mentoring, and business evaluation are developed in an integrated manner to strengthen the digital ecosystem of Islamic boarding schools. These findings highlight the relevance of a user-centered software engineering approach in socio-religious settings such as Islamic boarding schools. . The integration of various functions into one platform contributes to increasing the operational efficiency of the program, participant accountability, and ease of monitoring by program managers. In addition, the existence of a notification system and business performance reporting allows BAZNAS to create more targeted policies based on real-time documented data. However, this study has not covered the implementation stage or direct testing by end users. This is a major limitation because the effectiveness of the user interface (UI), feature navigation, and user experience (UX) cannot be measured in real time. Therefore, further studies are recommended to conduct prototype trials, validate system functionality, and collect feedback from users in real environments. Overall, the design of this application shows great potential in strengthening technopreneurship in the Islamic boarding school environment and can be used as an initial model for developing a national Islamic boarding school economic empowerment platform.

Conclusion

This research resulted in a design of a digital application of Santripreneur BAZNAS as a form of innovation to support the economic empowerment of santri in the digital era. This application is designed based on program needs that include training, marketing, mentoring, and business evaluation. With a user-based approach and the preparation of system diagrams, the application is designed to be easy to use, adaptive to sharia values, and has national scalability. The main features in the application, such as the santri dashboard, halal product catalog, and training and consultation system, are designed to facilitate program management and

increase participant participation. The three-layer architecture and digital ecosystem design that includes partners and the halal market add strategic value to this application for wider development. While the design was meticulously developed, implementation and end-user testing remain essential to validate its effectiveness. Therefore, functional testing and user validation are recommended as the next steps. This study recommends direct testing and collaboration between developers, BAZNAS, and the pesantren community to ensure the success of implementation in the field. With sustained support, the application has the potential to become a cornerstone of the digital transformation of Islamic boarding schools, creating independent, productive, and globally competitive technopreneur students.

Acknowledgment

The authors express sincere gratitude to Badan Amil Zakat Nasional (BAZNAS), the official National Zakat Agency of Indonesia, for their support in this research. Appreciation is also extended to the santri community and partnering Islamic boarding schools for their insightful feedback, as well as to the authors' families for their continuous support. Lastly, thanks to Universitas Darunnajah for the academic and institutional assistance that contributed to the completion of this study. Their collective contributions were instrumental in shaping a system design that responds to real community needs.

Bibliography

Al-Sharafi, M.A., Arshad, M.R., Abu-Shanab, E., & Alajmi, Q. (2020). Technopreneurship intention among university students in Yemen: Extending the theory of planned behavior. Cogent Business & Management, 7(1), 1804181. https://doi.org/10.1080/23311975.2020.1804181

BAZNAS RI. (2023). Santripreneur Program Guide. Jakarta: Directorate of Economic Empowerment, BAZNAS.

Fayolle, A., & Gailly, B. (2015). The impact of entrepreneurship education on entrepreneurial attitudes and intentions: Hysteresis and persistence. Journal of Small Business Management, 53(1), 75–93. https://doi.org/10.1111/jsbm.12065

Hamid, A., & Putri, L. (2022). Technopreneurship and Digital Economic Transformation. Journal of Technology & Social, 5(3), 112–119.

Hassan, R., & Azmi, IAG (2019). The impact of Islamic work ethics on technopreneurship intention: A conceptual study. Journal of Entrepreneurship Education, 22(1), 1–10.

Kusuma, M. R., Sholeh, M., & Azis, N. (2025). Digitalisasi BAZNAS Microfinance Masjid (BMM) Berbasis Technopreneurship melalui Modul Microfinance pada Aplikasi Menara Masjid. *Jurnal Jawara Sistem Informasi*, *2*(2).

Marlina, R., & Bahri, E. S. . (2024). The Role of E-Commerce Technology for Entrepreneurial Success. *Journal of Innovation and Computer Science*, *1*(1), 43–48. https://doi.org/10.57053/jics.v1i1.60

OECD. (2018). Entrepreneurship Education in the Middle East and North Africa. OECD Publishing. https://doi.org/10.1787/9789264293137-en

Rauch, A., & Hulsink, W. (2015). Putting entrepreneurship education where the intention to act lies: An investigation into the impact of entrepreneurship education on entrepreneurial behavior. Academy of Management Learning & Education, 14(2), 187–204. https://doi.org/10.5465/amle.2012.0293

Santosa, D. (2020). UI/UX Design for Digital Education Applications. Yogyakarta: Andi Publisher.

Setiawan, R. (2021). Web-Based MSME Application Development. Journal of Software Engineering, 4(2), 78–85.

Winarsih, R., Masrifah, A. R., & Umam, K. (2019). The Integration of Islamic Commercial and Social Economy Through Productive Waqf To Promote Pesantren Welfare. *Journal of Islamic Monetary Economics and Finance*, *5*(2), 321–340. https://doi.org/10.21098/jimf.v5i2.1065

Zulkifli, M., & Harahap, F. (2021). Digital Entrepreneurship for Islamic Boarding Schools. Journal of Islamic Economics, 9(1), 45–57.

Zh, M. H. R. (2021). Implementation of the One Day Three Sentences Technique to Improve the Arabic Ability of Students at Modern Darussalam Gontor. *International Conference on Islam and Global Civilization*.

Zh, M. H. R., Sani, N. L., Kuswandi, D., & Fadhli, M. (2024). Needs analysis of development fbo media as a support for blended learning in al-qur'an hadits lesson. *Jurnal Pendidikan Agama Islam Al-Thariqah*, *9*(1), 16–32.