

## Applying Design Thinking for Tourism Innovation: Developing a Web-Based Platform for Destination Visibility

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### ABSTRACT

The digital transformation of tourism has created new opportunities for destinations to enhance visibility and engage with potential visitors. However, many tourism destinations still face challenges of digital invisibility, which limits their competitiveness in increasingly technology-driven markets. This study applies the design thinking methodology to develop the Wonder of Jorak (WOJ), a mobile-accessible web-based platform designed to strengthen the digital visibility of Mukim Jorak, Johor. Using a qualitative, user-centered approach, the research engaged local stakeholders and potential visitors across the five stages of design thinking, empathise, define, ideate, prototype, and test. Findings demonstrate that user-centered design processes help uncover user needs, improve usability, and refine destination narratives, resulting in a platform that enhances destination visibility. The study contributes to tourism innovation research by illustrating how design thinking can be systematically applied to digital platform development, offering practical implications for destination in similar contexts.

**Keywords:** Design Thinking; Digital Visibility; Tourism Innovation; User-Centered Design; Web-Based Platform

**Article Classification:** Case Study

## 1. INTRODUCTION

Tourism is increasingly shaped by digital transformation, with information and communication technologies (ICT) playing a central role in how destinations are promoted, experienced, and managed. Websites, mobile applications, and digital platforms now serve as gateways for visitors seeking information and making travel decisions. Destinations with strong digital presence gain a competitive advantage, while those with weak or fragmented profiles often face challenges of visibility and accessibility in an increasingly technology-driven marketplace (Houssien et al., 2021; Rustam & Yadi, 2023).

Although there is vast technological progress, many smaller or emerging destinations, particularly those in rural settings, continue to face challenges of digital invisibility. These destinations struggle to reach wider audiences and are often overshadowed by better-promoted locations without a centralized and credible online presence. This lack of online presence limits economic opportunities and hinders the realization of their full cultural and economic potential.

The challenge of digital invisibility is compounded by several barriers, including limited local resources, fragmented information across scattered channels, and insufficient digital expertise within local communities. Web-based platforms have been identified in the literature as cost-effective solutions for improving tourism visibility. These platforms provide practical information to visitors while consolidating local attractions, thus reinforcing a cohesive destination identity.

The growing complexity of tourism challenges, which involve technological gaps, human capacity, and local context, requires methodologies that place user needs at the center of solution development (Yasmine & Atmojo, 2022). Design thinking has emerged as a practical and research-oriented framework for addressing such multi-faceted challenges. Its structured phases, Empathise, Define, Ideate, Prototype, and Test, make it uniquely suitable for exploring complex problems and co-creating solutions in dynamic tourism contexts (Sayed et al., 2024).

Prior studies have highlighted the importance of technological capabilities and current research emphasises that digital platforms must move beyond mere function to deliver authentic narratives (da Luz et al., 2025). Digital visibility is central to destination competitiveness, and a strong digital profile requires quality content and branding to build emotional connections with visitors (Salam, 2024). The methodology adopted here is for ensuring the platform's content is authentic and reflective of the local community's identity.

The study yields three key contributions as it extends tourism innovation literature by operationalizing design thinking for destination visibility, provides a practical model for local stakeholders to enhance digital visibility and methodologically, it illustrates the framework's value as a bridge between research and practical development.

This study aims to develop and evaluate a user-centered digital platform to enhance the digital visibility and competitiveness of a digitally underserved destination, Mukim Jorak. It applies the design thinking methodology as a systematic framework to translate the challenges of digital invisibility and fragmented community narratives into a cost-effective, sustainable web-based solution. It documented the five-stage process, which are empathise, define, ideate, prototype, and test. It also seeks to demonstrate the practical and methodological value of a participatory approach in bridging the digital divide for small-scale tourism destinations. The remainder of this paper covers the literature review, the design thinking process applied to the WOJ platform, the findings and discussion, and concludes with implications for theory and practice.

## **2. LITERATURE REVIEW**

This review begins with the current technological landscape, examining the essential role of ICT in destination and the resultant challenges of digital invisibility for smaller locations. It then introduces design thinking as a methodological framework suited for developing user-centered digital innovations. Finally, the section covers the importance of digital visibility and collaborative stakeholder engagement for a successful web-based platform.

### **2.1 The Role of Web Technology and the Challenge of Digital Invisibility in Tourism**

The advancement of ICT has reshaped how tourism destinations promote themselves and interact with potential visitors. Digital platforms, particularly websites and mobile applications, have become indispensable tools for enhancing accessibility and creating new channels for visitor engagement (Shrestha et al., 2021). ICT, particularly web technology, adoption is a necessity for destinations seeking competitiveness in a global market (Houssien et al., 2021; Rustam & Yadi, 2023).

Many smaller or emerging destinations continue to face challenges of digital invisibility. These destinations struggle to reach wider audiences and are often overshadowed by better-promoted locations without a centralised and credible online presence. Limited resources, fragmented information, and lack of digital expertise contribute to these barriers.

Web-based platforms have been identified as cost-effective solutions for improving tourism visibility. The platforms are able to provide practical information to visitors while also reinforcing destination identity by consolidating local attractions, businesses, and services into an integrated digital interface. Studies show that user-friendly and accessible websites help destinations strengthen market presence and attract new audiences.

## **2.2 Design Thinking as a Methodological Framework for Tourism Innovation**

The growing complexity of tourism innovation requires methodologies that place user needs and contextual understanding at the center of solution development. Design thinking has emerged as a practical and research-oriented framework for addressing such challenges. Its flexible phases, empathise, define, ideate, prototype, and test, make it suitable for exploring problems and creating solutions in tourism contexts (Brown, 2009). The process is inherently non-linear, allowing for continuous iteration and refinement (Dam, 2025).

Design thinking has been applied to improve service design, develop digital tools, and enhance visitor experiences in tourism research. The methodology encourages collaboration among multiple stakeholders, ensuring that the outcomes align with both user expectations and destination priorities. Its iterative process also enables flexibility, allowing developers to refine solutions based on feedback and testing.

More inclusive and relevant digital platforms are able to be produced by integrating design thinking into tourism innovation (Rustam & Yadi, 2023). The approach supports technological development and also strengthens co-creation between stakeholders and visitors. This positions design thinking as a bridge between theory and practice, making it a valuable methodological contribution to tourism studies (Sayed et al., 2024).

## **2.3 Digital Visibility and Destination Competitiveness**

Digital visibility is central to destination competitiveness in the current tourism landscape. Destinations that maintain high online profiles are more likely to capture visitor attention and influence travel decisions. In contrast, destinations with weak or fragmented digital presence risk being overlooked, regardless of their cultural, natural, or historical assets (Salam, 2024).

Authentic narratives, supported by multimedia content such as photos and videos, provide destinations with a stronger digital identity. This helps build emotional connections with visitors, differentiating destinations in increasingly competitive markets (da Luz et al., 2025).

Digital platforms also play a role in empowering smaller destinations by offering cost-effective ways to consolidate and present local attractions. These platforms are able to promote authenticity and address the visibility by involving community stakeholders. This approach is especially relevant for destinations like Mukim Jorak, where design thinking can be systematically applied to create a user-centered digital platform that strengthens tourism visibility and competitiveness.



### 3. METHODOLOGY

This study employed a qualitative case study approach with design thinking as the methodological guide for developing the Wonder of Jorak (WOJ) platform. This integrated approach was selected because design thinking facilitates user-centered innovation through iterative phases of problem exploration, ideation, and solution testing, which is particularly suited to addressing complex challenges such as the digital invisibility of tourism destinations.

The paper serves to document the systematic application of this process, thus providing a replicable process framework for tourism technology development. The methodology follows the five phases of the design thinking process as in Fig.1, empathise, define, ideate, prototype, and test, providing a structured roadmap for addressing the identified problem (Abdul Aziz et al., 2022).

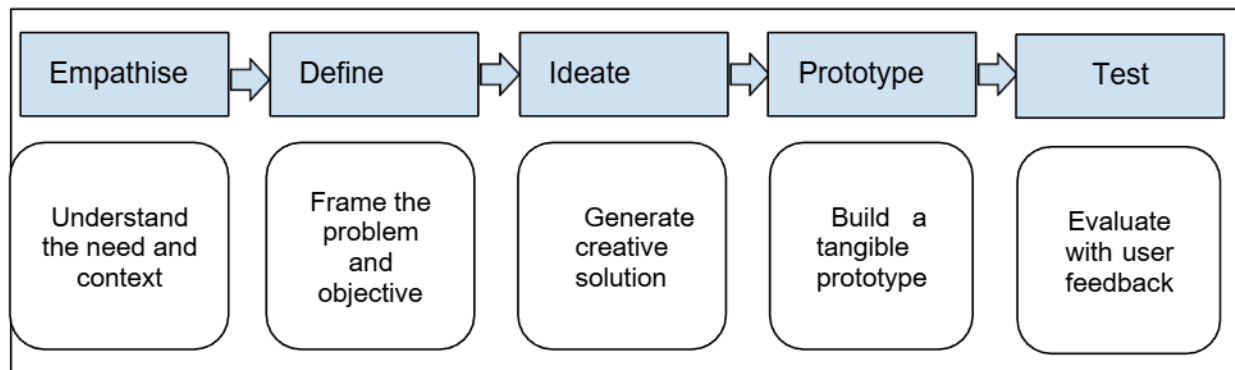


Fig. 1. Five Design Thinking Phases

The development of the WOJ was guided by a design thinking process. Initially, the empathise phase involved engagement with local stakeholders, including university students, residents, and business owners, to uncover their needs. The defined phase articulated Mukim Jorak's challenges of digital invisibility and fragmented tourism information. It sets strategic objectives for a web-based mobile-accessible platform. The ideate phase sparked the generation of innovative solutions, emphasising simplicity and mobile usability for diverse users. A prototype was developed to visualise the key functionalities and user interfaces. Finally, the test phase gathered user feedback to assess visual presentation and content clarity. The test provided suggestions for future improvements based on the prototype. This design thinking approach provided a technology innovation that is aligned with the users' needs for the defined problem. It also provides a space for improvements for future sustainable growth.

### **3.1 Empathise Phase**

The empathise phase involved qualitative data collection through interviews with local stakeholders, including university students, residents, and business owners. This was conducted to gain a deep understanding of the user's current situation, local context, and community needs. This process aimed to see the world from the stakeholders' point of view and understand their feelings, aligning with the principles of human-centered design.

### **3.2 Define Phase**

The second phase focused on articulating Mukim Jorak's challenges of digital invisibility and fragmented tourism information based on the input from the empathy phase. Strategic objectives for a web-based platform were set. The challenge was framed by articulating a point of view based on three elements: the user, their need, and the compelling insight, which served to guide the digital innovation efforts.

### **3.3 Ideate Phase**

The ideate phase sparked the generation of innovative solutions, emphasizing simplicity and mobile usability for diverse users. This phase employed use case analysis to identify core requirements for the WOJ platform. This study used user cases to capture functional needs across three categories: accommodation, restaurants, and education-based attractions. These use cases ensured that the platform structure reflected visitor expectations while providing clarity on system requirements. This approach aligns with Information Technology (IT) methodologies in which requirement analysis forms the basis for effective system and web platform development. The key tool utilized in this phase was the sitemap, which served to set the direction of the web design by visually linking the Homepage to the main content sections: Attraction, Accommodation, and Gastronomy. Visual concepts for each webpage were designed based on this sitemap.

### **3.4 Prototype Phase**

A tangible, fully functional website was designed and developed during this phase based on the ideas derived from the sitemap (Newman & Landay, 2000). The purpose of this step was to visualize the platform's information architecture and user interfaces, allowing the team to focus on information clarity and core functionality. The prototype served as the functional model to be evaluated in the subsequent testing phase.

### **3.5 Test Phase**

The test phase involved gathering user feedback to assess the prototype's visual presentation, usability, and content clarity. The prototype was tested with actual users to prove the design worked, while simultaneously identifying areas for improvement. The data collected from the user testing provided suggestions for future enhancements and iterative refinement of the WOJ platform.

This methodology ensured that the development of WOJ was both contextually grounded by integrating qualitative data with the design thinking process. This strengthens the findings and demonstrates how design thinking is to be systematically applied as a research framework in tourism innovation.

## **4. FINDINGS AND DISCUSSION**

The findings of this study are structured around the five phases of the design thinking process, empathise, define, ideate, prototype, and test. This reflects the nature of the methodology while providing clarity on how each stage contributed to the development of the WOJ platform. The findings of this study are structured around the five phases of the design thinking process, reflecting the iterative nature of the methodology. Beyond documenting the practical outcomes of creating the WOJ platform, the findings offer broader methodological insights into how design thinking systematically addresses challenges of destination visibility and yields lessons transferable to tourism innovation.

The findings document the practical outcomes of creating a digital tourism solution and also provide broader methodological insights into how design thinking effectively addresses challenges of destination visibility. The systematic progression through the design thinking stages confirms the feasibility of developing the web-based tourism platform for Mukim Jorak. This approach illustrates how the method yields insights applicable to tourism innovation.

### **4.1. Gaining Deep User and Community Insights**

The empathise phase initiated the systematic design thinking process by engaging directly with potential users and community stakeholders in Mukim Jorak. This phase was crucial for establishing a human-centered focus, moving beyond assumptions about digital needs to gather authentic, qualitative insights through interviews with university students, local residents, and local business owners. The primary objective was to thoroughly understand their current challenges, aspirations for the area, and how they currently seek or provide tourism information, thus establishing a foundation of empathy as required by the design thinking framework.

This initial deep engagement effectively revealed a significant user need for accessible and highly visible tourism information that specifically supports local businesses. Stakeholders articulated a demand for content that not only provided travel guidance like accommodation and gastronomy details but also showcased local educational opportunities, with respective location. The analysis of these insights highlighted the strategic need to augment existing digital methods with a centralized information hub. This addition would improve the functional necessities of trip planning and capture the unique aspects of the destination's identity.

The results of the empathise phase were fundamental, ensuring that the subsequent design process was purpose-driven and locally relevant. The documentation of core users' needs to establish a clear direction for the defined stage. This direction required the solution that is tangible in the final platform to fulfil the community's current information requirements. This systematic grounding in user empathy was essential for transitioning to the next phase of defining a problem that was needed and impactful.

#### **4.2 Articulating Core Problems and Strategic Objectives**

The Define phase commenced with the task of structuring the input gathered during the Empathise phase into feasible and solvable problem statements. This process moved beyond the general observation of digital challenges to articulate objectives that the WOJ platform was designed to solve. The synthesis of stakeholders' needs confirmed that the core issue was the fragmentation of information, a condition directly resulting in the digital invisibility of the destination and hindering its market access.

This phase centered on translating the community's unmet needs into a clear definition for the problem to be addressed. It was determined that tourism information is currently fragmented across multiple sources, significantly limiting accessibility, visibility and usability for visitors and prospective students. Furthermore, the absence of a centralised digital hub to consolidate higher education opportunities, homestay accommodations, and local gastronomy offerings does not directly support the tourism growth that benefits community-based enterprises.

This rigorous process of problem articulation demonstrates how design thinking is able to guide technology-enabled tourism innovation. The phase output was used to enhance information visibility and improve the expected user experience by clearly defining the problem and its constraints. This precise definition provided the necessary foundation for the subsequent ideate phase, leading to the identification of the functional requirements needed to deliver practical solutions.

#### 4.3 Conceptualizing the Digital Solution

The ideate phase was dedicated to generating and selecting the feasible solution to address the defined problems of information fragmentation and digital invisibility. Based on criteria established in the define phase, a web-based platform was selected. This approach was prioritised over a dedicated mobile application due to its accessibility and lower maintenance requirements, ensuring the solution would be viable for community-based enterprises.

The primary deliverable from this conceptual stage was the sitemap, which serves as the fundamental blueprint for the WOJ platform. This visual structure systematically organised the content, ensuring logical navigation and a clear hierarchy. The conceptual plan provided the platform's content categories by dedicating the main sections of the sitemap to Attraction, Accommodation, and Gastronomy, confirming the platform's architectural focus.

This study used a sitemap for the website design to capture broad categories of visitor needs and identify core functional requirements for the WOJ platform. Three main sections emerged as central to the design: accommodation, restaurants, and education attractions. These served as the foundation for the platform's architecture, ensuring alignment with visitor expectations and the destination's unique identity.

A site map is a diagram used to show the link between the homepage (the term used in design) or index page (the term used in development) to indicate the link between the web pages in a website (Adams & Sagarwala, 2018). It starts with the main page displayed when the domain name is in the URL of the web browser (Newman & Landay, 2000). Fig. 2 displays the site map for the WOJ, including the homepage and main sections.

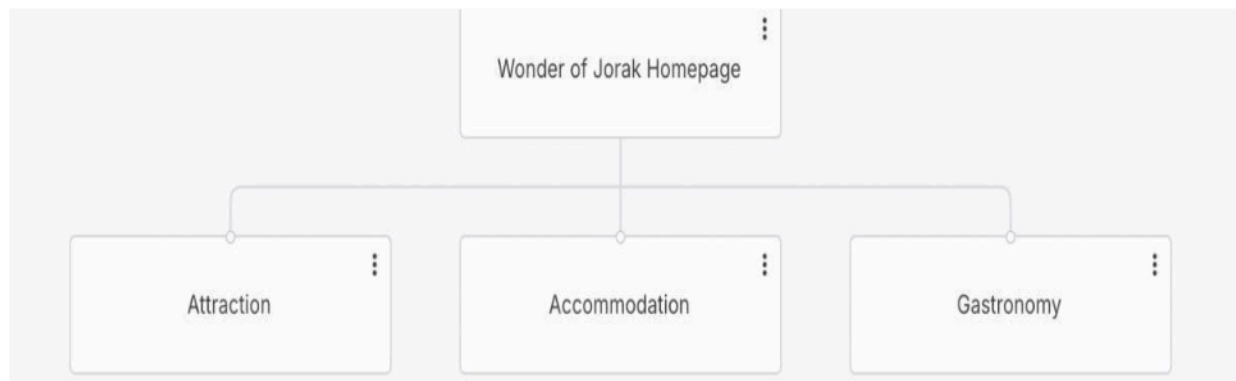


Fig. 2. The site map displays the homepage and the main section for the website design.



A distinctive finding was the demand for information on education-based attractions, including training centers, institutions, and cultural learning hubs. This reflects Jorak's identity as both a community and an education hub. This third required the platform to deliver structured informational content that goes beyond leisure tourism, offering visitors opportunities for learning and cultural exchange from a web design perspective. The WOJ prototype included a dedicated section on education attractions. Fig. 3 displays the visual concept for the Attraction webpage, which was conceptualised in the ideate phase and served as the basis for the subsequent prototype.

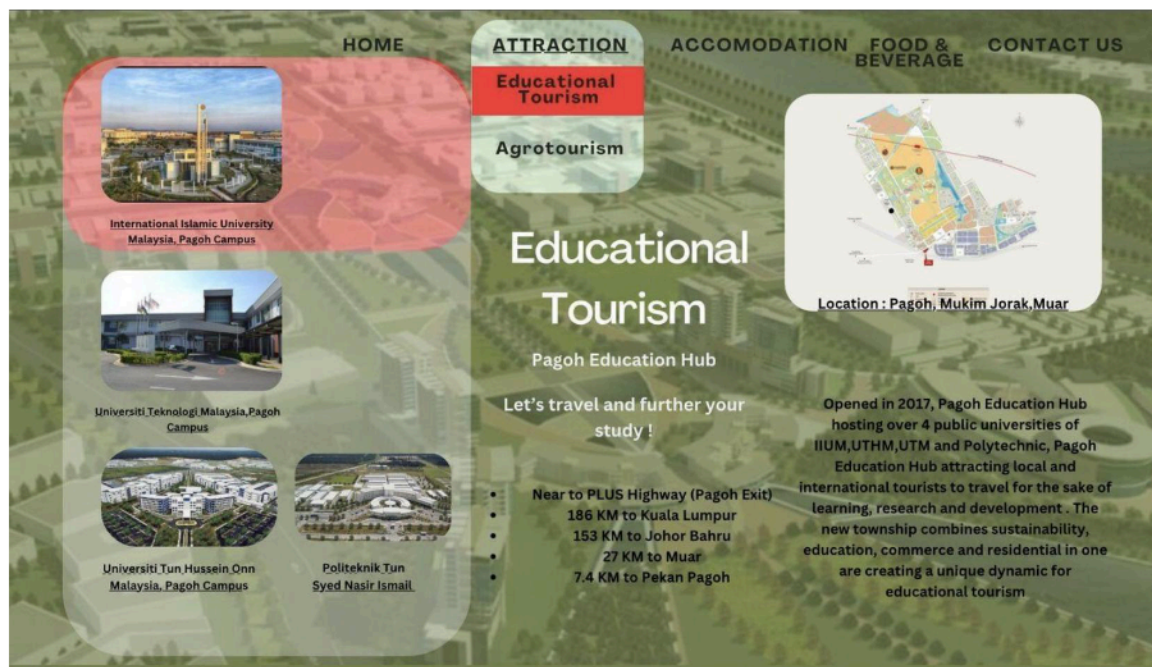


Fig. 3. A visual design from the idea on the attraction webpage.

Accommodation emerged as one of the most frequently mentioned needs among potential visitors. Users emphasized the importance of finding reliable information about lodging options in Jorak, including price ranges, contact details, and location. This reflects the requirement for a centralized accommodation listing from a web technology perspective. The WOJ prototype addressed this by creating a dedicated section. Fig. 4 visualises the accommodation web page, which is based on the sitemap. This design is based on the discussion in the design stage to further the discussion on the possible solution for the defined problem. This has also become the basis for the prototype phase.



Fig. 4. A visual design from the idea on the accommodation webpage.

The other focused on local food and dining options, which visitors perceived as essential to Jorak's cultural identity. Participants expressed strong interest in discovering authentic food experiences and noted that current information was scattered and inconsistent. This use case required the platform to provide a content-rich, multimedia-driven module that included menus, photos and location.



Fig. 5. A visual design from the idea on the gastronomy webpage.

Fig. 5 shows the design of the gastronomy web page, which is one of the web pages in the site map for the WOJ website. This design served as the basis for the prototype. The purpose of this webpage is to highlight local restaurants, which assists in the visitor's planning by highlighting the location and view of the front of the restaurants. This further helps in promoting the local economy.

The ideate phase established the necessary functional framework for the WOJ. The ideate phase established the necessary functional requirements for the WOJ architecture by formalising three use cases. The main use cases are accessing education attractions, viewing accommodation options, and exploring restaurants. These categories were recognised as the components required to provide centralised information for trip planning, thus directly linking the problem of invisibility to a practical structural solution ready for the prototyping phase.



#### 4.4 Developing the Functional Platform

The prototype phase successfully transformed the sitemap and visual concepts into a tangible, functional web-based model, thereby confirming the technical feasibility of the proposed solution. The key output of this phase was the development of the linked functional web pages for the Homepage, Attraction, Accommodation, and Gastronomy sections. Each page was designed with an explicit focus on information clarity, intuitive navigation, and accessibility, directly translating the defined phase's requirements into functional features. The prototype's structure ensured a seamless user experience across various devices.

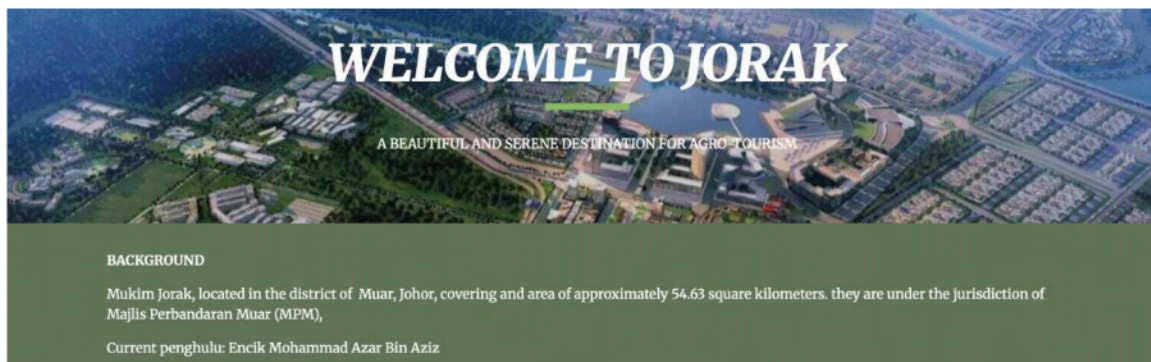


Fig. 6. The prototype homepage.

Fig. 6 shows a screenshot of the homepage, which is functional and linked to the other four web pages, as depicted in the site map in the ideate phase.



Fig. 7. The prototype attraction webpage.

Fig. 7 is a screenshot of the attraction web page that is functional, and it is linked to the homepage as depicted in the site map in the ideate phase.

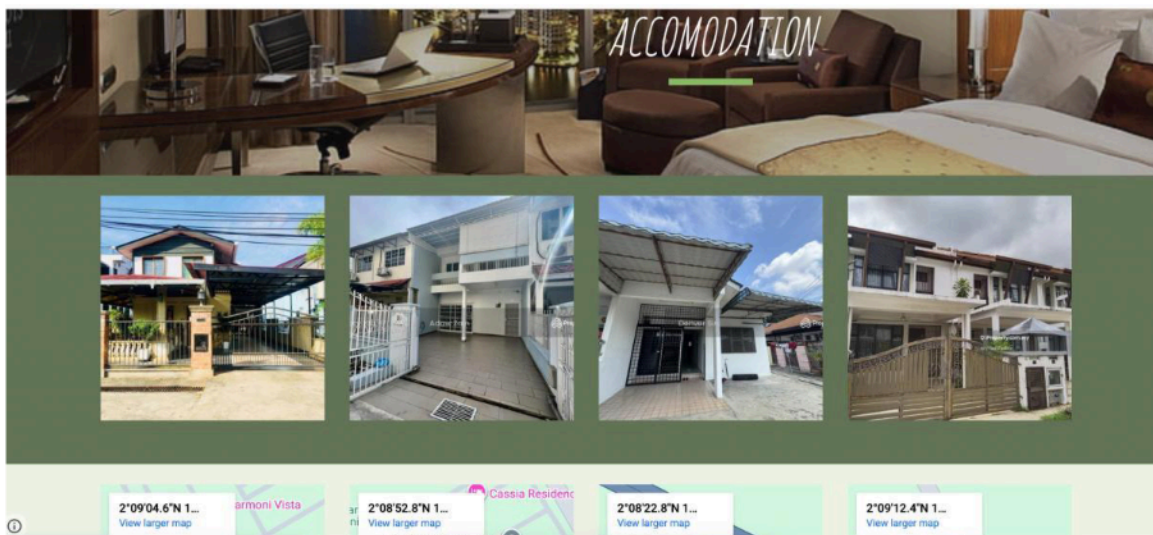


Fig. 8. The prototype accommodation webpage.

Fig. 8 shows a screenshot of the accommodation web page that is functional and linked to the homepage, as depicted in the site map in the ideate phase.



Fig. 9. The prototype gastronomy page.

Fig. 9 is a screenshot of the gastronomy web page that is functional, and it is linked to the homepage as depicted in the site map in the ideate phase.

This functional prototype served as the product for the final phase of the methodology. The prototype validated the initial design decisions. It also provided a concrete basis for gathering objective feedback from actual users, thus maintaining the iterative nature of the design thinking process.

#### 4.5. User Feedback and Iterative Refinement

The test phase involved gathering feedback from potential visitors who evaluated the WOJ prototype. The objective was to gather data on the platform's visual presentation, content clarity, and overall usability. The derived data indicates the platform's success in content clarity while highlighting areas like visual attractiveness and accessibility for future refinement. and identify specific areas for refinement. This phase successfully validated the design based on direct real-world user interaction and functional assessment.

The test results provided actionable data for iterative refinement. A majority of users confirmed the platform's success in content clarity and feedback highlighted areas for improvement, such as the need to enhance the overall visual attractiveness and accessibility. The user feedback suggested expanding multimedia content and cultural storytelling to enhance user engagement. This data confirmed that continuous refinement is necessary for alignment with user expectations.

This systematic feedback loop clearly demonstrated the value of the design thinking methodology, particularly its iterative nature. The process ensured that the WOJ platform is

aligned with end-user requirements and the specific needs of potential visitors for information quality and usability. This confirmed the feasibility of the developed solution. This phase proves that a user-centered approach effectively translates the problem of digital invisibility into a tangible digital solution that meets both the functional and aesthetic needs of its target users.

#### **4.6. Discussion of Findings and Theoretical Implications**

The development and positive initial testing of the WOJ platform successfully centralised information and directly addressed the documented problem of digital invisibility in Mukim Jorak. These findings are consistent with research emphasising that ICT plays a vital role in improving accessibility and visibility for tourism destinations (Houssien et al., 2021; Rustam & Yadi, 2023). The platform thus serves as an empirical example of how strategic ICT adoption, guided by user-centered methodology, is able to move a website from fragmented digital obscurity to integrated access.

The problem definition phase provided methodological grounding for the study. The fragmentation of information and the resulting struggle for a cohesive online narrative are not isolated issues in Mukim Jorak as these challenges reflect wider issues noted in tourism innovation literature, where destinations often struggle to articulate a clear and consistent digital identity (Salam, 2024). This approach provided an evidence-based foundation for targeted solutions. It ensured the subsequent design, from the sitemap to the final prototype, was systematically directed toward resolving a validated rather than assumed constraint on local tourism growth.

The ideate and prototype phases produced the design of a web-based platform as the feasible solution for Mukim Jorak. This choice aligns with existing research that highlights the importance of practical web-based platforms as cost-effective tools for destination promotion (da Luz et al., 2025). Brainstorming sessions produced multiple potential solutions, including mobile applications, social media campaigns, and web-based platforms. The idea of developing a mobile-accessible website was prioritised based on criteria of feasibility, accessibility, and stakeholder preferences. The study's approach provides a model suitable for tourism innovation with limited financial and human resources without creating a dependency on external and unsustainable resources.

The observed process across the empathise, ideate, and test stages directly focus on understanding the user's feedback. The design choice reflects findings from previous studies that emphasise user-centered design and co-creation as essential strategies for enhancing digital tourism platforms (Sayed et al., 2024). The digital solutions for underrepresented destinations are effective when incorporating local stakeholders. This participation ensures the product is relevant, usable, and accepted by the local community and contributes to the long-term sustainability of technological innovation.



The test phase results demonstrate the value of testing for refining tourism technology and demonstrate the applicability of the design thinking methodology to enhance user experience. The quantitative data collected, particularly the feedback on clarity and usability, provided a basis for necessary refinements, thereby reinforcing the established research on the importance of user evaluation in technology development. This highlights that design thinking serves as a development framework and a tool for ensuring that digital solutions are user-aligned, leading to improved satisfaction in user experience.

## **5. CONCLUSION AND IMPLICATIONS**

This study aligns directly with wider concerns in tourism literature that many destinations, particularly smaller or less-promoted ones, struggle to establish digital visibility in an increasingly digital marketplace. Consequently, this paper provides a replicable, user-centered framework for translating fragmented community needs into a sustainable technological solution. Multiple stakeholders including community members, students, and potential visitors were involved.

The development of the Wonder of Jorak (WOJ) platform systematically demonstrates the application of design thinking to address challenges of digital invisibility in tourism destinations. The application of the design thinking process provided valuable insights into how user-centered approaches enhance digital solutions for tourism destinations. The empathise and defined phases revealed the need in Jorak's offerings. Ideation and prototyping phases ensured that proposed technological solutions directly reflected the user needs. Feedback gathered during the test phase emphasized the ability of the proposed solution to solve the defined problem. These findings underscore the broader value of design thinking for tourism innovation. It demonstrates that a design thinking aligns technological development with both visitor expectations and destination identity.

### **5.1 Implications**

This study demonstrates how design thinking is systematically applied as a methodological framework for tourism innovation. Prior research has highlighted the importance of ICT in improving destination visibility and few studies have detailed how user-centered approaches should be operationalized in tourism research (Houssien et al., 2021; Rustam & Yadi, 2023). This study offers an example of how theory and practice intersect in tourism innovation by aligning the design thinking process with qualitative data collection and analysis.

The findings extend current tourism technology literature by showing that digital invisibility is not merely a technical problem but also a researchable issue of digital destination innovation. Mukim Jorak illustrates how limited digital presence constrains local tourism development, echoing broader concerns in the literature on uneven adoption of digital tools (da

Luz et al., 2025). The research contributes a novel perspective that integrates problem-solving and academic inquiry by framing this challenge through design thinking.

The study also adds to ongoing debates on destination visibility by emphasising the role of user-centered narrative in digital tourism platforms. Previous studies have focused primarily on technological capabilities, and the WOJ findings suggest that the quality of content that met the needs of the users are important. This insight highlights the need for future research to explore how design methodologies are able to capture and align technological development with user expectations and destination identity.

The results have direct implications for destination managers, local stakeholders, and higher education learners seeking to enhance destination visibility (Indrianto et al., 2024). The WOJ platform illustrates that even with limited resources, destinations are able to adopt cost-effective digital strategies to consolidate tourism information and improve accessibility. This is particularly relevant for rural or less-promoted destinations where budgets for professional marketing campaigns are often restricted.

The study demonstrates the importance of collaboration in building a coherent destination identity for local stakeholders. Businesses, education hubs, and accommodation providers in Jorak contributed to the platform, creating a more comprehensive and appealing digital presence. This collaborative approach strengthens competitiveness and ensures that multiple voices are represented in the destination narrative. The project offers an experiential model for applying design thinking in tourism contexts, equipping higher education learners with transferable skills for professional practice.

Methodologically, the study provides evidence of the value of design thinking as a structured research approach in tourism studies. The process of empathizing, defining, ideating, prototyping, and testing ensured that the platform development was grounded in both user needs and contextual realities. This strengthens the argument that design thinking is not only a practical tool but also a rigorous framework for conducting systematic research in applied tourism contexts.

This study illustrates how design thinking serves as a bridge between academic research and applied digital innovation. The study offers a replicable model for other researchers and practitioners seeking to apply design thinking in tourism technology development by documenting each stage of the process. This reinforces its value as both a methodological framework and a tool for generating transferable insights in tourism innovation.

## **5.2 Limitations and Future Research**

Future research is needed to extend this work by applying design thinking to incorporate advanced features such as augmented reality, gamification, and interactive storytelling. Other technology platform extensions help in enriching destination experiences and user engagement.

It further reinforces the role of design thinking as a methodological foundation for sustained digital innovation in tourism destinations.

The study yields three contributions to the field. It extends the tourism innovation literature by systematically demonstrating how design thinking can be applied as a methodology to enhance destination visibility, particularly within digitally underserved areas, from a research perspective. The findings demonstrate a model for collaboration, guiding destination managers, local stakeholders, and higher education learners on how to produce cost-effective, user-centred digital platforms, from a practical perspective. The study illustrates the value of design thinking as a research framework and approach, ensuring that tourism platforms remain aligned with end-user expectations and contextual realities, from a methodological perspective. These three contributions position design thinking as a bridge between academic research and practical tourism development.

Future research should also explore the educational potential of integrating design thinking into tourism innovation curriculum. Universities can bridge theoretical knowledge with real-world application and industry challenges by involving higher education learners in co-creation projects. This integration would foster innovation, build essential digital skills, and strengthen collaboration among academia, the tourism industry, and local communities. These educational initiatives would benefit student professional development and also contribute directly to technology tourism innovation of destination development.

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