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Implementation of the Agile Method in the Development of a Company Profile Website for the Event Organizer Company Boysan Multimedia

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Abstract

Boysan Multimedia, as an event organizing company, faces challenges in managing its portfolio and promotional media, which are currently unstructured, resulting in a less optimal professional image and limited marketing reach. This study aims to design and develop a web-based company profile website that serves as a central information hub and an interactive portfolio medium. The chosen method is Agile Development, which is adaptive to changing needs and user feedback-based, making it highly suitable for the creative industry. The system design utilizes Unified Modeling Language (UML) to define the system's structure and workflow. Testing is conducted using Black Box Testing to ensure functionality meets requirements and minimizes errors. The developed system successfully implemented internal content management system features and a responsive interface. This system has demonstrated improved efficiency in portfolio management, accelerated content update processes, and enhanced the professional appearance of the company's digital presence. Practically, this system offers a responsive digital marketing tool solution that can be further developed through the integration of a Content Management System (CMS) and visitor data analytics, supporting data-driven marketing strategies.

Keywords: agile development, black box testing, event organizer, website company profile

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INTRODUCTION

The increasingly competitive digital era requires companies in the creative services sector to present their identity and portfolio professionally through digital media. Boysan Multimedia, as one of the event organizer companies focused on documentation services, visual design, and event management, faces challenges in effectively conveying the quality and results of its work to potential clients. So far, the company has conducted promotional activities and portfolio presentations through social media and direct communication, which are often unstructured and difficult to control. This condition makes it difficult for potential clients to find comprehensive information about the company's services, work, and reputation. Therefore, Boysan Multimedia needs a web-based information system that functions as both a company profile and an interactive portfolio, so it can consistently, professionally, and easily showcase its identity and work.

A portfolio website is one form of digital strategy that plays an important role in building credibility and public trust (Kumar et al., 2026). Through a website, companies can showcase project results, team profiles, services offered, and customer testimonials in one integrated system (Steeves et al., 2026). A study shows that a professionally managed website can double conversion opportunities because it creates a transparent and easily contactable impression for potential clients. In the context of Boysan Multimedia, the presence of a company profile-based website will become the main information hub that not only introduces services but also strengthens the brand image as a modern and adaptive creative company in response to the developments in information technology.

However, the development of such a website requires a flexible methodological approach to adapt to the ever-evolving needs of the client. In the creative industry, visual and feature requirements often change during the development process due to input from the creative team and end users. Traditional approaches like Waterfall tend to be less effective because they are linear and difficult to adapt to changing needs mid-project (Fux et al., 2026). Meanwhile, the challenge of rapidly changing visual needs in the creative industry has led this research to adopt the main principles of Agile Development, which is to embrace all forms of change during the development process, even if it is at the final stages of development (Ehsani et al., 2026). This method allows developers to adjust features of the Boysan Multimedia website, such as the portfolio gallery, content management, and real-time communication channels, based on user feedback without restarting the entire project.

Various studies have shown the effectiveness of the Agile Development method in web-based system development. Umer (2026) states that the implementation of Agile improves the efficiency of user requirements management and enhances the documentation process through continuous iteration. Malik et al. (2026) also showed that the web-based financial system developed using the Agile approach has a lower data error rate and shorter development time because testing is conducted at each iteration stage. Additionally, Tasneem et al. (2025) found that the implementation of Agile in the web-based digital report system facilitates the data validation process and increases

input efficiency, while Aljehani and Qureshi (2025) emphasized that Agile principles enhance adaptability and communication between teams in service companies.

In the context of Boysan Multimedia, the Agile Development method is implemented so that the website system development can proceed dynamically according to actual needs. The development team and business owners can evaluate each time a version of the website is released, whether it be the visual appearance, portfolio functionality, or content management. Each development iteration produces a minimum viable product (MVP) version that can be immediately tested by internal and external users. In this way, Boysan Multimedia can obtain direct feedback from clients and the creative team for the refinement of the next features, making the development process more efficient and the results more aligned with user expectations.

Aside from the methodological side, this research also focuses on the aspects of interface design and user experience. The use of CSS frameworks like Tailwind helps create responsive and consistent designs across various devices, while integration with the internal content management system allows the Boysan Multimedia team to update the portfolio without requiring high technical skills. This approach aligns with the research by Hovde and Threatt (2025) which asserts that Agile-based systems can produce products that better meet customer needs because they allow changes to be implemented without delaying the development cycle. Repeated testing in each iteration can accelerate the debugging process and improve the overall stability of the system.

Although the Agile method has been widely applied in various sectors such as education, government, and finance, research examining its application in the creative industry is still relatively limited. Porra et al. (2025) demonstrate that the Agile method is highly suitable for the development of web-based information systems in creative service companies because it can quickly and flexibly adapt to changes in user needs. These findings reinforce the need for an adaptive development methodology for creative companies, especially those with dynamic work characteristics, high visual demands, and intensive collaboration processes. Therefore, this research aims to fill that gap by applying the Agile Development method in the development of the company profile and portfolio information system for Boysan Multimedia, which requires visual flexibility, the ability to update content periodically, and support for creative team collaboration.

The main objective of this research is to design and develop a Web-Based Company Profile Information System for Boysan Multimedia using the Agile Development method. This system is expected to dynamically display the portfolio, provide a two-way communication channel between the company and clients, and support independent content management. By applying the iterative, collaborative, and adaptive principles of Agile Development, the results of this research are expected to enhance the professionalism and competitiveness of Boysan Multimedia in the digital era, while also providing practical contributions to the development of information systems in the creative industry sector in Indonesia.

METHOD

Research Stages

This research was conducted to design and develop a web-based company profile website to provide portfolio management and promotional media for Boysan Multimedia. The approach used is Agile Development within the Scrum framework, as it has proven adaptive to changes in user needs and accelerates the development cycle (Sankhe & Dixit, 2026). The Scrum model is a model that prioritizes the speed of development. In the process, the information system project plan is continuously reviewed and adjusted to the realities of the project (Dani et al., 2025). The research stages are organized systematically and iteratively to ensure that the developed system meets user needs. The research stages conducted are as shown in Figure 1.

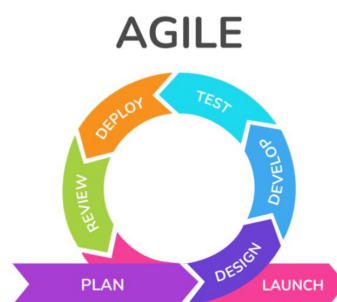


Figure 1. Metode Agile Development

Plan

At this stage, the internal team of Boysan Multimedia conducts interviews and observations on the promotion process, portfolio, and digital media management. The analysis results are compiled into a Product Backlog that reflects user-priority features (Albidah et al., 2026). Examples of the prioritized features will be presented.

Design

System design uses UML modeling such as Use Case Diagram, Activity Diagram, and Class Diagram to visually depict the flow and structure of the system (Naffar et al., 2026). The interface design is based on the principles of User-Centered Design to ensure a user-friendly, responsive appearance (Wang et al., 2026). The Tailwind CSS framework is applied to maintain visual consistency across various devices (Almeida & Sousa, 2026). For visual styling, Tailwind CSS is used to ensure a responsive and easily manageable appearance. The modular design principle is applied so that UI components can be updated independently, in accordance with Agile practices.

Development

System development is carried out thru sprint iterations with a set duration, for example, two weeks. Each development iteration produces a Minimum Viable Product (MVP) that is continuously tested by internal and external users to obtain direct feedback. The main focus of the implementation includes the integration of an internal content management system (CMS) that allows the Boysan Multimedia team to update the portfolio without requiring high technical skills. This approach effectively supports visual flexibility and collaboration between creative teams and developers, in line with the adaptive principles of Agile Development.

Testing

This stage uses the Black Box Testing method, which evaluates the conformity between the input and output of the system function without looking at the internal code structure (Kim et al., 2025; Intana et al., 2026). Testing is conducted at the end of each sprint to identify bugs and ensure functionality operates as required (Afonso-Alonso et al., 2026). This approach ensures that the system not only functions but also meets user and business needs.

Deploy

Deployment to the production environment. System implementation includes transferring the program code and database to a stable hosting server. This process also involves configuring a secure and encrypted database system to maintain the integrity of portfolio data and Admin information. Once the deployment is successful, the system can be accessed online by users to view the latest service catalog and portfolio, while Admin can start managing and publishing content in real-time thru the internal CMS. This deployment process marks the end of the iterative development cycle and the beginning of the system maintenance phase.

Review

This evaluation stage is conducted with the stakeholders of Boysan Multimedia to ensure that all developed features, such as live chat and portfolio content, operate effectively according to business needs. The evaluation of system functionality with Boysan Multimedia stakeholders ensures that the review and live chat features work effectively. The next iteration is carried out if deficiencies are found (following the Agile sprint principle).

Implementation of Agile Development Method

The Agile method is implemented thru the Scrum framework, which consists of five main components: Product Backlog, Sprint Planning, Daily Scrum, Sprint Review, and Sprint Retrospective (Menekse Dalveren et al., 2026). (1) The Product Backlog contains a prioritized list of system requirements such as company profiles, portfolios, services, contacts, and internal CMS [18]; (2) Sprint Planning is conducted to determine the features to be developed in one sprint; (3) The

Scrum Meeting is a team meeting to evaluate progress and address obstacles (Fantozzi et al., 2026; Ziebell et al., 2026); (4) The Sprint Review is held to demonstrate the sprint results to stakeholders and obtain direct feedback (Fadel et al., 2026); (5) The Sprint Retrospective is an internal team evaluation of the sprint process to make the next iteration more effective (Shim & Lee, 2026). With this implementation, the development team and stakeholders collaborate continuously throughout all stages of development. The integration of Tailwind CSS and the internal CMS supports a responsive design and ease of portfolio updates, while continuous evaluation and testing ensure the system can effectively support research objectives.

RESULTS AND DISCUSSION

This section presents all outputs from the iterative research. The results presented start from the needs analysis compiled into the Product Backlog up to the final product release. Next, the results of the system design using Unified Modeling Language (UML), the visualization of code implementation that produces the company profile website, and the functional testing report using Black Box Testing are discussed sequentially. The discussion will focus on the effectiveness and validation of the application of the Agile Development method within the Scrum framework. This approach is evaluated as a solution to address specific challenges at Boysan Multimedia, namely content flexibility and the acceleration of promotion update cycles. The successful implementation showed that this adaptive method enables close collaboration, which is key to project success in the dynamic creative industry, compared to the rigid traditional model [24]. This analysis also compares the results achieved with the research objectives set at the beginning and provides a foundation for future system development recommendations.

Results of Agile Implementation

Plan

Table 1. Analysis of the Boysan Multimedia System Needs

No	Needs	Description	Priority Level
1	<i>Live chat</i>	Communication feature between admin and customers	High
2	<i>Login</i>	Account features for admin and users	High
3	<i>Content Management System (CMS)</i>	Feature for content updates by the admin	High

The system requirements analysis is shown in Table 1. The process begins with a high priority on the implementation of the Live Chat feature, which is designed as a real-time communication tool to bridge the interaction between the admin and customers. This feature allows potential clients to inquire about services or schedule availability directly, making the company's response faster compared to conventional communication methods. Next, the system requires a Login feature that

serves as the main authentication gateway to verify user identity. This mechanism is crucial for separating access rights between general visitors and admins, ensuring that sensitive features and user data are well protected thru an integrated account system. As the final core requirement, the system needs the development of a Content Management System (CMS) that allows the admin to independently manage the entire website content. This feature provides flexibility for the Boysan Multimedia team to update content, such as uploading the latest activity portfolio, editing product descriptions, or managing reviews, without needing in-depth programming technical skills. These three high-priority needs form the main foundation in building an informative, interactive, and easily manageable system.

Design

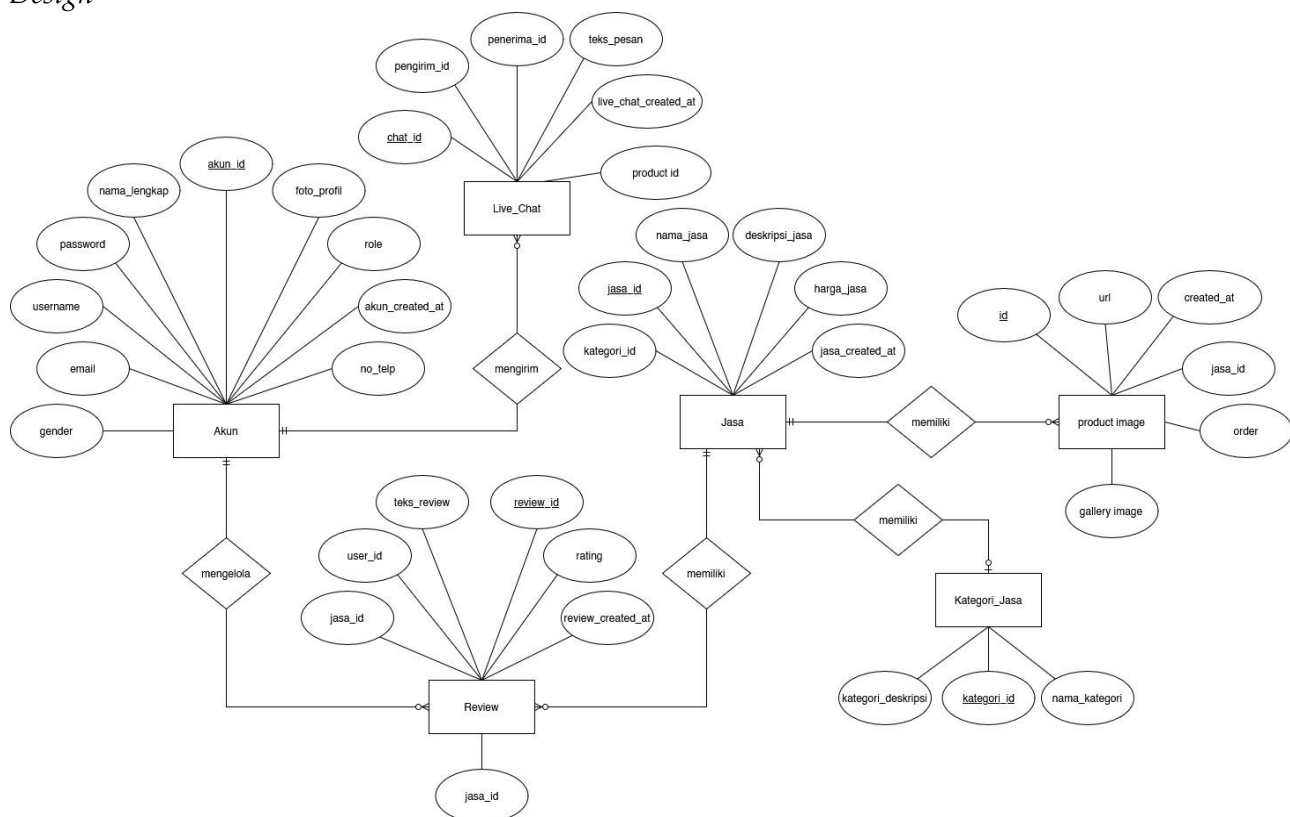


Figure 2. Entity-relationship diagrams (ERD)

Entity Relationship Diagram (ERD) in Figure 2 illustrates the structure of a relational database designed to support the entire functionality of the Boysan Multimedia system. The central entity in this diagram is the Account, which stores user authentication data (such as username, password, role, and email) and has a direct relationship with interactive activities, namely message sending thru the Live_Chat entity and testimonials thru the Review entity. For business content management, there is the Service entity that contains detailed service information (name, description, price) and has relationships with supporting entities such as Service_Category for service grouping and product_image for storing a visual portfolio gallery. All the relationships

between these entities are designed to ensure data integrity, where each review, message, and portfolio image is validly connected to the relevant user account or service.

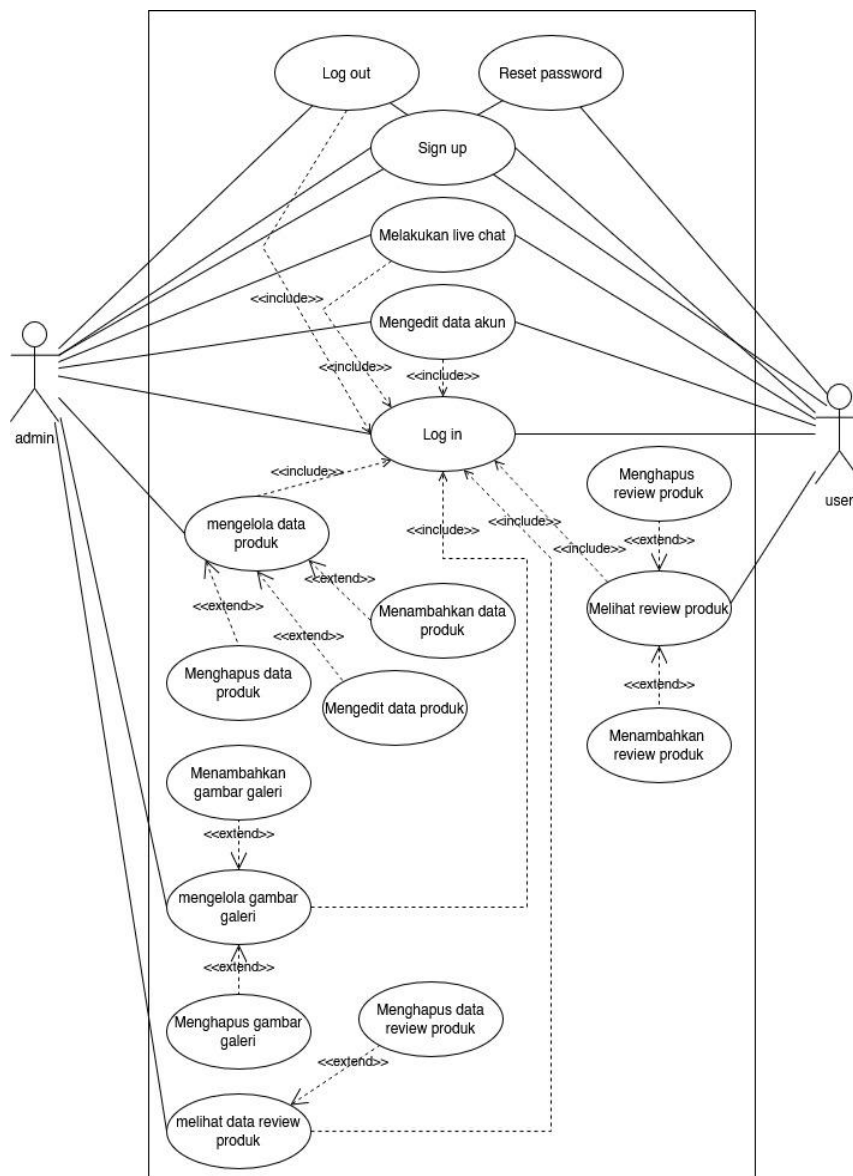


Figure 3. Use Case Diagram

As seen in Figure 3, the Use Case Diagram visualizes the functional interactions between the system and two main actors, namely Admin (internal team) and User (visitor or client). The Admin actor has full access rights to content management (Content Management System), which includes managing product data, setting up gallery images, and moderating (deleting) product reviews; all these management activities require authentication thru the Log in process. On the other hand, the User actor can access public features such as account registration (Sign up) and password reset, as well as interactive features that require Log in first, such as live chat for real-time communication and editing account data. This diagram also clarifies the system flow thru include and extend relationships, where specific functions such as adding or editing data are extensions of the main

management functions, ensuring a structured division of access rights between administrators and users.

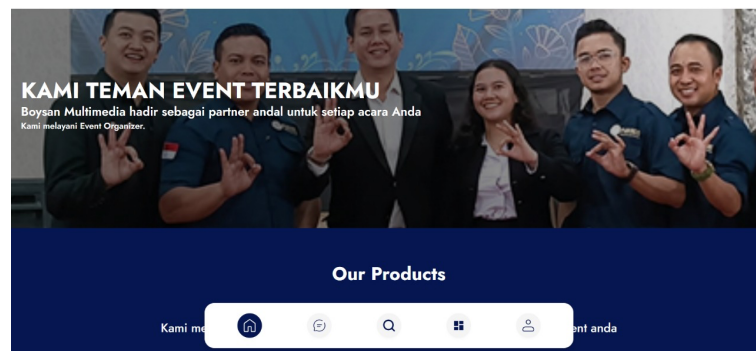


Figure 4. Homepage

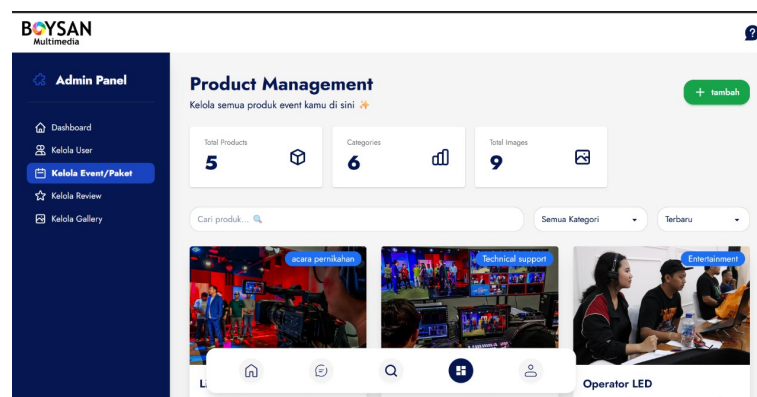


Figure 5. Dashboard

Figure 4 displays the homepage of the Boysan Multimedia website, which is the front view of the website. The website dashboard is shown in Figure 5, which contains several other menu options.

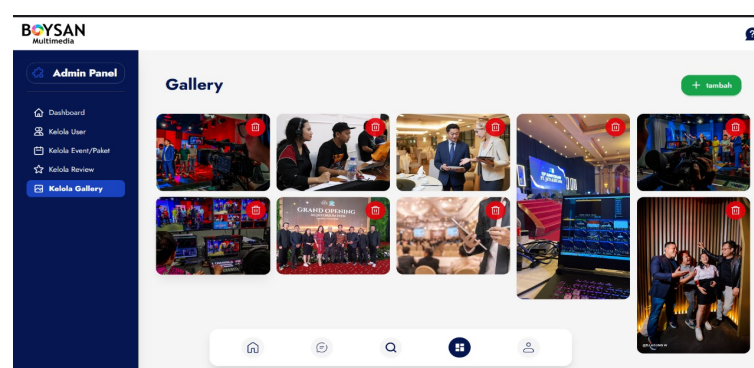


Figure 6. Kelola Gallery

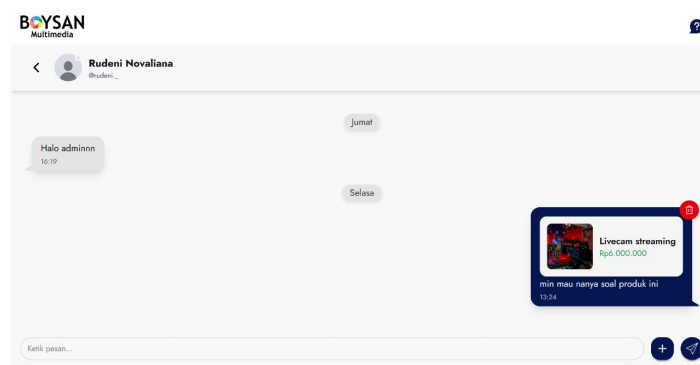


Figure 7. Live Chat

The display in image 6 is the menu for managing the gallery. The live chat feature is shown in image 7, which serves to facilitate direct communication between the admin and users.

Development

This project is carried out in two sprints, where each sprint produces an increment or MVP that can be tested. This sprint division ensures that the core features most needed by Boysan Multimedia can be tested and used as soon as possible.

Sprint 1 (Focus: Core Functionality and CMS Portfolio)

- Duration: Two weeks.
- Sprint Goal: To produce an MVP with a stable frontend and backend architecture, admin login feature, and core portfolio management functionality.
- Sprint Backlog Items: PBL-1, PBL-2, PBL-3, PBL-4 (Initial Structure), PBL-5, PBL-9.
- Result: The website is accessible, a responsive layout is implemented, and the Admin can upload and display new portfolio items.
- Black Box testing for the Login and Portfolio CRUD features was conducted at the end of the sprint.

Sprint 2 (Focus: Marketing Features and Refinement)

- Duration: Two weeks.
- Sprint Goal: Complete communication and credibility features, and refactor code based on the previous Sprint Review results.
- Sprint Backlog Items: PBL-4 (Completion of Responsiveness), PBL-6, PBL-7, PBL-8. •
- Final Product Result: Fully functional company profile website, including live chat and testimonial features, ready to be used as a digital marketing medium.

The development stage (Develop) involves the implementation of structured and documented program code, carried out iteratively according to Agile principles. The main focus at this stage is to realize the core functionalities that have been prioritized in the Product Backlog (PBL-1 to PBL-9).

The system implementation encompasses two main dimensions of functionality:

1. Admin Content Management System (CMS) Feature: This implementation focuses on the development of the internal Content Management System (CMS) feature. This feature includes product data management, portfolio gallery management, and moderation

functions. The success of implementing the CRUD (Create, Read, Update, Delete) portfolio and service features in Sprint 1 is the core of this solution, enabling the non-technical team at Boysan Multimedia to independently manage and publish their works.

2. General User Interactive Features: The development also includes features that enhance user interaction and experience. The interactive features built include authentication (login and sign up), user profile management, product reviews, and real-time communication thru the Live Chat feature. The integration of the communication feature (Live Chat) is directed to the company's real-time channel to ensure a quick response to potential clients.

The use of a PHP-based framework on the backend and Tailwind CSS on the frontend (HTML/CSS) ensures that the program code is not only functional but also produces a responsive appearance on various devices (desktop and mobile), which is a high-priority need (PBL-4).

Test

System testing using Black Box Testing focuses on validating functionality from the perspective of end users (Admin and Visitors). This testing is conducted repeatedly at the end of each sprint to detect bugs as early as possible, in line with Agile principles that encourage continuous testing. Table 3 shows a summary of the key functionality testing results.

Table 3. Summary of Key Functionality Black Box Testing Results

No.	Functionality Module	Testing Scenario	Expected Results	Test Results	Status
1	Admin Authentication	<i>Admin enters a valid username and password.</i>	Admin is directed to the CMS Dashboard.	Successful	passed
2	Portfolio Management	<i>Admin added a new portfolio item thru the CMS.</i>	Portfolio items are stored in the database and displayed on the front page of the website.	Successful	passed
3	Portfolio Management	<i>Admin is trying to delete the existing portfolio..</i>	The portfolio was deleted from the database and does not appear on the website.	Successful	passed
4	Public Display	Visitors click on the service or portfolio links on the homepage.	The detailed service/portfolio page opens completely without errors..	Successful	passed
5	Responsive Design	Accessing the website at a screen resolution of 360x640 (mobile).	All elements and navigation are functioning and appear responsive.	Successful	passed
6	Communication Feature	Visitors click the Live Chat button.	The link is directed to a chat application with an automatic message.	Successful	passed

Testing Conclusion: Based on the results of the Black Box Testing, all core and marketing functionalities developed in the two sprints have passed. This verifies that the Boysan Multimedia company profile website has met the functional requirements defined in the Product Backlog and is ready for use.

Deploy

The Deployment Phase is a crucial stage that marks the transition of the system from the development environment to the actual production environment. System implementation includes the transfer of all components, including program code and databases, to a stable hosting server. In the context of Boysan Multimedia, this process involves configuring a secure and encrypted database system to maintain the integrity of portfolio data and admin information.

After the implementation process is successful, the system can officially be accessed online by the public. Thus, users can view the service catalog and the company's latest portfolio. Meanwhile, the Admin of Boysan Multimedia can immediately utilize the internal Content Management System (CMS) to start managing and publishing content in real-time. The successful deployment functionally marks the end of the time-boxed iterative development cycle of this project and the beginning of the system's maintenance and further evaluation phase.

Evaluation

(1) Evaluate the system's functionality with the stakeholders of Boysan Multimedia to ensure the review and live chat features are running effectively; (2) The next iteration is carried out if deficiencies are found (following the Agile sprint principle) (Bastogne et al., 2025). The application of the Scrum framework in Agile Development results in a clear and iteration-oriented work structure. All work is broken down into functional units and then placed into the Product Backlog. The implementation of Scrum in the Boysan Multimedia project divides the total work into two main sprints, each lasting two weeks, in accordance with the time-boxed principle that ensures the product can be delivered in a short period with tested quality (Arslan et al., 2024). Overall, the results of this system development are in line with the solution to the portfolio management and promotion issues faced by the partners. The system has proven capable of replacing unstructured manual processes with an efficient digital mechanism.

Sprint Division Results

This project is carried out in two sprints, where each sprint produces an increment or MVP that can be tested. This sprint division ensures that the core features most needed by Boysan Multimedia can be tested and used as soon as possible.

Sprint 1 (Focus: Core Functionality and Portfolio CMS)

- *Duration: Two weeks.*
- *Sprint Goal: To produce an MVP with a stable frontend and backend architecture, admin login feature, and core portfolio management functionality.*
- *Sprint Backlog Items: PBL-1, PBL-2, PBL-3, PBL-4 (Initial Structure), PBL-5, PBL-9.*
- *Outcome: The website is accessible, a responsive layout is implemented, and the Admin can upload and display new portfolio items. Black Box testing for the Login and Portfolio CRUD features is conducted at the end of the sprint.*

Sprint 2 (Focus: Marketing Features and Refinement)

- *Duration: Two weeks.*
- *Sprint Goal: Complete communication and credibility features, and refactor code based on the previous Sprint Review results.*
- *Sprint Backlog Items: PBL-4 (Completion of Responsiveness), PBL-6, PBL-7, PBL-8.*
- *Final Product Result: Fully functional company profile website, including live chat and testimonial features, ready to be used as a digital marketing medium.*

Implementation and Testing Results

The system implementation involves frontend coding using HTML/CSS (Tailwind) and backend using Java Spring with a MySQL database.

System Implementation Results

The implementation successfully realized all prioritized features from the Product Backlog (P1 and P2) in two sprint cycles. (1) Implementation of the Portfolio and Service CMS (PBL-1 and PBL-9) CRUD (Create, Read, Update, Delete) features for portfolios and services was successfully implemented in Sprint 1. This success is the core of the solution, as now the non-technical team at Boysan Multimedia can manage and publish their own work. The automatic upload feature processes images, ensuring a uniform appearance on the front page, and avoiding the content update delays that often occurred previously; (2) Implementation of Communication and Responsive Features (PBL-4 and PBL-6) The integration of communication features (Live Chat, PBL-6) is directed straight to the company's real-time channel. The responsive aspect supported by Tailwind CSS (PBL-4) has been successfully maintained throughout the entire page. The implementation results were tested on various viewport sizes and showed that the element layout did not break, ensuring an optimal user experience on mobile devices (Zhang & Son, 2025).

Discussion and Interpretation of Results

This discussion interprets the results of the implementation and testing in relation to the research objectives and validates the effectiveness of the Agile method used.

Improvement of Operational Efficiency Thru Independent CMS

The successful implementation of the internal CMS directly addresses Boysan Multimedia's main issue, which is the unstructured portfolio management that requires technical assistance. The presence of the CMS (PBL-1) allows the non-technical team at Boysan Multimedia to update content independently. This change significantly accelerates the content update cycle from previously taking 2-3 days to just a matter of hours. This efficiency gain (proven by passing Tests No. 2 and 3) is crucial in the event organizer industry, which requires a quick response to new trends and projects. The ability to immediately showcase the latest portfolio directly enhances the professionalism and competitiveness of the company.

Validation of the Agile Method in Addressing the Flexibility of the Creative Industry

The implementation of Agile sprints has proven effective in addressing the dynamic nature of visual and user experience needs in the creative industry. The iterative process (two weeks) allows the development team to receive design feedback at the end of each Sprint Review and immediately integrate it into the next Sprint. For example, feedback on the color scheme in the hero section can be changed in less than a day without disrupting backend functionality. This flexibility validates the initial research argument that Agile Development (with the principle of accepting changes in the final stages) is superior to the linear approach for projects susceptible to minor esthetic and functionality changes. These results are also supported by findings that affirm Agile enhances adaptability and intensive communication among teams.

Achievement of Digital Marketing

Goals From a business perspective, the development of this website has successfully created a professional and integrated digital promotional medium. The responsive design (PBL-4) and the structured digital presentation of the portfolio (PBL-2) eliminate the unstructured image that was previously associated with promotion solely through social media. Potential clients can now find complete service information (PBL-3) and easily contact the company (PBL-6) through a centralized channel. The presence of this stable and user-friendly website is expected to increase conversion opportunities and strengthen the credibility of Boysan Multimedia as a modern event organizer company.

Research Limitations

Although the developed system has achieved all functional objectives, this research has limitations. Usability testing was only conducted internally and descriptively, without using standard benchmarks (e.g., SUS) that involve a large sample of external users. In addition, the Simple Visitor Data Analysis feature (PBL-8) is still basic. Therefore, future research can focus on formal usability testing and the integration of more in-depth analytics features to support strategic decision-making at Boysan Multimedia.

CONCLUSION

This research aims to design and implement a web-based company profile website for Boysan Multimedia, with a primary focus on improving portfolio management efficiency and digital image professionalism thru the application of Agile Development methods within the Scrum framework. Based on the analysis, design, implementation, and testing conducted in two sprint cycles, it can be concluded that the research objectives have been functionally achieved. The implementation of the internal content management system (CMS), which was a priority need, has been successfully realized, directly addressing the issue of delayed portfolio updates. The results of the Black Box Testing show that the system's functionality works 100% according to the prioritized Product Backlog, including the portfolio CRUD features, service display, and responsiveness on various devices. The application of the Agile method has proven effective in facilitating intensive collaboration and rapid adaptation to visual changes (as often occurs in the creative industry), thereby accelerating the product's time-to-market cycle. Thus, the developed website has successfully become a comprehensive information center and a professional promotional medium, providing practical solutions to enhance Boysan Multimedia's competitiveness in the digital era. However, this research has limitations because the usability evaluation has not yet involved formal testing with a large external sample (for example, using the SUS method), and the visitor data analytics features are still basic. Therefore, future research is recommended to continue extensive usability validation of the system and integrate more in-depth analytics features to support data-driven marketing strategies.

STATEMENTS AND DECLARATIONS

Competing Interests. The authors declare no competing interests.

Author Contributions. YY, MDS, RN, and RRA: Conceptualization, requirements analysis, system design, software development, system testing, and writing the original draft. AW, IN: Project administration, validation, and writing-review-editing. All authors reviewed and approved the final version of the manuscript.

Ethics Approval. Ethical document for this study was provided by IPB University.

Informed Consent to Participate. Representatives of Boysan Multimedia who participated in interviews, observations, system reviews, and testing were informed about the purpose and procedures of the study. Their participation and provision of feedback were voluntary.

Consent for Publication. No identifiable personal information is reported in this article.

Data Availability. The data and system-testing records supporting the findings of this study are available from the corresponding author upon reasonable request, subject to permission from Boysan Multimedia and applicable confidentiality considerations.

Use of Artificial Intelligence Tools. No generative artificial intelligence tools were used in the preparation of this manuscript. Grammarly was used for grammar and language correction. The authors reviewed and approved all final wording and take full responsibility for the content of the manuscript.

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