

## DIGITAL TRANSFORMATION THROUGH SHOPEE PLATFORM OPTIMIZATION TO ENHANCE RECYCLED PRODUCT INNOVATION AND MARKET COMPETITIVENESS

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### ABSTRAK

*This study stems from the low level of digital literacy among recycled product entrepreneurs in Kelurahan Baktijaya, Depok, which limits their access to online markets. The research aims to enhance digital competencies and expand marketing channels through targeted training on utilizing the Shopee platform. A descriptive qualitative method was employed within a community engagement framework, using data collected from observations, pre-tests, post-tests, and documentation. The participants were members of the bank sampah community in RW 18 and RW 19. Findings reveal a substantial increase in digital understanding and operational skills, alongside heightened awareness of incorporating sustainability narratives into product promotion. Quantitative comparison between pre-test and post-test scores indicated an average improvement of 70% in digital literacy, and more than 85% of participants successfully created and managed online stores on Shopee. The study confirms that community-based training can effectively foster digital transformation and strengthen green entrepreneurship rooted in circular economy principles.*

**Keywords:** Digital Transformation, Shopee, Recycled Products, Circular Economy, Digital Literacy

### INTRODUCTION

#### Real-World Problem

A critical issue faced by recycled product entrepreneurs in Kelurahan Baktijaya, Depok, is the lack of digital marketing utilization, particularly through e-commerce platforms. Most business actors still rely heavily on offline transactions with limited market reach, despite producing high-value ecological goods. Many artisans are unfamiliar with setting up online stores, uploading product images, managing transactions, or implementing promotional strategies on platforms like Shopee. Consequently, their products struggle to compete in a digital marketplace, and their market access remains constrained. This lack of digital engagement significantly limits revenue potential and hinders the growth of environmentally sustainable enterprises. The reality highlights a stark disconnect between product potential and digital marketing capabilities. Therefore, addressing this gap by exploring how digital platforms like Shopee can be optimized for recycled product marketing is an urgent necessity in both academic and practical domains

#### Literature Gap and Theoretical Limitation

Existing literature affirms that digitalization in micro, small, and medium enterprises (MSMEs) significantly enhances revenue and market expansion through platforms such as Shopee. However, much of the scholarship focuses on conventional MSMEs, leaving a theoretical gap regarding digital transformation in environmentally oriented ventures like recycled crafts. While digital literacy has been consistently linked to e-commerce success, empirical studies rarely address the unique challenges and opportunities faced by recycling-based business communities. Furthermore, prevailing

theories on community engagement often overlook how digital interventions intersect with environmental entrepreneurship. This literature gap reveals that existing theoretical frameworks inadequately capture the dynamics between community-based recycled product enterprises and digital platform utilization. Therefore, the study at hand is positioned to fill this void by investigating the specific ways in which Shopee training can drive market access and digital skill enhancement for waste-based entrepreneurs.

### **Recent Literature Review**

Recent studies emphasize the growing role of e-commerce in empowering MSMEs to reach wider markets, particularly in developing countries. According to Hariyanti (2024) and Panduwinata et al. (2025), digital transformation strategies significantly boost competitiveness, but adoption rates remain low among environmentally oriented enterprises. Similarly, Marolt et al. (2025) found that digital capability building is most effective when training is contextualized to local needs and combined with mentoring. In the context of the circular economy, Roshan (2024) highlights the synergy between sustainability values and digital entrepreneurship as a driver for community-based innovation. However, empirical research focusing on recycled-product entrepreneurs in Indonesia is still limited, indicating the need for studies such as this.

### **Research Objectives**

This study aims to provide targeted training and digital mentoring to recycled product entrepreneurs, primarily bank sampah members, in order to help them effectively utilize Shopee for online marketing. Specifically, it seeks to elevate participants' digital literacy, covering competencies such as account creation, product uploading, shop interface management, promotional strategies, and transactional operations. The study also evaluates improvements in knowledge and skill levels before and after the training using pre- and post-tests. In addition, it aims to document the implementation process as a replicable model for future interventions. Ultimately, the goal is to produce empirical insights and actionable recommendations on how Shopee can be optimized as a marketing tool for community-based recycled products. By doing so, the study contributes to broader discussions around digital inclusion, environmental entrepreneurship, and local economic empowerment.

### **Argument for Research Relevance**

This research is premised on the argument that structured digital training—especially on platforms like Shopee—can significantly enhance market competitiveness, digital literacy, and business motivation among recycled product entrepreneurs who have historically faced digital exclusion. The hypothesis asserts that participants receiving the intervention will demonstrate marked improvements in both technical ability and entrepreneurial enthusiasm. Grounded in empirical observations and aligned with the stated research objectives, this study also resonates with the global sustainable development goals (SDGs), particularly in reducing poverty and empowering women through eco-friendly entrepreneurship. The study not only addresses a pressing local problem but also exemplifies how academic-community collaborations can drive inclusive digital transformation. In essence, the research is timely and necessary, offering both academic contribution and social impact through its community-centric approach to digital upskilling.

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## METHODS

### Research Object (Phenomenon/Problem)

The primary object of this research is a community of recycled product artisans affiliated with bank sampah programs in Kelurahan Baktijaya, Sukmajaya District, Depok City. The observed phenomenon is the lack of digital skills and market access among community-based environmental entrepreneurs, particularly in utilizing e-commerce platforms such as Shopee. Despite producing environmentally friendly products of considerable quality and value, these entrepreneurs have not optimized digital platforms to reach broader markets. The issue is evident from the absence of digital storefronts and limited understanding of transaction systems or digital promotional features. Hence, this study focuses on intervening in a community that experiences digital barriers, aiming to empower its members through training that enhances their digital marketing capabilities. Emphasis on the local and sustainable context makes this object highly relevant for in-depth and structured academic inquiry.

### Research Type and Data Types

This study employs an applied research design grounded in a community engagement framework, utilizing a descriptive qualitative approach with participatory elements. This type of research allows the investigator to directly interact with community members, identify issues contextually, and offer concrete solutions through educational interventions. Two types of data were collected: primary and secondary. Primary data included field observations, pre-tests and post-tests from participants, and documentation of training activities. Secondary data were sourced from official kelurahan documents, relevant academic literature, and prepared training materials. Primary data were gathered directly from participants in RW 18 and RW 19, who served as the main partners in this initiative. Meanwhile, secondary data strengthened the theoretical foundation and guided the training content. The integration of both data types provides a comprehensive understanding of the baseline conditions, participant responses, and the impact of digital interventions on community capacity.

### Sources of Information and Data

The main sources of information in this study were the recycled product entrepreneurs participating in bank sampah programs in Kelurahan Baktijaya. These individuals were directly involved in the training and outreach activities focused on leveraging Shopee as a digital marketing platform. Additional information was obtained from kelurahan officials, particularly the Head of Economic and Development Affairs and the lurah, who provided input for problem mapping and training material development. Supplementary data were derived from local administrative documents, including demographic records, the distribution of bank sampah, and prior community empowerment programs. Informational support also came from participants' responses in pre-tests and post-tests, used to assess the training's effectiveness.

Participant engagement in discussions and Q&A sessions served as a qualitative indicator of increased awareness and interest. Therefore, data sources in this research were primarily contextual and participatory, enabling accurate and relevant insights into the community's learning progress and digital transformation potential.

### **Research Process and Data Collection Techniques**

The research process unfolded in several systematic stages, starting from initial observation to training implementation and evaluation. First, field observations and discussions with kelurahan officials were conducted to identify key problems faced by the recycled product entrepreneurs. Second, pre-tests were administered to assess participants' baseline digital skills. The third stage involved preparing training materials, developing a practical module, and allocating team responsibilities. The training itself was conducted in a one-day session that included lectures, live demonstrations, and hands-on practice using Shopee. The agenda featured an opening by local officials, delivery of core material, interactive sessions, and digital product uploads. Finally, post-tests were distributed to evaluate comprehension and application of skills acquired during training. Data collection methods included direct observation, structured questionnaires, informal interviews, and visual documentation (photographs). This multi-method strategy was designed to capture comprehensive data across participant knowledge, engagement, and behavioral change. It also aligns with evidence-based practices suited for localized, action-oriented interventions.

### **Data Analysis Techniques**

Data analysis in this research utilized a qualitative descriptive approach with comparative techniques applied to pre-test and post-test results to assess training effectiveness. Pre-test data revealed participants' initial understanding of Shopee, including familiarity with its interface, product listing, and promotional tools. Post-test data measured knowledge improvements and skill acquisition following the intervention. Rather than statistical metrics, the analysis focused on narrative shifts in awareness, ability, and attitudes toward digital entrepreneurship. Field observations and informal interviews supplemented the test results, adding depth through real-time behavior and participant reflections. Triangulation was employed by cross-verifying questionnaire responses, observations, documentation, and interview data. This approach ensures validity while capturing multi-dimensional impacts of the training program. The analysis not only highlights short-term improvements but also uncovers insights into participant challenges and digital aspirations. These findings serve as a basis for formulating context-specific strategies for broader digital inclusion and sustainable community empowerment.

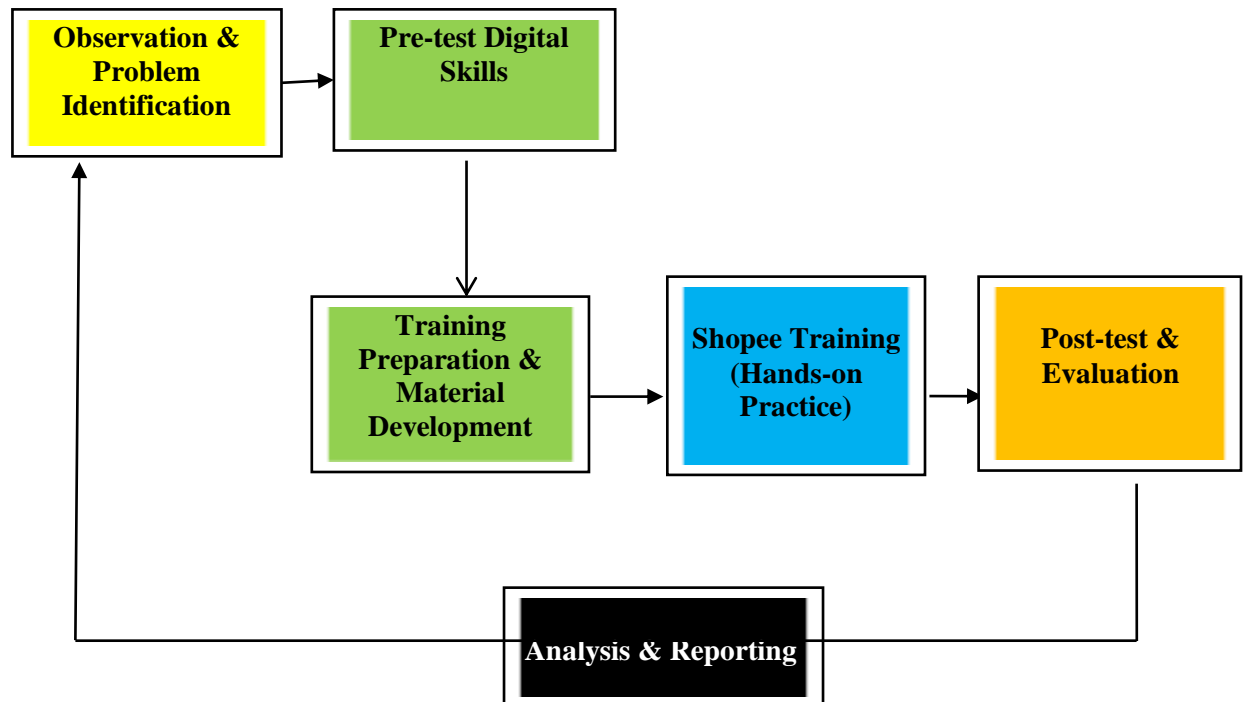


Figure 1. Research Process

## RESULTS AND DISCUSSION

### RESULTS

#### Findings on Digital Transformation (Descriptive data)

Prior to the intervention, most participants demonstrated minimal familiarity with digital platforms; more than 80% lacked a Shopee account and were unaware of how to upload products, manage transactions, or implement promotional features. However, following the training—which included live demonstrations, guided practice, and hands-on support—most participants succeeded in creating their own Shopee storefronts and uploading recycled products on the same day. Post-test outcomes indicated accurate responses regarding features such as promotional vouchers, pricing strategies, and product descriptions. Photographic documentation corroborated these results: participants actively engaged in store setup and product listing. These findings demonstrate that digital transformation among community-based recycled-product entrepreneurs is achievable within a short timeframe when a targeted, practice-driven training model is provided.

#### Explanation of Digital Transformation Data

Post-session data revealed significant gains in participants' comprehension of how Shopee operates as a digital marketplace. During interactive training sessions, several participants showed proficiency in leveraging internal platform features—such as flash sales, shipping settings, and product visibility optimization. Notably, some could craft descriptive product listings by highlighting recycled materials, sustainability, and production methods. This enhanced mindset shifted participants from passive technology users to active promoters who utilized Shopee for both commercial and environmental communication. The combination of live demonstration and contextual support galvanized participants to integrate store management with broader social media outreach, such as WhatsApp and Instagram, reflecting a practical transformation

in digital engagement and entrepreneurial agency.

### **Relation of Digital Transformation Results to Research Problem**

These transformative results directly address the initial issue: limited market access due to inadequate digital uptake by recycled-product entrepreneurs. The pre-test findings reflect this digital gap, while the training outcomes underscore that targeted intervention can bridge it. By empowering participants with platform-specific skills, the study demonstrates that previously excluded community members can effectively participate in online commerce. The ability to manage storefronts and promotional features substantiates the claim that digital literacy is a feasible solution to expanding market reach and competitiveness. Therefore, the observed digital transformation serves as empirical validation that structured training can overcome key barriers documented in the research problem.

### **Findings on Digital Literacy (Descriptive data)**

One of the core evaluations focused on participants' digital literacy—including their understanding of Shopee's structure and operational functions. Initial pre-test results showed that only 10% understood account creation procedures, while over 75% lacked familiarity with proper image uploading practices. After the training, more than 85% of participants correctly answered questions on shop management, promotional features, and posting strategies. Live Q&A sessions further highlighted improved confidence and active engagement with digital tools. These results confirm that participants—previously inexperienced with digital environments—were able to assimilate e-commerce competencies quickly when instruction was tailored and contextually relevant.

### **Explanation of Digital Literacy Data**

The surge in digital literacy extended beyond test scores to behavioral changes and platform engagement. During training, participants realized that digital success relies not only on product quality but also on strategic communication and visibility within an online store. They learned to optimize descriptions, categorize products appropriately, and understand the importance of visuals and customer interaction features. Users began managing logistics, promotions, and chat tools with increasing autonomy. These behavioral shifts reflect a transition from passive app usage to proactive digital entrepreneurship, demonstrating that contextual, practice-oriented training significantly elevates digital literacy.

### **Relation of Digital Literacy Results to Research Problem**

This enhanced digital literacy effectively addresses the root problem of digital exclusion faced by recycled-product entrepreneurs. The findings indicate that if provided with appropriate training, community actors can become proficient in managing e-commerce storefronts. Such capability fosters increased confidence, market participation, and self-sufficiency. The research shows that empowering communities with digital literacy reduces exclusion and contributes to building a more inclusive local economy. These results affirm that strengthening digital skills stands as a practical pathway to improving competitiveness and sustainability for recycled-product ventures.

### **Findings on Circular Economy Integration (Descriptive data)**

Another critical finding relates to circular economy principles embedded in the participants' product narratives. Initially, marketing efforts were limited to traditional offline channels, such as bazaars and word-of-mouth. Following the training, participants began uploading recycled products online with storytelling emphasizing environmental sustainability and waste reduction. Many included sustainable messaging in product descriptions—highlighting recycled materials, eco-friendly production methods, and community impact. Thus, the participants used Shopee not only as a sales tool, but also as an educational medium, reinforcing the circular economy ethos in the digital marketplace.

### **Explanation of Circular Economy Data**

Participants progressed from viewing recycling as an economic activity to embracing its environmental and social dimensions. They incorporated sustainability-centered narratives in product listings, highlighting eco-conscious design and waste management practices. Some even expressed plans to establish organized community-based enterprises around recycled goods, ensuring continuity and professionalism. Online interactions with buyers also functioned as educational touchpoints, allowing entrepreneurs to explain the environmental value of their products. These behaviors suggest that product marketing on Shopee served a dual role: commercial and ecological engagement. As such, this intervention not only taught technical skills but also fostered a broader shift toward sustainable entrepreneurship.

### **Relation of Circular Economy Results to Research Problem**

These findings offer productive resolution to the research's central challenge—limited market outreach and lack of sustainable product identity—and align them with broader sustainable development objectives. By combining digital literacy with circular economy principles, participants succeeded in capturing broader audiences and repositioning their handcrafted recycled goods in a competitive online market. Such integration addresses both market exclusion and environmental awareness simultaneously. Overall, the results illustrate how digital training can serve as a vehicle for promoting sustainability as well as economic resilience in local communities.

## **DISCUSSION**

### **Summary of Key Findings**

This study revealed that community-based training enabled recycled-product entrepreneurs to rapidly acquire digital marketing skills, including Shopee storefront management, product uploading, and strategic promotional practices. Participants also developed the ability to embed sustainability narratives into their listings, aligning their actions with circular economy principles. These outcomes demonstrate that targeted, hands-on interventions can transform previously digitally excluded individuals into active digital entrepreneurs. The achievement of these results affirms that the study's objectives—to boost digital literacy, expand market access, and foster sustainable entrepreneurship—were effectively realized.

### **Comparison with Existing Literature**

While prior research has established links between digital literacy and MSME performance—especially in traditional sectors—few studies have focused on recycling-

based enterprises within local environmental communities. This study extends existing theory by showing how digital transformation intersects with circular economy practices in a community setting. Unlike standard e-commerce interventions, this research offers an integrated model combining technical training and sustainability discourse. This positions the study as a unique contribution, not only reinforcing literature on technology adoption but also providing an actionable framework that embeds environmental consciousness within digital entrepreneurship.

### **Reflection on Benefit to Study Objectives**

The insights gained affirm that the project's goals were met: participants attained enhanced digital capacities, operated storefronts independently, and articulated eco-centric values in promotions—a direct reflection of improved digital competency and sustainable entrepreneurship. This transformation has potential implications for economic empowerment, particularly for women involved in recycled-product initiatives, and supports broader sustainable development aims. By enabling participants to leverage digital platforms and sustainability values, the training catalyzed social and economic benefits beyond mere technical proficiency.

### **Implications of Findings**

The practical implications of this research are significant for stakeholders such as local governments, academic institutions, and community organizations. The training model can be replicated in other communities that feature environmental entrepreneurship. It also presents opportunities to empower marginalized groups—particularly women homemakers—through marketable eco-ventures. From a policy standpoint, integrating community-driven digital training into sustainability initiatives could advance local economic resilience and contribute to sustainable development objectives. Academically, the findings support a theoretical bridge between digital literacy and circular economy frameworks in MSME contexts.

### **Analysis of Why These Outcomes Emerged**

These positive outcomes emerged due to a combination of factors: contextualized, practice-based training; community trust; and an educational environment that encouraged active participation. The involvement of local leaders in planning and facilitation reinforced legitimacy and motivated participants. Real-time walkthroughs and interactive demonstrations transformed abstract digital concepts into accessible skills. Furthermore, embedding narrative elements about sustainability and community identity enhanced internal motivation, enabling participants to see their work as both economic and social contribution. This holistic design made the intervention efficacious in achieving behavioral and cognitive shifts.

### **Recommended Actions**

Given these findings, it is recommended that community leaders, educational institutions, and NGOs expand similar digital training initiatives across comparable localities. Development of modular training guides can support independent adoption and scaling. Ongoing mentorship groups would sustain skill levels and introduce advanced digital tools such as social media promotion, product photography, and customer engagement strategies. Moreover, fostering collective marketing campaigns among recycled-product groups can reinforce circular economy messaging and

strengthen community branding. By translating these insights into scalable practices, the research can extend its transformative impact beyond a single study site.

**Table1**  
**Research Findings Based on Research Objectives**

No	Research Objective	Research Findings
1	To enhance digital literacy among recycled-product entrepreneurs in using Shopee	The majority of participants, who were previously unfamiliar with Shopee, successfully created accounts, understood shop management features, and independently uploaded their products.
2	To improve technical skills in managing online stores	Participants developed capabilities in editing product descriptions, setting prices, configuring shipping, and understanding promotional and discount features on the Shopee platform.
3	To foster digital entrepreneurship motivation grounded in sustainability	Participants showed increased motivation to continue growing their businesses digitally while integrating sustainability narratives into their product marketing.
4	To expand market access for recycled products produced by local communities	Products that had been sold only through offline channels began reaching wider audiences via Shopee, thus expanding their digital market presence.
5	To integrate circular economy principles into product marketing narratives	Participants communicated the ecological value of their products through online descriptions, reinforcing the identity of recycled products and promoting environmental awareness.



Figure 2

Community Service Activities with the Theme "Green Entrepreneurship: Building Sustainable Businesses from Recycled Waste"... The activity was started by the MC.



Figure 3:  
 Discussion with MSME participants



Figure 4

shows the product with MSME participants regarding digital design creation.



Figure 5

Photos together with MSME participants after training

## CONCLUSION

### Key Discovery (with an element of surprise)

What is most striking from this study is how swiftly and effectively recycled-product entrepreneurs—many of whom had minimal prior exposure to digital platforms—were able to adopt e-commerce skills and establish online storefronts on Shopee. Within a single day of targeted training, participants not only created accounts and uploaded products but also began implementing promotional strategies, pricing, and product storytelling. Even more surprising, several participants integrated environmental values and sustainability narratives into their shop content without explicit instruction. This unexpected depth of engagement reveals the latent digital potential in community-based actors, particularly when training is tailored to local context and framed around meaningful economic and ecological goals. It confirms that with the right method, digital exclusion can be addressed far more rapidly than often assumed.

### Theoretical and Practical Contributions

This study contributes both theoretical and practical value to the discourse on digital transformation and sustainable entrepreneurship. Theoretically, it enriches the literature by intersecting digital literacy with circular economy principles within a community-based business framework—an area rarely explored in prior research. Practically, the intervention model demonstrates that contextualized, hands-on training

can produce measurable behavioral changes, suggesting it can be adapted as a scalable framework for digital capacity-building in similar communities. It further proves that digital entrepreneurship is not the sole domain of tech-savvy individuals, but can be fostered among environmentally driven, informal-sector entrepreneurs who are typically underrepresented in digital economy policies. As such, this research offers not only conceptual insights but also actionable tools for empowering grassroots eco-businesses.

### Limitations and Opportunities for Future Research

Although the study produced promising results, it was conducted over a relatively short period and within a specific local setting. This limitation presents an opportunity rather than a weakness, pointing toward the need for longitudinal follow-up and broader geographic application. Future research can explore the long-term effects of similar digital interventions, especially in maintaining online business activity and sustaining community motivation. Additionally, replicating the study in varied socio-economic and cultural contexts can test the adaptability of the model and uncover further dynamics. Quantitative measurement of financial outcomes or integration with other digital tools like social media analytics could also enhance the depth of analysis. In this way, the current research sets a foundation for expanding both the scope and impact of digital empowerment initiatives rooted in community-based sustainability.

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