

## APPLICATION OF DESIGN THINKING FOR THE DESIGN OF BOGOR BATIK TILU SAUYUNAN MOTIF

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### Abstract:

**Background:** The diversity of batik motif designs is one of the key factors driving public interest in batik. In the batik industry, particularly among Small and Medium Enterprises (SMEs), innovation in creating new batik motifs presents a significant challenge to the sustainability of the business in Indonesia. Therefore, this study focuses on one of the SME batik businesses in Bogor.

**Purpose:** The aim of this study is to explore the mapping process involved in creating the Tilu Sauyunan batik motif, a signature design of Bogor City, at the Handayani Geulis Batik Bogor enterprise.

**Design/Methodology/Approach:** This study employs a qualitative approach using the design thinking method to analyze the problems and solutions in the batik creation process.

**Findings/Results:** The analysis reveals that applying the design thinking method to the creation of the Tilu Sauyunan batik motif successfully establishes a visual identity that encapsulates the cultural essence and identity of Bogor.

**Conclusion:** The design thinking approach demonstrated in this study effectively integrates elements and icons of Bogor into the Tilu Sauyunan batik motif, resulting in an appealing and distinctive visual identity.

**Originality/Value (State of the Art):** Handayani Geulis Batik Bogor is a rapidly growing SME in the Indonesian batik industry. Through the innovative efforts of its owner and support from the Indonesian government, the business has expanded internationally. Positioning the Tilu Sauyunan batik motif as a cultural identity and icon of Bogor has the potential to drive further business growth and recognition.

**Keywords:** bogor batik, design thinking, indonesian batik, local wisdom, visual identity

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## INTRODUCTION

The demand for batik in Indonesia continues to increase both domestically and abroad, this supports the batik industry in Indonesia to have great potential to develop. The batik market in Indonesia has shown positive and promising growth in the last five years. According to the Central Bureau of Statistics, Indonesian batik exports in 2023 will be 17.5 million USD. Increasing public awareness of the cultural value and beauty of batik has driven increasing demand. In addition to the increasing demand for batik, Indonesian batik designers will continue to face the challenge of honing their creativity in creating innovative batik motifs in order to survive amidst the high competition in the batik industry in capturing domestic and foreign markets.

One of the relevant studies is the research by Karimah *et al.* (2024) published in the Multidisciplinary Journal of Technology and Architecture. The study revealed in the face of increasingly tight business competition, maintaining a business requires a careful strategy and high adaptability by strengthening brand identity and unique values, focusing on satisfaction, continuous innovation, utilizing technology, establishing partnerships and collaborations, always being open to customer feedback, and adapting to changing market needs.

It is known world-wide that Batik is produced throughout Indonesia. Every location has distinctive qualities and features that are specific to it, including the color scheme used for decoration. The diversity and similarity of batik throughout different locations, however, can be easily recognized by some people, which even enhances the allure and depth of the country's artistic and cultural offerings (Parmono, 2017). For most people, Pekalongan City comes to mind when they hear the name Batik City. However, a number of other Indonesian cities, including Cirebon, Solo, Yogyakarta, Lasem, and Madura, are also referred to as batik centers. West Java is home to batik artisans in addition to Central and East Java, with locations including Bandung, Garut, Tasikmalaya, Sumedang, and others.

As a symbol of regional identity and Indonesian cultural diversity, each region has its own batik motif (Pitri, 2020). There are batik themes from Sido Luhur, Kawung, Sekar Jagad, Slobog, and other places in the cities of Yogyakarta and Solo. In the meantime, pastel-colored *Ngibing* Peacock motif is a well-known feature

of Garut Batik. The *Mega Mendung* motif is famous as from Cirebon, whereas the *Jlamprang* batik motif is known as from the city of Pekalongan.

A Study by Wijayanto (2013) published in the article of Batik Bogor My Tradition: Studies of Structuralism Genetic and Memetic. The study highlights Batik is always identical to Javanese cultural traditions with its distinctive motifs. However, in the city of Bogor, there is a process of creating batik cloth with Bogor's distinctive motifs, namely *Kujang* and *Tanduk Rusa*, as well as *Bunga Carrion (Rafflesia Arnoldi)* and *Rintik Hujan*. This culture is something interesting because the city of Bogor has so far been considered to have no distinctive batik motifs.

Batik motif that comes from the district and city of Bogor is called as "Batik Bogor." It features motifs like *cleavers*, *deer*, *imah*, *urug*, *taro leaves*, and other motifs that are typical character or icon of the district and city of Bogor. According to Aryani and Anggraeni (2019), the Bogor Batik motif draws inspiration from various sources such as historical artifacts, cultural phenomena, and the legacy of the Pakuan Pajajaran kingdom.

Innovation in the creation of Bogor batik motifs is triggered by the abundance of cultural wealth in the Bogor area. Another typical batik motif of Bogor City that is already quite well-known by the wider community is the *Tilu Sauyunan* batik motif which in Sundanese means "*Tiga Elemen*", which is the work of batik designer and producer Handayani Geulis in Bogor City. So, the purpose of this study is to find out how the mapping process in the creation of the "*Tilu Sauyunan*" batik motif typical of Bogor City through a design thinking approach.

## METHODS

This research was conducted at Handayani Geulis Batik Bogor, Tegal Gundil Village, North Bogor Sub-district, Bogor District, West Java. The selection of the research location was carried out intentionally (purposively) with the consideration that the owner of Handayani Geulis Batik Bogor, Mrs. Ratna Handayani, had the desire to map how the creation process of the *Tilu Sauyunan* batik motif could be created until obtaining copyright for the motif and considering the openness of information on Handayani Geulis Batik Bogor.

This research uses the design thinking method as the main framework for facing design challenges. Design thinking is an approach method based on creative solutions that combines analytical thinking, practical skills and creativity in thinking (Haryanto, 2023). The design thinking approach is one tool that businesses can use to foster innovation. It is believed that by using the design thinking approach, businesses will be able to outperform their competitors in addition to solving the issues they deal with on a daily basis. Because businesses need to keep innovating in order to expand and turn a profit (Yusuf, 2020).

This strategy stresses collaborative innovation and is centered on gaining a thorough understanding of the needs of users and consumers. David Kelley was the one who first presented the design thinking methodology. This approach is acknowledged as a useful tool for describing issues, investigating original concepts, and testing them with solutions by incorporating customers.

1. Empathize: In order to comprehend the user's perspective and the issues they face on an empathic level;
2. Define: Compile and examine data to identify the issue;
3. Ideate: Which produces a variety of original concepts for possible fixes;
4. Prototype: Create a prototype in order to create a first concept or design that can be tested;
5. Test: After this, it can be assessed to generate solutions by interacting actively with users. This method offers a solid framework for developing creative design solutions.

Figure 1 illustrates the stages of design thinking analysis sourced from Stanford d.school. The design thinking methodology was applied during the creation of this batik motif. Design thinking is a user-centered approach to problem solving (Kelley and Brown, 2018).

1. Empathize: Involves using user observation to conduct regional observations, market analysis, consumer needs analysis, and technical financial and economic analysis.
2. Define: Includes identification of problems and products to be developed.
3. Ideate: The stage of idea exploration and problem-solving accommodation of all existing ideas. To find answers, brainstorm.

4. Prototype: Create an initial model to test the designed concept. Concept ideas are expressed in form and processed according to the required stages.
5. Test: Testing user interactions in this case, customer interactions with the developed prototype. Feedback is generated during testing to enhance design quality, pinpoint flaws, and enhance the product.

This research uses primary data obtained directly through observations and interviews with companies and consumers from Handayani Geulis Batik Bogor, as well as secondary data obtained from literature studies in articles, journals, books, and other related sources.

In compiling this research, a hypothesis is needed, which aims to be a framework for researchers to provide direction for work and make it easier to compile research. Hypothesis is a researcher's estimate obtained from the formulation of research problems as a temporary answer to prove the results of a study. According to Sugiyono (2016), a hypothesis is defined as a temporary answer to the formulation of research problems, research objectives, and previous research. Based on the problems that have been described, the hypotheses in this study are:

H<sub>0</sub>: The application of the design thinking method in the creation of the Batik *Tilu Sauryunan* motif has not succeeded in creating a visual identity that is able to capture the identity and culture of Bogor.

H<sub>1</sub>: The application of the design thinking method in the creation of the Batik *Tilu Sauryunan* motif has succeeded in creating a visual identity that is able to capture the identity and culture of Bogor.

1.Empathize
Interview, shadowing, seek to understand, non-judgmental
2.Define
Personas, role objectives, decisions, challenges, pain point
3.Ideate
Share ideas, all ideas worthy, diverge/converge, prioritize
4.Prototype
Mockups, Storyboards, Keep it simple, Iterate quickly
5.Test
Understand impediments, What works?, Role play, Iterate quickly

Figure 1. Step of design thinking

This research framework (Figure 2) is based on the research method used, namely design thinking. This research framework includes:

1. Emphatize: Researchers conducted observations on the Handayani Geulis Batik Bogor business.
2. Define: Researchers conducted interviews to obtain background information, product knowledge, objectives, and tool items to be used in motif design.
3. Ideate: Researchers conducted brainstorming to obtain references for batik motif design concepts from various sources.
4. Prototype: Researchers conduct hands-on concept testing through this process, offering ideas and suggestions to ensure the concept aligns with the design goals.
5. Test: The researcher provides a detailed presentation of the design results by offering more context for the choices made in the design process, increasing understanding of the choices made to meet the requirements and goals of creating this batik motif design for the sustainability and uniqueness of Bogor City Batik.

INPUT → PROCESS → OUTPUT

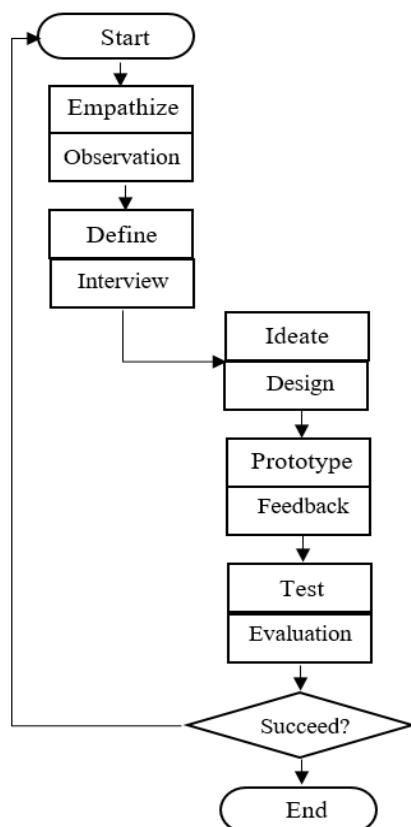


Figure 2. Framework of design thinking

## RESULTS

The results of this research using design thinking analysis in problem solving are as follows:

### Empathize

It is possible to draw the conclusion from this observation that batik represents national identity and culture. The city of Bogor, West Java province, 59 kilometers from the capital, is thought of as the capital's buffer city and has a lot of tourism potentials. West Java cities' batik motifs like *Mega Mendung* (Cirebon), *Merak Ngibing* (Garut), *Lereng Eneng* (Bandung), and others have their own distinctive batik motif. The issue is that Bogor lacks of batik motifs and that the existing batik motifs do not show the identity of the city. It can be said that most people did not recognize particular motif of batik from Bogor before the existence of Handayani Geulis Batik Bogor.

### Define

The focus of the thinking method's subsequent step is on identifying the central issue that was noted during the empathy stage. The problem has been precisely stated at the define stage, with an emphasis on the requirement to produce batik designs featuring unique Bogor motifs to preserve Bogor's identity. Table 1 shows the creative brief in this study. The creation of a creative brief, which will act as a manual for designers creating batik designs, is the result of this define stage. An outline of the project, including background information, product knowledge, goals, and tool items to be used in motif design, is given in the creative brief.

### Ideate

In the design thinking process, the ideate stage concentrates on coming up with original solutions to issues that were found during the define stage. Brainstorming is done at this point to generate concepts that will eventually become the foundation of the design. As stated in the creative brief, researchers actively seek out design concept references from a variety of sources. Ideas are extracted using a variety of techniques that are modified to fit the batik motif design guidelines (*pakem*). Steps involved in developing the design concept:

- a. Collecting Bogor icons, such as taro fruit, taro leaves, and the recognizable corpse flower (*Amorphaphilus Titanum*).

- b. Use the runut, *nggatak*, slope, and provisions to determine the batik design pattern, then fill the entire cloth sheet.

Kujang is known as a weapon and heirloom of the Sundanese people originating from West Java. The process of creating the kujang has a very long history, and based on evidence from findings, many of the kujang are thought to have been made before the Pajajaran era. There are even kujang researchers who state that the kujang has existed since the Taruma Nagara era. Although the kujang has never been written in an inscription, there is much evidence to support its existence, such as; the Batu Kujang megalithic site in the Sukabumi area, the discovery of kudi tools in the Batujaya Karawang temple complex, the Sukuh temple relief in Surakarta, Sir Stamford Raffles' notes in the book "*the History of Java*". The creation of the kujang or Kudi Hyang is a development of the Kudi, namely agricultural tools which then transformed into many variants of the form of the likeness, because it was and developed under the authority of the kingdom. Variants

of the form of the kujang take the essence of the bird form; kujang ciung or visual language that refers to the essence of Sundanese cultural teachings. "Ciung", is a siloka or personification. Ciung explains the meaning of Ca'ang which means enlightenment in a spiritual context (Saifulhayat, 2018).

*Rafflesia Arnoldi* is included in the endangered category by the IUCN (International Union for Conservation of Nature). Small population makes the flower become a rare endemic species in the nature. The rarity is because *Rafflesia Arnoldi* has different biological characteristics from other plants, namely having an annual life cycle, and parasitizing certain liana species, and difficult reproduction (Mukmin, 2008; Ramadhani *et al.* 2017). The Indonesian Institute of Sciences (LIPI) has succeeded in conserving the habitat of Rafflesia, preserving, and expanding its population. *Rafflesia Arnoldi* now can be seen by the general public at the Bogor Botanical Gardens. The growth of *Rafflesia Arnoldi* is a characteristic of the Bogor city, West Java.

Table 1. Creative Brief

<b>Project Background</b>
Handayani Geulis is a batik making business in Bogor, which already has Intellectual Property Rights (HKI) and NIB. HG aims to create batik motifs that reflect the beauty and richness of nature as well as cultural riches by representing typical Bogor icons. This is to broaden appreciation of the rich flora and fauna and local cultural heritage as well as provide a batik identity for Bogor.
<b>Product Knowledge</b>
This Bogor batik motif will depict the natural beauty, richness of flora and fauna and the characteristics of Bogor. This motif is designed to be a beautiful, alluring and inspiring visual representation by combining existing elements with a contemporary touch.
<b>Target Audiens</b>
All groups, from local, national and international, are interested in batik, art and culture and have an appreciation for batik as a cultural heritage.
<b>Key Message</b>
Batik for labour of love.
<b>Mandatory Elements</b>
Bogor flora and fauna: Bogor Botanical Gardens large flowers, Amorphopalus, Titanum, taro fruit, taro leaves.
<b>Bogor Culture</b>
Kujang (West Java traditional weapon), Kujang monument.
<b>Color Palette</b>
Dark colors combined with light colors suit the dynamic city of Bogor.
<b>Deliverables</b>
1. The initial sketch is an initial illustration with iterations of the batik motif design.
2. The batik design is in digital format and poured onto paper and then onto mori cloth manually.
3. Determine 3 main elements that represent the culture, icons and beauty of Bogor.
<b>Media</b>
Cotton fabric (poplin, viscose or silk).

Taro (*Colocasia esculenta L. Schott*) which is one of the monocotyledonous plants from the Aracea family, this plant grows throughout the tropics and subtropics (Dalimarta, 2000; Widhyastini & Hutagaol, 2014). This plant takes a long time to flower, the shape of the leaves is in the form of a large shield with a leaf width of generally 20-50 cm. The base of the leaf is grooved with thin fleshy leaves with a waxy leaf surface that functions to protect itself with pinnate leaf veins that are generally green in color. There are many benefits of Araceae plants that can be utilized by the community, including being used as a food source by utilizing tubers which are then consumed and then used as ornamental plants that can beautify the yard (Imran, et al. 2022). Bogor is one of the centers of taro production in Indonesia. Production taro in Bogor around 57,000 tons in 2008 (Julianto, 2014; Sanjaya, et al. 2018). This is the reason taro leaves are used as an inspiration in making Tilu Sauyunan batik motifs.

The design concept of the motif is intended to combine elements or icons that are typical of Bogor at the design ideation stage. Bogor batik is almost always given the name of Sundanese motifs, where Bogor culture will be represented. This concept aims to combine two elements, namely Sundanese culture and Bogor icons, such as the corpse flower, sharp weapons, and taro leaves. The three components that form the Bogor symbol are combined and positioned at an angle, which represents the idea of a slope in the batik design pattern. Incorporating the ideation stage allowed for the creation of batik motif designs that adhere to the slope batik standards while also reflecting Bogor's distinct identity. It is envisaged that by unifying this idea, it will be able to adjust to consumer preferences for both batik and Bogor.

### Prototype

Entering the prototype stage in the design thinking method for making batik motif designs, there are several stages. The process of creating a visual representation of batik motifs is currently in the prototype stage. Through testing and feedback, the prototype serves as the foundation for ongoing iterations and improvements. Researchers can also directly test concepts through this process, offering ideas and suggestions to ensure they align with the design goals. These findings are shared to gather input and recommendations from experts and batik artisans to improve the concept.

Figure 3 illustrates the step-by-step process of making batik. Step 1 is drawing the motif according to the actual size on paper, step 2 is transferring the motif to the cloth, step 3 is doing the batik activity by tracing the image on the cloth using a batik canting, step 4 is adding isen-isen, step 5 is doing the first coloring, step 6 is doing color blocks on certain motifs, step 7 is doing the second coloring, step 8 is doing sag (evening cleaning), and the last step is drying the batik at room temperature.

In this prototype stage, the process of developing a visual representation of batik motifs. The prototype becomes the basis for continuous iteration and improvement through testing and feedback. Through this process, researchers can also test concepts directly, provide suggestions and ideas so that they are in accordance with the design objectives. These results are presented to obtain feedback and suggestions needed to strengthen the concept from resource persons and batik craftsmen.

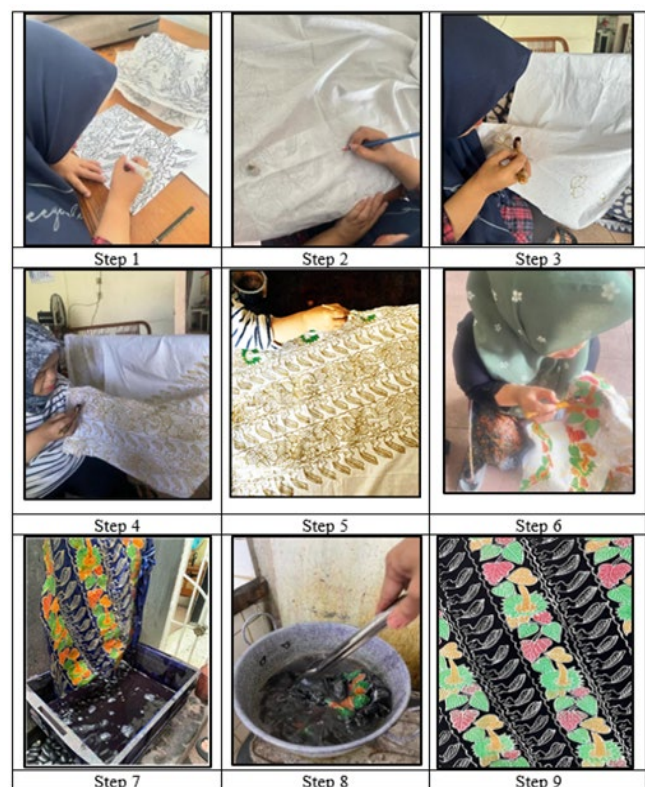


Figure 3. Batik making process

Test

Following the completion of the trial phase, the designer provided a detailed presentation of the design's outcomes. Concepts and motifs are clarified in great detail. The suggested concepts are demonstrated both practically and visually in this presentation. In addition, the designer offers more context for the choices made in the design process, enhancing comprehension of the choices made in order to fulfill the requirements and goals of creating this batik motif design for the sustainability and uniqueness of Bogor City Batik. The motif's name, "*Tilu Sauyunan*," which translates to "three elements that have become strong icons of Bogor, *Rafflesia Arnoldi*, Taro Leaves, and the traditional *Kujang* weapon, which is synonymous with Bogor and West Java," is another added value that the designer suggested.

The final design concept, corpse flowers, taro leaves, and cleavers, could consistently help create a strong memory for customers and batik lovers and could strengthen the relationship between batik, Bogor, and consumers, according to prototype trials that designers conducted with craftsmen. Thus, the overall idea and design that has been produced gives great consideration to Batik Bogor in addition to prioritizing aesthetics and exclusivity. This is crucial for Bogor batik's survival and continued existence in Bogor City. On November 15, 2011, the *Tilu Sauyunan* motif was registered for Intellectual Rights Reserved, and on September 10, 2012, the certification was granted.

### Managerial Implications

Handayani Geulis Batik Bogor is required to always improve innovation in creating batik motifs, especially Bogor's typical batik. The creation of unique batik motifs can improve the image of Handayani Geulis Batik Bogor itself, as well as the characteristics of the city of Bogor as a form of participation in preserving Indonesian culture. Innovation in creating batik designs requires a good framework of thinking and experience in exploring Indonesian culture. The creativity of a batik designer is one of the main keys to maintaining the batik business itself. Continuous innovation in the batik industry can provide benefits for Indonesia, especially for the sustainability of the Handayani Geulis Batik Bogor business.

## CONCLUSIONS AND RECOMMENDATIONS

### Conclusions

In order to create batik motif designs for Bogor, this study uses the Design Thinking methodology. Empathize, Define, Ideate, Prototype, and Test are the five stages of Design Thinking that are included in this design. Implementation Design Thinking method from the Hasso-Plattner Institute of Design to The *Tilu Sauyunan* Batik, various problems can be found in the creation of Bogor batik motifs as well as the right solutions to preserve Bogor culture. In order to ensure and test that the creation of the prototype is in accordance with the design objectives, suggestions and recommendations were collected from experts and Batik artisans. It was successful for this research to produce a visual identity that captures Bogor's identity and culture. The *Tilu Sauyunan* batik motif design is thought to be able to meet the demands of the Bogor batik market.

Based on the analysis that has been carried out, the results of this study refer to  $H_1$  is the application of the design thinking method in the creation of the Batik *Tilu Sauyunan* motif has succeeded in creating a visual identity that is able to capture the identity and culture of Bogor.

### Recommendations

The creator of this motif's visual identity combined Bogor's elements and icons to create a visually appealing and distinctive whole. It is hoped that Bogor will adopt this discovery as his new identity and icon. Bogor now has batik featuring Bogor motifs as a result. Ideally, these results will serve as a source of inspiration for Small and Medium Enterprise (SMEs) or batik artisans in other Indonesian cities who do not currently produce batik with distinctive regional features.

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