



Digital Innovation Design of Tourism Destination Marketing Website Using Design Thinking Method

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Abstract

This study aims to design a marketing website for special interest tourism destinations in North Halmahera Regency. The method used is design thinking. The design thinking method has five stages: empathize, define, ideate, prototype, and test. At the empathize stage, the needs of system users are classified based on the characteristics of the user as a host or guest. In the define stage, the problem statement technique is used to define the problems and needs of users into four parts: lack of awareness and exposure, limited digital infrastructure, the limited availability of tourism-related infrastructure, and the lack of tourism-related data. At the ideation stage, the main problem identified related to the marketing of special interest tourist destinations is the lack of tourism-related data, so the idea to solve the problem is through the design of a website that accommodates all information about destinations and events, hotel accommodation services, resorts and cottages, vehicle rental services, and travel experiences to North Halmahera which are shared in the form of articles to short videos. At the prototype stage, the database and interface design are designed according to the analysis results at the empathize, define, and ideate stages. Furthermore, at the testing stage, aspirations about prototypes are carried out through posters and short videos to gain insight into the subsequent development. Thus, marketing special interest tourist destinations becomes more effective and efficient using a website-based digital platform.

Keywords: Tourism; Marketing; Website; Design Thinking; Special Interest

1. INTRODUCTION

The development of information technology makes it easier for all stakeholders to market tourist destinations using digital platforms such as websites to mobile applications. A website-based information system is an effective and efficient digital platform used as a marketing medium for tourism destinations in Bali to analyze return visit rates [1]. In addition, the website can be an effective tourism marketing communication medium in addition to the Word of Mouth (WoM) [2].



This shows that digital technology innovation as a marketing medium needs to be adjusted to the business processes implemented by each tourist destination manager. Considering this, this research uses the design thinking method to develop a marketing website for special interest tourist destinations in North Halmahera Regency. Thus, this research is a form of website-based digital innovation design for optimizing marketing for special interest tourism destinations using design thinking.

The design thinking method can be applied to design prototypes or marketing models for products and services that are relevant to the business processes of a business entity or organization. Design thinking begins with an empathy stage where innovation is tailored to the target user's needs [3]. On the other hand, the design thinking method can be used to design a contextual tourism destination development model according to the availability of resources in each region [4]. In website-based application development, design thinking methods can identify user needs and design application features and functions according to system user behavior. Thus, the design thinking method becomes relevant for designing marketing websites for special interest tourist destinations.

Digital innovation to optimize the marketing of special interest tourist destinations is urgently needed by stakeholders, especially destination managers, to encourage the growth of the regional tourism sector. Using website applications, marketing strategies for tourist destinations can reach a broader market than conventional marketing [5]. Marketing of tourist destinations using website-based information technology can manipulate system users' access to information related to accommodation and amenities that can be used when visiting a tourist destination; it will benefit stakeholders involved in tourism economic activities in a destination [6]. This shows that marketing tourist destinations using website-based information technology can provide new experiences to tourists in finding information to make decisions to travel. Thus, the innovative design of tourism destination marketing websites is needed to introduce tourism potential at the regional level.

The research gap in the study of innovation in tourism destination marketing websites in Indonesia is a significant concern. Despite the importance of digital marketing in promoting tourism, there is limited research on the effectiveness of website design and functionality in attracting tourists to Indonesia [7]–[12]. Most studies compare traditional marketing with digital marketing or discuss the benefit of digital marketing in the tourism [13]. Unfortunately, there is a lack of research on the impact of website marketing on the behavior of tourists and the local community. Therefore, there is a need for further research that will focus on the effectiveness of website design and functionality in promoting tourism in various regions of Indonesia, including the lesser-known ones. Such research would help

improve the quality of digital marketing in Indonesia's tourism sector and contribute to sustainable tourism development.

The importance of designing a special interest tourism website using design thinking methodology is undeniable. The design thinking approach allows designers to understand users' needs and pain points, leading to a user-centered design that can provide an optimal user experience [14]. The methodology encourages creative problem-solving, resulting in innovative solutions to complex design challenges [15]. Designing a website with a design thinking approach ensures that the end product is aesthetically pleasing, functional, easy to navigate, and accessible to all users [16]. In conclusion, applying design thinking methodology in website design for special interest tourism can enhance user experience, foster innovation, and ensure functional accessibility.

The innovation of a tourism destination marketing website in Halmahera Utara has brought numerous benefits to the development of the local tourism industry. The website provides accurate and up-to-date information regarding the available tourist attractions, hotels, and other facilities in Halmahera Utara. This feature attracts more potential visitors to the region. This website's innovation also simplifies booking tickets, accommodation, and tour packages online, thus improving efficiency and convenience for tourists. In addition, creating a tourism destination marketing website can create value for the local tourism industry by increasing the number of visits and generating more significant revenue. Therefore, the innovation of a tourism destination marketing website in Halmahera Utara has the potential to strengthen the tourism industry in the region.

2. METHODS

This research uses the design thinking method. There are five stages in designing a website-based application for marketing special interest tourism destinations in North Halmahera Regency: the empathize stage, the define stage, the ideate stage, the prototype stage, and the test stage. Design thinking methodology provides a structured approach to designing a special interest tourism website that addresses the needs and pain points of the target audience. By following the four stages of design thinking, designers can develop an innovative, functional, and easy-to-use user-centered design. Empathy, defining the problem, ideation, prototyping, and testing are crucial in designing a website that effectively promotes special interest tourism. Meanwhile, each step has its process, as shown in Figure 1.

Figure 1 is a stage in designing a marketing website for special interest tourist destinations using the design thinking method. Empathizing is the first stage of the design thinking process and involves understanding the needs and pain points of the target audience. In designing a special interest tourism website, it is crucial to empathizing with potential visitors to gain insights into their interests,

preferences, and expectations. Through empathy, the underlying motivations of the target audience are uncovered, and the challenges they face when searching for information about special interest tourism are identified. This stage helps develop a deep understanding of the target audience, which is critical in creating a user-centered design.

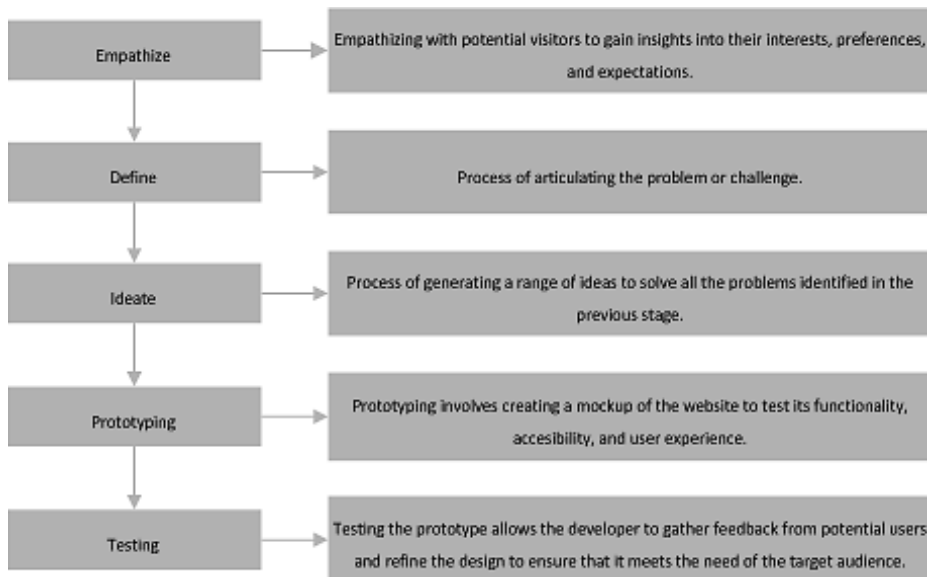


Figure 1. Special Interest Tourism Destination Website using the Design Thinking Method

The define stage is the process of articulating the problem or challenge. In designing a special interest tourism website, defining the problem is crucial as it sets the direction for the rest of the design thinking process. All the insights gathered in the empathize stage were analyzed to identify the main pain points of the target audience. By defining the problem clearly, the focused set and the idea can be designed briefly to ensure that the website addresses the most critical issues facing the target audience.

Ideation is the process of generating ideas to solve all the problems identified in the previous stage. In designing a special interest tourism website, ideation involves brainstorming and prototyping potential design solutions. This stage requires creativity and an open mind to generate innovative and practical design solutions. By ideating a range of design solutions, the final design can meet the needs and preferences of the target audience. Furthermore, the final stage of the design thinking process involves prototyping and testing the design solutions developed in the ideation stage. In designing a special interest tourism website, prototyping consists in creating a mockup of the website to test its functionality,

accessibility, and user experience. Testing the prototype allows the developer to gather feedback from potential users and refine the design to meet the target audience's needs. By prototyping and testing the design, a developer can ensure that the website is user-centered and provides an optimal user experience.

3. RESULTS AND DISCUSSION

One of the significant challenges in digital tourism marketing in Indonesia is the digital divide. While there has been substantial growth in internet penetration in recent years, not all Indonesians have access to the internet or the technological infrastructure needed to engage in digital tourism marketing [17]. In the context of eastern Indonesia, especially the North Halmahera Regency and Morotai Island Regency, technological infrastructure is still under development. Likewise, the participation of information system users is slowly growing along with the increasing socio-economic needs, especially in the tourism sector. The digital divide creates a significant barrier to the effective promotion of Indonesian tourism, especially for small businesses and those in remote areas [18]. Thus, the digital divide is the biggest challenge in developing digital marketing for Indonesian tourism destinations.

In the empathize stage, the context understanding approach is used to identify the needs of tourism destination managers in marketing tourism destinations and the need for tourists to access information related to transportation modes, accommodation services, amenities, and other supporting information. Understanding the context is a crucial challenge in the empathize phase of the design thinking process when creating a website for marketing North Halmahera's special interest tourism destinations. To effectively empathize with the users, it is essential to understand their background, needs, motivations, and behavior. This requires extensive research, including field visits, interviews, surveys, and data analysis. Moreover, it is essential to consider the cultural and social context of the area to ensure that the website's content and design are relevant and engaging for the target audience. By understanding the context, the website can be designed to provide a personalized and meaningful user experience that meets the users' needs and preferences.

Table 1 results from an empathizing process to identify needs by classifying expectations with the challenges faced. As a tourist destination manager, the local community has expectations for the ease of marketing destinations to superior local products through digital technology. Still, the challenge is minimal knowledge and skills in using technology applications. Furthermore, expectations about the high number of tourist visits to managed destinations, but the challenge is the limited access to destination information which causes tourist visits to tend to be few. On the other hand, tourists expect to access specific information about the

products and services needed, but not all tourism businesses use digital technology to market products and services.

Table 1. Host and Guest' Expectations and Challenges

Actors/User	Expectations	Challenges
Host	Able to market tourist destinations along with local superior products through digital applications	Limited knowledge and skills in using digital technology
	Many tourists visit destinations that are temporarily managed	Lack of tourist visits due to limited information about managed destinations
Guest	Obtaining complete tourism information according to your needs	Not all tourism businesses market products and services using digital devices
	Easy to use digital transaction services anywhere and anytime	Limited technological infrastructure and internet network

Moreover, travelers have expectations about digital transaction services that can be done anywhere and anytime. However, limited technological infrastructure and internet networks prevent digital transactions from being carried out in some tourist destinations. After the empathize stage, the defined process uses the problem statement technique to determine the problems the host and guest face, as shown in figure 2 below.

Problem Statement

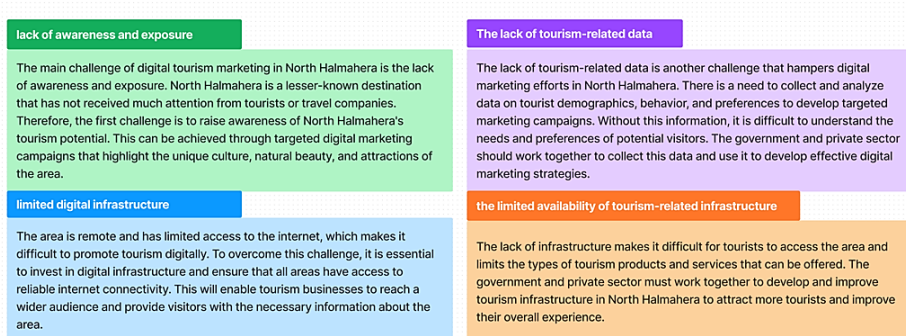


Figure 2. Problem Statement

Figure 2 is the problem statement process. It involves identifying and defining the problem the website aims to solve or the opportunity it seeks to capture. This requires deep understanding of the users' needs, pain points, business objectives, and constraints. The problem statement should be clear, concise, and focused, as it will guide the design process and ensure that the website addresses the most critical issues. Moreover, it should be validated with the users and stakeholders to

ensure it aligns with their expectations and goals. By developing a solid problem statement, the website can be designed to provide a solution that meets the users' needs and achieves the business objectives. The results of the problem statement show four main problems: lack of awareness and exposure, limited digital infrastructure, lack of tourism-related data, and the limited availability of tourism-related infrastructure.

The problem statement serves as a foundation for the design process by identifying and defining the central problem that the website aims to solve. In the context of this research, the main problem that is important to solve is the availability of complete tourism information and can provide recommendations for products and services that suit user needs. This process ensures the most critical issues relevant to the users and stakeholders. Thus, solving problems becomes the focus, and the prototype design can solve the problem effectively and efficiently. This shows that the define stage emphasizes the description of the issues to be analyzed in depth to get clues about the root cause of the problem to proceed to the ideation stage. A well-defined problem statement provides a clear understanding of the users' needs and pain points, leading to the development of a website that meets those needs.

The problem statement also guides the design process by ensuring the website's features and functionalities align with the users' goals and objectives. Therefore, the problem statement is crucial in the design thinking method for developing a website that effectively markets North Halmahera's special interest tourism destinations. Once defined, the problem prioritized to proceed to the ideation process is the lack of tourism-related data, through a solution visualized in the form of a use case diagram in Figure 3.

Figure 3 is an idea to solve the main problem in designing a website-based application for marketing special interest tourist destinations in North Halmahera Regency. Based on the use case diagram, the administrator can visualize and facilitate the roles of guest and host actors. The website is designed to collect application user data that enables the analysis of user needs in developing application features and functions in the future. It requires private data about the user's background (user profile). A designed website must minimize the need for system users to access the information needed. Therefore, the application designer provides a search form (navigation bar).

Moreover, information related to attractions, accommodation & amenities, vacation rentals, and communities is the central theme that will be displayed on the main homepage. Specifically, interest information includes destinations and events organized by local congregations or communities, village and local governments, and the private sector. Also, accommodation and amenities include information about accommodation services classified by hotel, homestay, and

resort. Meanwhile, information about modes of transportation is provided in the theme of vacation rentals which includes information about vehicle lending services for traveling based on the classification of vehicles on land and sea (cars, motorcycles, speedboats, *ketinting*). This shows that the idea offered focuses on solving the main problem: the need for tourism-related data.

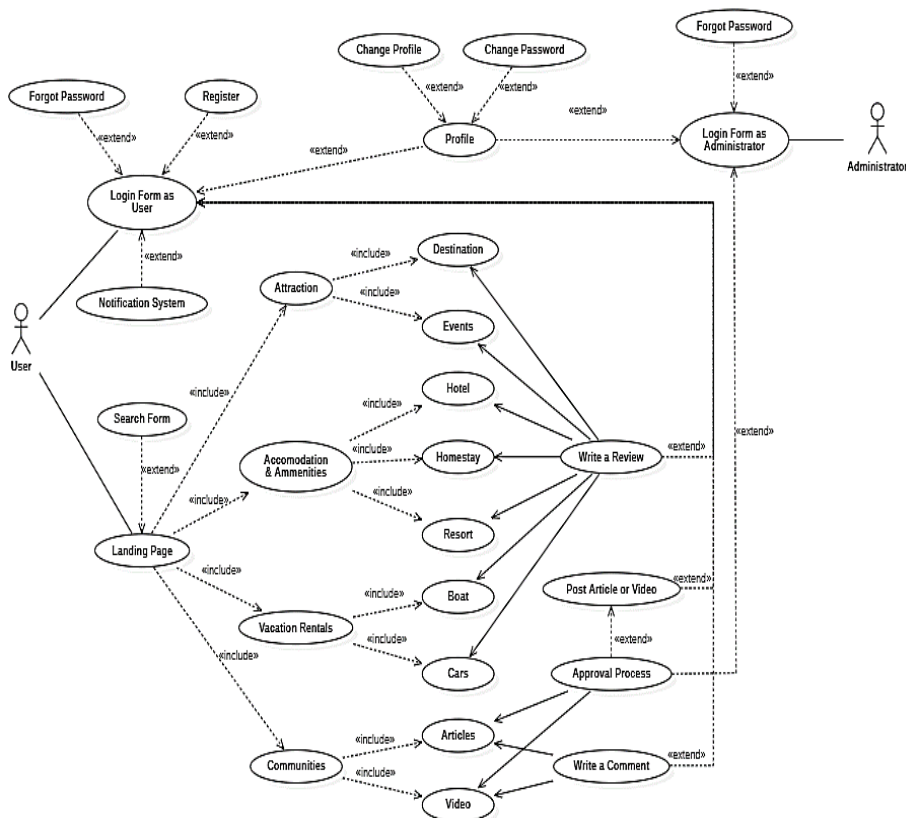


Figure 3. Ideate through Use Case Diagram

Application users who have registered as members are given the authority to review each product and service by utilizing the review feature on the website. The more and higher ratings given by application users are expected to be able to trigger the perception and motivation of tourist visits to these special interest tourist destinations. In addition, users as individuals and communities can upload articles, photos, and short videos to the website so that other users can read them. However, specific provisions on the procedure for uploading articles, pictures, and videos to websites emphasize publication ethics and intellectual property rights. Considering this, administrators play an essential role in selecting and verifying data related to publishing articles on the website. After the ideation process

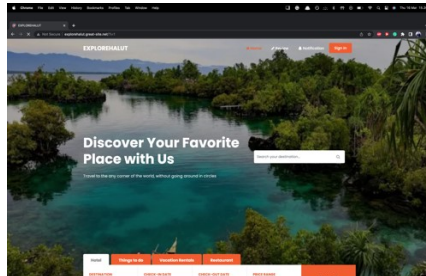
through visualization of the use case diagram, the website prototype is designed through two stages: the modeling stage, the database design process (Entity Relationship Database), and the User Interface (UI) design process. These two stages are carried out based on the results of identification and data analysis from the stages of empathy, definition, and ideation. Meanwhile, an overview of the relationships between data designed as a database ERD diagram can be seen in Appendix A.

Appendix A is the result of an ERD design that shows the calcification of data based on type, size, and status. To develop a website-based application according to tourist preferences, some data needed in the analysis process will be stored in a database. An Entity Relationship Diagram (ERD) is a well-established modeling tool that clearly and concisely represents complex data structures. In the context of a specialized tourism website, ERD provides numerous benefits for managing user profiles. ERD facilitates the identification of entities, attributes, and relationships involved in the system, enabling efficient organization and storage of user profile data. This leads to improved data quality, consistency, and integrity, which are essential to creating a reliable and robust tourism website. ERD also allows for creating a database schema that can handle complex queries and relationships, providing personalized recommendations and targeted promotions to users based on their profile data. ERD is a crucial tool for designing and managing user profiles on a tourism website. It provides a solid foundation for efficient and effective data management, enhancing user experience and satisfaction. Based on the ERD design results, the text and numerical data needed in the database for evaluation and the basis for preparing future application development plans can be known. Based on the ERD, the design of the website user interface is adjusted to the characteristics of the user, as shown in Figure 5.

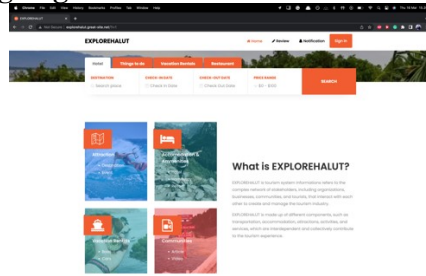
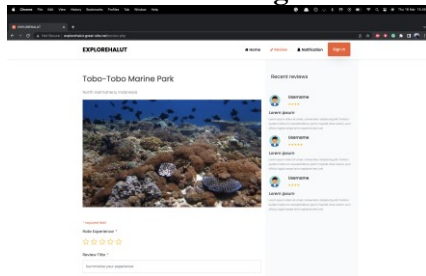
Figure 5 is the result of designing an interface (User Interface) in the form of a website-based tourism information system that provides all information about accommodation services, transportation, to various tourism economic activities in special interest tourist destinations in North Halmahera Regency. Prototyping a specialized tourism website for North Halmahera Regency offers several benefits. Prototyping allows testing user interface design, functionality, and content in a controlled environment. This enables developers to detect potential issues and make necessary adjustments before launching the website to the public. Prototyping also allows for gathering feedback from stakeholders, including tourists, travel agents, and local tourism authorities. This feedback can inform further development of the website, ensuring that it meets the needs and expectations of its intended audience. Prototyping can help reduce the time and cost of traditional development approaches, such as iterative or incremental development. In summary, prototyping is a valuable tool for designing and developing specialized tourism websites. It enables efficient testing, refinement,

and optimization of website design and functionality, improving user experience and increasing tourism revenue.

Landing Page



Review Page



Tourism-related Data

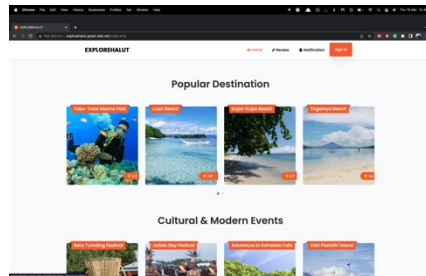
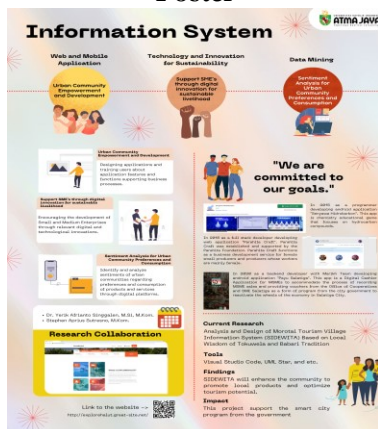


Figure 5. Tourism Destination Website Prototype

The prototype testing process is carried out by publishing posters and short videos to capture the aspirations of the audience who attended the *sustainability week* activity at the Atma Jaya Catholic University of Indonesia, related to the prototype of the marketing website of special interest tourism destinations in North Halmahera Regency. Meanwhile, the poster in question can be seen in the following picture.

Poster



Short Video

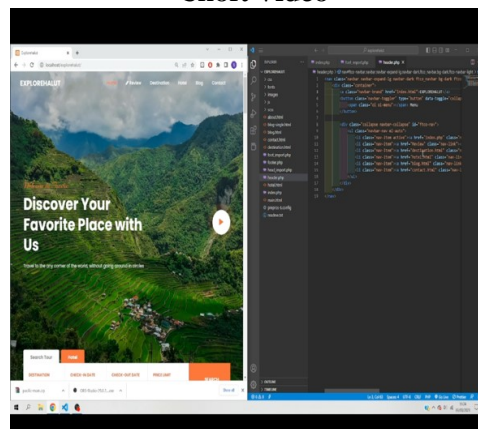


Figure 6. Testing the Prototype during Sustainability Week Event

Figure 6 is a stage of prototype testing in sustainability week activities organized by the Institute for Research and Community Service (LPPM), Atma Jaya Catholic University of Indonesia. Based on the testing results, it can be seen that websites for marketing special interest tourist destinations still need to be developed and integrated with a decision-making system using an expert system algorithm. Thus, managers find it easy to set priority programs to improve the quality of products and services. Meanwhile, tourists get convenience about the information of destinations to visit based on the criteria specified.

Testing the prototype of a specialized tourism website for North Halmahera Regency is a crucial step in the development process. It enables developers to evaluate the website's design, functionality, and user experience in a controlled environment, identify potential issues, and make necessary improvements before the website is launched to the public. Testing the prototype also allows developers to gather feedback from stakeholders, including tourists, travel agents, and local tourism authorities. This feedback can inform further development and optimization of the website, ensuring that it meets the needs and expectations of its intended audience. Additionally, testing the prototype helps to minimize the risk of costly errors or unexpected issues that could negatively impact the website's reputation and success. In summary, testing the prototype of a specialized tourism website for North Halmahera Regency is a critical process that ensures the website's functionality, usability, and effectiveness, leading to increased tourism revenue and positive outcomes for all stakeholders involved.

4. CONCLUSION

The results of this study show that the design of a website-based application for marketing special interest tourist destinations in North Halmahera Regency can use the design thinking method. Based on user identification and analysis of needs, the primary needs of system users emphasize the completeness of information about accommodation and accessibility in a tourist destination. Based on the results of problem identification, ideas, or ideas to solve the problem can be solved by optimizing the website as a tourism information medium that helps tourists to access products and services according to their needs. Thus, prototypes from designing a website-based tourism information system for marketing special interest tourist destinations can be used to meet user needs.

REFERENCES

- [1] H. Samuel, S. Wijaya, and C. Alianto, "Pengaruh Usability, Information Quality, Dan Interaction Quality Terhadap Web Revisit Intention Dan Purchase Intention Website Bali Tourism Board," *J. Manaj. Pemasar.*, vol. 15, no. 1, pp. 28–38, 2021, doi: 10.9744/pemasaran.15.1.28-38.
- [2] F. Syah, I. Syafganti, and A. T. Muharram, "Komunikasi Pemasaran

- Pariwisata Desa Wisata Subang Selatan, Kabupaten Subang, Jawa Barat,” *LUGAS J. Komun.*, vol. 5, no. 2, pp. 73–82, 2021, doi: 10.31334/lugas.v5i2.1687.
- [3] A. Oktavio, A. T. L. Indrianto, and L. Padmawidjaja, “Model Pembelajaran Design Thinking Untuk Pengembangan Desa Wisata: Studi Kasus Desa Peniwen,” *J. Ilm. Manaj. Bisnis Dan Inov. Univ. Sam Ratulangi*, vol. 9, no. 3, pp. 1324–1334, 2022, doi: 10.35794/jmbi.v9i2.42562.
- [4] S. Filopoulos and N. Frittella, “Designing sustainable and responsible wine tourism experiences,” in *BIO Web of Conferences*, 2019, vol. 12, p. 03006. doi: 10.1051/bioconf/20191203006.
- [5] T. A. Auliandri, “Analisa Aktivitas Manajemen Strategi pada Industri Pariwisata Berbasis Digital,” *INOBIJIS J. Inov. Bisnis dan Manaj. Indones.*, vol. 1, no. 1, pp. 10–17, 2017, doi: 10.31842/jurnal-inobis.v1i1.13.
- [6] S. Asri, H. Setiawan, and Y. Krisnawansyah, “Kebijakan Pengelolaan Pariwisata Dan Ekonomi Kreatif Sumatera Barat Menghadapi Global Village,” *Menara Ilmu*, vol. 16, no. 2, pp. 152–162, 2022, doi: 10.31869/mi.v16i2.3796.
- [7] S. A. Sutresno and Y. A. Singgalen, “Analysis and Design of Morotai Tourism Village Information System (SIDEWITA) Based on Local Wisdom of Tokuwela and Babari Tradition,” *J. Inf. Syst. Informatics*, vol. 5, no. 1, pp. 174–185, 2023, doi: 10.51519/journalisi.v5i1.441.
- [8] Y. A. Singgalen and M. S. Grid, “Strategic Planning of Morotai Tourism Village Information System (SIDEWITA) Using Ward and Peppard Method,” *J. Inf. Syst. Informatics*, vol. 5, no. 1, pp. 134–149, 2023, doi: 10.51519/journalisi.v5i1.442.
- [9] Y. A. Singgalen, “Strategic Planning of Ecotourism Management System Using Ward and Peppard Framework,” *J. Inf. Syst. Informatics*, vol. 4, no. 2, pp. 216–232, 2022, doi: <https://doi.org/10.51519/journalisi.v4i2.245>.
- [10] E. Widodo and Y. A. Singgalen, “Strategic Planning of Regional Tourism Information System of Morotai Island Regency using Ward and Peppard Framework,” *J. Inf. Syst. Informatics*, vol. 4, no. 3, pp. 556–573, 2022, doi: 10.51519/journalisi.v4i3.282.
- [11] H. Prasadja and Y. A. Singgalen, “Analysis and Design of Mangrove Ecotourism Management System (SIMANGROVE) of Dodola Island , Morotai Island Regency , Indonesia,” *J. Inf. Syst. Informatics*, vol. 4, no. 2, pp. 191–204, 2022, doi: <https://doi.org/10.51519/journalisi.v4i2.243>.
- [12] Y. A. Singgalen, “Analysis and Design of Regional Tourism Information System ‘ SIPARDA ’ of Morotai Island Regency,” *J. Inf. Syst. Informatics*, vol. 4, no. 4, pp. 849–863, 2022, doi: <https://doi.org/10.51519/journalisi.v4i4.328>.
- [13] G. tri Lestari and D. S. F. Ali, “Strategi Komunikasi Pemasaran DISPORAPARBUD Kabupaten Purwakarta Melalui Media Aplikasi Sampurasun dalam Mempromosikan Pariwisata,” *LINIMASA*, vol. 3, no. 1, pp. 1–10, 2020, doi: 10.23969/linimasa.v3i1.2056.

- [14] G. D. G. E. Sidabutar, J. A. Seah, and Y. Afrianto, "Analysis and Design of Web-based Information System for Coffeeshop Management using Design Thinking Methodology : Case of Kopi KurangLebih," *J. Inf. Syst. Informatics*, vol. 5, no. 1, pp. 217–231, 2023, doi: 10.51519/journalisi.v5i1.455.
- [15] M. Hamdandi, R. Chandra, F. Bachtiar, N. Lais, D. A. Sastika, and M. R. Pribadi, "Perancangan UI / UX Pada Aplikasi Bapakkost Idemopet dengan Menggunakan Metode Design Thinking," in *MDP Student Conference 2022*, 2022, vol. 1, no. 1, pp. 329–397.
- [16] A. Ikhsandi, H. Laili, J. Akbar, and Y. Efendi, "Perancangan User Interface pada Website SMKN 1 Tambang Menggunakan Metode Design Thinking," *J. TelKa*, vol. 12, no. 2, pp. 147–155, 2022, doi: 10.36342/teika.v12i02.2940.
- [17] E. Ratnawati and R. Asaf, "Socio-Economic Characteristics Of Coastal Community And Its Relevance To Marine Aquaculture Development In Morotai Island District," *Pros. Simp. Nas. Kelaut. dan Perikan. VI*, pp. 63–72, 2019.
- [18] E. A. Kadir, A. Syukur, and S. L. Rosa, "Pengembangan Jaringan Internet Untuk Pedesaan Pada Kecamatan Kuala Kampar, Pelalawan, Riau," *J. Pengabd. Masy. dan Penerapan Ilmu Pengetab.*, vol. 1, no. 2, pp. 11–17, 2020.

Appendix A. Entity Relationship Database (ERD) of the Tourism Destination Website

