



## Implementation of The Pentahelix Model in The Marketing Strategy of Bamsa Application: Building Synergy for Local Economic Improvement

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### ARTICLE INFO

#### Keywords:

BAMSA Application,  
Batik Motive Surabaya,  
Local Economy,  
MSME,  
Pentahelix.:

#### Article History:

Received 21 May 2025

Accepted 25 June, 2025

Available online 20 August, 2025



[https://doi.org/  
10.26740/jpap.v13n2.p535-  
646](https://doi.org/10.26740/jpap.v13n2.p535-646)

### ABSTRACT

**Phenomenon/Issue:** BAMSA (Batik Motive Surabaya) application plays a crucial role in implementing the Pentahelix model to market Surabaya batik motives and improve the local economy. The issue focuses on the need for synergy between stakeholders and the use of technology to strengthen marketing efforts for local cultural products.

**Purpose:** This research aims to explore the synergy between the government, academics, businesses, media, and the community in the development of batik marketing strategies.

**Novelty:** The BAMSA application introduces the public to six patented Surabaya batik motives—kintir-kintiran, sparkling, gembili wonokromo, abhi boyo, kembang bungur, and remo Surabaya—complete with their philosophies and purchasing information, while also demonstrating the integration of the Pentahelix model in marketing.

**Research Methods:** The abstract does not explicitly mention specific research methods but implies a qualitative or mixed-methods approach focused on stakeholder collaboration and technology adoption in marketing.

**Results:** Collaboration among Pentahelix stakeholders strengthens marketing efforts, increases public awareness of local products, and facilitates MSMEs in marketing their products, leading to increased income and business sustainability.

**Research Contributions:** This research confirms the importance of information technology in the Industry 4.0 era for supporting marketing, strengthening producer-consumer connectivity, and serves as a model for the development of a culture-based creative economy in other regions in Indonesia. It provides insights for stakeholders to formulate more effective policies and strategies in promoting local cultural products.

## INTRODUCTION

Indonesia, as a developing country with a dense population, faces significant challenges in terms of poverty and unemployment. According to data from BPS (Central Bureau of Statistics) 2024, the poverty rate reached 9.03%, while the open unemployment rate stood at 4.91%. These figures reflect the need for greater efforts to create employment opportunities and improve people's welfare (Risma Suryani Purwanto & Fadlurrahman, 2020). In this context, the potential of the local economy, especially in the creative industry sector, becomes very important to utilize in order to reduce these figures.

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Surabaya City is one of the areas that has prepared several efforts to reduce poverty and unemployment problems in its area through the utilization of local economic potential, especially in the creative industry sector. One of the efforts made through a program to introduce the potential of the community in the form of hand-painted crafts. In 2022, the Surabaya city government conducted a competition "Semarak Surabaya" which is a painting competition about Surabaya batik Motives consisting of elements motive of Sura, Baya, Semanggi, Remo Dance etc. according to the characteristics of the city of Surabaya. The purpose of this activity is to introduce the city of Surabaya through batik Motives (Arusha.id, 2022).



Source: (Arusha.id, 2022)

**Figure 1. Competition Poster**

Batik, as one of Indonesia's cultural heritages, has a value that is not only aesthetic but also economic (Maulana Hakim, 2018; Pratiwi & Sulistyowati, 2020). Batik is an illustrated cloth made with special techniques using wax and natural dyes. UNESCO recognized batik as an Intangible Cultural Heritage in 2009, which adds historical and cultural value to this product (Idayati & Sulistyowati, 2022; Nurcahyanti & Bina Affanti, 2018). The results of the program carried out by the Surabaya city government to recognize the potential of the region in the form of a description of batik Motives have had a good impact, resulting in the creation of six patents for Surabaya batik Motives, namely: kintir-kintiran, sparkling, gembili wonokromo, abhi boyo, kembang bungur, and remo Surabaya Motives (Swargaloka, 2024). Each Motive is not only beautiful but also contains philosophies and stories related to the city's culture and history.

However, until now the six Surabaya batik Motives are less known and recognized by the public, especially the Surabaya people themselves. The lack of public knowledge about Surabaya's six batik Motives is due to lack of information regarding the philosophy that is the point of difference between Surabaya batik Motives and other Motives, as well as the difficulty of accessing information to find batik so that the purchase of Surabaya batik Motive products is relatively small.

Therefore, the development of the BAMSA (Batik Motive Surabaya) application is proposed as a solution to introduce and market six patented batik Motives. This application is an innovation from the existing application, namely the Peken Surabaya application, which is an application for selling MSME products in Surabaya. The BAMSA application is focused as a medium for education and sales of Surabaya batik Motives, as well as facilitating access to Micro, Small and Medium Enterprises (MSMEs) that sell these batik products.

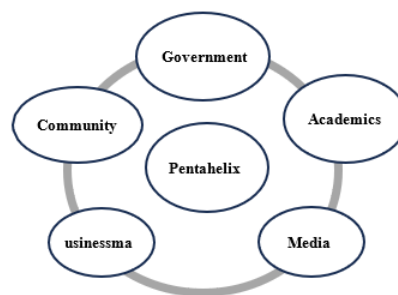
In an effort to develop the introduction of Surabaya batik Motives through BAMSA, the Pentahelix model is an effective strategy. This model involves collaboration between five important elements: the government, academics, businesses, media, and the community. The government plays a role in formulating policies that support the creative industry, academics provide research and innovation, businesses are responsible for production and distribution, the media plays a role in promotion, and the community is expected to actively participate by buying and appreciating local products.

Previous case studies, such as a batik development program in Yogyakarta involving local communities and the local government, show that collaboration between stakeholders can strengthen marketing and improve the competitiveness of local products (Isma Widiaty et al., 2020). This research aims to develop

a BAMSAs (Batik Motive Surabaya) application that not only introduces six typical batik Motives of Surabaya but also increases public knowledge about the history, philosophy, and how to buy batik. The importance of local culture preservation cannot be ignored, especially in the context of rapid globalization. Batik is not only a symbol of national identity but also has the potential to contribute to the creative economy, create jobs, and increase public awareness of local products. Within the framework of the Pentahelix model, each stakeholder has an important role. The government in supportive policies, academics in research and development, businesses in production and marketing, media in information dissemination, and the public in support and purchase. Thus, this research not only focuses on developing the BAMSAs application, but also contributes to stakeholders in formulating more effective policies and strategies in promoting batik as a cultural product that has economic value. Through integrated collaboration, it is hoped that the potential of Surabaya batik can be optimized, thus providing a positive impact on the local economy and cultural preservation.

## LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

### Pentahelix Model



Source: Managed by the author

**Figure 2. Pentahelix**

The Pentahelix is an extension of the Triple and Quadruple Helix. The Triple Helix was first proposed by Etzkowitz and Loer Leydesdorff in 1977 (Najmudin et al., 2023). The Triple Helix model became known as academia, business, and government. Once the community or civil society was added, the Triple Helix model evolved into the Quadruple Helix model. By combining the roles of academia, business, government, and society into knowledge-based and creative ventures, the Quadruple Helix concept embodies the meaning of the development concept of the Triple Helix model (Sudiana et al., 2020). After accepting more media components, the Quadruple Helix was completed to create Pentahelix, a new model. In addition to traditional media, social media is now being used as a tool to aid development initiatives. Suwitno claims that the Pentahelix concept serves as a guide for growth through collaboration between Academia, Business, Government, Community, and Media (ABGCM), in order to drive innovation and the economy. The synergy of the Pentahelix model is expected to showcase innovations supported by various resources.

### Micro, Small and Medium Enterprises (MSMEs)

According to Law No. 20/2008 regulating Micro, Small, and Medium Enterprises (MSMEs), MSMEs are economic activities carried out on a micro, small, and medium scale. Therefore, to prevent unfair business competition, MSMEs need to be protected. MSMEs are divided into several categories, namely small, micro, medium and large businesses (Rahmah et al., 2022).

## Batik

Batik is a patterned cloth made by stamping or writing using wax, then colored with tarum and sogu. The smallest grouping of images or picture frames on an object that combines composition, scale, and shape is called a Motive (Anshori Yusak & Kusrianto Adi, 2021; Rusli et al., 2022).

## Development of Batik Micro, Small and Medium Enterprises (MSMEs)

Micro, Small and Medium Enterprises (MSMEs) play an important role in local economic development, particularly in the batik industry. According to the Ministry of Cooperatives and SMEs, MSMEs contribute around 60% of the national GDP and absorb more than 97% of the workforce. The development of batik MSMEs in Surabaya can be done through skills training, access to capital, and better marketing. Initiatives such as the "Semarak Surabaya" program support MSMEs by providing a platform to promote their products, thus increasing their visibility and competitiveness (Mulyansyah, 2021; Setyawati et al., 2024; Sulistyowati, 2021; Wibowo et al., 2022).

## METHOD

This research uses descriptive qualitative research methods. Sugiono (2019) asserts that one of the techniques for analyzing the state of scientific items is qualitative research. The researcher is the main tool in qualitative research. To provide a thorough explanation of the data and facts in the form of a narrative using words or visuals, this research uses descriptive qualitative methods. the Pentahelix model from Sudiana (2020) which includes academy, business, community, government, and the media is the basis for the indicators used in this research. This research describes problems based on theory (literature review) in order to overcome the problem formulation. Finding relevant literature is the first step in problem assessment, which leads to relevant solutions. However, a literature review in line with the idea and problem is the methodology used.

This research has several stages, from problem identification and discussion to data collection, concept design, data analysis, and conclusions, this research is divided into six stages:



Source: Managed by the Author.

**Figure 3. Research Stages**

- Determine the issues and opportunities facing Surabaya's economy
- Organize the problem based on its specific focus.
- Gather information to highlight current issues.
- Develop a concept design for Batik Motive Surabaya (BAMSA).
- Review and discuss the idea of Batik Motive Surabaya (BAMSA).
- Interesting conclusions drawn from the way the current issue was formulated.

Data from the literature study served as a guide for analysis, which was then linked to the Miles and Huberman model through the phases of data collection, reduction, and presentation to reach conclusions.

- The process of collecting primary and secondary data to achieve research objectives is known as data collection.
- The act of identifying key points or focus to provide a concise description is known as data reduction.
- The practice of presenting narrative text, such as brief summaries, charts, or subject relationships, is known as data presentation in qualitative research.
- Verifying new facts or developments that have not been discovered before is the process of drawing conclusions.

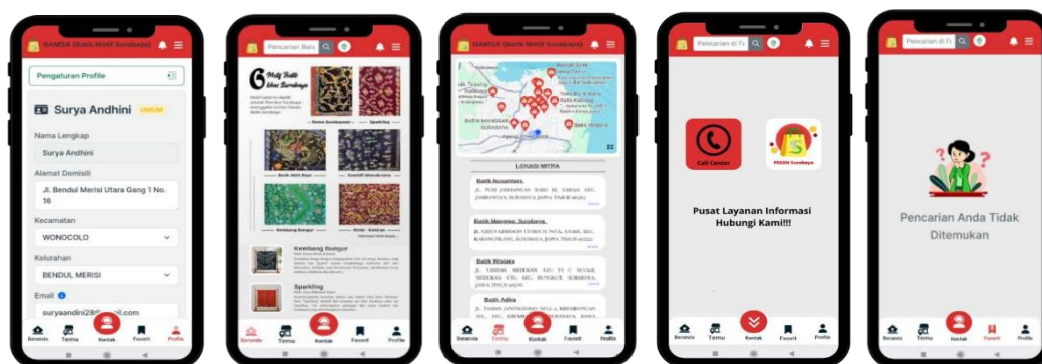
## RESULTS AND DISCUSSIONS

### The concept of BAMSA (Batik Motive Surabaya)

BAMSA application is a mobile-based application that will introduce six patented Surabaya batik Motives. In addition, this application will also direct to find MSMEs that sell batik Motives. This application was launched to assist the Surabaya City Government in introducing products and increasing sales of Surabaya batik Motives. This application has a reference "Batik Surabaya is Worth Gold" where it is hoped that in the future Surabaya Motive batik will have a high selling value and be able to compete globally.

The making of the BAMSA application (Batik Motive Surabaya) aims as a media for the introduction and sale of batik Motive Surabaya through android-based mobile devices. This application requires a strong internet connection to see the nearest location point of MSMEs. In addition, the application will run well on android with operating system 4.4 (KitKat) to operating system 6.0 (marshmallow).

The application BAMSA (Batik Motive Surabaya) has several excellent features, namely features: Home which contains the origin and Motive of batik, Meet, Favorites and Contact which is a sales center for Surabaya MSME products. In using this application there is also a login and log-out feature as data collection of application users. Where this data is used as a measuring tool for the number of active users of the application.



Source: Managed by the Author

**Figure 4. BAMSA Application Design**

**Table 1.**

**BAMSA Application Features**

<b>Display Loading Page</b>	The initial display of the application, here the user can press start to explore the BAMSA (Batik Motive Surabaya) application services and also the user profile.
<b>Home</b>	Users can find out the origin of Surabaya's six batik Motives. This origin will be closely related to the government program, namely the batik Motive design competition. As well as in this feature Users can see the kinds of batik Motives Surabaya that have been patented and there is also a philosophy of the design.
<b>Meet</b>	Users can buy Surabaya batik Motive products in this application with a wide selection of MSMEs that provide these products.
<b>Contact</b>	The information center is more related to the application and also related to the product. This call center will also direct users to another application, namely Peken Surabaya, to see MSME sales products in Surabaya
<b>Favorite</b>	Storage related to information that has been saved/liked.

Source: Managed by the Author

### Development Target



The method used to achieve the target using the SMART Goal approach popularized by George T. Doran in 1981 is the strategy used to achieve these goals. The use of SMART analysis makes the realization more focused and achieves the desired target, namely the target of implementing the BAMSA Application (Batik Motive Surabaya).



**Table 2.**  
**SMART Analysis**

<b>Specific</b>	The BAMSA concept specifically aims to introduce Surabaya batik Motive to be better known and recognized by the public. This concept is very suitable to be implemented, especially for generation Z who likes to exist in appearance.
<b>Measurable</b>	The BAMSA concept can be measured in terms of predicting its success through login and logout to see the total number of active, pro-active and passive users in the application.
<b>Acceptable</b>	The concept of BAMSA does not contradict the law, norms, and morals because its implementation is studied in depth
<b>Realistic</b>	The BAMSA is very realistic to realize because it has a scientific basis.
<b>Time-bound</b>	The time limit required for the realization of BAMSA is 5 Years

Source: Managed by the Author

The analysis of SDGs and Industrial Revolution 4.0 aims to find out how BAMSA (Batik Motive Surabaya) is related to the goals of SDGs. It is clear that two of the goals, especially points 8 and 9, are strongly related to BAMSA (Batik Motive Surabaya):

**Table 3.**  
**Analysis of SDGs and Industrial Revolution 4.0**

<b>Component</b>	<b>Destination</b>	<b>Description</b>
Sustainable Development Goals (SDGs)		BAMSA (Batik Motive Surabaya) plays a role in providing decent work, namely the development of MSMEs so as to improve the regional economy.
		BAMSA (Batik Motive Surabaya) plays a role in creating innovation through creativity so as to create a new creative industry.
Industrial Revolution 4.0	Cloud Computing	Technology for storing user databases using Cloud Computing
	IOT	Anticipate, coordinate, creatcommunication, and impr customer service.
Society 5.0	SIG	A geographic information system that can show traffic conditions, fastest roads, digital map information, etc.
Industrial Revolution 4.0 & Society 5.0	Big Data	All types of structured data in the system are managed and maintained using this method.

Source: Managed by the Author

### The role of Pentahelix

The implementation target of the BAMSA (Batik Motive Surabaya) idea is planned for 2024 where the development of the industrial era 4.0 is already well underway. The realization of the target achievement involves Pentahelix. Pentahelix according to Suwitno, (2017) cultural development requires various elements to establish collaboration with stakeholders in carrying out this realization, this strategy is an idea inspired by several cultural managers. This concept is very suitable for the Indonesian nation which has several cultural diversities that must be developed and maintained. Therefore, the realization requires the parties involved, namely:

**Table 4.**  
**Parties Involved**

No.	Parties	Role
1.	Surabaya City Government	Assist in studying the problem and become a source of information
2.	Surabaya City Office of Cooperatives, Small and Medium Enterprises and Trade	Sources of information related to batik MSMEs that sell Surabaya batik Motive products
3.	National Research and Innovation Agency (BRIN)	Formulation and determination of research, development and application studies and innovation inventions
4.	Souvenir Center	Help socialize the implementation of ideas
5.	Investor	Assist finance in the realization of ideas
6.	APP Developer	BAMSA (Batik Motive Surabaya) application programming
7.	Community and MSME Actors	Provide consideration and support

Source: Managed by the Author

Based on the role analysis for target achievement as in the table above is the most ideal way to implement BAMSA (Batik Motive Surabaya) as expected. In order for the process of achieving the goals to run as planned, cooperation and participation from all stakeholders are required. In addition, due to the financial support from the private sector in the form of sponsorship, the cost burden is relatively lower. Thus, the goals will be more realistic to achieve.

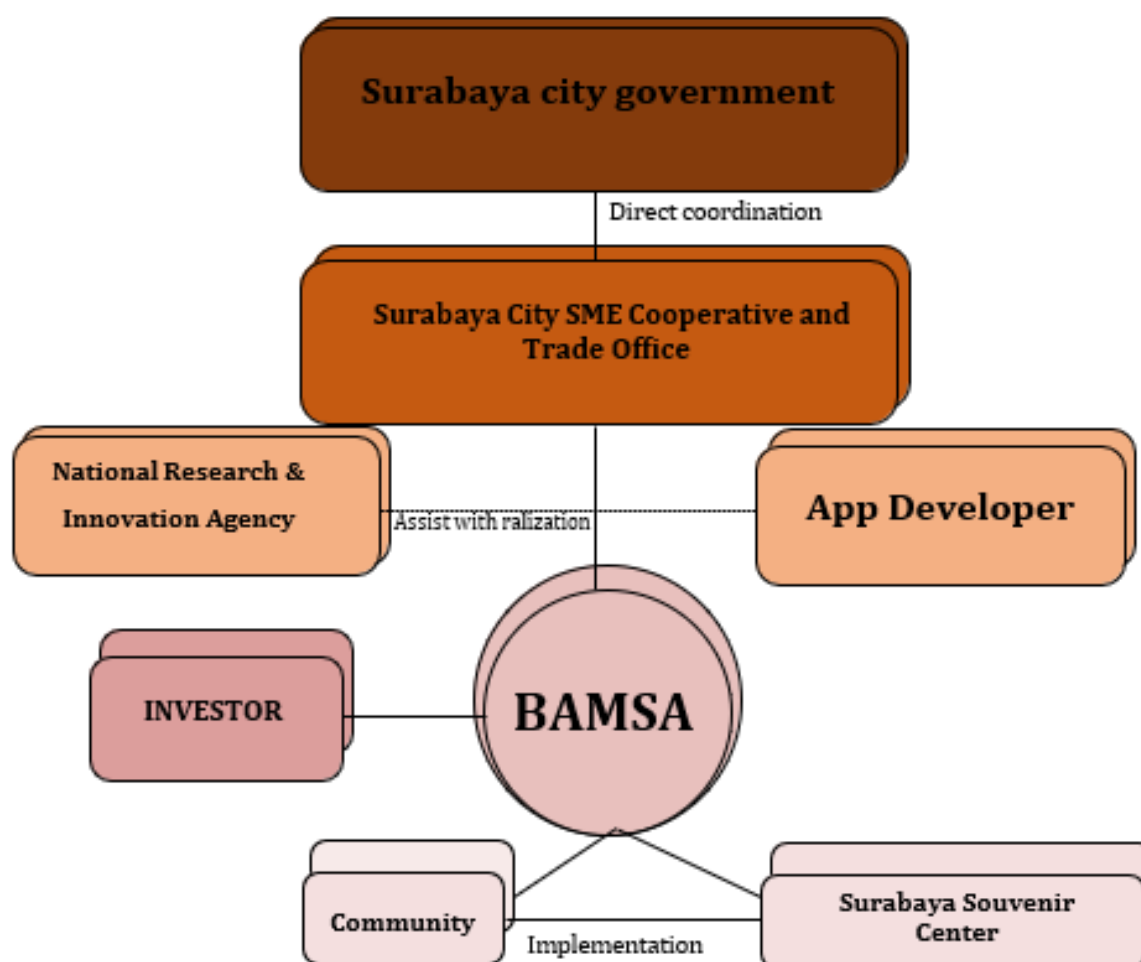
The work plan to implement the idea of BAMSA (Batik Motive Surabaya) includes the following phases, tasks and authorities of each party, and timeline:

**Table 5.**  
**Roadmap of BAMSA (Batik Motive Surabaya) Implementation Activities**

No.	Phase	Activities	Parties Involved	Time
1.	Cooperation Initiation	Initiate cooperation with involved parties	All parties	2024-2025
2.	Initial information gathering	Problem study analysis and needs analysis	Surabaya city government	
3.	Planning	Data collection	Surabaya city government and the Department of Cooperatives, Small and Medium Enterprises and Trade of Surabaya City	2025-2026
		Creation of masterplan and implementation target	BRIN	
		Funding collection	Investor	

4.	Creation	Creation of the BAMSAsystem as needed	App Developer	2026-2027
5.	Implementation and application	Application using the BAMSAsystem to the community	Community and MSME Actors	2027-2028
6.	Evaluation and development	Evaluation of BAMSAsystem implementation	All Parties	2028-2029
		Development of BAMSAsystem to be more effective in using the application	App Developer	

Source: Managed by the Author



Source: Managed by the Author

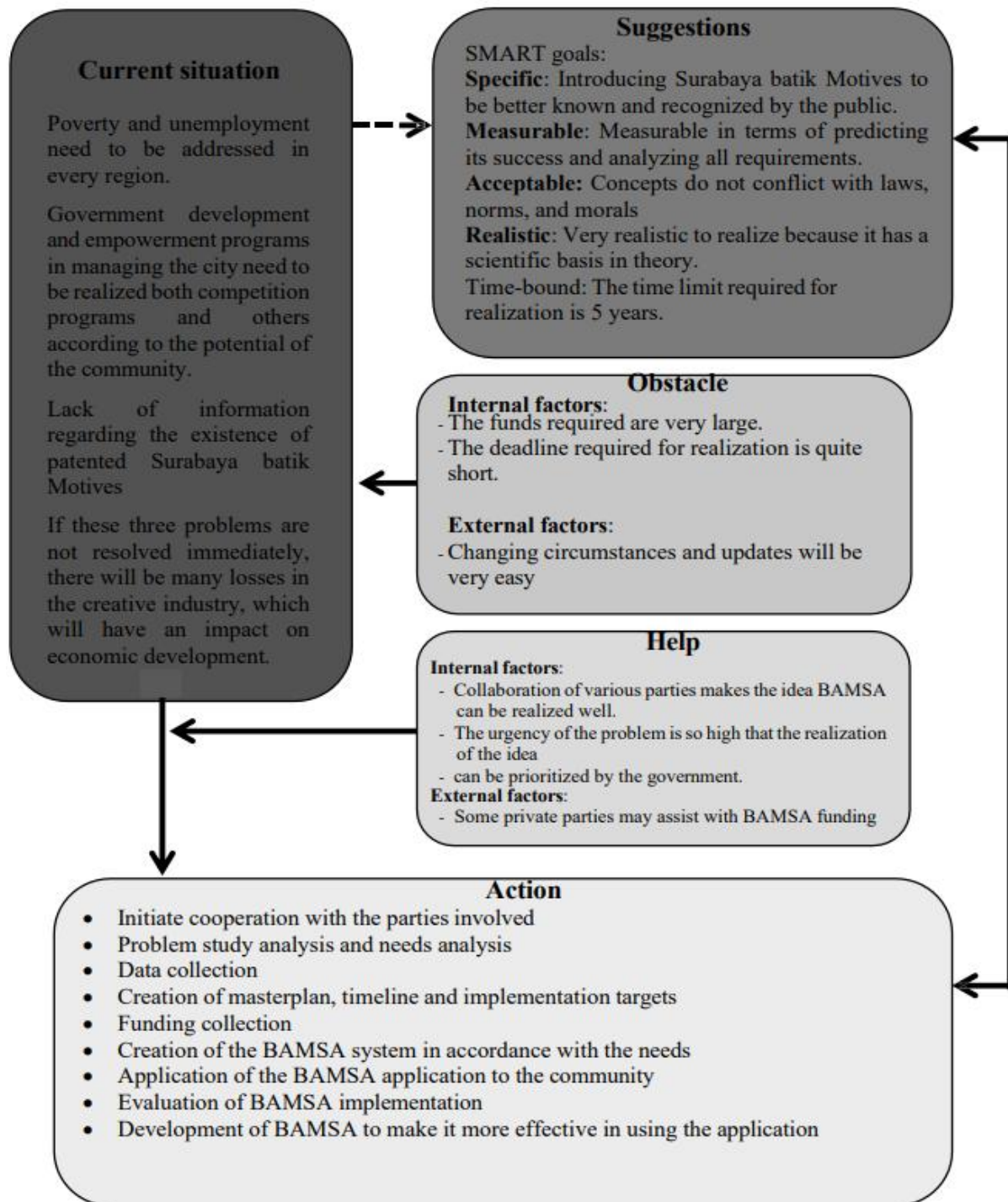
**Figure 5. Organizational structure of performance**

The organizational structure of the implementation of the BAMSAsystem (Batik Motive Surabaya) idea with a description of each role. It is expected that each party can carry out a predetermined role in accordance with the organizational flow that has been made.

### Visualization of Ideas

**Table 6.**  
**Visualization of Ideas**





Source: Managed by the Author

### Predicted Success in Meeting Environmental Needs

The prediction of the success of the idea aims to determine the extent to which the idea of BAMSAs (Batik Motive Surabaya) can solve the problem of knowledge of batik Motives in Surabaya. Based on the concept design, BAMSAs (Batik Motive Surabaya) can help in providing education related to various Surabaya batik Motives that have been patented by the City Government so that it is hoped that this batik will be recognized by the people in Surabaya and other communities. In addition, the advancement of the industrial era 4.0 can help to expand information so that Surabaya batik Motives can be easily sold. The industrial era 4.0 will help provide progress that has a good impact on its use. Where Era 4.0 can be used as information technology for increasing connectivity, interaction and boundaries between humans, machines and other resources that are increasingly converging through information and

communication technology (Majir & Nasar, 2021). There is also research on "Android-Based Jambi Batik Motive Introduction Information System at Olak Kemang Batik Studio in Jambi City" has been conducted to predict the success of the concept. The results showed that the Android application of the information system for batik Motives of Olak Kemang Jambi City contained information on batik Motives in Olak Kemang Jambi City (Rusli et al., 2022). Further research with research "Banyuwangi Batik Motive Recognition Based on Gray Level Co-Occurrence Matrix Features". The result is that the use of the GLCM (Gray Level Co- occurrence matrices) method can help in recognizing and resolving detective cases of batik Motives (Hakim, 2022). Furthermore, the research "The Role of the Government in the Development of MSMEs (Kampung Batik) in Sukun District Malang" regarding the role of the Malang City government in developing Batik MSMEs in Sukun District, namely providing the role of Stabilizers, Innovators, Modernizers and also Pioneers. The role is carried out in advancing MSMEs in Kampung Batik through various initiatives so that they are more advanced, developed, and competitive (Wibowo et al., 2022). The current era of using soft power is very reliable even though it tends to be persuasive because basically the concept of hard power has shifted from being coercive. Activities attended by the government, and non-government regarding diplomacy are also more informal. The use of soft power becomes a scheme to develop culture together (Herman, 2021).

## CONCLUSION

The BAMSA (Batik Motive Surabaya) application is an effective tool in promoting and marketing Surabaya batik Motives. Through the Pentahelix model, collaboration between the government, academics, businesses, media, and the public is essential to increase public awareness and knowledge of the six patented batik Motives. This application not only functions as an educational media, but also as a platform to facilitate the sale of MSME products, so as to increase income and business desirability. By utilizing technological information in the industrial era 4.0, it is hoped that the potential of the local economy, especially in the creative industry sector, can be optimized to support the regional economy. Development targets are made using SMART analysis (Specific, Measurable, Attainable, Relevant, Time-bound) which indicates the readiness of the concept. The BAMSA application also contributes to the achievement of SDGs goals (mainly goals 8 and 9), industrial revolution 4.0, and Society 5.0.

## ACKNOWLEDGMENTS

This research would like to express our deepest gratitude to Dr. Raya Sulistypwati, S.Pd., M.Pd for their invaluable support, insights, and assistance throughout this research. Special thanks are due to the Surabaya City Government and the Department of Cooperatives, Small and Medium Enterprises and Trade for providing essential data and information that greatly contributed to the development of this research. We would also like to extend our appreciation to our colleagues and the National Research and Innovation Agency (BRIN) for their valuable feedback and collaboration in refining the study. Lastly, our heartfelt gratitude to our families and communities who provided unwavering encouragement and motivation throughout this journey.

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