



Sustainability Analysis of Batik MSMEs from the Marketing, Regeneration, and Environmental Dimensions: A Multiple Case Study of Three MSMEs in Laweyan Batik Village

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ABSTRACT

Objective – This study aims to analyze Batik MSMEs in Laweyan Batik Village from the dimensions of marketing, regeneration, and environment through multiple case studies of three MSMEs representing micro, small, and medium enterprises.

Methodology – This study uses a qualitative approach with a multiple case study design involving three Batik MSMEs as case units, namely Batik Tjap Tiga Negeri (micro-scale), Batik Putra Laweyan (small-scale), and Batik Putra Mahkota (medium-scale). Data were collected through semi-structured interviews, observation, and documentation, with data validity tested through triangulation of source and techniques and analyzed using interactive analysis techniques both in each case and across cases.

Findings – The three cases show very different termination profiles. Batik Tjap Tiga Negeri shows weak sustainability in the third dimension, with conventional marketing, no succession mechanism, and very minimal wastewater treatment. Batik Putra Laweyan shows a transitional sustainability profile, namely starting to utilize social media for marketing, informally involving the second generation, and joining a communal wastewater treatment plant (IPAL).

Novelty – Batik Mahkota Laweyan demonstrates strong sustainability, with an integrated marketing strategy, structured cross-generational cadre development, and a certified independent waste management system.

Keywords: *sustainability, marketing, business regeneration, environment, multiple case study*

JEL Classification: L26, M31, Q56

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I. INTRODUCTION

Business sustainability refers to the capacity of a business entity to continue operating and developing over the long term while maintaining a balance among economic, social, and environmental dimensions. Within the context of the batik industry, business sustainability carries a broader meaning, as it also concerns the preservation of the nation's cultural heritage. Indonesian batik has been recognized by UNESCO as an Intangible Cultural Heritage since 2009 (UNESCO, 2025), meaning that the sustainability of the batik industry constitutes not merely an economic issue for business actors but also a matter of sustaining national cultural identity.

At the national level, the batik industry is dominated by Micro, Small, and Medium Enterprises (MSMEs) distributed across various regions. According to data from the Central Statistics Agency (Badan Pusat Statistik, 2021), there are 201 batik industry centers spread across 11 provinces, comprising a total of 5,946 industrial units, with the largest concentration located in Central Java Province (72 centers), followed by East Java Province (62 centers) (Kementerian Perindustrian Republik Indonesia, 2024). In terms of employment, the national batik industry absorbs approximately 200,000 workers (Kementerian Perindustrian Republik Indonesia, 2024). Meanwhile, in terms of export performance, the export value of batik and batik-based products reached USD 17.53 million in 2023, and had reached USD 9.45 million, or approximately IDR 143 billion, in the first semester of 2024 (Kementerian Perindustrian, 2025). Although export performance shows a positive trend, the industry faces serious pressures, including a 40% decline in the number of national batik craftspeople over the past four years, from 82,550 to 49,530 craftspeople in 2024 (Dekranasda Jawa Tengah, 2025). This decline indicates that the sustainability of the national batik MSME sector continues to face structural challenges that warrant serious attention, and that these challenges are unlikely to manifest uniformly across enterprises of different scales, which is precisely why a case-based comparison across business scales is warranted.

Surakarta City, also known as Solo, is recognized as one of the oldest batik production centers in Indonesia, home to two major batik centers, namely Kampung Batik Laweyan and Kampung Batik Kauman. Solo batik is distinguished by its dominantogan color palette and traditional court (keraton) motifs imbued with philosophical values, making it one of the most renowned batik products in both domestic and international markets. Based on a study of MSME and small-industry digitalization conducted by the Regional Research and Innovation Agency of Surakarta City (Badan Riset dan Inovasi Daerah Kota Surakarta, 2023), the fashion industry, including the batik industry, constitutes one of the leading small-industry sectors in Surakarta City alongside the culinary sector, with the total number of small industries reaching 1,413 units in 2023, the majority of which are micro-scale enterprises. Nevertheless, batik business actors in Surakarta have also felt the impact of the COVID-19 pandemic, which caused a significant decline in the number of business units, as well as post-pandemic challenges in the form of competition with printed batik and imported batik products offered at substantially lower prices (Munawir et al., 2024). Laweyan Batik Village in Surakarta City, as the oldest batik center in Indonesia, established since the sixteenth century, represents the most authentic case setting for examining the sustainability challenges facing Indonesia's batik industry. Based on 2015 data, there were 102 batik MSMEs in Laweyan, consisting of 59 small enterprises, 37 medium enterprises, and 6 large enterprises (Setyanto et al., 2015). However, 2023 data from the Laweyan Sub-district Office recorded only 44 remaining batik MSMEs, indicating a decline of 57% within less than a decade. This drastic decrease from 102 to 44 batik MSMEs is attributable to various factors, including weak regeneration among craftspeople and a range of sustainability challenges



that have not been comprehensively addressed, and it is against this backdrop that three MSMEs of differing scale, Batik Putra Mahkota, Batik Putra Laweyan, and Batik Tjap Tiga Negeri, were purposively selected as case units capable of representing the micro, small, and medium segments of this shrinking population.

Based on field observations, batik MSMEs in Laweyan Batik Village face three principal challenges in achieving business sustainability. In terms of regeneration, the majority of young people in Laweyan perceive the batik business as less promising compared with other, more modern sectors, resulting in a declining interest in continuing the family business across generations. In terms of marketing, most batik MSMEs in Laweyan continue to rely on conventional methods and have yet to fully leverage digital technology; only a small proportion actively use digital platforms, while the majority still depend on offline stores and long-standing customer networks, a condition that weakens the competitiveness of local batik against cheaper imported textile products that are more readily accessible through online marketplaces. In terms of the environment, the sustainable development of batik MSMEs continues to face challenges in industrial waste management; according to Communal Waste Processing Installation data from the Indonesian–German Environmental Program (ProLH), only 12 of the 62 batik industries in Laweyan possess a Wastewater Treatment Installation (IPAL), while dependence on synthetic chemical dyes and petroleum-based wax has contributed to the pollution of rivers surrounding the Laweyan area. These three challenges do not necessarily present themselves in the same form or intensity at every business scale, which is a further reason this study examines them through three cases rather than through a single aggregated unit of analysis.

This study differs from previous research on Laweyan batik MSMEs both in the scope of sustainability examined and in its case-based design. Prior studies have addressed several aspects of sustainability, but only partially, and typically without distinguishing systematically among business scales. Feritrianti and Yuliasuti (2024) characterized the sustainability of Kampung Batik Laweyan, in terms of its economic, socio-cultural, and physical dimensions, as “fairly sustainable,” while noting the continuing need for human resource development, marketing strategies, and the utilization of information technology. Andre and Raharjo (2020) examined technology adaptation, market orientation, business networking, competitive advantage, and business performance among Laweyan batik MSMEs, finding that market orientation influences both competitive advantage and business performance. Ambarwati et al. (2026) investigated the effect of green supply chain management on the performance of Laweyan batik MSMEs, showing that environmentally friendly practices positively affect business performance and MSME competitiveness. Suprpti et al. (2016) demonstrated that design innovation and technology use help improve productivity and support the development of batik and lutik products among Laweyan batik MSMEs. None of these studies, however, has examined the marketing, regeneration, and environmental aspects in an integrated manner within a single sustainability analysis framework, nor has any adopted a multiple case study design that deliberately compares MSMEs of different scales as distinct, bounded cases.

Given the importance of Laweyan Batik Village as both a national cultural heritage site and a pillar of the local economy, a comprehensive sustainability analysis is required in order to formulate well-targeted strengthening strategies. This study aims to examine the sustainability of batik MSMEs in Laweyan Batik Village from three integrated aspects, namely marketing, regeneration, and environment, through a multiple case study of three MSMEs, Batik Putra Mahkota, Batik Putra Laweyan, and Batik Tjap Tiga Negeri, chosen to represent the micro, small, and medium business scales respectively. The main research question addressed in this study is as follows: what is the condition of sustainability of Batik MSMEs in Laweyan Batik Village, Surakarta, when viewed from the aspects of marketing, regeneration, and environment across three MSMEs of differing scale?



II. LITERATURE REVIEW

Business sustainability is examined through the Triple Bottom Line (TBL) framework proposed by Elkington (1994), which asserts that long-term sustainability depends on the balance of three interrelated dimensions: economic (profit), social (people), and environmental (planet). Dyllick and Hockerts (2002) reinforce this view through Business Sustainability Theory, which states that economic prosperity, social responsibility, and environmental management must be pursued simultaneously. In the economic dimension, Spangenberg (2005) defines sustainability as the ability of a business system to maintain productive capacity and create long-term value; in this study, the economic dimension is represented by marketing, in line with the view of Kotler and Armstrong (2018) who define marketing as the process of creating customer value and long-term relationships. The social dimension is represented by business regeneration, referring to Human Resource Management Theory (Schuler & Jackson, 1987) which views human resources as a strategic asset, and Knowledge Management Theory (Nonaka & Takeuchi, 1995) which emphasizes intergenerational knowledge transfer. The environmental dimension refers to Cleaner Production Theory (United Nations Environment Programme, 1994), which emphasizes pollution prevention through resource efficiency, and Legitimacy Theory (Suchman, 1995), which links organizational sustainability to alignment with social norms and expectations.

Another related debate concerns weak and strong sustainability. Neumayer (2003) attributes this distinction to the assumption of substitutability between natural and man-made capital: weak sustainability tolerates a decline in one type of capital as long as another type compensates, thus maintaining total capital. Strong sustainability, on the other hand, holds that each type of capital has distinct ecological, social, and economic functions and cannot be fully substituted. Therefore, true sustainability requires all dimensions to be met simultaneously. Dyllick and Hockerts (2002) apply this logic directly to business sustainability, stating that economic performance alone is not a sufficient condition for overall business sustainability, as failure in one dimension will systemically weaken the others due to their interdependence.

This research applies weak and strong sustainability at two interrelated levels. At the case level, the terms are used in their original sense to assess whether the sustainability of a persistent business actually relies on one dimension compensating for weaknesses in another (weak sustainability), or on relatively balanced development across all three dimensions (approaching strong sustainability). At the dimension level, the same terms, plus intermediate transitional categories, are used adaptively as a maturity scale to describe the extent to which a single dimension (marketing, regeneration, or environmental management) has developed within a case, based on indicators derived from observed practices: adoption of digital marketing and diversification of marketing channels; formal cadre development, youth engagement, and knowledge transfer mechanisms for regeneration; and access to waste management, use of natural dyes, and systematic clean production practices for environmental management. Findings at the dimension level then serve as the empirical basis for the synthesis at the case level.

III. METHODOLOGY

This research employed a qualitative method with a multiple case study design, where each of the three MSMEs was treated as a distinct case unit yet bound by the same sustainability phenomenon being studied. Data were collected through interviews, observations, and documentation, with informants in each case unit



determined using purposive sampling supplemented by snowball sampling to track additional relevant sources within each business. Data validity was tested through triangulation of sources and techniques, while data analysis was conducted using interactive analysis techniques applied both within each case and across all three cases.

Data were collected through three complementary techniques. First, semi-structured in-depth interviews were conducted to explore the experiences, perspectives, and practices of informants related to business sustainability. The interview guide was developed based on the three dimensions of the TBL framework, namely the economic dimension represented through the marketing aspect, the social dimension through the aspect of business regeneration, and the environmental dimension through environmental management practices. Second, participatory observation was carried out to document production activities, marketing practices, the business regeneration process, and environmental management efforts undertaken by the Batik MSMEs. Third, documentation analysis was conducted on archives, photographs, MSME data, and various other documents related to sustainability practices in Kampung Batik Laweyan.

Research informants were selected using purposive sampling and snowball sampling techniques. The primary informants comprised one owner of a micro-scale Batik MSME, one owner of a small-scale Batik MSME, one owner of a medium-scale Batik MSME, and the Chairperson of the Laweyan Batik Village Development Forum (Forum Pengembangan Kampung Batik Laweyan/FPKBL). Additional information was obtained through recommendations from the initial informants in order to gather more in-depth and comprehensive information in accordance with the needs of the research.

The selection of the three MSMEs chosen was most appropriately formulated as a combination of three purposive sampling criteria, namely representation of business scale, reputation and length of operation in Laweyan Batik Village, as well as the willingness of business owners to participate as research informants.

Data analysis was carried out using the interactive analysis model (Miles et al., 2014), which comprises three interrelated stages, namely data reduction, data display, and conclusion drawing and verification. These three stages were performed repeatedly throughout the research process until the data reached a point of saturation. Data validity was maintained through technique triangulation, comparing data obtained from interviews, observation, and documentation. In addition, the researcher enhanced the persistence of observation and utilized reference materials, including field notes, photographs, and supporting documents, in order to strengthen the credibility of the research findings.

IV. RESULTS AND DISCUSSION

Marketing Aspect

The marketing strategies of the three batik MSMEs in Laweyan Batik Village vary according to their business scale and capacity. Batik Tjap Tiga Negeri, a micro-scale case, relies on conventional marketing that focuses on personal relationships with loyal customers, without a structured digital strategy due to limited technological literacy and promotional budget. As Informant I stated, “We still rely on customers who come directly here... Online sales are still simple, only using WhatsApp.” This is reinforced by field observations, which found only simple banners as promotional media, with sales primarily dependent on in-person visits.

Batik Putra Laweyan, a small-scale case, is shifting to digital marketing through Instagram and WhatsApp, which has expanded its reach to buyers outside the city. Informant II noted, “We have been active on Instagram and WhatsApp for two years now... there has been an increase in orders from outside



the city, even from Jakarta and Bali.” Usage observations confirm active social media, although management remains informal.

Batik Mahkota, a medium-scale case, exhibits the most integrated strategy, combining a website, online marketplace, and social media with an offline showroom and institutional partnerships. Informant III explained, “We have our own marketing team... We have also collaborated with several hotels in Solo for guest souvenirs and employee uniforms.” Field observations supported this, noting professionally organized showrooms with actively managed digital promotional media.

The validity of the data in this study was established through triangulation of sources and methods, where each informant's account of marketing practices was cross-checked with direct field observations at the business locations in question. The convergence between interview statements and observed conditions in the third case (conventional promotions at the micro scale, active but informal digital implementation at the small scale, and integrated multi-channel marketing at the medium scale) supports the credibility of the findings.

The conclusion is that marketing capacity in the third case was directly proportional to business size, a pattern consistently supported by informant testimony and observational data: micro-scale operators remained limited to conventional, relationship-based sales; small-scale operators were actively making a digital transition; and medium-sized operators had achieved integrated and professionally managed marketing. This gradient suggests that unequal access to digital literacy, promotional budgets, and brand-building capacity can widen the competitiveness gap between business scales, posing a risk of long-term economic collapse for the smallest batik businesses in Laweyan.

Regeneration Aspect

Regeneration among the three batik MSMEs in Laweyan Batik Village encompasses two dimensions—artisan succession and transfer of business management—and shows markedly different levels of readiness across business scales. At Batik Tjap Tiga Negeri, the micro-scale case, regeneration was the most critical concern: the owner, active for over a decade, had no successor from either family or outside. As Informant I stated, “Kids these days don't want to learn batik; they prefer to work in factories or shops. I don't know who will continue this business if I can no longer work.” Field observation corroborated this, finding all operations handled solely by the owner and two casual workers, with no formal structure or cadre-development system in place.

At Batik Putra Laweyan, the small-scale case, regeneration showed early positive progress through the involvement of a second-generation family member in digital marketing and the acceptance of vocational-school interns. Informant II explained, “My son has started helping out, especially with online matters... The younger generation must be introduced to the process from an early age to prevent them from dropping out.” Observation confirmed the presence of one young staff member managing social media and product uploads, although the broader transfer of batik craft skills remained unstructured.

At Batik Mahkota, the medium-scale case, regeneration was the most structured of the three: the business was jointly run by second- and third-generation family members with clearly divided roles across production, finance, and marketing. Informant III noted, “My son has graduated from college majoring in management and is now involved in finance and marketing... We plan for this business to continue until at least the fourth generation.” This was reinforced by observed written Standard Operating Procedures (SOP) posted in the production area and the visible involvement of young staff across business divisions.

Data validity was established through triangulation of interviews and observational data (triangulation of sources and methods): each informant's account of succession planning and skills transfer converged



with directly observed staffing patterns and documentation practices at each site (absence of structure at the micro scale, partial involvement at the small scale, and formalized SOPs and multigenerational management at the medium scale) supporting the credibility of the findings.

The conclusion that regeneration readiness scaled with business size and reflected a broader structural issue rather than merely generational willingness: micro-scale enterprises faced acute succession risk due to the absence of any transfer mechanism, small-scale enterprises showed partial but unstructured progress, and medium-scale enterprises had achieved formalized, multigenerational succession planning. This pattern suggests that without systemic intervention (from government, education, and artisan communities) the chain of written batik knowledge transmission, as intangible cultural heritage, remains at risk of disruption, particularly among the smallest enterprises.

Environmental Aspect

Environmental management constitutes a critical determinant of business sustainability among batik micro, small, and medium enterprises (MSMEs) in Kampung Batik Laweyan, given that the batik dyeing process inherently generates chemically-laden liquid waste. Findings indicate that environmental management capacity varied markedly across the three MSMEs examined, corresponding closely to differences in business scale. At Batik Tjap Tiga Negeri, the micro-scale case, waste treatment remains rudimentary, limited to filtration and sedimentation in a holding tank before discharge into the sewer. Informant I acknowledged, “The process is simple, miss: just filtering and sedimentation. That's the most basic way we can reduce pollutant levels.” Field observation confirmed the absence of further treatment, revealing a gap between the owner's awareness of the risk and the business's financial capacity to act on it.

At Batik Putra Laweyan, the small-scale case, environmental management had progressed through participation in a communal wastewater treatment program (IPAL) facilitated by the Laweyan Batik Communication Forum (FPKBL), alongside early experimentation with natural dyes. Informant II stated, “We've joined the communal IPAL here. So our waste is treated before being discharged... especially now that many tourists are visiting.” Observation confirmed the business's pipes were connected to the communal system, preventing direct discharge.

At Batik Mahkota, the medium-scale case, environmental management was the most advanced, integrated into long-term business strategy through an independently operated, regularly monitored wastewater treatment plant and eco-friendly certification. Informant III explained, “We have our own WWTP, which we built five years ago. We check the wastewater quality every three months... that is very helpful in marketing to environmentally conscious corporate customers.” This was corroborated by observation of a well-maintained and eco-labeled products, illustrating environmental compliance functioning as a competitive advantage rather than merely a cost.

Data validity was established through triangulation of interviews and observational evidence (triangulation of sources and methods): informant accounts of waste-handling practice at each site converged with directly observed infrastructure and discharge conditions (untreated disposal at the micro scale, communal treatment at the small scale, and certified independent treatment at the medium scale) supporting the credibility of the findings.

It was concluded that environmental management capacity scales directly with business size and financial resources, indicating that a uniform regulatory approach is unlikely to be effective across the industry; differentiated technical and financial support (particularly expanding access to communal and independent wastewater treatment) appears necessary for micro- and small-scale batik enterprises to achieve environmentally responsible and economically competitive production in Laweyan.



Marketing Aspect Discussion

The research findings reveal differences in marketing capacity among the three Batik MSMEs examined in Kampung Batik Laweyan based on business scale. Batik Tjap Tiga Negeri, as the micro-scale MSME studied, is in a condition of weak sustainability, characterized by stagnant marketing, limited capital, low digital literacy, and a restricted market reach. Batik Putra Laweyan, as the small-scale MSME studied, is in a phase of transitional sustainability, as it has undertaken various marketing efforts, although these have not yet reached optimal capacity. Meanwhile, Batik Mahkota Laweyan, as the medium-scale MSME studied, exhibits characteristics of strong sustainability through the implementation of more comprehensive and integrated marketing strategies, encompassing both digital and conventional channels, thereby enabling it to reach broader markets, including international markets. These findings indicate that, among the three cases examined, the larger the business capacity, the stronger the marketing capability possessed. This result is consistent with the economic (profit) dimension of the TBL framework proposed by Elkington (1994), which emphasizes the importance of economic value creation as a foundation for business sustainability. The findings also support the view of Spangenberg (2005), who argues that a sustainable economic system must be able to endure and develop over the long term in order to meet present needs without compromising the ability of future generations to meet their own needs. Furthermore, the classification of Batik Tjap Tiga Negeri under weak sustainability, Batik Putra Laweyan under transitional sustainability, and Batik Mahkota Laweyan under strong sustainability reinforces the concept proposed by Dyllick and Hockerts (2002), which holds that business sustainability is determined by the ability to integrate the economic, social, and environmental dimensions in a balanced manner. It can therefore be concluded that marketing capacity constitutes an important factor influencing the level of sustainability among the Batik MSMEs examined in Kampung Batik Laweyan.

Regeneration Aspect Discussion

The research findings reveal differences in regeneration capacity among the three Batik MSMEs examined in Kampung Batik Laweyan based on business scale. Batik Tjap Tiga Negeri, as the micro-scale MSME studied, continues to exhibit low regeneration capacity, as it has not yet established structured human resource planning or a mechanism for preparing business successors. Batik Putra Laweyan, as the small-scale MSME studied, is in a transitional phase, involving second-generation family members and implementing apprenticeship programs, although the processes of competency development and knowledge transfer have not yet operated optimally. Meanwhile, Batik Mahkota Laweyan, as the medium-scale MSME studied, demonstrates stronger regeneration capacity through internal cadre development, clear role division, and continuous training. These findings indicate that, among the three cases examined, the larger the business capacity, the greater the ability of business actors to sustain their human resources and prepare successive generations. This result is consistent with the social (people) dimension of the TBL framework proposed by Elkington (1994), which emphasizes the importance of capacity development, knowledge transfer, and cross-generational business continuity. The findings also support Human Resource Management Theory developed by Schuler and Jackson (1987), which asserts that organizational continuity is determined by human resource planning, competency development, and sustainable succession planning. Furthermore, the results reinforce the concept of tacit knowledge proposed by Nonaka and Takeuchi (1995), which explains that batik-making skills, as a form of practical knowledge, can only be transmitted through direct experience and sustained interaction. It can be concluded that regeneration is not merely a matter of the existence of successive generations, but also of the effectiveness of knowledge and skill transfer in



batik-making, which constitutes an important factor in sustaining the business while simultaneously preserving cultural heritage.

Environmental Aspect Discussion

The findings are consistent with the environmental dimension (planet) of the Triple Bottom Line (TBL) framework proposed by Elkington (1997), which emphasizes the importance of balancing economic activities with environmental protection to achieve long-term business sustainability. Furthermore, the results support the Cleaner Production Theory introduced by the (United Nations Environment Programme, 1994), which advocates a preventive approach to environmental management by minimizing pollution and optimizing resource efficiency throughout the production process rather than relying solely on end-of-pipe waste treatment. In addition, the findings reinforce Legitimacy Theory proposed by Suchman (1995), which suggests that the adoption of environmentally responsible practices enhances organizational legitimacy by strengthening stakeholder trust and social acceptance. Therefore, environmental management serves not only to reduce the ecological impacts of batik production but also to strengthen the legitimacy and long-term sustainability of the three batik MSMEs examined in Kampung Batik Laweyan.

V. CONCLUSION

This study found that the three batik MSMEs studied in Laweyan Batik Village occupy very different positions on the sustainability continuum. Batik Putra Mahkota (medium) exhibits weak sustainability across all three dimensions, with business continuity relying on personal customer relationships that appear to compensate for underdeveloped practices in other dimensions. Batik Putra Laweyan (small) exhibits a transitional profile, with marketing, regeneration, and environmental practices each beginning to develop but not yet fully integrated. Batik Tjap Tiga Negeri (micro) exhibits strong sustainability, with relatively balanced development across all three dimensions. These findings extend the theoretical application of weak and strong sustainability by operationalizing them at two interrelated levels: maturity within one dimension and cross-dimensional synthesis at the case level, offering a framework that can be adapted for future MSME sustainability research.

The practical implications of this research point to differentiated, rather than uniform, support: digital marketing literacy and promotional assistance for micro-enterprises, structured cadre development and internship programs to maintain the sustainability of batik skills and expanded access to communal and independent waste processing facilities tailored to the actual capacity of each business scale. Given the single-case-per-scale design, these implications should be understood as a starting point for broader interventions, rather than as conclusions that apply uniformly to all batik MSMEs in Laweyan. Future research involving more cases per business scale, or quantitative studies covering a broader population of MSMEs, is needed to test the extent to which the patterns found in this study apply beyond the three cases studied.

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