

# Green Product Innovation: Sustainable Environmental Development Actualization and Implementation in Improving Creative Industrial Performance

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## *Abstract.*

The purpose of this study is to determine the role of innovation green as a manifestation of the implementation of sustainable environmental development in improving the performance of the batik creative industry. The batik creative industry is one of the creative industries in Indonesia that is a requirement with traditional values. Batik was recognized by UNESCO in 2009 as a world cultural heritage, so it greatly influences the level of demand for batik cloth. Increased production of batik cloth raises environmental pollution problems. Therefore the role of academics is needed to provide insight to batik creative industry players through this research. The approach of this research is to use a qualitative research approach. Data is collected by survey, in depth interviews, documentation, observation and Focus Group Discussion (FGD). and the data analysis uses triangulation analysis. The results of this study indicate that green product innovation is a business strategy that can be implemented in realizing sustainable environmental development and ultimately can improve the performance of batik creative industries.

**Keywords:** *Green Product Innovation, Sustainable Environmental Development, Creative Industries.*

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## **I. Introduction**

Issues about the environment and product innovation in various fields of manufacturing business have become interesting issues in Indonesia. This happens because all entities are required to pay attention to the interests and welfare of the community in their business operations. Likewise with product innovation, product innovation is needed because the

product life cycle is getting shorter. By paying attention to the environment and carrying out the right strategies, it is expected to improve organizational performance both in the short and long term. The business environment must strive to innovate and adapt to the new environment, companies must implement environmentally friendly practices. They also need to improve their environmental image and

product image (Hillestad et al., 2010) in the hope of surviving and improving their performance and competitive advantage [1]. Green innovation practices have been a concern in the past two decades [2]. To facilitate the adoption of green innovation, companies must consider stakeholders and antecedents in their business [3]. The company has devoted time and resources to protecting the environment. They have implemented environmental management strategies to minimize the company's impact on the environment and make efforts to reduce energy consumption and waste (Melville, 2010).

Sustainability and eco-efficiency practices, an organization must develop new products and improve existing production processes to reduce resource use which can result in environmental damage caused by organizational activities (Ferreira et al., 2010). Evidence shows that companies that place more emphasis on innovation based business models have faster operating growth rates and higher sales growth [4]. The business environment is constantly changing, the creative industry must be able to respond quickly to these changes. The creative industry must strive to innovate and adapt to the new environment, companies must implement environmentally friendly practices.

Innovation can be interpreted as a way to continuously build and develop organizations that can be achieved through the application of new technologies that can provide added value to customers [12]. Therefore companies are required to create new ideas, new processes, new products to meet consumer needs. The creative industry must also improve the image of the environment and the imaging of the products produced [5] in the hope of surviving and improving the performance and competitive advantage of the organization [1]. Companies that implement green products are increasingly

developing to attract consumers to buy products [6].

Green product innovation from an organization can improve product design, quality, and reliability towards environmental concerns, so companies can set higher prices and produce better profit margins for green products [5]. The main types of green product development, namely energy, resources, reducing pollution and waste (Wu & Yen, 2014). Green products are products that are designed to minimize environmental impacts during the product life cycle, specifically the use of non-renewable resources is minimized, toxic materials are avoided and the use of renewable resources according to the level of need (Albino, Balice and Dangelico, 2009 in Durif et al., 2010).

The focus of this research is on the batik creative industry in East Java. Batik was recognized by UNESCO in 2009 as a world cultural heritage. Batik is created in the repertoire of local wisdom which is a distinctive or distinctive feature from which the batik cloth originates. The success of realizing batik as a product that is in line with local culture and wisdom, encourages the increasing demand for batik cloth production. Increased batik production raises environmental pollution problems. According to Sumarni (2012), generally the batik industry produces liquid waste which is disposed of into the surrounding environment. The three processes of making batik in general are, by adding chemicals as additives in the form of coloring agents, starch, oil, wax, soda soda (NaOH), detergent and others. Most of these materials are non-biodegradable. Batik liquid waste usually comes from the rest of the dyeing water, contains a lot of dyes, color reinforcement and agreement. There needs to be awareness and innovation of

batik creative industry players to produce environmentally friendly batik cloth as a manifestation of the implementation of sustainable environment development in improving the performance of batik creative industries in East Java.

## II. Method

The approach of this research is qualitative research. Data is collected by survey, in depth interviews, documentation, observation and Focus Group Discussion (FGD). The survey was used to see the conditions of the creative industries of batik in East Java directly, temporarily, documentation, in depth interviews, observations, and FGDs were mostly used to obtain more in-depth data to support research with qualitative approaches. To create green product innovation as a manifestation of the implementation of sustainable environmental development in improving the performance of the batik creative industry in East Java, it is necessary to establish indicators that support it. The green product indicator used in this study refers to the study of Chen

(2006)[7], Chang (2011) [8], and Rath (2013). Data analysis was carried out by means of data triangulation (Senton, 2004), and data reduction [9]. Triangulation is used to test the validity of data, data reduction is intended to focus the research data that has been obtained which will then be performed display data, and conclude the results of the study.

## III. Results and Discussion

The number of Small and Medium Industries batik craft in East Java as many as 202 industry players spread almost in every city or district (Department of Industry and Trade of East Java Province, 2017). The batik creative industry is growing rapidly in the East Java region. This batik creative industry is carried out for generations. In facing the challenges of the industry at this time there is a big opportunity to increase competitiveness in the form of green products as a manifestation of the implementation of sustainable environmental development in improving the performance of the batik creative industry in East Java.

**Table 1.** Green Product Indicators as an Innovation Strategy in Improving the Performance of Batik Creative Industry in East Java.

No.	Indicator	
1.	Select materials that produce the least amount of pollution	KPI
2.	Producing products with raw materials that are easily recycled	KPI
3.	Using raw materials efficiently	KPI
4.	Choose ingredients that consume the least amount of energy	KPI
5.	Environmental friendly product certification	-
6.	The danger level of product ingredients on human health	-

*Source: data processed*

### 3.1. Green Product as a Form of Implementation of Sustainable Environment Development in Improving the Performance of Batik Creative Industries in East Java.

Green product innovation has many benefits for the environment, among others, can reduce

pollution and air pollution generated from the production process, so that this green product innovation is an implementation of the form of sustainable environment development in improving the performance of batik creative industries in East Java. Some of the indicators

submitted for green product innovation efforts as a form of sustainable environment development in improving the performance of batik creative industries in East Java, namely indicators: a) selecting materials that produce the least pollution; b) produce products with raw materials that are easily recycled; c) choose raw materials for products that consume the least amount of energy and resources; d) use the least amount of material; e) certification of environmentally friendly products; f) the danger level of product ingredients on human health.

The results of the Focus Group Discussion stipulate that indicators a) choose materials that produce the least amount of pollution; b) produce products with raw materials that are easily recycled; c) Selecting raw materials for products that consume the least amount of energy and resources; d) use the least amount of material as a Key Performance Indicator (KPI).

The results of the study prove that the owners of the batik creative industry in East Java actually pay attention to the environmental impact of the batik business, as evidenced by the place to treat waste before being discharged into the river, but still in a simple form. This is in accordance with what was conveyed by the batik creative industry Bpk HD: "Batik craftsmen have prepared a place to accommodate the waste produced by the batik process, even though in a simple form. And this is also a special concern for batik artisans, so that the waste does not pollute the surrounding environment, so the location of my workshop is close to the river. Before the waste is disposed of into the river, it is first flowed to a temporary shelter, which can reduce polluted waste. " According to Ms. SR: "batik is a hereditary activity, I am the third generation in this area, and since the first place to process batik there is a page that is specifically for accommodating batik process

waste, there are shelter drums before being streamed into the river".

According to the results of the study also shows that batik creative industry players in East Java are efficient in the use of raw materials, for example raw materials for the night can still be recycled and can be reused. Batik creative industry players also always pay attention to the interests of the local community in making business decisions (waste management from batik), and always maintain good relations with the local government / associations in improving batik quality and elevating local potential through environmentally friendly batik works at competitive prices.

The batik creative industries in East Java have implemented the use of natural dyes in the process of making batik. Raw materials in the form of night or wax can be recycled and can be used again. This is done on the awareness of batik creative industry players in taking advantage of opportunities or even creating new markets in achieving competitive advantage which ultimately can affect organizational performance. According to Mr. NA: "the natural color batik that we produce is in demand by consumers and some well-known designers, because natural color batik has a characteristic, soft color that is liked by some consumers, so it can increase income". Likewise stated by Mr. NE: "Natural color batik is indeed not much interested, but natural color batik has its own charm, so we still continue to produce natural color batik in the hope of increasing our sales turnover".

The results of this study indicate that green product innovation is a manifestation of the implementation of sustainable environmental development in improving the performance of batik creative industries in East Java. The results of this study support the results of

previous studies conducted by King (2002) [10] and Chen (2006) [7] revealing that companies can gain competitive advantage through green product innovation. Ferrari (2006) [4] provides evidence that companies that place more emphasis on innovation based business models have faster operating growth rates and higher sales growth. Innovation in strategy implementation plays a role to achieve sustainable competitive advantage in global competition [11]. The aim of innovation is not only to reduce costs, but also to improve the quality of products and services, design better products, longer product life cycles, and respond to the needs and demands of consumers.

#### IV. Conclusion

Based on the results of the study show that in an effort to create green product innovation as a manifestation of the implementation of sustainable environmental development in improving the performance of the batik creative industry in East Java is by a) selecting materials that produce the least pollution; b) produce products with raw materials that are easily recycled; c) Selecting raw materials for products that consume the least amount of energy and resources; d) use the least amount of material. The importance of implementing green product innovation as the realization of sustainable environment development in the creative industries of batik can be used as a strategy or opportunity for batik creative industry players in East Java in developing and improving their performance.

The implementation of green product as an innovation strategy in improving the performance of the batik creative industry in East Java requires support from various parties, in addition to the creative industries of batik itself. Support from the government, the

community or consumers is needed to love environmentally friendly batik products, and academics to contribute to the results of the research

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