DESIGN OF A WEB-BASED INFORMATION SYSTEM FOR KOMODO AIRPORT - LABUAN BAJO

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ABSTRACT

The increasing number of passengers at Komodo Airport – Labuan Bajo demands fast and accessible information services. This study aims to design and develop a website-based information system to facilitate access to airport information for passengers and staff. The research employed a Research and Development (R&D) method using the ADDIE model, which includes analysis, design, development using WordPress CMS, implementation, and evaluation through expert validation and user testing. The validation results showed high feasibility, with scores of 94.67% from IT experts and 95.84% from content experts. Usability testing achieved a score of 77.04%, indicating the system is effective and acceptable for users. The developed website provides comprehensive content such as airport profiles, passenger guides, flight schedules, and local tourism information, accessible across multiple devices. In conclusion, the website-based information system is valid, feasible for implementation, and has the potential to enhance the efficiency of airport information services while supporting the digital promotion of Labuan Bajo as a tourist destination.

Keywords: *Information System, Website, Komodo Airport, WordPress, Labuan Bajo*

1. INTRODUCTION

Air transportation plays a crucial role in the mobility of Indonesian society. With its capability to reach virtually all archipelagic regions, this mode of transport serves as a connector between areas, including regions that are difficult to access by land or sea. Furthermore, air transportation drives economic growth, logistics distribution, and the tourism sector.

Airports serve as the primary nodes of the air transportation system. According to Law Number 1 of 2009, an airport is a designated area where aircraft land, take off, and where passenger and cargo activities occur (Indonesia, 2009). Airports also function as drivers of local economic development, including in Labuan Bajo.

Komodo Airport in Labuan Bajo was originally named Mutiara II and has evolved in response to increasing tourist flows. In 2015, a new terminal was inaugurated as part of infrastructure modernization efforts. Nevertheless, digital information service aspects have not developed in parallel with its physical facilities.

Advances in information technology, particularly the internet, present significant opportunities for enhancing public services. The internet can be accessed anytime and anywhere, serving as an efficient medium for publication and information dissemination. In the airport context, this is essential for supporting rapid and accurate services. However, no digital-based information system is currently available at Komodo Airport. Service users continue to face difficulties in obtaining practical and real-time information regarding flights, schedules, and airport services. This creates service constraints and diminishes user experience.

A website-based information system represents a potential solution to address these challenges. A website can display flight information, services, and tourist destinations on a single, easily accessible platform. Additionally, this system supports operational efficiency for management and service transparency (Maulana Ishaq et al., 2022).

System development was conducted through the ADDIE framework: analysis, design, development,

implementation, and evaluation (Al Failasuf et al., 2022). User requirements were analyzed through questionnaires, followed by the development of menu structure, interface, and website content. The website was implemented using an active domain and tested through feedback from users and airport personnel.

The objective of this development is to enhance the quality of public information services at the airport. Beyond supporting passenger convenience, this system is also expected to strengthen tourism promotion and global information distribution. Therefore, this research is titled: "DESIGN OF A WEB-BASED INFORMATION SYSTEM AT KOMODO AIRPORT – LABUAN BAJO."

Problem Statement

Based on the background that has been outlined and explained above, the research questions for this study are: How to design a web-based information system at Komodo Airport - Labuan Bajo using the ADDIE development model? And how does the web-based information system at Komodo Airport - Labuan Bajo operate based on passenger needs analysis?

Research Scope

In this study, the authors limit the issues addressed to ensure the discussion remains focused on the predetermined main topic. Therefore, this research is based on the problem statement concerning the design of a website-based information system for Komodo Airport Labuan Bajo.

Research Objectives

The objectives of this final project are: to design a web-based information system to enhance ease of information access at Komodo Airport - Labuan Bajo using the ADDIE development model, and to understand and comprehend the operational mechanisms of the web-based information system at Komodo Airport - Labuan Bajo based on passenger needs analysis.

Research Benefits

1. To enhance insights, knowledge, capabilities, and expertise in applying theories learned during the academic program, and to serve as a study and knowledge base that can be continuously referenced in the future.
2. To provide comprehensive information including flight schedules, airport profile, multimodal transportation information, contact persons, and tourism information within a single web-based information system.

2. THEORETICAL FRAMEWORK

Information Systems

An information system is a set of components used to collect, manage, and deliver information to support decision-making processes within an organization. This system consists of interconnected elements including human resources, hardware, software, procedures, and databases (Sutabri, 2012). In the airport context, information systems play a crucial role in presenting service information to users quickly and accurately, thereby enhancing the quality of public services.

Website

A website is a collection of information pages accessible through the internet using digital devices such as computers or mobile phones (Welling & Thomson, 2008). Websites function as a medium for communication and wide-scale information distribution that is flexible and real-time. In this research, the website is designed as a platform for delivering airport-related information, including flight schedules and passenger guidelines(Pamungkas & Aziz, 2022).

Content Management System

A Content Management System (CMS) is software that facilitates users in creating, managing, and modifying digital content without requiring technical programming expertise (Lestari, 2023). CMS provides a user-friendly interface and ready-to-use features to accelerate the site development process. CMS enables efficient and independent management of airport information by non-technical administrators.

WordPress

WordPress is one of the most popular open-source CMS platforms used to build various types of websites, from personal blogs to institutional sites (Erlangga et al., 2021). The advantages of WordPress lie in its ease of use, abundance of free plugins and themes, and active developer community. In this research, WordPress was selected due to its compatibility with airport information system requirements that are informative in nature and easy to develop (Muklis et al., 2023).

Web Hosting and Domain

Web hosting is a service for storing website files on servers to enable internet access, while a domain is a unique address used to access the website (Abdiansyah, 2018). In this research, the Komodo Airport information website is implemented using the public domain komodoairport.online with hosting services from a local provider, selected based on ease of integration with WordPress and cost efficiency.

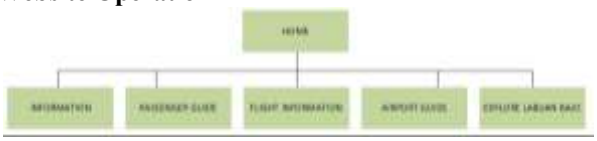
3. METHOD

Research Methodology

This research employs the Research and Development (R&D) methodology with the ADDIE development model consisting of five stages (Branch, 2010):

1. Analysis Stage: This stage was conducted to identify user information needs at Komodo Airport - Labuan Bajo by distributing questionnaires to passengers and conducting interviews with public relations personnel as information sources.
2. Design Stage: At this stage, the website structure and system usage workflow were designed based on the identified requirements. Program design was implemented by developing a menu structure consisting of homepage, airport profile, passenger guidelines, flight schedules, and tourism information. Additionally, the authors designed user and admin use case diagrams for the web-based information system.
3. Development Stage: The authors developed the previously designed website structure using WordPress CMS, subsequently populating it with information according to the requirements that had been collected earlier.
4. Implementation Stage: The authors deployed the website to several passenger samples and conducted website feasibility testing.
5. Evaluation Stage: Following testing and distribution of the web-based information system to samples who could provide feedback to the authors for system improvements.

Website Operation



The figure above illustrates the menu design of the web-based information system at Komodo Airport Labuan Bajo. There is a homepage serving as the initial display when accessing the website, followed by 5 available menus, each containing its own submenus. The Information menu includes submenus for news and activities, airport profile, flight regulations, and contact us. The passenger guidelines menu contains submenus for transportation guidelines, baggage guidelines, and passenger guidelines. The flight information menu provides flight route information. The airport guidelines menu features submenus for information services, airport facilities, airline services, and retail and restaurant options. The explore Labuan Bajo menu contains tourist destination information around Labuan Bajo.

Website Operation

The figure above represents the user use case diagram design utilized to architect the web-based information system from the user perspective. Upon accessing the website, the homepage immediately appears as the main menu interface. Subsequently, users can select from the five available menus located in the navigation bar.

The figure above represents the admin use case diagram design used to architect the web-based information system from an administrator or system manager perspective.

Website Components

1) Hardware In designing and developing the web-based information system at Komodo Airport Labuan Bajo, the authors utilized a laptop capable of running WordPress CMS with the following specifications:
   a) Operating System: Windows 11 Home Single Language b) Processor: AMD Ryzen 5 5625U with Radeon Graphics
   b) Memory: 16GB RAM
   c) Solid State Drive: 500GB
2) Software The authors employed the following software applications:
   a. WordPress CMS, used for creating, managing, and developing the information system website. WordPress is user-friendly as it does not require programming languages, and website creation is facilitated through available WordPress plugins.
   b. RumahWeb, serving as the hosting provider and web base, functioning as a bridge between the web server and WordPress.

c. Elementor, website design in WordPress CMS is assisted by the Elementor plugin, facilitating website editing with enhanced element references.

Testing Methodology

Website testing techniques were conducted through expert validation testing and user feasibility testing. Validation involved subject matter experts and IT specialists to assess content appropriateness and system functionality using score interpretation models and validity level categories(Arikunto, 2009). This served as a reference to determine whether the website operates as expected before user implementation.

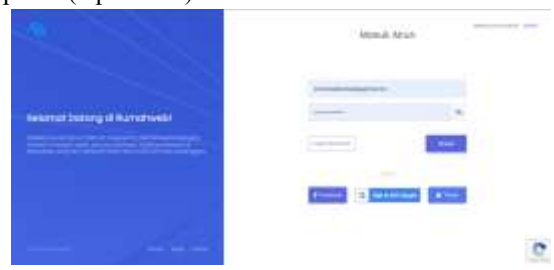
Feasibility testing employed questionnaire instruments distributed to users, analyzed using quantitative descriptive techniques with Likert scales (Riduwan, 2011). Analysis results were used to determine the system's feasibility level before widespread implementation.

4. RESULT AND DISCUSSION

This section delineates the findings from the web-based information system implementation, examining both administrative functionality and user experience.

The administrative interface enables content management, editing, and publication through WordPress CMS via the following access protocol:

1. Authentication through RumahWeb ClientZone > cPanel login interface > WordPress administrative panel (wp-admin) access.



2. Open the page template in the Pages tab > right-click on the page name > select "Edit with Elementor".

3. Edit the information on the page and then click "Publish". The page automatically updates when accessed by users.

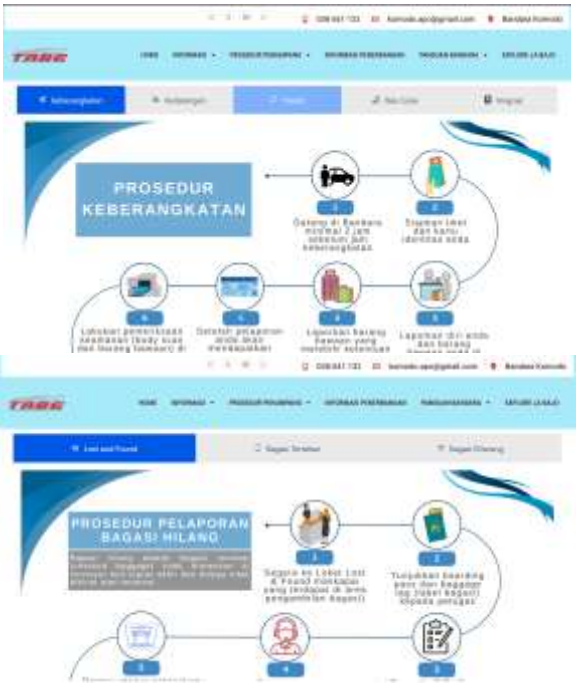
4. To edit, add, or remove a single post: Click the Posts tab > click "Add Post" (to add a new post/article) or right-click on the post name (to edit an existing post) then click "Edit".

5. Edit the single post information with WordPress > select category > click "Publish". The post block will automatically be added or updated if the category is entered correctly.

Users of the web-based information system may include passengers of Komodo Airport - Labuan Bajo, tourists, airport personnel, or the general public. The following presents the interface display of the web-based information system at Komodo Airport - Labuan Bajo:

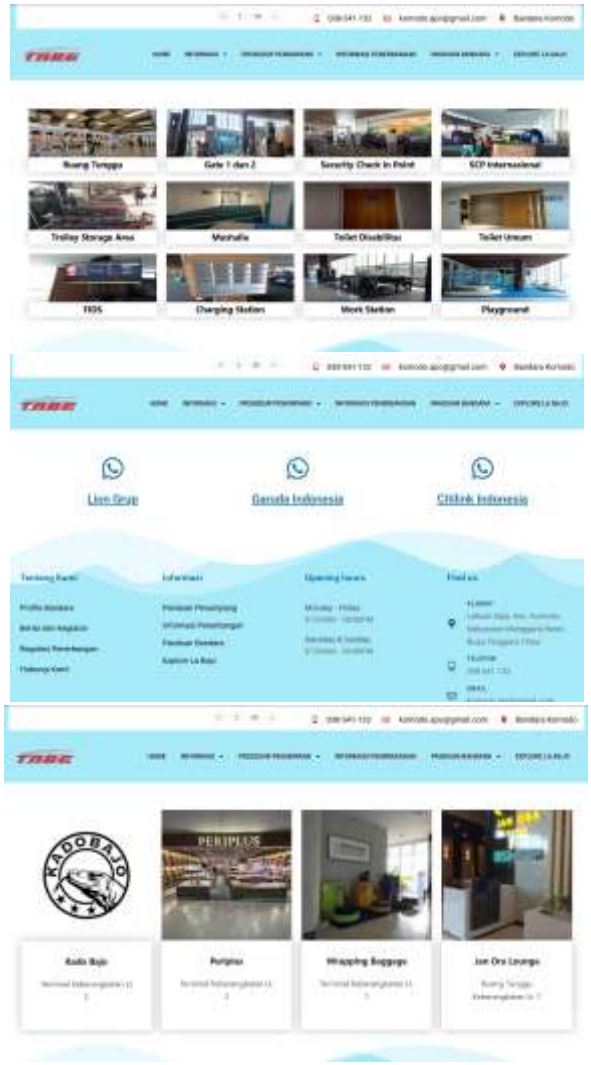
The figure above represents the home menu interface serving as the main display when users access the web-based information system. In this menu, users can select from five available options in the navigation bar. The overview of each menu is as follows:

The figure above represents the Information menu containing the following submenus: News and Activities, Flight Regulations, Airport Profile, and Contact Us.

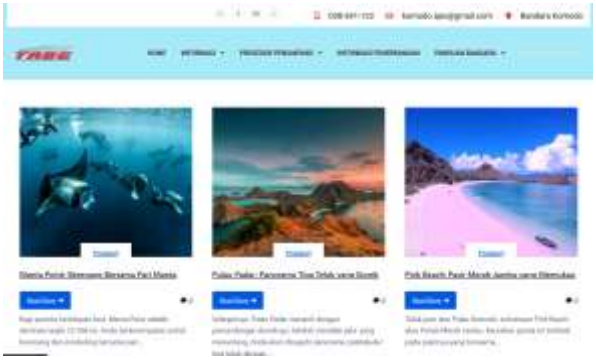


The figure above represents the Passenger Guidelines menu containing the following submenus: Transportation Guidelines, Passenger Guidelines, and Baggage Guidelines.

The figure above represents the Flight Information Guidelines menu containing domestic and international flight routes at Komodo Airport Labuan Bajo.



The figure above represents the Airport Guidelines menu containing the following submenus: Information Services, Airport Facilities, Airline Services, and Retail and Restaurant.



The figure above represents the Explore Labuan Bajo menu containing tourist destinations around Labuan Bajo.

5. CONCLUSION

Conclusion

Based on the discussion results outlined previously, the following conclusions can be drawn:

1. The website-based information system at Komodo Airport – Labuan Bajo was successfully developed using the ADDIE model, which includes: the needs analysis phase achieving a score of 81.94% ("required" category), the development phase using WordPress CMS validated with a score of 95.25%, and the implementation phase through usability testing resulting in a score of 77.04% ("highly feasible" category). The evaluation provided recommendations including the use of an official domain, addition of transportation guides, lost and found contact information, ticket purchasing integration, and infographic improvements.
2. This information system has two access levels: users who can access the website directly without login with an initial home menu display, and administrators who enter through the client zone dashboard to manage content. This operational method has been tested and validated according to operational guidelines, so the system is declared suitable for use to support information services at Komodo Airport – Labuan Bajo.

Recommendation

In the future development of the website-based information system at Komodo Airport – Labuan Bajo and to enhance ease of use and website development, the author has several recommendations as follows:

1. The information system website at Komodo Airport – Labuan Bajo is recommended to have an officially registered domain to increase user trust.
2. Development can include FIDS API integration so that flight schedules are presented in real-time.
3. The information system needs to be equipped with detailed flight routes and guidance required by passengers.
4. The website can add features or information for transportation booking, tours, as well as a more comprehensive list of retail outlets and restaurants.
5. This development is expected to facilitate the dissemination of accurate and rapid information, thereby helping passengers obtain the information they need.

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