Jurnal Multidisiplin Sahombu
Volume 5, Number 05, 2025, DOI 10.58471/jms.v5i05
ESSN 2809-8587 (Online)
https://ejournal.seaninstitute.or.id/index.php/JMS/index

Design and Development of a Web-Based Company Profile for PELNI Logistics Using the Waterfall Model

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Article Info
Keywords:
Company Profile, Integrated Information System,
Logistics,
Waterfall Model

ABSTRACT
The rapid evolution of information technology has transformed the way companies communicate and present their profiles to the public. This study focuses on the design and development of a web-based company profile for PELNI Logistics to support an integrated information system that enhances accessibility, efficiency, and corporate image. The development process applies the Waterfall model, covering requirement analysis, system design, implementation, testing, and maintenance. The system is built using a combination of web programming languages and a relational database, supported by data obtained through observation, interviews, and documentation. The resulting platform provides comprehensive company information, including corporate background, governance, services, portfolio, news updates, procurement, and career opportunities. Testing demonstrates that the platform functions effectively, ensuring user-friendly navigation, accurate information delivery, and responsive design across various devices. The implementation of this system strengthens the company's digital presence, supports transparent communication with stakeholders, and serves as a practical reference for other logistics companies seeking digital transformation.

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INTRODUCTION

The advancement of information and communication technology has significantly reshaped how organizations interact with stakeholders and the public. In the logistics sector, digital platforms are no longer merely an option but a strategic necessity to ensure competitiveness and operational efficiency. As observed by Laudon and Laudon (2022), the integration of web-based solutions into corporate operations enables firms to deliver information rapidly, transparently, and in formats that align with evolving user preferences. This shift has prompted many companies to redesign their corporate profiles into interactive, integrated platforms that serve both marketing and operational functions.

The logistics industry in Indonesia, including state-affiliated enterprises, faces growing demands for transparency and service responsiveness. According to Christopher (2020), logistics companies must balance cost efficiency with the need to provide accessible, real-

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time information to clients and partners. A professionally designed company profile website not only acts as a branding tool but also facilitates a more efficient flow of information between the company and its stakeholders, reducing reliance on traditional and often slower communication channels.

PELNI Logistics, as a subsidiary of PT PELNI, plays a pivotal role in national cargo distribution and freight forwarding services. In an increasingly competitive landscape, the company must maintain a strong digital presence to showcase its capabilities, highlight its service portfolio, and communicate effectively with customers. Kotler and Keller (2021) argue that a compelling online corporate profile enhances customer trust and positions the company as a credible, professional, and modern service provider. For PELNI Logistics, this digital transformation aligns with broader strategic objectives for service innovation and market expansion.

Beyond marketing, an integrated company profile platform can streamline access to procurement opportunities, recruitment processes, and corporate announcements. As noted by Turban et al. (2021), the digitization of these functions allows for more inclusive participation from vendors and job seekers, regardless of geographic location. By embedding these elements into a single web-based system, companies can create a unified gateway for stakeholders, ensuring consistent branding and efficient information delivery.

The relevance of this approach is further underscored by the growing reliance on mobile devices for accessing corporate information. Data from the Indonesian Internet Service Providers Association (APJII, 2023) shows that mobile internet penetration continues to expand rapidly, influencing how users interact with company websites. Responsive design and user-friendly navigation have thus become essential features, as emphasized by Nielsen (2020), who highlights usability as a key determinant of digital platform success.

From a systems development perspective, adopting a structured methodology ensures that the resulting platform meets both functional and non-functional requirements. Pressman and Maxim (2020) recommend the Waterfall model for projects where requirements are well-defined, allowing for a systematic transition from analysis to deployment. This model supports thorough documentation and predictable timelines, making it suitable for developing an integrated company profile for a logistics enterprise like PELNI Logistics.

In terms of stakeholder benefits, an effective company profile website enhances transparency in procurement processes, as noted by Monczka et al. (2021), by clearly outlining tender information and participation guidelines. For job seekers, it provides a central hub for exploring career opportunities and submitting applications, contributing to a more efficient recruitment process. For corporate communications, it acts as an official channel for disseminating news, reports, and strategic updates.

The integration of visual identity, corporate history, and service descriptions into a single platform also reinforces brand positioning. Aaker and Joachimsthaler (2020) emphasize that consistent brand presentation across all digital touchpoints builds stronger recognition and trust among stakeholders. In this sense, the company profile website is not only an information repository but also a strategic branding instrument.

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Nevertheless, building such a platform requires careful alignment between technical capabilities, organizational needs, and user expectations. As pointed out by Sommerville (2020), neglecting user requirements or underestimating system usability risks can result in platforms that fail to engage target audiences. For PELNI Logistics, the challenge lies in designing a system that accommodates diverse content while ensuring ease of use and scalability for future features.

In light of these considerations, this study aims to design and develop a web-based company profile for PELNI Logistics using the Waterfall model. The research addresses the dual goals of enhancing corporate image and improving operational efficiency through integrated digital communication. By combining established web development practices with user-centric design principles, this work contributes a practical framework for logistics companies seeking to navigate digital transformation in an increasingly connected marketplace.

METHODS

This study adopts a Waterfall model as the primary software development methodology. The choice of this approach is informed by the need for a structured, sequential process that ensures each stage is completed before proceeding to the next. As Pressman and Maxim (2020) explain, the Waterfall model is well suited for projects with clearly defined requirements, where the scope and deliverables can be systematically addressed. By following this model, the research process could be documented in detail, allowing for greater transparency and traceability from the initial concept to the final implementation.

The first stage involved requirements analysis, which focused on understanding the functional and non-functional needs of the PELNI Logistics company profile. Data collection was conducted through direct observation of the company's existing communication channels, semi-structured interviews with management and staff, and documentation of corporate materials, including service descriptions, organizational history, and brand assets. This stage emphasized gathering accurate and relevant information to ensure the website reflected the company's identity and met stakeholder expectations, in line with recommendations by Sommerville (2020) on user requirement elicitation.

The second stage was system design, where the information gathered was translated into technical and visual specifications. This included creating a sitemap to structure the website's navigation, wireframes to outline the layout of each page, and a database schema to organize and store dynamic content. The design process prioritized usability, visual coherence, and scalability, following Nielsen's (2020) usability principles to ensure the platform would be accessible to users across devices and skill levels. Color schemes, typography, and multimedia elements were selected to align with the company's brand guidelines.

The third stage, implementation, involved translating the design into a functional web application. The development team utilized a combination of PHP, HTML, CSS, and JavaScript for the front-end and back-end components, with MySQL as the database management system. Coding practices adhered to modular programming principles to facilitate

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maintenance and future updates. The system architecture was structured to support responsiveness, ensuring the website adapted seamlessly to different screen sizes, as advocated by Turban et al. (2021) in their discussion of responsive web design for business applications.

Following implementation, the testing stage was conducted using the black-box testing method. This approach, as described by Kaner et al. (2018), focuses on validating the system's functionality without examining its internal code. Test scenarios included navigation through all menu options, submitting procurement and career application forms, and verifying input validation processes. The platform was also tested across multiple browsers and devices to ensure compatibility and consistent performance. Any errors or usability issues identified during testing were documented and addressed before deployment.

The deployment stage marked the official launch of the company profile website. This process involved uploading the application to a live server, configuring domain settings, and conducting a final quality assurance review in the production environment. Deployment also included training designated PELNI Logistics staff on content management procedures, enabling them to update information, post announcements, and manage procurement and career listings independently. As noted by Hoffer et al. (2019), empowering internal staff to manage web content is a critical factor in maintaining the platform's relevance over time.

Finally, the maintenance stage was established as an ongoing process to address technical issues, apply security updates, and implement future enhancements. Maintenance also involves monitoring website analytics to evaluate visitor engagement, page performance, and content effectiveness. These insights provide feedback for iterative improvements, ensuring the website continues to meet the evolving needs of its stakeholders. This aligns with the perspective of Sommerville (2020), who emphasizes that post-deployment maintenance is integral to the software life cycle.

By adhering to this systematic methodology, the research ensured that the resulting platform was not only functional and aesthetically aligned with the company's brand but also sustainable and adaptable to future developments. The structured approach of the Waterfall model allowed for meticulous planning, precise execution, and thorough evaluation, resulting in a robust and user-friendly digital representation of PELNI Logistics.

RESULTS AND DISCUSSION

The outcome of this research is a web-based company profile designed and implemented to support PELNI Logistics' integrated information system. The website was developed using a framework, MySQL as the database, and PHP, HTML, CSS, and JavaScript for the frontend. Key features of the website include:

1. Homepage – presents a main overview of the company profile.
2. Profile – displays the company's history, vision and mission, organizational structure, and awards.
3. Governance – provides company guidelines, internal audit charter, and anti-bribery management system.

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4. Products – showcases services such as cargo handling, freight forwarding, container depot, and warehousing.
5. News – publishes updates on PELNI Logistics' activities.
6. Gallery – presents photo documentation of the company's operations.
7. Procurement – lists procurement packages and tenders.
8. Careers – offers recruitment information for job seekers.
9. Contact – provides company contact details.

The company profile website, developed using the Waterfall model, underwent a thorough requirements analysis based on interviews, observations, and documentation at PELNI Logistics. In addition to the required features, the system was designed to meet several non-functional requirements:

1. Security – Admin authentication and form input validation to prevent attacks such as SQL injection or spam.
2. Performance – Page response time of under three seconds with a standard internet connection.
3. Availability – Accessible twenty-four hours a day while the server is active.
4. Compatibility – Supports access on various devices (desktop, tablet, smartphone) and popular browsers such as Chrome, Firefox, and Opera.
5. Usability – Simple, consistent, and easy-to-understand interface for non-technical users.
6. Maintainability – Well-structured code with internal documentation for easier updates or fixes.
7. Scalability – Can be expanded to add new features without disrupting existing functionality.
8. During the system design stage, UML tools, including the Use Case Diagram and Activity Diagram, were used to visualize workflows and system interactions.

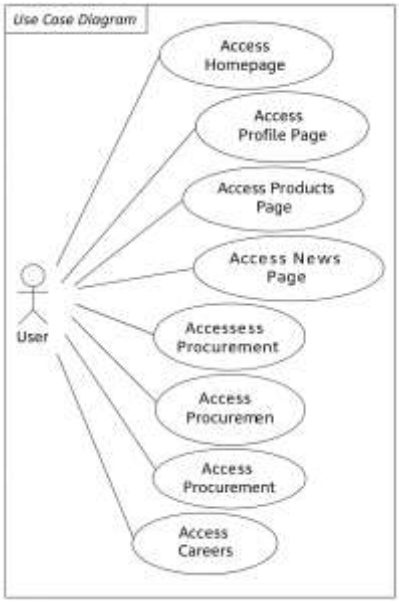

Figure 1. Use Case Diagram for PELNI Logistics Company Profile Website

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This diagram illustrates the interaction between a user and the main features of the company profile website. It shows how the user can access various modules, including the homepage, profile, governance, products, news, gallery, procurement, careers, and contact pages.

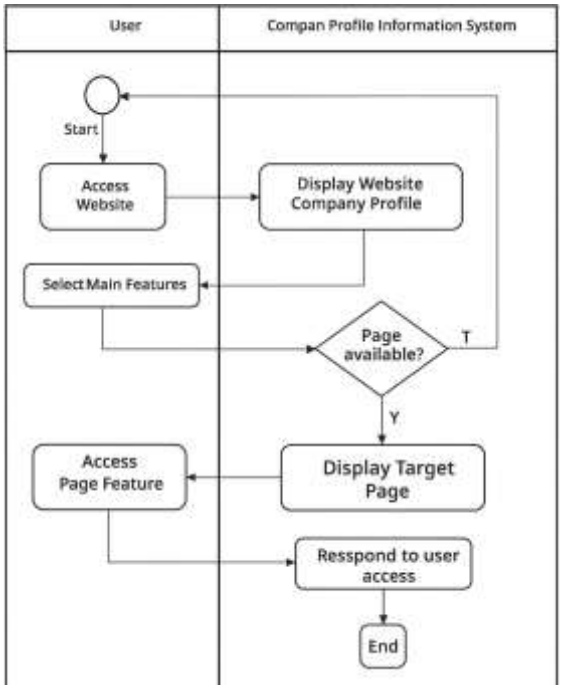

Figure 2. Activity Diagram for PELNI Logistics Company Profile Website

This diagram depicts the sequence of interactions between the user and the company profile information system. It outlines the process from accessing the website and selecting main features to displaying the target page and responding to user access. The implementation stage utilized a framework to simplify code management and enhance security, alongside designing a user-friendly interface tailored to the system's requirements.

Figure 3. Homepage Display of PELNI Logistics Company Profile Website

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This figure shows the homepage banner commemorating the 80th Independence Anniversary of Indonesia in 2025. It features a striking red background, bold typography, and cultural imagery, complemented by a navigation menu and a call-to-action button.

Figure 4. Company Profile Page of PELNI Logistics Website

This figure displays the company profile section highlighting an overview of PT PBM Sarana Bandar Nasional. It features a photograph of PELNI Logistics' container loading operations alongside descriptive text detailing the subsidiary's background, services, and operational scope.

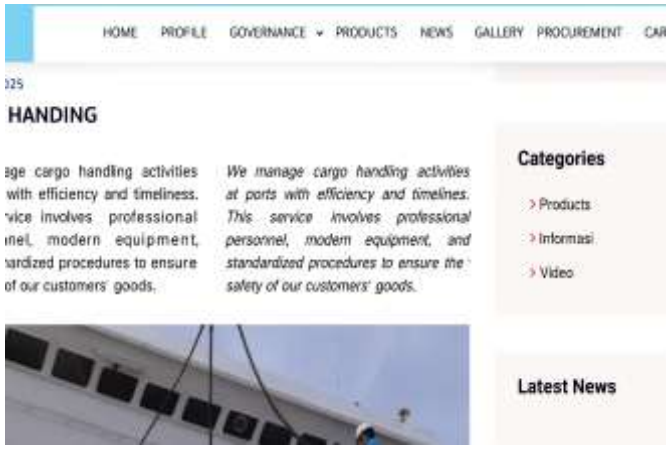

Figure 5. Cargo Handling Service Page of PELNI Logistics Website

This figure displays the service description for cargo handling, emphasizing efficiency, timeliness, and safety through professional personnel, modern equipment, and standardized procedures. It also includes a supporting image of port operations, reinforcing the company's operational capabilities.

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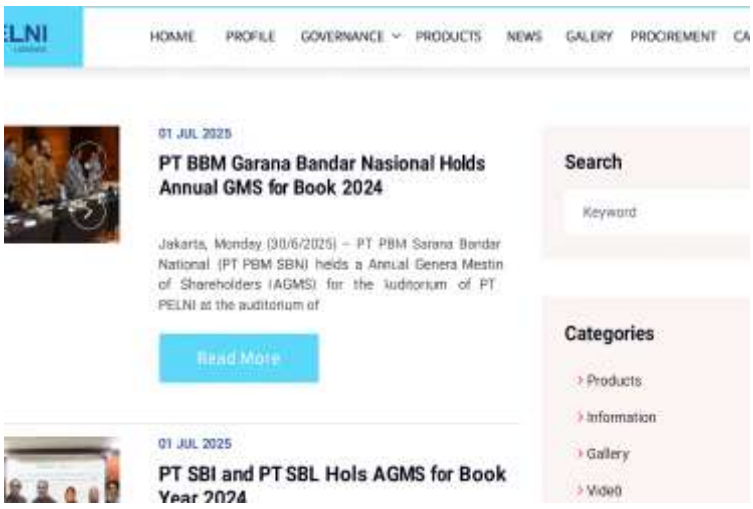

Figure 6. News Page of PELNI Logistics Website

This figure presents the news section highlighting the Annual General Meeting of Shareholders for the 2024 fiscal year held by PT PBM Sarana Bandar Nasional. The layout includes event images, publication dates, article previews, a search bar, and categorized links for easy navigation.

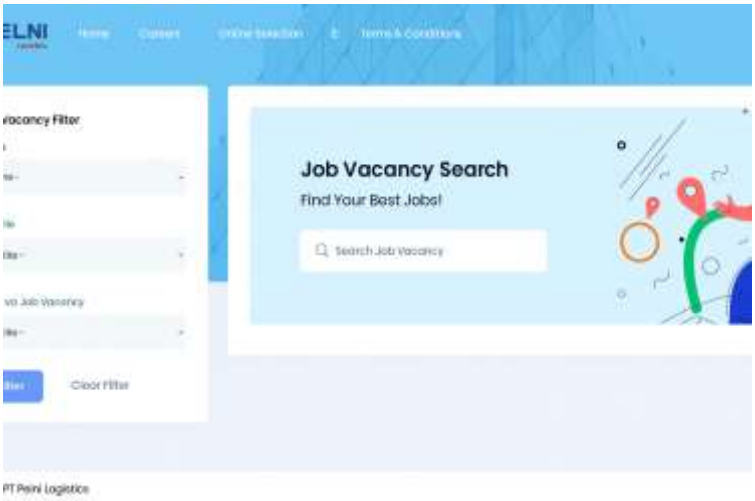

Figure 7. Career Page of PELNI Logistics Website

This figure presents the job vacancy search feature, allowing users to filter opportunities by province, city, and position. The interface combines a clean layout with a modern design, offering an intuitive experience for job seekers.

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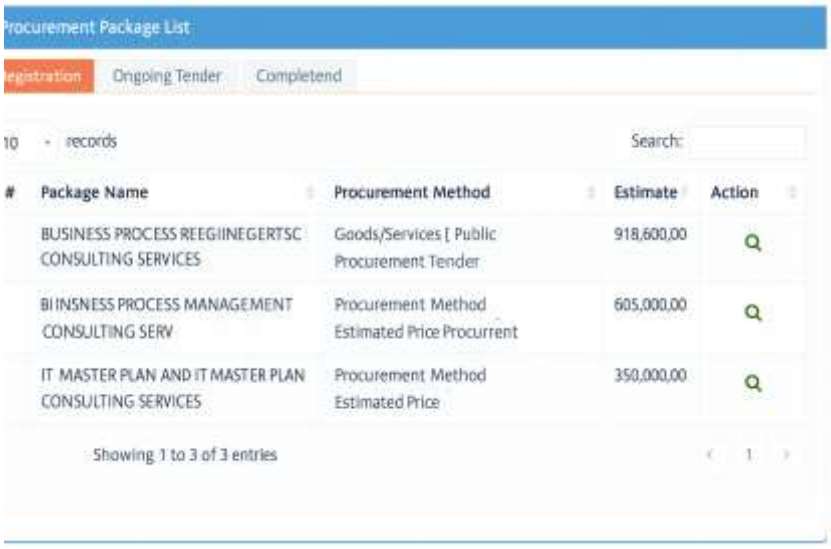

Figure 8. Procurement Package List on PELNI Logistics Website

This figure shows the procurement registration page, listing available packages with details such as package name, procurement method, estimated price, and start date. Users can search, filter, and view specific package information through the provided interface.

Testing was conducted using the Blackbox Testing method, confirming that all features functioned according to specifications. For example, users were able to access website features without errors, and all content was available without interruptions.

Table 1. Test Cases And Results (Valid Data)

Test Scenario	Expected Result	Actual Result	Conclusion
Accessing the Website	Display the main homepage	Displayed the main features menu	Valid
Accessing and selecting one of the available features	Display the selected feature page	Displayed the selected feature page	Valid
Inputting data in the Careers and Procurement features	Display the output based on the input provided	Displayed the output based on the input and validated input type	Valid

Overall, the website has proven effective as a professional information medium, making it easier for prospective clients, partners, and the general public to access company information. Content management is also more flexible due to a user-friendly admin panel. This aligns with the initial objective of the research, which was to provide an integrated, responsive, and easily managed information platform to support PELNI Logistics' integrated information system.

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CONCLUSION

The development of the PELNI Logistics company profile website successfully achieved its primary objective of providing an integrated, responsive, and user-friendly information platform. Through the application of the Waterfall model, the system was designed and implemented in a structured manner, ensuring that both functional and non-functional requirements were met. The platform incorporates essential features such as company information, governance, service descriptions, news, gallery, procurement, careers, and contact details, all presented in a visually consistent and accessible format. The implementation of robust security measures, responsive design, and compatibility with various devices enhances the website's accessibility and reliability for diverse users. The use of a user-friendly content management panel empowers internal staff to update and maintain information with ease, ensuring the platform remains relevant and up to date. Testing through the black-box method confirmed that all features operated as intended, with smooth navigation and uninterrupted access to content. This research demonstrates that a well-planned and systematically developed company profile website can strengthen corporate image, improve stakeholder engagement, and support operational transparency. It also serves as a reference for other logistics companies seeking to integrate digital solutions into their corporate communication strategies, contributing to broader efforts in digital transformation within the industry.

REFERENCE

Aaker, D. A., & Joachimsthaler, E. (2020). *Brand leadership: Building assets in an information economy*. Free Press.

APJII. (2023). *Laporan Survei Internet APJII 2023*. Asosiasi Penyelenggara Jasa Internet Indonesia.

Christopher, M. (2020). *Logistics & supply chain management* (5th ed.). Pearson Education.

Hoffer, J. A., Ramesh, V., & Topi, H. (2019). *Modern systems analysis and design* (9th ed.). Pearson.

Kaner, C., Bach, J., & Pettichord, B. (2018). *Lessons learned in software testing: A context-driven approach*. Wiley.

Kotler, P., & Keller, K. L. (2021). *Marketing management* (16th ed.). Pearson.

Laudon, K. C., & Laudon, J. P. (2022). *Management information systems: Managing the digital firm* (17th ed.). Pearson.

Monczka, R. M., Handfield, R. B., Giunipero, L. C., & Patterson, J. L. (2021). *Purchasing and supply chain management* (7th ed.). Cengage Learning.

Nielsen, J. (2020). *Usability engineering*. Morgan Kaufmann.

Pressman, R. S., & Maxim, B. R. (2020). *Software engineering: A practitioner's approach* (9th ed.). McGraw-Hill Education.

Sommerville, I. (2020). *Software engineering* (10th ed.). Pearson.

Sugiyono. (2018). *Metode penelitian kuantitatif, kualitatif, dan R&D*. Alfabeta.

Turban, E., Pollard, C., & Wood, G. (2021). *Information technology for management: On-demand strategies for performance, growth, and sustainability* (12th ed.). Wiley.

W3C. (2023). *Web content accessibility guidelines (WCAG) 2.2*. World Wide Web Consortium.

Whitten, J. L., & Bentley, L. D. (2021). *Systems analysis and design methods* (8th ed.). McGraw-Hill Education.

Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). Sage Publications.

Zhang, X., & Li, M. (2020). Designing user interface for responsive web applications: Principles and practices. *International Journal of Human–Computer Interaction*, 36(15), 1402–1416. https://doi.org/10.1080/10447318.2020.1746731