

LEGALITY OF CREATING AI-BASED CLUSTERED BATIK DESIGN PROTOTYPES

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ABSTRACT

This research examines the legality of applying artificial intelligence (AI) to product innovations by research partners, produced and protected by intellectual property rights (IPR), including industrial design, trademarks, and copyrights. The role of the batik association is to produce prototypes in the form of batik industry innovations per cluster while still incorporating a touch of human art, ensuring that each cluster maintains its uniqueness according to traditional standards and does not violate IPR. This new design is copyrighted, registered as an industrial design and trademark, and then produced by partners. The issues discussed in this research are: (1) The form of legal protection given to AI-based products, and the role of partners in clusters in protecting and preserving batik. The methods used include a participatory research approach, sociological approach, and statute approach, using a mixed method that collaborates qualitative and quantitative methods. The research results show that: (1) The form of legal protection for AI-based products expected by the partners includes protection accompanied by promotion, as well as legal assistance and facilitation of legality, whether in the form of trademarks, copyrights, or industrial designs. From a legal perspective, the new motif, which contains art, can be copyrighted, commercialized under a trademark, and the innovation of batik motifs that uphold traditional standards is accommodated in AI-based innovations because the AI modeling is done based on input data of batik motifs per cluster according to their respective areas, ensuring that traditional standards are maintained. (2) The role of partners in clusters in protecting and preserving batik, through associations, facilitates and streamlines batik preservation, channels government programs and other stakeholders' assistance, as well as promotion, and preserves traditional batik standards according to local wisdom.

Keywords: *legality, batik, cluster, artificial intelligence*

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ABSTRAK

Penelitian ini mengkaji legalitas penerapan artificial intelligence pada inovasi produk mitra penelitian, diproduksi dan dilindungi HKI baik desain industri, merek dan hak cipta, dan peran perkumpulan batik menghasilkan purwarupa berupa desain industri inovasi batik per kluster dengan tetap diberikan sentuhan *human art* sehingga memiliki keunikan per kluster sesuai pakemnya, dan tidak melanggar HKI. Desain baru ini dihakciptakan, dan didaftarkan desain industri maupun merek dagangnya, kemudian diproduksi oleh mitra. Permasalahan yang dibahas dalam penelitian ini adalah (1) Bentuk perlindungan hukum diberikan pada produk berbasis AI, dan Peran Mitra secara kluster dalam melindungi dan melestarikan batik. Metode yang digunakan adalah *participatory research approach*, *sociologisch approach* dan *statute approach*, menggunakan *mix method*, mengkolaborasikan metode kualitatif dan kuantitatif. Hasil penelitian menunjukkan bahwa (1) bentuk perlindungan hukum produk berbasis AI yang diharapkan mitra meliputi perlindungan dibarengi dengan promosi, juga pendampingan dan fasilitasi legalitas, baik berupa merek dagang, hak cipta maupun desain industri, dari aspek legalitas merupakan motif baru yang mengandung seni sehingga bisa di hakciptakan, bisa dikomersilkan dengan merek dagang, dan bahwa inovasi motif batik yang menjunjung tinggi pakem tradisional tetap terwadahi pada karya inovatif berbasis AI, karena pemodelan AI dilakukan berdasarkan input data motif batik per kluster sesuai areanya masing-masing, sehingga tidak meninggalkan pakemnya. dan (2) Peran Mitra secara kluster dalam melindungi dan melestarikan batik, yakni melalui perkumpulan memudahkan dan melancarkan pelestarian batik, mengalirkan program pemerintah maupun pihak stakeholder lainnya, baik fasilitasi maupun pendampingan serta promosi, serta melestarikan pakem tradisional batik masing-masing sesuai dengan kearifan local.

Kata kunci: legalitas, batik, kluster, kecerdasan buatan

I. Introduction

Efforts to preserve batik, promote it, and protect it have been carried out. Technological interventions have also accompanied the commercialization of batik. However, the results are still far from the expectations of the MSMEs in Batik Villages such as Pamekasan (Madura), Sasirangan (Banjarmasin), and Lasem (Central Java). The number of producers in each of these batik villages exceeds 100 MSMEs. The urgency of this research is to elevate MSMEs to boost their competitive advantage, overcome issues in stalled cluster production, and address marketing failures, legality, and innovation for AI-based commercialization. Institutional support is needed, and its role is crucial at this time. Grasse et al. stated that institutional structure and strategic planning help to influence and perhaps even ultimately moderate political conflicts in polarized communities (Grasse et al., 2021; Pronin et al., 2011).

Mo argues that policymakers should increase the involvement of financial institutions in both the private and public sectors to achieve economic growth (Mo et al., 2023). Legal protection is provided both preventively and repressively, focusing on justice, legal certainty, utility, and access to participation. The principles of justice, legal certainty, and utility must be applied in the formation of a fair and effective legal system, which is capable of protecting and accommodating the aspirations of society. Gustave Radbruch, with his "rechts idee," Jeremy Bentham with his utility theory, and John Rawls with his justice theory, emphasize the need for a legal system that protects the interests of every individual, regardless of their social or economic position. The theory of legal protection refers to efforts to provide legal protection in various aspects of life and to protect against actions that may threaten property rights, including protection against risks associated with batik production.

The role of institutional investors in corporate governance states that the existence of these intermediaries, such as trustees in institutional investment, can obscure the corporate governance monitoring function (Park, 2016). Laws and regulations can lessen the stigma associated with adhering to a norm that has not yet been socially accepted (Dhir, 2015). Empowerment and institutionalization become key factors (Rizky Maisaroh & Herianingrum, 2019). The economic, social, environmental, and cultural dimensions in supporting business efforts not only focus on economic profits but also consider their impact on society, the environment, and institutions. Kano et al. explain that digital marketing can now overcome problems (Kano et al., 2022). Yasa et al. concluded that the promotional strategy had a positive and significant influence on competitive advantage (Aula Zimah et al., 2023). R. Edward Freeman, in the development of modern stakeholder theory (Strategic Management: A Stakeholder Approach), defines a stakeholder as an individual or group that can influence or be influenced by the success of an organization. Kamalia states that stakeholders in regional development must be seriously and continuously involved, in harmony with central government policies (Kamalia & Andriansyah, 2021).

The issues discussed in this research are: (1) What form of legal protection is provided for AI-based products?; and (2) How does the role of partners in clusters help protect and preserve batik?

II. Method

The method used is the participatory research approach, sociological approach, and statute approach. A mixed-method approach was employed, combining qualitative and quantitative methods. Primary data were obtained through questionnaires, in-depth interviews, observation, and documentation, while secondary data were collected from regulations related to batik policies, literature, and stakeholder documents. Informants/respondents were selected using snowball sampling, and the data's validity was enhanced through checking, rechecking, and cross-checking, including data source triangulation, method triangulation, and theory triangulation. Quantitative data analysis utilized descriptive analysis, while qualitative data were analyzed using interpretative analysis through the process of open coding, axial coding, and selective coding. Data analysis was conducted through data reduction, data display, and conclusion drawing.

III. Result And Discussion

3.1. Forms of Legal Protection for AI-Based Products

Legal protection is provided both preventively and repressively, focusing on justice, legal certainty, utility, and access to participation. The principles of justice, legal certainty, and utility must be applied in forming a fair and effective legal system to protect and accommodate the aspirations of society. Gustave Radbruch with the concept of *rechtsidee*, Jeremy Bentham with the theory of utility, and John Rawls with the theory of justice all emphasize the need for a legal system that protects the interests of every individual, regardless of social or economic position.

The legal protection theory in this research refers to efforts to provide legal protection to batik artisans, entrepreneurs, and batik motif creators through fair and beneficial forms of protection. An interview with Keysha, a representative from Sasirangan Banjarmasin (July 18, 2024), stated that the local government strongly supports preservation, even holding annual competitions for new motifs. The artisans are very enthusiastic about participating in these competitions and see them as an opportunity for promotion.

An interview with Yandi, a representative of Banten batik artisans (August 2, 2024), mentioned that he continues to innovate without

abandoning the traditional Banten batik guidelines. Similarly, Nani (July 24, 2024) stated that she consistently adheres to Banten's traditional guidelines. Kholili, a representative from the Klampar Pamekasan Madura cluster (July 12, 2024), expressed hope that the government will continue to protect and support production, marketing, and technology factors.

They all hope that protection will be accompanied by promotion, legal assistance, and facilitation. They want to advance without being confined by tradition. They wish to innovate while still highlighting the strengths of local culture, as this is how they preserve and protect the heritage of their ancestors. Fitriani (2017) states that the benefits of legal recognition include serving as a means of legal protection, a promotional tool, proof of legal compliance, facilitating project acquisition, and easing business development.

Saputra (2023) asserts that the most effective way to preserve millennial batik is by involving the younger generation as the cultural heirs, thereby fostering millennial batik innovations that blend the traditional aspects of batik with the modernity of the younger generation. Hakim (2018) argues that the successful development of a national brand, built by the government along with batik artists, cultural figures, and entrepreneurs, is expected to regenerate Indonesia's younger generation to directly promote and preserve batik.

Sunaryo (2019) states that legal protection can be achieved by inventorying traditional batik motifs and preserving Traditional Knowledge and Traditional Cultural Expressions. Ayunda (2021) mentions that to prevent violations of intellectual works, creators can register their works. If a creator's rights are infringed, they can file a lawsuit as stipulated in the Copyright Law. Putra (2022) opines that various forms of claims or misappropriations made by foreign parties are more like self-proclaimed actions on social media, which do not have any significant impact.

Table 1. Understanding how to obtain legal protection for batik products as a cluster.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	7	6.9	6.9
	2.00	27	26.5	33.3
	3.00	40	39.2	72.5
	4.00	26	25.5	98.0
	5.00	2	2.0	100.0
	Total	102	100.0	100.0

Source: Data processed from the 2024 research results

Table 1 shows that 7 people (6.9%) responded that they do not understand at all how to obtain legal protection for their products. 27 people (26.5%) responded that they do not understand. 40 people (39.2%) responded that they have a moderate understanding, while 28 people (27.5%) responded that they understand and fully understand.

Table 2. Understanding of intellectual property rights contained in batik products and new AI-based innovations/motifs/designs

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	1	1.0	1.0
	2.00	25	24.5	25.5
	3.00	30	29.4	54.9
	4.00	45	44.1	99.0
	5.00	1	1.0	100.0
	Total	102	100.0	100.0

Source: Data processed from the 2024 research results

Table 2 shows that out of 102 respondents, 1 person (1.0%) responded that they fully understand the intellectual property rights contained in products and new innovations/motifs/designs. 45 people (44.1%) responded that they understand, 30 people (29.4%) responded that they have a moderate understanding, and 26 people (25.5%) responded that they do not understand or do not understand at all.

Table 3. Understanding of how to obtain protection for new innovations such as trademarks, copyrights, and industrial designs

	Frequency	Percent	Valid Percent	Cumulative Percent
	2.00	20	19.6	19.6
	3.00	41	40.2	59.8
Valid	4.00	40	39.2	99.0
	5.00	1	1.0	100.0
Total	102	100.0	100.0	

Source: Data processed from the 2024 research results

Table 3 shows that out of 102 respondents, 20 people (19.6%) responded that they do not understand how to obtain protection for products such as trademarks, copyrights, and industrial designs. 41 people (40.2%) responded that they have a moderate understanding, 40 people (39.2%) responded that they understand, and only 1 person (1.0%) responded that they fully understand.

Table 4. Understanding the difference between branded and unbranded products and its impact on competitive advantage

	Frequency	Percent	Valid Percent	Cumulative Percent
	2.00	12	11.8	11.8
	3.00	41	40.2	52.0
Valid	4.00	45	44.1	96.1
	5.00	4	3.9	100.0
Total	102	100.0	100.0	

Source: Data processed from the 2024 research results

Table 4 shows that the majority of respondents, 45 people (44.1%), answered that they have a good understanding of the difference between branded and unbranded products and its impact on competitive advantage. 41 people (40.2%) responded that they have a moderate understanding, 12

people (11.8%) said they do not understand, and 4 respondents (3.9%) answered that they fully understand.

Based on the analysis of Tables 1-4, it is understood that most batik artisans have a sufficient understanding of the legal protection forms for their batik products, whether through trademarks or other intellectual property rights (IPR). However, they still require guidance and further knowledge enrichment related to the legality of innovations generated based on artificial intelligence (AI).

From a legality perspective, new motifs that contain artistic elements can be copyrighted, commercialized through trademarks, and that innovative batik motifs that uphold traditional principles are still accommodated in AI-based innovative works. This is because the AI modeling is done based on input data from batik motifs by cluster according to their respective areas, thus maintaining traditional principles. This innovation is agreed upon with partners, checked for compliance with its characteristics and principles, and can be protected by IPR such as industrial design, trademarks, or copyright. Partners then prefer to facilitate trademark registration.

Figure 1: Example of AI modeling in batik with a human art touch that has been registered for trademarks and industrial design.



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**OPTIMALISASI BRANDING DAN MAPPING VALUE CHAIN BERBASIS ARTIFICIAL INTELLIGENCE
PADA KAMPUNG BATIK GUNA MENCIPTAKAN KEUNGGULAN BERSAING
DI KAMPUNG BATIK PAMEKASAN MADURA**



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3.2. The role of partner associations in protecting and preserving batik

Interview with Parlan, representative of the Central Java Lasem batik geographic indication association (July 10, 2024) that his association strongly supports the preservation of batik, works in synergy with the government and adheres to the writing rules, but continues to develop new innovations.

Kholili, representative of Madura batik (July 12, 2024) his association needs to be given knowledge enrichment, and artificial intelligence-based innovation can inspire them to have more beautiful new motif variants, but still in line with local rules. Yandi, representative of Banten batik (August 2, 2024) also agreed, very open to new innovations, but still upholds local wisdom. Interview with Rofika, representative of the Sungai Jingah Sasirangan Banjarmasin cluster (July 17, 2024) stated that the government and associations should work together to preserve this ancestral heritage cloth, especially since historically Sasirangan cloth was used by the Banjarmasin nobility.

Saputri (2018) stated that the role of batik artisan associations in preserving batik is expressed by creating and developing creative hand-drawn batik motifs, organizing hand-drawn batik promotions in various types of media, and collaborating with the government. Hikmah (2017) argued that the formation of the batik artisan group has a role in the development of batik tourism villages, as community motivators, tourism motivators, tourism village coordinators, tourism village managers, and tourist companions. Nuvriasari (2019) argued that it is necessary to strengthen the marketing program that has been implemented previously more conventionally by prioritizing word of mouth promotion or viral promotion, collaborating with bio travel tourism, and direct promotion to tourists. Pratamawati (2021) stated that the batik production that they have worked on individually or in groups requires governance, cooperation, and planning and conditioning to market.

Hardiyanti (2022) stated that social capital of trust and networks has an influential role in the development of the batik industry business. Dwipasari (2017) stated that through mentoring on the product process and character batik design, the calculation of production prices is expected to increase

batik production and marketing and can boost sales turnover. Adisti (2022) stated that increasing this expertise has an impact on increasing orders. Isnaini (2019) argued that brand strengthening and marketing training programs and digital marketing can increase knowledge. Gunawan (2020) stated that increasing demand results in increased profits and provides jobs for local residents.

Magdalena (2021) argues that it is necessary to design and implement a batik marketing information system. The role of MSME associations per cluster to move forward together, optimize AI facilities for production and managerial innovation including marketing, and continue to use local wisdom and local village standards in their respective regions. Tetrapreneurs need to be maximally mobilized again, namely optimizing production factors, supply chain availability, expanding the market, increasing the quality of batik actors' competence, and branding based on trademarks. Other IPR awards such as industrial design and copyright that support IT development, AI modeling, mastery of digital branding and innovation of new batik motifs or designs need to be carried out simultaneously in order to grow significant aggregates.

So the role of associations in Lasem, Pamekasan, Sasirangan and Banten is to facilitate and facilitate the preservation of batik, flow government programs and other stakeholders, both facilitation and assistance and promotion.

IV. Conclusion

1. The form of legal protection for AI-based products expected by partners includes protection accompanied by promotion, as well as assistance and facilitation of legality, both in the form of trademarks, copyrights and industrial designs.
2. The role of partners as a cluster in protecting and preserving batik, namely through associations facilitating and facilitating the preservation of batik, flowing government programs and other stakeholders, both facilitation and assistance and promotion, and preserving the traditional rules of each batik according to local wisdom

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