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REVITALIZING HERITAGE THROUGH DESIGN THINKING: STRATEGIC VALUE INITIATIVES FOR BATIK MAHKOTA LAWEYAN

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Abstract

Batik, one of Indonesia's most important cultural heritages, requires maximum conservation. Meanwhile, Batik Mahkota Laweyan in Solo (Surakarta), Central Java, is the nation's oldest handcrafted batik producer that specializes not only in hand-made products but also in activities related to education and tourism. This initiative is intended to increase the company's market visibility. Despite these initiatives, the organization has struggled to fully realize its potential due to its numerous challenges. This research provides insights into the challenges faced by MSMEs, particularly the batik business. It suggests actionable solutions based on a design thinking framework and qualitative methods. The study conducted at Batik Mahkota Laweyan identified and prioritized the challenges, including weak branding in tourism and service knowledge. A brainstorming session generated 36 practical ideas for improvement. The research also highlights the branding opportunities in travel and education services, emphasizing timely implementation within budget constraints. It offers guidance on enhancing branding at Batik Mahkota Laweyan, and the interview questions could serve as a template for future research in similar businesses.

Keywords: *Business Value, Batik, Design Thinking, MSMEs*

1. INTRODUCTION

MSMEs are important vital drivers in Indonesia's economy, comprising 99% of the business entities. These operations comprise 60.5% of the nation's Gross Domestic Product (GDP) (Limanseto, 2022). Micro-enterprises constitute more than 98.68% of the MSME sector and are also significant job creators as they absorb a large part (89%) of the workforce available. Sasongko (2020) highlights that these micro-enterprises account for 37% of the country's GDP. In the creative economy subsector, micro-enterprises consist of several things. Among them are culinary arts enterprises, film animation videos (FAV), fashion, software development, crafts, game design, music, photography, and performing arts. These micro-businesses are scattered all over Indonesia, and the Ministry of Tourism data is distributed.

The fashion category is the third largest distribution sub-sector, containing various products, from hijabs, clothing, and shoes to bags. Batik, one of the most projected sectors in this industry, has a long story dating back to the 19th century. As a vital part of Indonesian culture, batik has since merged into the public and national consciousness — otherwise known as the soul of Indonesia that symbolizes inherited identity (Febriani et al., 2023). Indonesia has ten of the biggest batik producers in Indonesia. The ten regions that are famous as producers of batik are Pekalongan, Solo, Yogyakarta, Cirebon,

Tulungagung, Madura, Jambi, Banjarmasin, Bali, and Papua. Though all of these regions are known for their batik, they have differences in the patterns and colors or even signature characteristics. The fundamentals of these differences are deeply rooted in each region's cultural philosophies and traditions (Lintang, 2023)

Solo, one of Indonesia's oldest and most prominent batik-producing regions, is renowned for its rich cultural heritage and is listed among the top ten batik centers in the country (Forum Pengembangan Kampoeng Batik Laweyan, 2024). At the heart of this batik tradition is the Batik Village of Laweyan, a popular destination for both locals and international tourists seeking an authentic batik experience. This historic village houses five traditional outlets that continue the art of handcrafted batik: Batik Marin Laweyan, Batik Mahkota Laweyan, Batik Puspa Kencana, Batik Putra Laweyan, and Batik Cempaka (Forum Pengembangan Kampoeng Batik Laweyan, 2024). Among these, Batik Mahkota Laweyan stands out as one of the key contributors to Laweyan's enduring legacy.

Batik Mahkota Laweyan, one of the earliest batik producers in Indonesia, has earned a prestigious position in the industry. Its long-standing history not only benefits the business but also elevates the reputation of other local batik enterprises. Known as the oldest batik production center in Indonesia, Batik Mahkota Laweyan is the only batik company in the country to have received a Genuine Indonesian National Standard (SNI) certification. This certification is applied to their handcrafted batik products, ensuring quality and authenticity. Despite its deep roots in traditional batik making, Batik Mahkota Laweyan embraces contemporary approaches to batik art (Restianti, 2014).

Research conducted at Batik Mahkota Laweyan reveals that, despite its numerous strengths, the business faces significant challenges impacting its operations. A notable issue is the decline in competitiveness, as reflected in their sales figures. After experiencing a sevenfold increase in sales in 2019, the company saw a marked downturn beginning in 2021. Several factors could contribute to this decline, including the growing number of competitors within the same industry. Based on Telagawathi et al. (2021), competition can affect a business's income level; the more competitors there are, the more it can affect the decline in sales. According to Nitisemito (2006), competition is a situation in which companies in a particular product or service market show their respective advantages; the ability to compete can affect revenue earned.

So far, Batik Mahkota Laweyan has sufficiently anticipated the decline in competitiveness by providing creativity in their business. Based on research by Takhim and Meftahudin (2018), creativity is one key to the development of MSMEs. Batik Mahkota Laweyan has implemented this to reduce the decline in its market competitiveness. They increase creativity by presenting unique patterns, the "Batik Toeli" program, opening batik courses, and marketing through digital media platforms (Nasution & Aryono, 2023). However, the reality in the field is that increasing creativity alone is not enough to boost sales of Batik Mahkota Laweyan.

Thus, this research emphasizes exploring the problems of Batik Mahkota Laweyan and formulating solutions using the concept of design thinking. The use of design thinking concepts according to Ambrose and Harris (2010). Design thinking is a process that transforms initial instructions or requirements into a product or solution. The design thinking approach is outlined in seven stages: define, research, ideate, prototype, select,

implement, and learn. Each of these stages requires design thinking. So, judging from the two theories presented by Ambrose and Harris (2010), Hwa et al. (2017), Mueller-Roterberg (2018).

2. LITERATURE REVIEW

2.1. Strategy

According to Hamel (2006), as cited in Ekiz Kavukoğlu and İşci (2023), "A business should not rely on outsiders to form the key perspective on what new strategies and new growth opportunities it should consider. It has to come from the sweat, blood, and imagination of the people in that organization." In any business, the development of new strategies is essential to increase profitability. Business owners need to acquire this knowledge to continually transform their businesses. Such strategies are also necessary for small and medium-sized enterprises (SMEs) to boost their product sales.

When designing strategies, innovation that impacts the business is crucial. Innovation within an organization is considered essential for adapting to evolving environmental conditions, crises, and advances in science and technology (Ngo et al., 2022). According to Ekiz Kavukoğlu and İşci (2023), innovation within an organization is a critical component for achieving customer satisfaction and gaining a competitive advantage by meeting customers' changing needs and expectations.

2.2. Design Thinking

Design thinking is a method for addressing human-centered problems, emphasizing empathy, collaboration, co-creation, and stakeholder participation to foster creativity and innovation. This approach seeks to generate meaningful and appropriate ideas or solutions. At its core, the method focuses on deeply understanding the end users of a product to identify unmet needs through a thorough understanding of their beliefs, values, motivations, behaviors, challenges, benefits, and the difficulties they face, as well as to present innovative solution concepts (Hwa et al., 2017)

According to Mueller-Roterberg (2018), design thinking is a holistic approach aimed at solving problems and meeting the needs of the target audience in order to create and develop creative business models or a series of business models. Essentially, design thinking is used as an approach to identify strategies and solutions by understanding the people who are the focus of product or service design. Christian Mueller-Roterberg's design thinking method can be divided into six stages: understand, observe, point of view (define), ideate, prototype, and test (Mueller-Roterberg, 2018).

Meanwhile, according to Ambrose & Harris (2009), design thinking is a process that transforms initial guidelines or requirements into a product or solution. The design thinking approach is broken down into seven stages: define, research, ideate, prototype, select, implement, and learn. Each of these stages requires design thinking. Based on the theories presented by Hwa et al. (2017), Mueller-Roterberg (2018), and Ambrose and Harris (2010), design thinking can be understood as a method that emphasizes empathy, collaboration, and stakeholder participation to stimulate creativity and innovation in solving human-centered problems. The goal is to produce significant solutions by understanding end users' needs through a deep comprehension of their values, motivations, behaviors, and challenges. Generally, the design thinking process consists

of stages that include understanding the problem, observing, defining the problem from a specific point of view, ideating and selecting ideas, developing prototypes, and testing them (Fannisa & Ghina, 2021).

2.3. Service Design

Service design is a creative and human-centered approach to service innovation that is iterative in nature. It aims to create value for consumers or beneficiaries by taking into account their specific needs and context (Patrício et al., 2020), as cited in Carlini et al. a92024). However, it is impossible to fully anticipate, plan, or design predetermined outcomes, such as the value created by consumers, who integrate and apply service providers' resources along with their own (Pham et al., 2022). Service design focuses on generating value both in use and in relevant contexts.

Service design adopts a human-centered approach from the outset, emphasizing an understanding of human experiences and translating this understanding into better customer journey designs (Sangiorgi, 2009). Overall, service design provides deep qualitative insights into individuals' unique experiences, supporting the generation of service concepts inspired by users' contextual and holistic experiences (Yu & Sangiorgi, 2018). Service design develops empathic knowledge by engaging directly with users and their contexts; this is facilitated by applying design ethnography approaches (Blomberg et al., 1993), such as contextual interviews (Holtzblatt & Beyer, 2016) or empathy probes (Sanders & Stappers, 2014). Empathy is fundamental in developing solutions that are more closely aligned with people's needs and abilities, helping organizations adopt an outside-in perspective in their innovation processes.

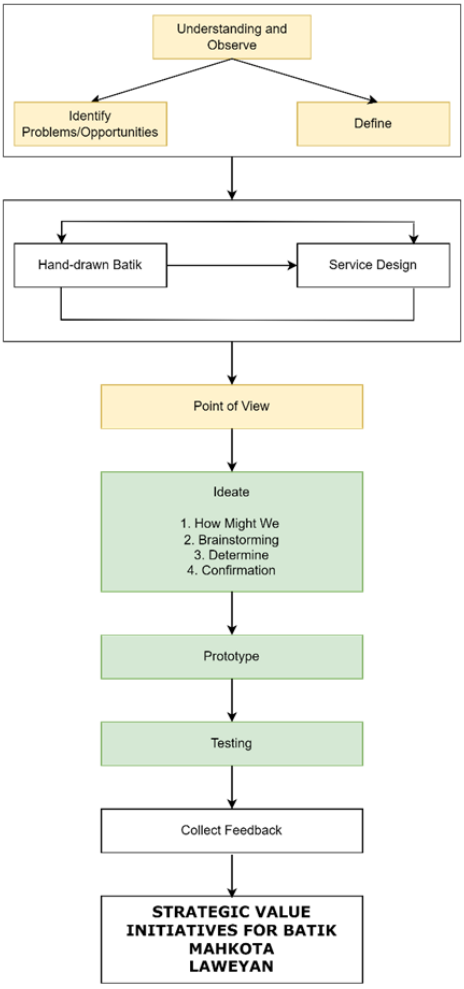
3. RESEARCH METHODS

This research employs a qualitative method to explore and comprehend the meanings individuals or groups assign to social or personal issues (Creswell, 2014). Based on the data, qualitative research has data in the form of words generated from broad answers to interview questions, responses to open-ended questions in questionnaires or through observations, or readily available information collected from various sources such as the Internet (Sekaran, 2016) The research was conducted for five months through the interview stage with a research strategy using case research research. Where according to (Sekaran, 2016). Case studies focus on collecting information about a particular object, event, or activity, such as for a specific business unit or organization, and the case is about individuals, groups, organizations, events, or situations of interest to the researcher. To get a clear picture of a problem, researchers must examine the situation in the field from various perspectives using various data collection methods (Sekaran, 2016).

Data was collected through in-depth interviews. Eight participants were interviewed to explore challenges. Batik Mahkota Laweyan. The participants included three loyal customers, three potential customers who had previously visited Batik Mahkota Laweyan, and two internal company representatives. The interviews were conducted in two locations: on-site at Batik Mahkota Laweyan and virtually through online platforms such as Google Meet and Microsoft Teams.

4. RESULTS AND DISCUSSION

In the process of exploring and formulating solutions for Batik Mahkota Laweyan, design thinking is used. The use of design thinking in this research is by the concept stated by Mueller-Roterberg (2018), design thinking is a holistic approach that aims at solving problems and target needs to create and develop a creative business model or a series of business models. The design thinking method by Christian Mueller-Roterberg can be divided into six stages: understand, observe, point of view (define), ideate, prototype, and test (Mueller-Roterberg, 2018). In this research, the concept of design thinking is developed using the theory from Mueller-Roterberg (2018), as can be seen in Figure 1.



Source: Author's Process (2024)

Figure 1. Development of the Design Thinking Concept

4.1. Research Results

4.1.1. Phase 1 "Understanding"

The initial phase is clearly understanding the challenges, issues, and needs of a particular demand. In this context, the researcher's big problem arises most prominently. Those involved must be identified as important stakeholders who often have opinions

shaped by their technical perspective, particularly concerning aspects that affect organizational processes. With this done correctly, it becomes possible to construe a process so that the problem formulation clarifies what the customer wants or needs. That need not always be achieved simply by aIn later research, understanding this phase will form an essential foundation for capturing the phenomena under study.

In this research, the respondents involved in formulating the solution concept include the Batik Mahkota Laweyan owner, the Batik artisans, and the customers who purchase products from Batik Mahkota Laweyan. This stage involves creating an empathy map for prospective customers, loyal customers, and internal stakeholders of Batik Mahkota Laweyan. The results of the empathy maps for these groups can be found in Tables 1, Table 2, and Table 3.

Table 1. Summary Results of Empathy Map of Prospective Consumers

THINK	FEEL
a. Potential customers outside the Solo region are unfamiliar with Batik Mahkota Laweyan, mainly due to insufficient promotional efforts. b. Batik Mahkota Laweyan offers high-quality products with distinctive, modern motifs that resonate with current trends. c. Consumers are interested in batik designs that stand out from the common patterns available in the market. d. The market finds Batik Mahkota Laweyan motifs appealing due to their contemporary and visually striking appearance. e. The store's visual appeal plays a crucial role in influencing purchasing decisions. f. Batik Mahkota Laweyan lacks recognition among tourists and does not effectively foster consumer engagement. g. Batik Mahkota Laweyan is also a place to learn batik. h. The marketing of Batik Mahkota Laweyan needs to be improved.	a. Unique motifs attract the attention of potential customers and are crucial to product selection. b. The price of batik is quite expensive but equivalent to the quality offered. c. The store is less attractive to potential customers and tourists due to weak branding and less strategic location. d. The arrangement and style of the clothes are less attractive and less up-to-date. e. Brand trust has not been built.
DO	
a. Buy good quality handcrafted batik with unique motifs at affordable prices. b. Favoring motifs that are not found in other manufacturers. c. Visit a well-organized batik center or batik village to buy batik. d. Select products by visualizing modern clothing models. e. Buy from a trusted store or showroom. f. Visit tourist attractions that also sell individually handmade batik.	
PAIN	**GAIN**
a. Batik Mahkota Laweyan lacks promotion and branding. b. Provision of products at low prices. c. Unattractive arrangement of offline showrooms and stores.	a. Need quality batik at a low price b. Need quality handcrafted batik cloth with unique patterns. c. The store should be visually appealing. d. Old clothes models need to be updated.

THINK	FEEL
d. Unattractive design of clothes made from handcrafted batik cloth. e. Weak product marketing. f. The store location is not strategic.	e. Motives should match the preferences of potential customers. f. Increase branding and awareness. g. Build trust with potential customers. h. Offer proper products and showroom. i. Offering a new attraction.

Source: Author's Process (2024)

Table 2. Summary Results of Empathy Map of Loyal Consumers

THINK	FEEL
a. Potential customers from outside the Central Java region prefer contemporary motifs b. Contemporary motifs are more modern c. Contemporary motifs are more acceptable to the broad market d. Suitable for use as an option for exclusives e. Recommendations from batik experts are required f. Not only product sales g. It can be used as a tourist destination h. Branding is still lacking, and marketing has not yet reached the whole i. The target market is middle to upper-class j. Price is in line with the quality of the fabric offered	a. Exclusive motifs b. Less interested in the showroom c. Satisfied with the results d. Satisfied with the material of the batik cloth e. Comfortable when using handcrafted batik materials f. Less reach out

DO
a. Buy good quality handcrafted batik at affordable prices with unique motifs. b. Favoring motifs that are not found in other manufacturers. c. Visit a well-organized batik center or batik village to buy batik. d. Visit the showroom e. Make a batik tour visit f. Make purchases based on personal character

PAIN	GAIN
a. Lack of promotion b. Branding of Batik Mahkota Laweyan for workshop only c. Lack of motif options d. The choice of batik cloth material is only one type e. Lack of a conducive place f. Older models g. Employees are less able to reach out to potential customers h. Lack of engagement through social media i. Too closed to information	a. Promote by building strong branding b. Enriching motifs with various themes c. Expanding market reach d. Presents regular, standard, and premium fabric types e. Showroom space arrangement with grouping f. Train employees to be able to recommend to potential customers g. Improved engagement on social media h. Open access to information about products and services

Source: Author's Process (2024)

Table 3. Summary Results of Internal Empathy Map

THINK	FEEL
a. Tourism and education in the field of handcrafted batik attract tourists b. Product purchases can be made from tourism and education c. The market accepts product d. The upper-middle-class segment prefers motifs e. Many customers are foreign tourists f. Loyal customers come from tourism and education service programs g. Loyal consumers make repeat purchases h. Information technology innovation is important i. Business development depends on information dissemination j. Business recognition is not maximized on social media k. Information at one point is enough	a. Positive impressions of incoming travelers b. The knowledge gained about batik can increase the sense of batik c. Believes the market accepts handcrafted batik products d. Lack of marketing confidence e. Lack of sales satisfaction
DO	
a. Improve tourist and educational facilities and infrastructure b. Improve batik tourism and education c. branding d. Conduct broader local customer outreach e. Innovate on information technology f. Promote consistently	
PAIN	**GAIN**
a. Lack of promotion on social media b. Lack of branding in Batik Mahkota Laweyan c. Lack of local consumer outreach d. Lack of information technology innovation e. Information is still centralized at one point	a. Branding to emphasize tourism and education b. Increase sales through information technology innovation c. Wider recognition to local consumers d. A concept that combines local and international needs

Source: Author's Process (2024)

4.1.2. Phase 2 "Observe"

In this phase, detailed research and observations on customer needs/problems are carried out, focusing on identifying what kind of consumers will be targeted in developing this solution formulation concept. Determining consumers to be targeted is essential, considering that the design thinking approach emphasizes its final development to consumers. In addition, in this stage, consumers, namely the owner, batik makers, and buyers of Batik Mahkota Laweyan products, are observed based on their perceptions and experiences after direct visits to the field. This research uses interviews in data collection, and later, the data obtained from the results of these interviews is used as a basis for designing the right strategy for Batik Mahkota Laweyan. Observations were made directly in Batik Mahkota Laweyan.

4.1.3. Phase 3 "Point-of-View"

After observing the potential customers to be targeted, researchers must examine the problem from the customer's side, such as what problems they face and what solutions are suitable to overcome them. This stage clarifies general conditions, defines the target group precisely, and comprehensively understands customers' needs and behaviors. The results of this point of view can be seen in Table 4.

Table 4. Source Point of View Mapping Results

USER	NEED	INSIGHT
POTENTIAL CUSTOMER 1	a. Good quality batik at a low price b. Quality handcrafted batik cloth products c. Batik with non-market patterns	a. Prospective consumers consider the price and the quality, whether comparable or not, before purchasing. b. Prospective customers want good-quality handcrafted batik products, such as fabrics and motifs. c. Potential customers are more confident using handcrafted batik whose motifs are not owned by others because they seem exclusive.
POTENTIAL CUSTOMER 2	a. Store visualization must be eye-catching b. Old clothes models must be improved c. Motifs must be tailored to the potential consumers who will use them d. Branding and awareness to be improved	a. Potential customers prioritize visualization of the store and products to generate interest in purchasing products b. Batik Mahkota Laweyan's models have not kept up with the times, so they look less good. c. The motifs of Batik Mahkota Laweyan's handcrafted batik products are abstract, so they must be adjusted to the individual or person who wears them. d. Batik Mahkota Laweyan's branding and awareness are still lacking, as seen from the limited information about their business.
POTENTIAL CUSTOMER 3	a. Branding must be prioritized to introduce yourself to potential customers b. Build trust in potential customers c. Offer products as well as a proper showroom	a. Branding in business is prioritized to elevate and introduce the business to a broad audience. b. Batik Mahkota Laweyan must build trust to increase customer engagement. c. Visualization of the store is the main attraction that must be considered to make consumers more comfortable when shopping and increase interest in the product.
LOYAL CONSUMER 1	a. We need batik with fabric quality, canting, and color that exceeds the standard	a. The quality of the fine cuttings and coloring using natural coloring are desired by customers who understand batik

USER	NEED	INSIGHT
	b. We need batik that still involves old batik in its motifs c. Need batik that emphasizes nature d. Need recommendations for contemporary batik that fits the body e. Need attention from Batik Mahkota Laweyan	b. Contemporary motifs should still be inserted into old motifs, such as parang or others, so that the essence of batik is not lost. c. Natural coloring, which is more environmentally friendly than synthetic coloring, can support the excellence of Batik Mahkota Laweyan products. d. Because the motif is contemporary, it must be adapted to the body that will wear it. e. Closed information gives the impression that consumers of Batik Mahkota Laweyan are getting less attention.
LOYAL CONSUMER 2	a. Desire the branding of Batik Mahkota Laweyan b. Need a personal assistant who can recommend patterns and colors that fit the body c. Desire a tidy showroom d. Desire disclosure of product information	a. On their first visit, consumers found it challenging to find the location, and it did not meet their expectations. b. Not all customers understand and master batik, so having a personal assistant is necessary. Batik Mahkota Laweyan recommends suitable batik that fits the customer's body. c. Consumers find it difficult to find information about products because they emphasize batik workshop services.
LOYAL CONSUMER 3	a. The showroom arrangement is grouped according to motif and price b. Branding Batik Mahkota Laweyan in terms of products and tourism simultaneously c. Bringing social media to life d. More open information to consumers	a. The motifs are diverse and have specific themes, so it is necessary to reorganize the space so consumers can choose more freely. b. The emphasis has been on introducing services to the community but less on products. c. Social media owned by Batik Mahkota Laweyan is still lacking and tends to be passive. d. Information is minimal, and consumers find it challenging to find information about products and services. Batik Mahkota Laweyan.
INTERNAL 1	a. Need branding that combines tourism, education, and sales of handcrafted batik products in one place b. Desire training for HR to be able to maximize online sales c. Desire internal information disclosure at the top to maximize the discretion of other employees	a. So far, it only emphasizes tourism and education but still puts aside its products. b. Human resources have not yet mastered digital marketing, an obstacle to broader marketing c. During this time, information is closed to the owner only, inhibiting employees' openness and making it less than optimal in development.

USER	NEED	INSIGHT
INTERNAL 2	a. Need branding to emphasize tourism and education b. Desire to increase sales through information technology innovation c. Desire wider recognition to local consumers d. Desire is a concept that combines local and international needs	a. Tourism and education are mainstays. Batik Mahkota Laweyan will attract tourists and potential customers. b. So far, Batik Mahkota Laweyan still lacks marketing and needs an information system to improve information. Batik Mahkota Laweyan's business. c. Many consumers of Batik Mahkota Laweyan come from abroad rather than locally, so local marketing needs to be improved. d. The concept that is currently favored is more inclined to fulfill the desires of international consumers because it is inversely proportional to the desires of local consumers, so there needs to be a perception equation
INTERNAL 3	a. Desire for HR change b. Desire a change in employee mindset c. Desire consistency in cash flow accounting d. Need consistent social media marketing e. Desire facilities and infrastructure to support business processes	a. Human resources are not yet competent, which affects the business process. b. The mindset of human resources is still not by Batik Mahkota Laweyan's vision and mission. c. Cash flow bookkeeping is the key to Batik Mahkota Laweyan participating in various certifications that support promotion and branding. d. Social media consistency makes the products and services owned by a business unit grow even more rapidly. e. The lack of facilities and infrastructure has resulted in a lack of development. Batik Mahkota Laweyan's business.

Source: Author's Process (2024)

4.1.4. Phase 4 "Ideate"

In the ideate phase, the actual Brainstorming process takes place. To get the final idea that will be developed into a solution, researchers used four stages adapted from (IDEO, 2015) namely How Might We, Brainstorming, Determine and Confirmation, to validate whether the solution provided answers to the problems felt by internal, potential, and loyal customers. Based on brainstorming sessions with the sources, it was found that there are issues related to the services offered by Batik Mahkota Laweyan. The following presents the priority issues based on the problems collected from the sources, as shown in Figure 2.

1. Weak branding of hand-crafted batik tourism and education services
2. Business information is confidential
3. Weak branding of hand-crafted batik product
4. Availability of information about products and services
5. Visualization of tourism and education locations
6. The primary material for hand-crafted batik uses standard prismian cotton fabric
7. Facilities and infrastructure
8. Limited information technology
9. Rough canting (batik drawing tool)

Source: Author's Documentation (2024)

Figure 2. Problem Prioritization Ranking Results

Based on the ranking of issues previously conducted, it was determined that weak branding of hand-drawn batik tourism and education services is the top priority problem to be addressed in terms of service. After prioritizing the issues, the next step to identify possible opportunities is to explore using the 'How Might We' method. The how might we stage is used to find potential opportunities in designing a solution, and the knowledge gained from the previous stage can be used to suggest questions that will be mapped in how might we, which can be seen in Table 5.

Table 5. How Might We Method

INSIGHT	HOW MIGHT WE
a. Potential customers are more confident using handcrafted batik whose motifs are not owned by others because they seem exclusive. b. Batik Mahkota Laweyan's branding and awareness are still lacking, as shown by the limited information about its business. c. Branding in business is prioritized to elevate and introduce the company to a broad audience d. Closed information gives the impression that consumers of Batik Mahkota Laweyan are getting less attention. e. Consumers find it difficult to find information about products because they emphasize batik workshop services. f. Social media owned by Batik Mahkota Laweyan is still lacking and tends to be passive. g. Information is minimal, and consumers find it challenging to find information about products and services. Batik Mahkota Laweyan. h. So far, it only emphasizes tourism and education but still puts aside its products. i. So far, it only emphasizes tourism and education but still puts aside its products.	How might we effectively communicate the unique value of Batik Mahkota Laweyan's products alongside its tourism and educational services?

Source: Author's Process (2024)

Based on Figure 4, which shows the result of prioritizing the problems faced by loyal customers and potential customers, and Table 5, which describes how we might use

the insight, the following 36 ideas are based on the problems faced by Batik Mahkota Laweyan's collection of ideas uses the 635 method, which can be seen in Table 6.

Table 6. List of Ideas Based on Problems

IDEA	EXPLANATION
VR-Batik Writing	In Batik Mahkota Laweyan, VR is combined with tourism and education about handcrafted batik. Consumers can use VR when they want to take a tour but are constrained by distance. They can also use VR for distance learning to see how to make batik properly and correctly.
Our Batik	They are creating a management information system as a website containing information about Batik Mahkota Laweyan's business, batik course services, and handcrafted batik tour schedules. To get a definite schedule and optimal service, consumers can register or book a tour or education schedule on the "Batik Kita" website.
Batik Craft Ml	The handcrafted batik recommendation system, using machine learning to bookkeeping handcrafted batik that has been made and batik that has not been sold, can be used as a reference for handcrafted batik that can be purchased by potential customers based on the motif and color of the fabric. The system adjusts potential customers' posture and skin color so that the contemporary motifs of Batik Mahkota Laweyan's handcrafted batik can fit more into the body of potential customers.
Artifex Batik	Prospective customers can create a batik design that suits their wishes *online* based on their preferences. The design can then be consulted by the artisans at Batik Mahkota Laweyan, and it is made directly by the artisans, thus increasing the preference for and uniqueness of contemporary batik.
Batik Vision	It uses blockchain to authenticate and track batik motifs produced and sold in the market. This blockchain provides a certificate of authenticity that guarantees that the cloth is indeed authentic handcrafted batik cloth. In addition, it is equipped with a barcode that can be scanned and the origin and manufacturing process of the batik tulis can be known for its transparency and increased consumer confidence.
Smart Batik	The application of IoT sensors focuses on controlling the temperature and humidity of the batik storage room in the *showroom* to maintain the quality of the handcrafted batik that has been produced and equipped with RFID for tracking and inventory management of every batik product that has been made.
Ml-Mahkota Batik	Create new and unique batik designs using machine learning algorithms. Analyze batik products already made to help personalize batik designs based on consumer preferences.
Nanotechnology	The implementation of nanotechnology to create quality natural colors that are also environmentally friendly in the Batik Mahkota Laweyan does not pollute due to synthetic colors.
Green Batiku	A system for recording the production and processing of batik waste, starting from the use of materials, water, the amount of waste, and the results of reuse of batik-making waste, so that it is controlled and becomes a plasma for the use of green production systems in batik tulis in Solo City.
Batik Intellect	Utilizing the remains of dyes and fabrics that have become waste as materials for making agricultural compost. Using coloring and fabrics of natural origin can biodegrade and reduce textile waste, attracting a green and pollution-free environment for batik waste within the scope of Batik Mahkota Laweyan.
Learn about Batik Laweyan	A learning system about batik that is packaged in an exciting activity so that it can create a memorable learning experience for visiting tourists.
@batik.laweyan	One way to increase customer engagement with Laweyan Batik is through social media. Amid the infinite development of cyberspace, creating content with trending tags is still a trigger to foster customer desire to visit a place.

IDEA	EXPLANATION
Do you know about batik	A QR code is installed on the flow of the Laweyan batik trail. It contains an explanation and is accompanied by audio.
Batik Goes to School	The management of the Laweyan batik village collaborates with schools around the Solo area to introduce batik directly through field trips and lessons.
Laweyan Hits	An effort to increase public engagement through social media by bringing in *influencers to brand the Lawe Yan Batik Village through content that describes the activities that can be done in the* town.
Laweyan Batik Exhibition	An exhibition session was used to introduce Laweyan batik through a seminar by explaining the motifs and philosophy.
Social Media Branding	Collaborate with *Influencers* to brand Laweyan Batik Village through social media content.
Collaboration with government agencies	One way to introduce Laweyan batik is to collaborate with government agencies through a series of activities in the History of Solo City, ending with batik-making activities in Laweyan batik village.
Batik Campaign	This activity is carried out to brand Laweyan Batik Village through social media, partnering with educational institutions and relevant communities.
Ecotourism	A tour will be conducted to introduce Laweyan Batik village through a go-green approach by utilizing the remaining Batik waste.
Managing social media	Creating batik introduction content on social media to brand Laweyan batik village
Go Green concept to introduce Laweyan Batik	One of the efforts to strengthen the position of Laweyan batik in society is to raise the concept of going green by collaborating with the government, education department, and local communities to maintain the cultural heritage of Laweyan batik.
Collaboration with tourism office	Efforts to introduce Laweyan batik by collaborating with the tourism office to hold a visit program and educational seminars for both local and international residents.
Batik Room	It is one of the learning platforms related to batik, from History to the manufacturing process, that local and foreign residents can access.
batiklaweyan.com	One of the efforts was to educate the public regarding batik. In addition to education, there is room for virtual tourism.
Batik Laweyan Course	We are introducing Laweyan Batik Village to the broader community through education, providing short courses on batik-making methods, types of designs, and more.
New promotion materials about batik	Developing a cohesive theme that aligns with our target audience, vision, and mission is the basis for all branding efforts, from promotional materials to on-site services.
World Class Batik Laweyan	One of the efforts was introducing batik to the national level with tourist-focused learning.
Collaboration With Local Communities	One way to brand Laweyan crown batik is by collaborating with residents. One of the free marketing is through the local community and its programs.
Batik Laweyan X Educational Institution	Collaboration is one way to brand Laweyan batik. One way is to collaborate with educational institutions through programs, internships, and workshops on tourism management, sustainability, cultural studies, or hospitality.
Musical Drama	One way to package the branding of Laweyan crown batik is with a musical drama, which makes it more interesting.
Industrial waste utilization	One way to improve the branding of Laweyan batik is through souvenirs. Laweyan batik can make souvenirs from leftover batik waste.
Batik quality control	We are maintaining the humidity of batik storage temperature with RFID technology.
Book of Batik Laweyan	Make bookkeeping of batik motifs made by artisans so that they have a reference for loyal consumers and can be made a reference for purchase.

IDEA	EXPLANATION
Customer tracking	Using IoT to track the most visited points and provide VOs to explain the process/history of batik
Educative content	Create social media content to educate the public about the batik tutorial and the story behind the motif.

Source: Author's Process (2024)

The ideas collected through the brainstorming stage will be categorized according to the appropriate category. The category selection here is divided into four parts: the technology innovation category, the education and cultural arts innovation category, the social media marketing innovation category, and the eco-green innovation category. The following is a grouping presented in Table 7.

Table 7. Grouping of Idea Categories

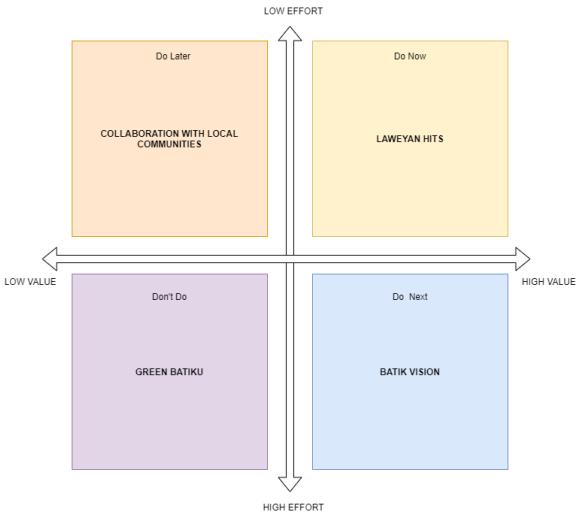
Technology Innovation Category	Education and Cultural Arts Innovation Category
a. Vrbatik Tulis b. Our Batik c. Batik Craft Ml d. Artifex Batik e. Batik Vision f. Smart Batik g. Ml-Mahkota Batik h. Batik Quality Control i. Book Of Batik Laweyan j. Customer Tracking	a. Learn About Batik Laweyan b. Do You Know About Batik c. Batik Goes to School d. Laweyan Batik Exhibition e. Collaboration With Government Agencies f. Collaboration With Tourism Office g. Batik Room h. Batiklaweyan.Com i. Batik Laweyan Course j. New Promotion Materials About Batik k. World Class Batik Laweyan l. Batik Laweyan X Educational Institution m. Musical Drama
Social Media Marketing Innovation Category	**Eco Green Innovation Category**
a. @Batik.Laweyan b. Laweyan Hits c. Social Media Branding d. Batik Campaign e. Managing Social Media f. Collaboration With Local Communities g. Educative Content	a. Nanotechnology b. Green Batiku c. Batik Intellect d. Eco Tourism e. Go Green Concept to Introduce Laweyan Batik f. Industrial Waste Utilization

Source: Author's Process (2024)

After gathering and categorizing ideas related to tourism and educational branding, Batik Mahkota Laweyan can map the results onto a 2x2 matrix to determine the priority scale for branding ideas in these fields. The 2x2 matrix is a grid divided into four quadrants, each representing a different category or dimension (Kaushal, 2023). However, before using the 2x2 matrix, the number of votes for each idea from the respondents will be presented. From the 36 ideas voted on, only four will be selected to be placed in the quadrants of the 2x2 matrix. The selected ideas are Laweyan Hits, Batik Vision, Green Batiku, and Collaboration with Local Communities.

Ideas are placed according to their respective quadrants in the 2x2 matrix. The quadrants are divided into four sections: low effort low value, low effort high value, high

effort low value, and high effort high value. By placing the ideas in these quadrants, the brainstorming session's results will be positioned based on their levels of effort and value. This can be seen in Figure 3.



Source: Author's Documentation (2024)

Figure 3. Matrix 2x2

The idea in the high-value and low-effort quadrant is 'LAWEYAN HITS.' This idea aims to increase engagement through social media by bringing in influencers to brand the Laweyan Batik Village through content that depicts activities that can be done in the village.

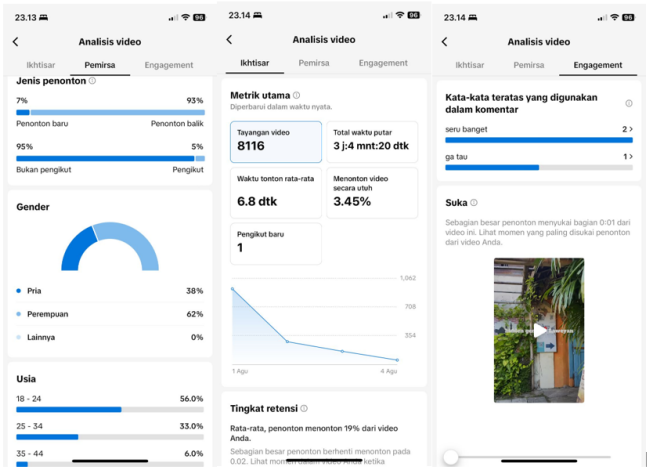
4.1.5. Phase 5 "Prototyping"

For the strategy to enhance branding, consumer engagement must first be increased. This increase will be achieved through social media using content creators' published content. The content will be featured on the TikTok app. TikTok's choice is due to its wider reach than Instagram. TikTok has a rapidly changing algorithm and is more suitable for entertainment content. Such content is more accessible for promoting businesses or SMEs new to social media. The social media tactics on TikTok will follow the AIDA model but will focus only on the dimensions of Awareness, Interest, and Desire. After generating ideas in the ideate phase, the ideas must be quickly visualized and made as tangible as possible through sketches, designs, models, or simulations. In this prototyping phase, content is created to showcase a visit to Batik Mahkota Laweyan, highlighting activities related to the services offered. The content posted on TikTok can be viewed at https://vt.tiktok.com/ZSYov5Emr/.

4.1.6. Phase 6 "Testing"

As a test case, a collaboration was conducted with an influencer with a reach in the Solo, Yogyakarta, Bandung, and Klaten areas. This experiment was carried out to determine whether the results of the ideation process have achieved a level of success in addressing the problems faced by SMEs and to explore whether the ideas are appropriate

for immediate implementation while enhancing consumer engagement. The increase in engagement is measured by the extent of reach achieved by the content creator's content. The results of this reach can be seen in Figure 4.



Source: Author's Documentation (2024)

Figure 4. Reach Achieved by The Content Creator's Content

4.1.7. Phase 7 "Collect Feedback"

Based on the analysis of the video content's audience data, it was found that the uploaded video has made it to the FYP. FYP stands for 'For You Page,' a section of the TikTok app. The FYP page displays videos TikTok's algorithm recommends based on user preferences and behavior. When a video appears on the FYP, it means TikTok considers it engaging for specific users, giving it the potential to receive more views, likes, and comments.

This section describes the research results. Data should be presented in Tables or Figures if possible. There should be no duplication of data in Tables and Figures. Discussions should be consistent and should interpret results clearly and concisely, and their significance, supported by appropriate literature. The discussion must demonstrate the relevance between the results and the field of investigation and/or hypotheses. Each table and figure should be clearly explained in the text.

4.2. Discussion

Design thinking is a valuable method for solving problems by starting with empathy to understand users' emotions deeply. Researchers use observation, interviews, and interactions to uncover hidden issues. Through a clear problem statement, the team can focus on finding solutions efficiently. The brainstorming phase encourages creative and collaborative thinking to generate multiple solutions. Testing and refining ideas leads to practical solutions that bring value to all involved.

The research used the design thinking method for problem exploration and solution formulation for the handcrafted batik MSME Batik Mahkota Laweyan, the first research in Indonesia to adopt this approach for the batik sector. The results show that the design thinking method helps formulate innovative and practical solutions and significantly benefits business progress. Batik Mahkota Laweyan. This research paves the way for other MSMEs in Indonesia to adopt a similar approach to facing their business challenges.

Additionally, design thinking has proven effective in quickly identifying critical problems and finding appropriate solutions. Accuracy and speed in addressing issues are essential for sustaining an ongoing business. Using design thinking allows for prompt resolution of business problems in handcrafted batik SMEs, as evidenced by the increased engagement with the implemented content ideas.

By utilizing design thinking in exploratory research, it is possible to identify problems and develop appropriate solutions effectively. This exploration aims to deeply understand the issues a business or SME faces precisely and systematically. Not all initial assumptions made by researchers may be accurate or aligned with the actual needs of the business or SME. Therefore, design thinking is essential in problem identification and solution development, as it involves gathering insights from various sources and perspectives to ensure the accuracy and relevance of the outcomes.

Based on the research conducted by Syam and Mayangsari (2024), it is suggested that the effective use of digital marketing through social networks (social media) can build consumer trust in the products being marketed. This finding is consistent with the insights gained from the content posted online, as evidenced by comments indicating that consumers believe Batik Mahkota Laweyan offers not only products but also services that customers can directly enjoy. This study also demonstrates that digital marketing influences the development of brand awareness, as shown by the insights from the posted content. Brand awareness here is reflected in the top-of-mind recognition by content viewers that Batik Mahkota Laweyan provides products, tourism, and educational services. This finding aligns with the theory presented in the research by Manshur (2020), which explains that social media marketing can effectively build consumer brand awareness.

In this study, influencers were used as a medium to market Batik Mahkota Laweyan’s tourism and educational services. The content uploaded by influencers as endorsements on TikTok helped convey the services offered by Batik Mahkota Laweyan and garnered increased attention from viewers, both followers and non-followers of the influencers. This aligns with the theory proposed in the research by Gandhioda and Tanjung (2024). Furthermore, the research conducted by Fitrial and Indrawati (2021) states that social media serves as a tool for communication in marketing to gather responses from consumers. This is consistent with the findings of this study, where social media, specifically TikTok, served as a bridge for communication with Batik Mahkota Laweyan’s customers to convey their tourism and educational services.

5. CONCLUSION

In conclusion, this study identified nine challenges for Batik Mahkota Laweyan. The main issue found was the lack of branding for their services, as they focused on innovation without effective communication. Through design thinking, four main solution ideas were generated, with "Laweyan Hits" chosen as the best option. The idea focuses on social media engagement through TikTok to increase awareness among potential customers. This research can serve as a reference for similar studies, suggesting that Batik Mahkota Laweyan should invest more in promoting its services. Collaboration

with various entities for funding opportunities is recommended for them to improve their performance.

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