

Fostering Collaboration for Sustainable Impact: Insights from the ECoGREEN 2024 National Conference on MSMEs Best Practices

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Received 20 January 2025, Revised 21 January 2025, Accepted 1 February 2025

Abstract — *This paper summarizes and analyzes the outcomes of the ECoGREEN (Empowering Transdisciplinary Collaboration and Green Entrepreneurial Education Towards Sustainable Campus and Micro, Small, and Medium-sized Enterprises in Indonesia) 2024 National Conference, which is promoting sustainable development through collaboration among stakeholders, including academics, MSMEs, policymakers, government, media, and civil society. The conference emphasized sustainability across various domains, such as environmental science, MSMEs, and governmental policy. It was to provide a platform for knowledge exchange and innovative solutions. The finding highlights the critical role of integrating sustainability reporting and adopting digital and eco-innovative practices, including the cultural heritage. The study also highlights the potential of exploring Industry 4.0 technologies, such as AI and blockchain, and sees some possibilities to enhance operational sustainability practices. Apart from that, some proposed strategies for MSMEs in overcoming potential challenges are discussed. Moreover, it exposes the significance of design thinking and interdisciplinary approaches in fostering sustainable practices. Designers, including the product-oriented designers and practitioners, may utilize the insights from this conference to integrate zero-waste principles and promote eco-based innovation initiatives, while the cultural resilience will be preserved.*

Keywords: ECoGREEN; sustainability; MSMEs; stakeholder; Design Thinking

Abstrak — *Artikel ini menyimpulkan dan menganalisis hasil dari Konferensi Nasional ECoGREEN (Empowering Transdisciplinary Collaboration and Green Entrepreneurial Education Towards Sustainable Campus and Micro, Small and Medium-sized Enterprises in Indonesia) 2024, untuk mempromosikan pembangunan berkelanjutan melalui kolaborasi antara para pemangku kepentingan, termasuk akademisi, UMKM, pembuat kebijakan, pemerintah, media, dan masyarakat sipil. Konferensi ini menekankan keberlanjutan di berbagai bidang, seperti ilmu lingkungan, UMKM, dan kebijakan pemerintah. Studi ini juga menyediakan platform untuk pertukaran pengetahuan dan solusi inovatif. Temuan utama menyoroti peran penting integrasi pelaporan keberlanjutan, adopsi praktik digital dan inovasi berbasis ramah lingkungan, serta pelestarian warisan budaya. Studi ini juga menekankan potensi pemanfaatan teknologi Industri 4.0, seperti AI dan blockchain, dan kemungkinan untuk meningkatkan kinerja keberlanjutan operasional. Terlepas dari hal tersebut, beberapa strategi telah diformulasikan untuk mengatasi tantangan potensial di UMKM telah dibahas. Selain itu, penelitian ini menyoroti pentingnya pemikiran desain (design thinking) dan pendekatan interdisipliner dalam mendorong praktik berkelanjutan. Desainer termasuk praktisi dan desainer yang berorientasi produk dapat memanfaatkan wawasan dari konferensi ini untuk mengintegrasikan prinsip nol limbah dan mendorong inovasi ramah lingkungan, serta dengan tetap menjaga ketangguhan budaya.*

Kata Kunci: ECoGREEN; keberlanjutan, UMKM, pemangku kepentingan; Design Thinking

INTRODUCTION

The ECoGREEN 2024 National Conference, titled "Fostering Collaboration for Sustainable Impact," was aimed at tackling significant sustainability issues by promoting cross-sectoral collaboration. Indonesia faces significant environmental, social, and economic challenges, also referred to as triple bottom lines. It covers the environmental issue, climate change, and socioeconomic problem, and inclusive collaboration among stakeholders (i.e., academics, practitioners, governments, and other related agents). ECoGREEN stands for Empowering Transdisciplinary Collaboration and Green Entrepreneurial Education Towards

Sustainable Campus and Micro, Small, and Medium-sized Enterprises in Indonesia. This conference offered a discussion space for stakeholders, such as academics, MSMEs, government, and civil society, to share ideas and best practices, especially promoting the creation of sustainable solutions.

Designers are very much related to MSMEs. They are closely aligned through their shared innovation goals, market relevance, and sustainability. Notwithstanding the growing focus on sustainability, a potential disjunction persists between theoretical frameworks and their actual implementation across several industries. Thus, the ECoGREEN conference sought to bridge this gap by promoting communication and cooperation among many parties. Through the ECoGREEN 2024 National Conference, this study aims to facilitate knowledge exchange on sustainability across various sectors and provide an open forum for sharing innovative ideas and best practices. Through the analysis of abstracts reviewed, designers can gain knowledge from MSMEs and apply it in their projects.

MSMEs in Indonesia

In Indonesia, MSMEs are administered in the Indonesian Law No. 20 Year of 2008, where micro enterprises are defined as enterprises with annual turnover of less than IDR 300 million; small enterprises are enterprises with annual turnover of less than IDR 2.5 billion; and medium enterprises are enterprises with IDR 2.5–50 billion annual turnovers (Tedjakusuma & Yahya, 2020). MSMEs contribute a significant role to Indonesia's economy with their 99% contribution to all business entities and employ 97% of the national workforce. Moreover, in 2024, they generated 61% of the total Indonesian Gross Domestic Product (GDP), showing their essential role in Indonesia's economic landscape (BPS, 2024). In addition, they bestow the success of e-commerce platforms in Indonesia by supplying goods to the platforms, including Tokopedia, Lazada, Blibli, and Shopee (Noor et al., 2022).

Although MSMEs assume great significance, they continue to face a wide range of challenges, such as lack of access to finance, low productivity, and restricted technological adoption. According to McKinsey & Company, faster digital transformation of MSMEs can create an additional \$150 billion to MSME sector annual economic impact by 2025, which shows untapped potential of this sector (Wibowo, 2017).

These days, MSMEs have applied digital transformation to ensure their growth and competitiveness. The transformation has a positive correlation with business performance, with technologies such as e-procurement, e-marketing, and digital payment systems having created capabilities that significantly optimize the business processes (Affandi et al., 2024). Big data and business analytics applications have been shown to be an effective strategy for MSMEs to overcome the challenge of navigating the COVID-19 pandemic by providing an opportunity for recalibration of MSMEs' operations and improvements of sales outcomes (Caraka et al., 2023). Despite this, there are still many MSMEs—especially in rural areas—that have moderate to low digital literacy and lack sufficient technological infrastructure that constitute huge stumbling blocks to broader adoption and digital inclusion.

Apart from technological challenges, Indonesian MSMEs are also giving attention to that eco-innovation trend. The need for government support and regulatory frameworks to drive eco innovation, such as eco managerial and eco process improvements, has been identified (Achmad et al., 2023). Sustainable practices are important sustainable elements to ensure environmental resilience as well as to meet the global demands of the market. However, eco-innovation implementation needs a high level of investment, which is expensive for resource-constrained enterprises. Some MSMEs are making efforts to include eco-innovation within

their operations, but further spread will demand that the government, through persistent support, comply with regulations with incentives and capacity-building programs.

An important area for improving MSME development efforts is improving the market-driven capabilities that provide competitive advantage. As an example, Market-Based Dynamic Capabilities (MBDC) frameworks have been introduced to integrate the resource-based, market-based, and knowledge-based views with the goal of improving organizational performance and export potential (Tarihoran et al., 2023). This is also the case with entrepreneurial orientation, which has been demonstrated to mediate competitive advantage and subsequently enhance MSME performance, especially during post-COVID-19 recovery (Sunargo, 2022). Yet, these strategic approaches depend on an institutional framework capable of mediating government support and the linkages between industries as key enablers of growth.

Unlike large industries, MSMEs in Indonesia are heavily dependent on supportive infrastructure and institutional frameworks. Utama et al. (2024) argued that access to finance, entrepreneurial knowledge, and industrial linkages are the significant determinants of MSME growth intentions. Moreover, electricity access, as a reliable infrastructure, has also been associated with poverty reduction and an improved business outcome, but its direct contribution to MSME development is less prominent (Handayani et al., 2024). This necessitates a contextual approach to policy interventions that are both infrastructural and capacity-building to gain financial inclusion. Despite their challenges, MSMEs are an important part of Indonesia's economy, and efforts to improve their resiliency and sustainability are an essential factor for Indonesia's long-term economic growth.

Sustainability Practices in MSMEs

Sustainability practices of micro, small, and medium enterprises (MSMEs) have come into focus as key toward realizing environmental and economic objectives. Despite their huge numbers and critical influence in the global economy, there are many MSMEs that are resource constrained. This paper summarizes recent literature regarding opportunities and challenges of MSMEs in implementing sustainability practices and emphasizes the importance of technological innovation, strategic management, and collaboration. These are the factors that help to promote the sector's sustainable development.

Adopting Industry 4.0 technologies has been found crucial for a successful embedding of sustainability in MSMEs' operations. In leveraging this technological collaboration in their supply chains, MSMEs can improve their environmental commitments remarkably. López-Cózar-Navarro et al. (2024) found from studies that the type of partnership within the supply chain directly affects sustainability investments, whereby strategic partnerships are essential for success. Also, the promise of Green Lean Six Sigma methodology that underlies waste reduction and emission reduction has proven to improve both economic and environmental performances. Nevertheless, the lack of technical understanding as well as resources made MSMEs unable to implement GLSS, a point that emphasizes the need for capacity-building activities for MSMEs (Mohan et al., 2024).

Also important for MSMEs to advance sustainability was the factor of entrepreneurial orientation. A strong entrepreneurial culture in the enterprises increases the adoption of circular economy practices in that they use social capital and adaptive capacities to fulfill environmental demand (Alcalde-Calonge et al., 2024). Additionally, the integration of green product and process innovations was shown to form part of the methodology for reducing the environmental impact of manufacturing MSMEs, even though those innovations were

motivated by preexisting sustainable practices sustained within firms (Gomes et al., 2024). This helps point out the need for a culture of innovation and entrepreneurship to reach sustainability goals.

Embedded sustainability into MSME operations is fundamental to MSME operational management and planning frameworks. However, a lack of a strategic orientation has been identified as a critical barrier to the competitiveness and sustainability of MSMEs in manufacturing, where the demands for sustainability are high (Cordova-Aguirre et al., 2024). In this background, strategic project management practices have been identified as important tools to align sustainability goals with the operational objectives of MSMEs (Lima Jr et al., 2023) and thus enable MSMEs to have a greater social and economic contribution. In addition, sustainable human resource management HRM practices and managerial competency have been recognized to have a role in improving the organization's sustainability performance, and it is imperative that the organization has a culture towards sustainability (Kutaula et al., 2024).

The literature points out a critical role of sustainability practices in MSMEs and the lack of sustainability orientation, resource limits, and resource knowledge of the frameworks of sustainability. Economic considerations too have priority over environmental and social dimensions, limiting the scope of complete sustainable entrepreneurship (Ghag et al., 2024). The solutions to these barriers, therefore, need collective efforts from policymakers, industry leaders, and MSMEs to provide an enabling environment for sustainable development. MSMEs can strengthen their contributions to sustainability by balancing economic growth and the protection of the environment through a holistic approach that integrates innovation, strategic management, and policy support.

Design Thinking

The design thinking approach originated from design practices; however, it has emerged as a transformative approach to innovation and problem solving across various domains. It is characterized by a human-centered methodology that follows a six-step process, namely Understand, Observe, Define, Ideate, Prototype, and Test (Plattner et al., 2011). This process is divided into three phases. The first phase is empathy phase, which focuses on framing the problem and challenge. This phase is covered in Understand - Observe - and Define (Kelley & Kelley, 2014). The second phase is the creativity phase, which is Ideate. In this step, brainstorming and mind mapping usually done to generate ideas. The last phase is prototyping and testing. These are done to identify the design's weaknesses.

In the context of business and entrepreneurship, design thinking has proven to be a successful approach in creating innovation. It stimulates multi-disciplinary engagement (Liedtka, 2015). Machfiroh (2023) also stated that MSMEs could adopt design thinking methodologies to identify and address the challenges.

METHODOLOGY

The conference used a hybrid structure, integrating in-person and virtual sessions to enhance accessibility. Key activities include:

a) **Keynote Presentations.**

There were keynotes in sustainability, addressing topics like stakeholder collaboration, renewable energy, and sustainable education.

b) Parallel Sessions.

There were 82 abstracts spanning many disciplines, classified under categories like environmental science, MSMEs, and social sciences.

c) Feedback Mechanisms.

It has been done through online questionnaires that gathered participant comments about the event, material, and potential areas for improvement.

As this conference featured 82 abstracts and not all abstracts are directly related to MSMEs and creative industries, we did a selection process that involved the following steps:

- Initial Screening: We reviewed all 82 abstracts to ensure they aligned with the theme of sustainability, creative industries, MSMEs, and business.
- Keyword Analysis: Abstracts that contain terms such as MSMEs (or UMKM), business, any kind of creative industries (*batik, makanan*), or related phrases in the titles were shortlisted
- Final selection: Based on the thematic relevance and methodology, 15 abstracts were selected for detailed analysis.

After the selection process, the selected abstracts were analyzed regarding their sustainability challenges and opportunities, particularly the lessons learned from the study.

RESULTS AND DISCUSSIONS

Key Findings

The analysis of the 15 abstracts reveals various ranges of approaches and contributions to sustainability within the context of MSMEs. These abstracts show critical themes such as sustainable practices, innovation in waste management, cultural preservation, and technology integration. By examining the relation to sustainability and lessons learned from the studies, key insights into how MSMEs navigate sustainability challenges and opportunities are uncovered. The following table summarizes the key findings:

Table 1. Sustainability Article Abstracts Analysis

No	Abstract Title	Author	Theme	Relation Sustainability MSMEs with in	Lesson Learned
1	Analysis Implementation Framework of Sustainability Reporting for Small Medium Enterprises in Indonesia	(Patricia & Pamungkas, 2024)	Sustainability Reporting	Framework for Sustainability Reporting in MSMEs	Sustainability principles require better integration in MSMEs
2	Batik Seni Warisan	(Helena et al., 2024)	Cultural Heritage and Sustainability	Cultural heritage preservation and sustainable livelihoods for artisans	Balancing tradition and modernity to sustain cultural practices
3	Candle SOS	(Sibuea et al., 2024)	Community Recycling and Zero Waste	Zero waste and community-based recycling of cooking oil	Innovative recycling can create community and environmental benefits

No	Abstract Title	Author	Theme	Relation with Sustainability in MSMEs	Lesson Learned
4	<i>Eksplorasi Fitur Teknologi Pengawetan Makanan pada Desain Kemasan Sayuran Hijau</i>	(Liang & Sujatmiko, 2024)	Sustainable Food Packaging	Technological features for food packaging to reduce waste	Design can extend the life of perishable products
5	<i>Harmonisasi Manusia dan Alam dalam Mendukung Sustainable Green-Eco Tourism di Bali</i>	(Falah & Purwanto, 2024)	Sustainable Tourism	Local wisdom for sustainable tourism in Bali	Local cultural practices can promote sustainable tourism
6	<i>Identifying Key Drivers in Sustainable Beverage Packaging Design for SMEs</i>	(Utami et al., 2024)	Sustainable Packaging in SMEs	Sustainable packaging for beverages in SMEs	Adoption of sustainable practices requires identifying key drivers
7	<i>Pengolahan Material Denim Menggunakan Teknik Upcycling untuk Perancangan Busana yang Baru</i>	(Iskandar & Da Tista, 2024)	Sustainable Fashion	Upcycling denim waste in the fashion industry	Fashion can innovate through waste reduction and creative design
8	<i>Pengungkapan Aspek Sosial pada Laporan Keberlanjutan: Studi Kasus UMKM di Indonesia</i>	(Paskalis, 2024)	Social Aspects in Sustainability Reporting	Social sustainability aspects in MSME reporting	Social aspects are underreported in sustainability frameworks
9	<i>Pengembangan Model Zero Waste Restaurant: Studi Kasus di Njonja Munsen Coffee Dining & Space</i>	(Yuswinda & Septiani, 2024)	Zero Waste in Food Services	Zero-waste practices in restaurants	Zero waste practices can align with local business operations
10	<i>Integrasi Kecerdasan Buatan (AI) dan Blockchain dalam Akuntansi Lingkungan untuk Mendorong Wirausaha Hijau</i>	(Juliana et al., 2024)	Technology for Environmental Sustainability	AI and blockchain for environmental accounting in SMEs	Technology enhances accountability and sustainability in businesses
11	<i>Pengaruh Passion & Work-Life-Balance terhadap komitmen karir, dengan mediasi Job Satisfaction pada karyawan</i>	(Paramesthi & Purba, 2024)	Employee Well-being and Organizational Sustainability	Indirect relation: Employee satisfaction and work-life balance support organizational sustainability through enhanced productivity and retention	Balancing passion, work-life harmony, and job satisfaction leads to committed and sustainable workforces.

No	Abstract Title	Author	Theme	Relation with Sustainability in MSMEs	Lesson Learned
12	<i>Penggunaan E-Commerce pada Pemasaran Hasil Pertanian dan Kerajinan untuk Mendorong Sustainability Pertanian dan Kewirausahaan</i>	(Gunawan et al., 2024)	Sustainability in Indigenous Communities	The use of e-commerce for sustainable agriculture and crafts in indigenous communities	Technology adoption can empower traditional communities to adopt sustainability
13	The Role of Digital Marketing & Business Sustainability of E-Commerce After Pandemic COVID-19	(Pakpahan et al., 2024)	Digital Marketing and Business Sustainability	Digital marketing strategies for post-pandemic business recovery can be adapted to MSMEs.	Digital strategies are critical for resilience in business models
14	The Challenge and Opportunity of Practicing and Reporting Sustainability in Batik Lasem SMEs	(Dewi & Hastuti, 2024)	Sustainability in Traditional Crafts	Sustainability practices and reporting in Batik Lasem SMEs	Challenges in awareness and cost impede sustainable practices
15	Utilization of Digital Green Marketing in the Marketplace of Outer Baduy Tribe SMEs	(Purba et al., 2024)	Green Marketing for Indigenous SMEs	Green marketing and sustainable packaging for Baduy SMEs	Green marketing enhances competitive edge while reducing waste

These selected abstracts provide valuable insights into how MSMEs in Indonesia address sustainability challenges and opportunities. These findings align with the existing literature that states that the role of sustainability practices is related to technological innovation and strategic management in MSMEs. Also, within Design Thinking context, these abstracts allow designers to apply these principles in their design process. Several themes are found in the abstracts: sustainability reporting and awareness, cultural heritage and cultural sustainability, technological innovation and resilience, zero-waste, and innovation.

Abstracts like ‘Analysis Implementation Framework of Sustainability Reporting for MSMEs in Indonesia show the need for better integration of sustainability principles in MSMEs’ operations. Achmad et al. (2023) have stated that compliance with sustainability frameworks demands strong governmental support and regulatory incentives. In the context of Design Thinking, designers can frame problem of the MSMEs in ‘Define’ phase. With this insight, designers can be aware that in some cases, the integration of sustainability within project is often overlooked. The low adoption rates of comprehensive sustainability reporting as observed in *Pengungkapan Aspek Sosial pada Laporan Keberlanjutan* also highlight the need for capacity-building activities (Mohan et al., 2024).

Several abstracts discussed the importance of technology in improving MSMEs’ operational efficiencies and environmental accountability (Pakpahan et al., 2024 ; Purba et al., 2024). Pakpahan et al. (2024) stated that digital marketing for MSMEs in recovering from the challenges of the COVID-19 pandemic is important. Designers can begin in the ‘Empathy’ phase from Design Thinking by understanding the specific barriers MSMEs face - such as

limited digital literacy, budget constraints, and the adaption process in the post-pandemic world. This aligns with Lopez-Covar-Navarro et al. (2024), who wrote that technological adoption can enhance environmental commitments, especially when paired with strategic partnerships. Affandi et al. (2024) showed that digital tools like e-marketing and e-payment significantly enhance business resilience, and in the abstracts, several papers also mentioned that marketing after COVID-19 is effectively done using digital tools.

Another theme that occurred was zero-waste and eco-innovation products, which might give ideas to MSMEs in terms of efforts in waste reduction and eco-innovation. Abstracts like Candle SOS (Sibuea et al., 2024) and Pengembangan Model Zero-Waste Restaurant (Yuswinda & Septiani, 2024) show that Green Lean Six Sigma methodology can optimize both environmental and economic performances (Mohan et al., 2024). Sibuea et al. (2024) focus on community-based recycling, transforming cooking oils into candles, and this reduces waste while creating environmental and community benefits. From this, designers can learn to identify the needs of communities and the environmental challenges they face like waste management. This is also done in the 'Empathy' phase in Design Thinking. Gomes et al. (2023) also described these as circular economy practices.

Within those abstracts, the connection between sustainability and creative industries appears to be multi-disciplinary. Reflecting it with the Design Thinking process, which is commonly used in creative industries, designers as creative persons should widen their perspectives to be able to observe (second steps of Design Thinking) and conclude selections of possible solutions to solve problems or to innovate.

Challenges and Opportunities

One of the primary challenges lies in fostering consistent stakeholder engagement. There is still a need to address varying levels of awareness and commitment among stakeholders at every level. Resistance to change, often rooted in traditional practices and mindsets, further complicates the process of transitioning towards sustainability. Additionally, the financial and logistical constraints of implementing eco-friendly technologies and practices pose significant hurdles, especially in the context of maintaining affordability for societies.

Apart from challenges, this study serves as a platform for fostering interdisciplinary research and innovation, leveraging the diverse expertise of the university's academic community. In the academic context, the integration of sustainability into the curriculum not only enriches the learning experience but also equips students with skills and knowledge that are increasingly valued in the global job market.

CONCLUSION

The ECoGREEN national conference offers a conceptual model for future collaborations and emphasizes the transformative potential of design in achieving sustainability goals. By aligning its operations, especially education, research, and service for community, with principles of environmental concern, the university demonstrates its commitment to addressing global challenges at a local level towards global-based practices and principles. While challenges such as stakeholder engagement and resource constraints remain, the initiative's potential to foster innovation, collaboration, and societal impact highlights its transformative value. The ECoGREEN national conference was hoped to serve as a model for educational institutions in Indonesia and its partners. Essentially, it has shown how the institution can contribute to sustainable practices.

The conference abstracts demonstrated useful insights for MSMEs. They spoke on the effectiveness of using lean thinking approaches, the advantages of a sustainable and circular economy, and digital marketing tactics post-COVID-19. They discussed the efficiency of applying lean thinking methodologies, the benefits of a sustainable and circular economy, and the digital marketing strategies after COVID-19. Additionally, Indonesian local and cultural heritage preservation through innovative approaches was proposed. It can be seen in the Batik Lasem and eco-fashion case study that tradition can be merged with modern sustainability practices.

For product designers, this article may provide actionable strategies on combining sustainability best practices and the design process methodologies and concepts. For product designers, this article may provide concrete ideas for blending sustainability best practices with design process methods and concepts. Designers of physical items, visual communication, and fashion may utilize these insights to promote eco-innovation, such as using zero-waste principles and upcycling ways for materials. In addition, product design should reduce environmental impact, collaborate with local artisans and communities to incorporate traditional craftsmanship into contemporary design, and ensure culture-based sustainability. For design education, it is also important to incorporate sustainability principles into design education and curriculum to prepare the next generation of designers to address global challenges.

Eventually, by integrating those above-mentioned best principles and practices, designers can play an important role in applying sustainable practices within MSMEs and beyond. They will address the balance of environmental, economic growth, and cultural preservation applications.

Limitations and Further Research

This study mostly relies on the qualitative methods, such as interviews and case studies. It may potentially limit the generalizability of its findings to other contexts, especially for the designer's contexts. Additionally, the absence of comprehensive baseline data on the stakeholders' sustainability performance prior to the initiative's implementation presents challenges in assessing its full impact. Furthermore, the long-term sustainability of the initiative remains uncertain, particularly in light of evolving triple bottom lines. Future research should aim to address these limitations by incorporating quantitative methods and longitudinal studies, which are related to design points of view.

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