

Innovation Thinking (Design Thinking with Value Proposition Canvas) for Tourism Technology Solution

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Abstract

This research aims to develop a digital platform that integrates augmented reality (AR) and virtual reality (VR) technologies to enhance the marketing reach of Indonesian craft artisans in both national and international markets. The platform is designed using the Innovation Thinking method, which combines Design Thinking and the Value Proposition Canvas, to address core challenges faced by artisans, including product development, market fit, and customer engagement. The study adopts a mixed-methods approach, involving stakeholder interviews, workshops with craft artisans, and iterative prototyping to ensure alignment with user needs. Key findings demonstrate that the integration of AR/VR technologies not only increases audience engagement but also enhances the visibility and value of Indonesian crafts in global markets. This research contributes uniquely by providing a structured mentoring framework for artisans, ensuring sustainable adoption of digital technologies while driving innovation in Indonesia's creative economy. The outcomes highlight a scalable solution to empower local artisans, improve their competitiveness, and attract investment into the creative economy sector.

Keywords: Innovation Thinking, Design Thinking, Value Proposition Canvas, Digital Platform, Tourism and Creative Economy.

A. INTRODUCTION

In 2023, the investment value in Indonesia's tourism and creative economy sectors surpassed the target, reaching USD 3.064 billion compared to the initial target of USD 2.680 billion, contributing 3.2% to the national investment. As of the first quarter of 2024, 31.45% of the annual target has already been achieved, with a realization of USD 943.40 million (Ministry of Investment, 2024). Triawan Munaf, Deputy Chairman of the Tourism and Creative Economy Division of the Indonesian Chamber of Commerce and Industry (Kadin), emphasized that the International Tourism and Investment Forum (ITIF) is expected to further drive foreign investment in these sectors, supporting their rapid growth and development (Munaf, 2024). Micro, Small, and Medium Enterprises (MSMEs), or Usaha Mikro, Kecil, dan Menengah (UMKM) in Indonesia, are vital to the nation's economy, especially as the country continues to develop. These enterprises contribute significantly to job creation and economic stability (Agustina & Hartono, 2022; Susilo et al., 2022). Digital technology is now the backbone of tourism marketing, with platforms such as social media, websites, and applications serving as essential tools to attract tourists. However, fierce competition in the digital landscape necessitates a strong digital presence and effective audience engagement. Recent studies emphasize that the integration of tourism technology solutions—such as e-commerce platforms, social media marketing, and digital storytelling—can significantly enhance the visibility of local crafts (Setiawan & Wibowo, 2022; Zaim & Ismail, 2021). The role of social media and digital platforms in promoting local crafts has been highlighted in studies that showcase their ability to expand market reach and improve brand visibility (Fahmi & Fauzi, 2021; Wijayanti & Gunawan, 2023).

This research focuses on developing a digital platform to address challenges in utilizing augmented reality (AR) and virtual reality (VR) technology in the creative economy sector. AR and VR technologies are increasingly recognized for their potential to enhance customer engagement and storytelling in the tourism and craft sectors (Wang, 2022; Zhao & Zhang, 2022). The goal is to improve the marketing reach of craft artisans to both national and global markets, thereby enhancing Indonesia's investment value in the creative economy. The project includes intensive and sustainable mentoring for artisans, ensuring effective technology adoption. Using the Innovation Thinking method, which combines Design Thinking and the Value Proposition Canvas, the platform is designed to address and validate the core issues faced by craft business actors from the perspectives of problem, product, market, and customer, ultimately driving positive outcomes for the sector (Irfan & Siti, 2020; Harahap & Santosa, 2020). Parungsari Village, covering an area of 2.94 km², is home to a population of approximately 4,633 residents and around 30 active artisans. The village is renowned for its unique bamboo crafts, which embody the rich cultural heritage and artistic values of Indonesia (Nugroho et al., 2023). The bamboo furniture with batik motifs represents a fusion of traditional craftsmanship and modern design, making it an attractive product for the growing tourism market. However, the marketing of these distinctive products remains limited, primarily confined to the local Karawang area due to the artisans' challenges in utilizing technology for broader outreach (Khairullah & Sofyan, 2021). Furthermore, trends such as AR and VR are becoming popular for showcasing destinations and enhancing customer engagement (Zhao & Zhang, 2022).

International literature supports the idea that incorporating technology into local businesses can lead to greater sustainability and resilience, particularly in the face of global challenges such as economic downturns and natural disasters (Yang & Hwang, 2023). By effectively leveraging these tools, artisans in Parungsari can promote their bamboo furniture as part of Indonesia's rich cultural heritage, attracting tourists seeking authentic local experiences (Uda & Abdulrahman, 2022). E-commerce platforms also play a critical role in transforming the reach and competitiveness of local artisans (Maharani & Adi, 2023; Purwanto et al., 2021). Moreover, integrating local cultural heritage with tourism development can create unique offerings that boost sustainability and cultural preservation (Liu & Chen, 2021; Tsai & Lee, 2020). Such strategies can lead to increased economic opportunities while preserving and promoting local cultural identities (Widyanti & Kristanti, 2020; Chen & Hsu, 2021). The primary research problem addressed in this paper is the limited application of tourism technology among MSMEs in rural areas, particularly regarding the promotion of cultural products like Parungsari's bamboo furniture with batik motifs. The purpose of this study is to explore effective tourism technology solutions that can empower Parungsari's artisans, allowing them to reach a broader market and contribute to the preservation and promotion of their cultural heritage within the tourism industry.

B. RESEARCH METHOD

This research employs a descriptive qualitative approach, utilizing interviews with key stakeholders, including the Head of the Cooperative and UMKM Office, the Head of Parungsari Village, and business actors among the bamboo motif batik furniture craftsmen in Parungsari Village. These interviews provided valuable insights into the challenges, aspirations, and activities of the batik motif bamboo furniture craftsmen, as well as perspectives from government and village representatives.



Figure 1. Interviews with the Village Head of Parungsari and Batik Furniture Artisans in Parungsari

Interviews conducted with the Village Head and bamboo furniture artisans featuring batik motifs aimed to explore the challenges and potential of the village from the perspective of the tourism sector. The following are the issues faced by Micro, Small, and Medium Enterprises (MSMEs) involved in the production of batik-patterned bamboo and rattan furniture in Parungsari Village:

1. There is currently no utilization of digital technology to assist in marketing batik-patterned bamboo and rattan furniture products.
2. At present, the marketing of batik-patterned bamboo and rattan furniture products is limited to the surrounding Karawang area, with no efforts to target national or international markets.

The innovative solutions we intend to provide to the community include:

1. Education and introduction to the utilization of technology for marketing batik-patterned bamboo and rattan furniture products.
2. Expansion of marketing networks for batik-patterned bamboo and rattan furniture products to reach national markets and export opportunities.

The success indicators we aim to achieve include:

1. A minimum of 6 MSMEs utilizing technology for marketing products based on Virtual Reality.
2. The presence of MSMEs that successfully sell or market their products nationally or internationally.

The research utilizes a newly named method called Innovation Thinking, which combines Design Thinking and the Value Proposition Canvas to address existing problems. This integrated approach enables a more structured exploration of user needs and creates solutions that are precisely tailored to meet those needs. Design Thinking is a problem solving methodology that focuses on creating solutions through a human centered approach. It is particularly effective for addressing complex challenges within an organization, as it not only aims to solve problems but also seeks to understand the needs of those involved. The Design Thinking process consists of five stages: Empathize, Define, Ideate, Prototype, and Test.

Innovation Thinking

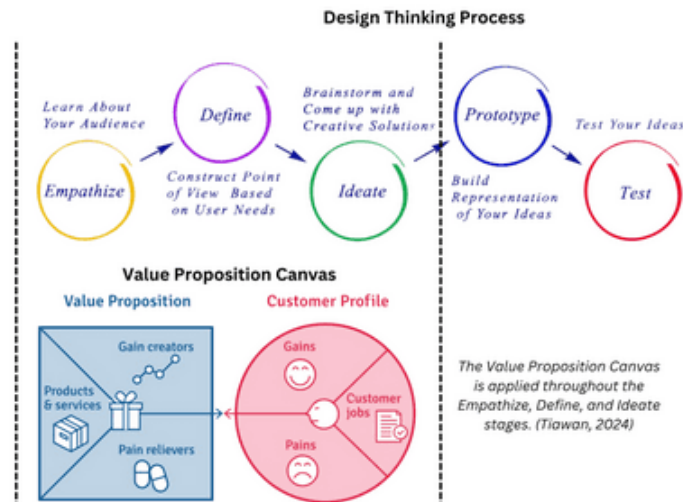


Figure 2. Innovation Thinking (Design Thinking with Value Proposition Canvas)

(Source: Design Thinking, Irfan, M. A., & Siti, N. (2020) and Value Proposition Canvas, Harahap, E. S., & Santosa, P. I. (2020)).

The Value Proposition Canvas was initially developed as a framework to ensure that there is a fit between the product and market. It is a detailed tool for modeling the relationship between two parts of the broader Business Model Canvas: customer segments and value propositions. The Value Proposition Canvas can be used when there is need to refine an existing product or service offering or where a new offering is being developed from scratch. When effectively combined, the Design Thinking and Value Proposition Canvas methods create an innovation framework that addresses challenges and generates impactful solutions. The Value Proposition Canvas is applied within the first three phases of Design Thinking: Empathize, Define, and Ideate to thoroughly explore the problems, expectations, and activities of potential users. This approach ensures the development of solutions and products that are precisely aligned with user needs and aspirations. The novelty of this research lies in addressing a methodological gap by integrating the design thinking method with the value proposition canvas. This combined approach enhances effectiveness, particularly by using three stages of design thinking in conjunction with value proposition canvas techniques. This integration facilitates a deeper exploration of user problems, expectations, and activities (customer segment), leading to solutions that are better aligned with user needs and expectations.

The Value Proposition Canvas Results from Bamboo Batik Motif Furniture Artisans, the Village Head, and the Village Secretary :

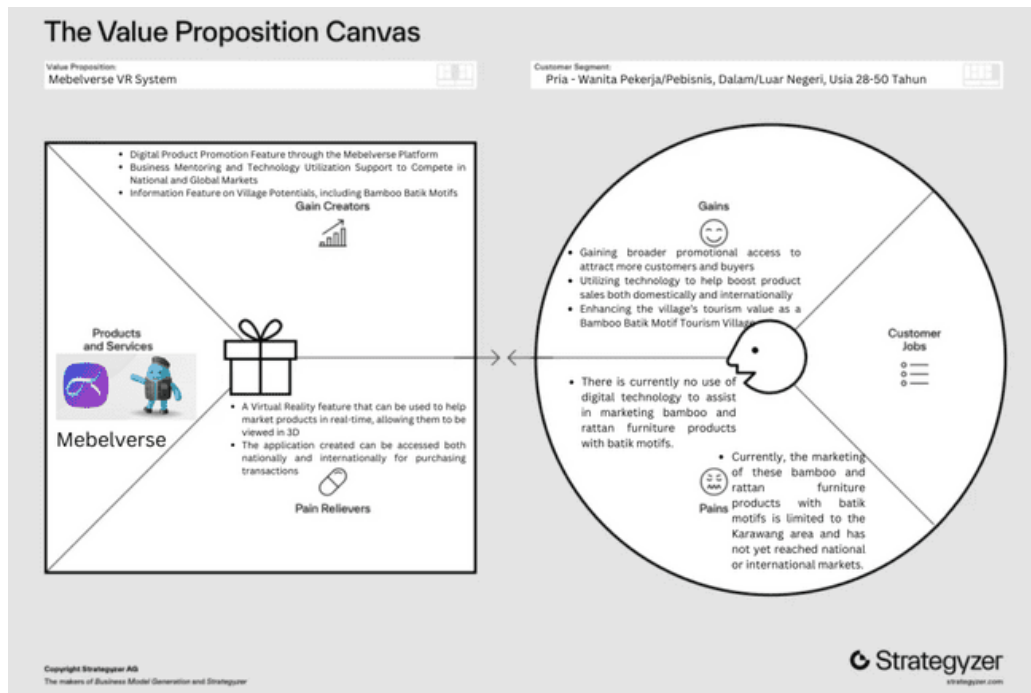


Figure 3. Value Proposition Canvas for Bamboo Furniture Artisans with Batik Motifs
(Source: Interviews conducted with 30 MSME informants from Parungsari Village)

The Pains :

1. There is currently no use of digital technology to assist in marketing bamboo and rattan furniture products with batik motifs.
2. Currently, the marketing of these bamboo and rattan furniture products with batik motifs is limited to the Karawang area and has not yet reached national or international markets.

The Gains :

1. Gaining broader promotional access to attract more customers and buyers
2. Utilizing technology to help boost product sales both domestically and internationally
3. Enhancing the village's tourism value as a Bamboo Batik Motif Tourism Village

Pain Relievers :

1. A Virtual Reality feature that can be used to help market products in real-time, allowing them to be viewed in 3D
2. The application created can be accessed both nationally and internationally for purchasing transactions

Gain Creators :

1. Digital Product Promotion Feature through the Mebelverse Platform
2. Business Mentoring and Technology Utilization Support to Compete in National and Global Markets
3. Information Feature on Village Potentials, including Bamboo Batik Motifs

C. FINDINGS AND DISCUSSION

The prototyping and system development phase utilized several technologies, including WebXR, Three.js, and Kiri Engine, to scan and render batik-patterned bamboo products. WebXR, the WebXR Device API, is a web application programming interface that enables access to augmented and virtual reality devices, such as the HTC Vive, Oculus Rift, Oculus Quest, Google Cardboard, HoloLens, Apple Vision Pro, Magic Leap, or Open Source Virtual Reality, directly through a web browser (source : immersiveweb.dev). Three.js was employed as a cross-browser JavaScript library and API to create and display animated 3D graphics in a web browser using WebGL, with its source code hosted in a GitHub repository (threejs.org). These technologies allowed for an immersive and interactive experience that enhances the digital showcase of the artisans' products.

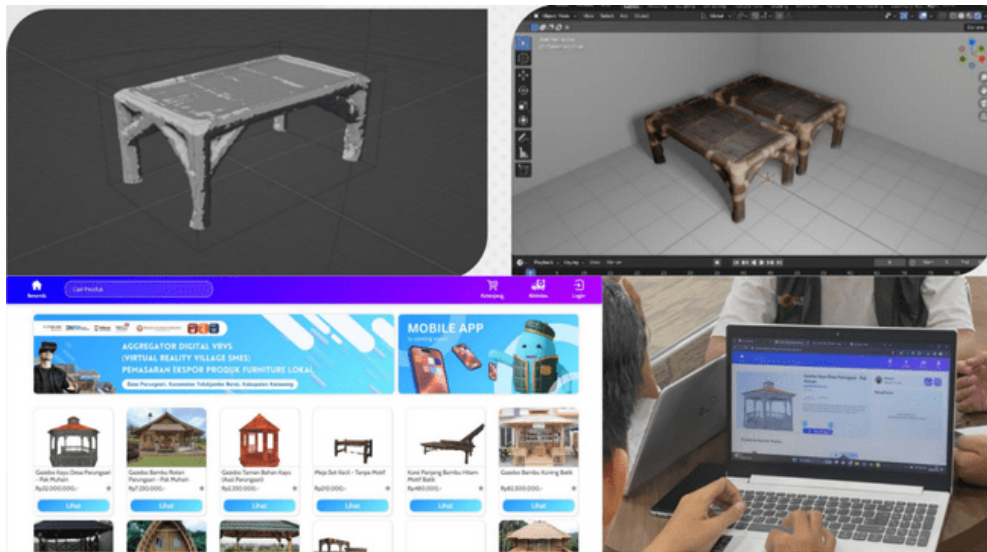


Figure 4. Successful Development System for Virtual Reality Mebelverse System
(Source : Tiawan, & Fadhilah, M. R. (2023, December 13). *Aggregator Digital SMEs (Mebelverse)* [Video]. YouTube. <https://www.youtube.com/watch?app=desktop&v=jmYs17n448>)

The testing phase involved local artisans of batik-patterned bamboo, providing them with guidance and mentoring on how to use the platform. Feedback and reviews were also gathered to support further development and evaluation of the system, ensuring it aligns with user needs.



Figure 5. Testing Phase with mentoring and support in application usage.

This application can also be further developed in the future not only to support craft artisans but also to be used in the tourism sector to enhance the value of Indonesian tourism, potentially attracting greater investment in the years to come. The VRVS Digital Aggregator Project (Virtual Reality Village SMEs) utilizes Innovation Thinking, a blend of Design Thinking and the Value Proposition Canvas to address the main research problem: the limited application of tourism technology among MSMEs in rural areas for promoting cultural products, such as Parungsari's bamboo furniture with batik motifs. This section discusses the results of the research, providing answers to the objectives set forth in the introduction. These findings are supported by data from interviews and application testing phases, ensuring the credibility of each insight presented. The project's key objective was to develop a technology driven tourism platform that empowers artisans by integrating VR for broader market exposure and enhances the tourism experience. The findings affirm that the VRVS platform effectively increases the visibility and attractiveness of bamboo furniture with batik motifs, thereby meeting the original research objective of enhancing tourism engagement. The Innovation Thinking methodology, with its emphasis on user-centered design through Design Thinking and precise value alignment via the Value Proposition Canvas, provided structured solutions directly tailored to user needs, affirming the hypothesis that this approach could bridge traditional artisans with digital tourism innovation.

Interpretation and Scientific Relevance, Each result was interpreted scientifically, examining the reasons behind VR's impact on artisan visibility and tourism engagement. By addressing user needs identified in the Empathize and Define stages, the platform achieved positive user reception, particularly in its novelty as a rural tourism tool. The use of VR as a marketing medium allowed for immersive storytelling and cultural preservation, aligning with studies on the efficacy of digital storytelling for tourism engagement. Comparison with Existing Research, Consistent with previous research, our findings confirm that integrating digital technologies in cultural tourism can enhance engagement and broaden market access. However, unlike many existing studies focusing on urban settings, this project's results demonstrate VR's unique potential in rural areas. This approach expands the discourse on rural tourism by showing how digital innovation can empower MSMEs to connect with both national and global markets, addressing the gap in existing literature on technology use in rural tourism settings.

D. CONCLUSION

This research successfully addresses its primary objective of developing an immersive digital platform that empowers Indonesia's craft and furniture SMEs to expand their market reach and competitiveness in both national and global arenas. By combining Design Thinking and the Value Proposition Canvas applying the latter specifically in the Empathize, Define, and Ideate stages. The study offers a unique methodological contribution that aligns with the evolving demands of the global market. This approach equips artisans with essential tools to adopt AR and VR technologies, creating a distinctive digital presence and enhancing their appeal to international investors. These discoveries underscore the platform's role not only in strengthening the marketing capabilities of Indonesian SMEs but also in supporting national efforts to attract foreign investment into the creative economy.

Beyond immediate results, this research introduces new possibilities for applying immersive technologies across diverse sectors within the creative economy. Future research should focus on refining the platform's functionality and exploring its adaptability for other

industries, such as textiles and culinary arts, where AR and VR could similarly transform marketing and customer engagement. Additionally, studies underway aim to enhance the platform's scalability and interoperability, ensuring it remains responsive to technological advances and market shifts. Ultimately, this work lays a foundation for continued exploration of digital innovation to advance Indonesia's economic resilience and global positioning in the creative sectors.

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