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Grassroots Economic Resilience and Green Economy-Based Entrepreneurship: An Analysis of the Traditional Muna Woven Sarong Enterprise in Supporting Regional Development

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ABSTRACT

This extensive research investigates the income dynamics and business feasibility of the traditional Muna woven sarong craft in Lapolea Village, West Muna Regency, and maps its role within the frameworks of grassroots economic resilience, green economy-based entrepreneurship, and regional development. Using a quantitative descriptive approach with a purposive sample of 30 women artisans, primary data were collected through in-depth observations, structured interviews, and questionnaires. The financial analysis reveals that the average net income is Rp679,933 per month per respondent, with a highly profitable Return Cost (R/C) Ratio of 2.0 (R/C > 1). From a sustainable development perspective, this traditional home industry strongly supports the green economy and Environmental, Social, and Governance (ESG) principles through a zero-emission manual weaving process, the use of natural materials, and the preservation of local cultural heritage. Furthermore, this enterprise acts as a robust pillar for grassroots economic resilience, primarily driven by women's entrepreneurship. Although financially viable, this study identifies critical systemic gaps.

Keywords: Digital Transformation; Financial Inclusion; Grassroots Economic Resilience; Green Economy; Regional Development; Traditional Woven Sarong; Women's Entrepreneurship

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INTRODUCTION

Micro, small, and medium enterprises (MSMEs) are the backbone of the national economy, contributing approximately 61% to 63% of Indonesia's Gross Domestic Product (GDP). Amidst global economic fluctuations and post-crisis challenges, MSMEs have proven their capacity as economic shock absorbers. This sector has proven to be more adaptive and persistent compared to macro-scale enterprises in facing crises. In Southeast Sulawesi Province, specifically in West Muna Regency, the local craft MSME sector, such as traditional Muna weaving, plays a vital role in the structure of regional economic development and job creation in rural areas, which often face difficulties gaining access to the formal sector (Fajarningsi et al., 2020).

Lapolea Village, located in Barangka District, West Muna Regency, is one of the main production centers for traditional Muna woven sarongs, having operated for decades through generations. Based on regional data, there are at least 120 household-scale traditional woven sarong craft business units in this village. This figure represents 36.7% of the total similar craft enterprises across Barangka District, which amounts to 327 units. The high concentration of artisans in this single area makes Lapolea Village a potential creative industry cluster capable of driving the local economic wheel on a massive scale. The existence of this business center indicates that the traditional Muna woven sarong plays an important role in increasing the household income of rural communities (Azlan et al., 2020).

This traditional Muna woven sarong craft enterprise is not merely a marginal economic activity, but rather a form of local entrepreneurship laden with sustainability values. In the modern era, where global demands for environmentally friendly industries are increasingly high, the production practices of this weaving align closely with the Environmental, Social, and Governance (ESG) framework and the Green Economy. The artisans maintain local wisdom by using Non-Machine Looms (*Alat Tenun Bukan Mesin* or ATBM) that are entirely human-powered without producing carbon emissions. Furthermore, they utilize natural materials that support a circular economy, making it a non-exploitative industry towards the surrounding environment (Alawiyah et al., 2019).

Moreover, the continuity of this craft enterprise is a tangible manifestation of grassroots economic resilience. The majority of artisans are women who make weaving activities a pillar of household income support. Between domestic activities and their social roles within the community, Muna women produce high-value artworks such as the Kambha, Bhia-Bhia, Manggopa, Bulawa, and Lantoga motifs. These motifs are not created randomly; each possesses philosophical meanings, historical values, and close ties to the social hierarchy in the local community's culture.

However, despite its massive cultural potential and economic value, the phenomenon in the field shows a paradox. The large number of artisans in Lapolea Village has not yet been directly proportional to a collectively significant increase in welfare. These grassroots business actors are still constrained by various systemic challenges that hinder the escalation of their businesses to a more commercial and independent stage. The main problems that emerge include the absence of digital transformation in the marketing system, limited working capital, and low access to financial inclusion provided by the state or private institutions.

To date, the sales system for most woven sarongs still relies on local physical market methods or through intermediaries (middlemen). This dependence on middlemen often drastically cuts the profit margins that the artisans should directly enjoy. In addition, fluctuations in raw material prices (especially gold and silk threads) cannot be balanced

with the availability of sufficient capital. The lack of capital access from formal financial institutions and the minimal systemic support from the government make it difficult for artisans to accumulate inventory, increase production scale, or continuously diversify and innovate motifs.

Departing from this background and paradoxical phenomenon, this comprehensive study aims to deeply analyze the income and financial feasibility of the traditional Muna woven sarong craft enterprise in Lapolea Village. Furthermore, this study attempts to explore and formulate the strategic implications of these financial findings. These implications are directed towards strengthening grassroots economic resilience, optimizing the implementation of the green economy, and highlighting the urgency of digital transformation and financial inclusion interventions (such as the empowerment of Village-Owned Enterprises [BUMDes], village cooperatives, and People's Business Credit [KUR] policies) within the framework of accelerating sustainable regional development.

LITERATURE REVIEW

Grassroots Economic Resilience and Women's Entrepreneurship

Grassroots Economic Resilience refers to the adaptive capacity of local communities and households at the micro level to survive, adapt to, and recover from economic shocks through the mobilization of local resources (Wulandari, 2023). This resilience is not built from large-scale investments, but from the optimization of local resources, traditional knowledge, and strong social networks within the community itself. According to institutional economic and rural development theories, diversifying income sources is the most logical defense strategy for agrarian or coastal communities vulnerable to seasonal fluctuations and primary commodity prices (Fuadah, 2019).

Within this resilience framework, women's entrepreneurship in rural areas functions as the main driving engine (Harun et al., 2024). Rural women often assume a dual role, acting as household managers (domestic sphere) while also functioning as additional breadwinners (public sphere). The active involvement of women in culture-based home industries, such as the woven sarong craft, not only creates economic value added and fiscal space for families but also promotes real gender empowerment. This empowerment grants women autonomy in family financial decision-making, helps alleviate extreme poverty in remote areas, and directly improves the aggregate welfare of families in terms of nutritional fulfillment and children's education (Rasnawati et al., 2024).

Green Economy and the ESG Framework

The Green Economy concept emerged as an antithesis to conventional economic development models that often sacrifice environmental carrying capacity. The green economy emphasizes improving human well-being and social equity while significantly reducing environmental risks and ecological scarcities. In the context of local creative industries and handicrafts, green economy practices are manifested through circular and eco-friendly production methods.

The use of ATBM by traditional artisans represents a perfect zero-carbon-emission manufacturing process (Husnan & Muhammad, 2000). Unlike the modern textile industry (fast fashion), which heavily pollutes water resources and emits massive greenhouse gases, manual weaving is entirely powered by human kinetics. Additionally, the raw materials used often originate from the surrounding nature or are produced with minimal

chemicals, making it an enterprise highly aligned with industrial decarbonization concepts.

Meanwhile, the ESG framework is a non-financial metric used to assess the sustainability of a business entity. The home weaving industry fulfills these three dimensions exceptionally well (Murniati & Takandjandji, 2016). The Environmental dimension is met through energy conservation and zero-waste management. The Social dimension is strongly reflected in efforts to preserve the cultural heritage of the Muna tribe, the transmission of tacit knowledge from older to younger generations, and the strengthening of cohesion and mutual cooperation in rural communities. Lastly, the Governance dimension is represented by the independence and transparency of role division (managerial) within the artisan households, where the rights and wages of workers, albeit on an informal scale, are managed with the principle of communal justice (Rahman, 2021).

Digital Transformation and MSME Financial Inclusion Access

The Fourth Industrial Revolution (Industry 4.0) and digitalization have overhauled both global and local trade architectures. Digital transformation is no longer an exclusive choice for large companies but an absolute prerequisite for modernizing rural MSMEs so they are not crushed by market competition (Susanti & Putra, 2022). The adoption of information and communication technology (ICT), such as e-commerce platforms, online marketplaces, and social media marketing, can tear down geographical barriers that have historically isolated rural artisans. Digitalization allows MSMEs to shorten the distribution chain by bypassing intermediaries (middlemen), enabling larger profit margins to return directly to the producers.

On the other hand, financial inclusion is a crucial element ensuring equitable access to capital products and services for all layers of society, especially vulnerable and unbanked groups. For micro-scale artisan communities, absolute dependence on self-funding often impedes expansion and stifles innovation (Wulandari, 2023). If raw material prices rise, artisans without credit access are forced to reduce production volumes. The presence of village economic institutions, such as Village Unit Cooperatives (KUD) and BUMDes, as well as easy access to KUR from government banks, is vital. Affordable and accessible capital inclusion is the primary catalyst for artisans to invest in high-quality raw materials (such as silk and gold threads), purchase better weaving equipment, and ultimately increase the economic scale of their businesses.

RESEARCH METHOD

This research design adopts a quantitative descriptive approach, specifically designed to precisely measure financial performance, identify cost structures, and evaluate the operational profitability of weaving enterprises at the micro level. The research location was purposively selected in Lapolea Village, Barangka District, West Muna Regency, Southeast Sulawesi Province. The selection of this location was based on socio-geographical considerations, where Lapolea Village is recorded as one of the most active centers and epicenters for the preservation and production of traditional Muna woven fabrics.

The population subject to this study encompasses all household-scale traditional Muna woven sarong craft business units in the village, which, according to village demographic data, totals 120 business units. To obtain in-depth, valid, and representative data without sacrificing the quality of analytical depth, a purposive sampling technique was employed. The inclusion criteria set for respondents included: (1) the business is actively producing regularly within a monthly cycle, (2) the business owner can provide estimates or

historical data regarding relatively stable income and production costs, (3) the business has operated and survived over time for at least 1 to 2 consecutive years, and (4) there is clarity in labor allocation, whether family labor or hired labor from outside the family. Based on these strict criteria, 30 respondents were selected as highly representative of the empirical conditions of the artisan population in Lapolea Village.

Primary data collection was conducted through a series of triangulation methods to maintain data validity. The first method was non-interventional participatory observation, where researchers directly observed working hours, the techniques of using traditional weaving tools, and the yarn assembly process. The second method involved structured interviews with systematic questionnaire guides to dig into financial data details, including production volume (quantity of sarongs), selling price per motif, details of fixed costs (tool purchase prices), and variable operational expenses (purchases of various thread types and worker wage payments). The third method was a documentation study conducted on the tool inventory (such as Langku, Dhangka, Kae, etc.) and the recording of various weaving motifs produced.

Financial data analysis was conducted using a basic micro-accounting framework. The total revenue (TR) component was calculated using the formula $TR = \Sigma (P \times Q)$, where P represents the specific selling price for each sarong motif type, and Q is the quantity of sarongs of the respective motif successfully produced and sold within one month. The total cost (TC) component was calculated by summing fixed costs (FC) and variable costs (VC). Fixed costs include the monthly depreciation value of the 16 components of manual weaving tools amortized over an estimated economic life of 30 months. Meanwhile, variable costs encompass fluctuations in primary raw material prices (various thread variants) and the costs of specialized labor (yarn assemblers and weavers).

Subsequently, net profit or operational income (π) was obtained through the difference between revenue and costs ($\pi = TR - TC$). The long-term business continuity feasibility was evaluated using the financial feasibility ratio method (R/C Ratio), formulated as the ratio of total revenue to total operational costs ($R/C = TR / TC$). Standard decision-making criteria were applied: if the R/C value > 1, the business economically generates value added, is feasible, and is highly profitable to continue; if R/C = 1, the business is in a stagnant condition or at the break-even point; and if R/C < 1, the business burns capital (operates at a loss) and is declared unfeasible to maintain.

RESULTS

Demographic, Educational, and Employment Characteristics

Table 1. Age Groups of Respondents

No	Age Group (Years)	Total (Persons)	Percentage (%)
1	25 – 40	6	20.00
2	41 – 55	10	33.33
3	55 – 80	14	46.67
Total		30	100

The demographic profile of weaving artisans in Lapolea Village provides a rich picture of the social dimensions of this creative industry. Survey results in Table 1 show that the business structure is completely dominated by women, with a substantial concentration in middle to old age. In detail, the largest percentage of respondents (46.67%) falls into the elderly category between 55 and 80 years old. The second position is occupied by the middle productive age group between 41 and 55 years (33.33%), and the remainder are young weavers under 40 years old (20%). This empirical evidence indicates that the

highly technical and complex weaving skill indeed requires patience and extensive flying hours.

Table 2. Educational Background of Respondents

No	Education Level	Total (Persons)	Percentage (%)
1	Did Not Complete Elementary School	4	13.33
2	Completed Elementary School	12	40.00
3	Completed Junior High School	6	20.00
4	Completed Senior High School	8	26.67
Total		30	100

Respondent experience levels are directly proportional to their age. A total of 36.67% of respondents have been in this profession for 11-20 years, and surprisingly, 40% of all artisans have dedicated their lives to weaving for more than two decades (>20 years). This is an invaluable local intellectual capital. However, from a formal literacy perspective, the average educational level of respondents is quite low; 40% only received education up to graduating from Elementary School (SD), and 13.33% did not complete elementary school. This data confirms that the acquisition of Muna weaving skills is a form of tacit knowledge culturally passed down through families (see Table 2).

Highlighting employment and time management aspects, female artisans bear a dual burden common in rural agrarian societies. The average time allocated purely to the weaving process is 6.2 hours per day. This duration is carried out in a fragmented manner, inserting time between domestic household obligations taking an average of 2.2 hours per day, and other side jobs (such as farming or gardening) for 2.6 hours per day. The majority of respondents (63.33%) are married, meaning the family's economic burden rests largely on the production outcomes of this weaving.

Operational Revenue Analysis (Total Revenue)

Table 3. Revenue Distribution by Motif Type

Motif Type	Unit Price (Rp)	Quantity Sold (Pcs)	Total Revenue (Rp)
Kambha Motif (Basic)	160,000	9	1,440,000
Bhia-Bhia Motif (Medium)	250,000	59	14,750,000
Manggopa Motif (Complex)	300,000	33	9,900,000
Samasili Pilihan Motif	500,000	13	6,500,000
Bulawa Motif	600,000	11	6,600,000
Lantoga Motif	550,000	1	550,000
Total		126	40,090,000

Gross revenue (Total Revenue) from this craft enterprise heavily depends on the artisan's physical productivity and the complexity of the motif produced. Muna weaving crafts do not produce homogeneous goods; each sarong is a canvas representing different complexities and artistic values. Field surveys in Table 3 identified a selling price hierarchy based on motif classification: The Kambha Motif, the most basic and simple pattern, is sold at around Rp160,000 per piece. Moving to the intermediate difficulty level, the Bhia-Bhia Motif is priced at Rp250,000. More geometrically complex motifs like the Manggopa and Samasili Pilihan Motifs have selling prices of Rp300,000 and Rp500,000, respectively. At the peak of the hierarchy are exclusive motifs using premium materials, namely the Lantoga Motif (Rp550,000) and the Bulawa Motif, which symbolizes majesty (Rp600,000).

During a one-month production cycle monitored from the 30 sample respondents, a total physical sales volume of 126 woven sarong fabrics was accumulated. Sales distribution is heavily concentrated in the middle segment, where the Bhia-Bhia Motif recorded the highest sales of 59 pieces, followed by the Manggopa Motif with 33 pieces.

From this overall sales volume, calculations show that the aggregate revenue (TR) of all respondents reached Rp40,090,000 per month. On average, each artisan (respondent) was able to book a gross turnover of Rp1,336,333 every month.

Production Cost Structure Analysis (Total Cost)

To evaluate managerial efficiency, dissecting the operational cost structure is mandatory. Production costs in traditional weaving crafts are classified into fixed costs and variable costs components. Fixed costs originate purely from capital investment in production instruments, namely a set of ATBM. The manual loom in Muna consists of 16 highly specific wooden/bamboo mechanical devices, including: Langku (base frame), Dhangka (yarn comb), Kae and Ati (tighteners), Bhibhita (separator), Katai (stretcher), up to Bhalida (straightener). The total capital required to self-assemble one complete set of these tools is valued at around Rp372,000. Using the straight-line depreciation method with an estimated functional life of 30 months, the monthly depreciation expense amortized into production costs is only Rp12,400 per respondent. This nominal figure reflects low barriers to entry from the fixed asset side.

Table 4. Total and Average Variable Costs of All Respondents

Variable Cost Component	Aggregate Total Cost (Rp)	Average per Respondent (Rp)
Yarn Raw Material	9,595,000	319,833
Yarn Installer Wage	4,175,000	139,166
Main Weaver Wage	5,550,000	185,000
Total Variable Cost (VC)	19,320,000	644,000

The component that drains artisan liquidity is variable costs, which fluctuate in line with production intensity. This component is divided into two: primary raw material costs and labor wages. The main raw materials are various yarn variants (regular/cotton yarn, fine yarn, and metallic yarn like gold and silver threads for premium motifs). Based on Table 4, the total aggregate spending on yarn needs for all respondents reached Rp9,595,000 in a month (averaging Rp319,833 per respondent). Besides materials, the Muna sarong making process requires labor specialization. The preparation phase (warping) is assigned to 'Yarn Installer' workers, while the execution process is carried out by 'Weavers'. The total aggregate compensation distributed to pay the wages of these two specializations costs Rp9,725,000 a month (averaging Rp324,166 per artisan).

By consolidating these fixed and variable costs, the aggregate Total Cost (TC) of the home industry from 30 respondents is obtained at Rp19,692,000 each month. When averaged, the cost structure to operate one traditional Muna weaving business unit in Lapolea Village is approximately Rp656,399 per month.

Net Profitability and R/C Ratio Financial Feasibility

The main success benchmark from a financial perspective culminates in the calculation of net operational profit (π = TR - TC). By subtracting total operational expenses (Rp19,692,000) from total turnover (Rp40,090,000), this micro-scale traditional Muna woven sarong craft industry collectively generated an absolute economic surplus of Rp20,398,000 in a one-month timeframe. Rationalizing this figure to the individual level shows that the average net profit or take-home income enjoyed by an artisan is Rp679,933 per month.

The feasibility of business continuity is then proven through the Return Cost Ratio (R/C Ratio) index. The mathematical division of total revenue by total cost yields a solid index coefficient of 2.0. This feasibility index of 2.0 fundamentally and absolutely sits far above the critical profitability threshold (where R/C > 1). This figure demonstrates exceptionally high capital efficiency leverage; every Rp1.00 injected into the production cycle (whether to buy yarn, maintain tools, or pay wages) can be utilized to print a double return of Rp2.00. Empirically, this number indicates that Muna weaving crafts are highly bankable, cost-resilient, and extremely viable for further development.

DISCUSSION

Strategic Impact on Grassroots Economic Resilience

The synthesis of these empirical research results reinforces the argument that micro-entrepreneurship at the village level driven by women acts as a key infrastructure in engineering grassroots economic resilience. The nominal monthly net income of Rp679,933 pocketed by each artisan family in Lapolea Village might nominally seem inferior when compared to the Regional Minimum Wage (UMR) in the formal urban sector. However, within a subsistence-based rural economic ecosystem, the utility value of this extra cash multiplies.

This extra income directly intervenes in household vulnerability points. It acts as a financial shock absorber, supporting purchasing power when the primary income cycle (majority from seasonal agriculture) is at its nadir due to crop failure, climate anomalies, or plunging primary commodity prices. Furthermore, the financial independence achieved through the clinking of these manual weaving machines sociologically dismantles patriarchal dominance in family financial management. Female Muna artisans gain autonomy and bargaining power in the domestic sphere. This kind of women's empowerment is a qualitative indicator of inclusive development, proving that rural poverty alleviation can be orchestrated through the capitalization of local cultural assets.

Evaluating Compliance with Green Economy Principles and ESG Indicators

The exceptional business feasibility rate (R/C Ratio 2.0) is achieved without inducing negative externalities to the environment. This operational fact serves as an empirical prototype of how the Green Economy concept is perfectly executed in the grassroots sector. Mass textile industries (fast fashion) globally are condemned for their status as the worst water pollutants and massive contributors to greenhouse gas emissions. In contrast, the Muna weaving craft ecosystem offers a radical decarbonization route. The mechanization used, namely 16 forming elements of manual looms ranging from Langku to Dhangka, is sourced from local biomaterial composites (wood and bamboo). Its energy source is 100% biological kinetic power (human muscle), thereby recording an absolute zero-emissions footprint.

This achievement strongly resonates with the fulfillment of ESG criteria. The Environmental dimension is validated through the absence of air pollution and material efficiency. In the Social dimension, veteran artisans aged 55-80 bridge generations, transmitting tacit knowledge regarding intricate coloring patterns and the philosophical meanings behind every stroke of the Samasili (symbol of unity) and Bulawa (majesty) motifs to younger generations. This is a practice of communal civilization conservation. The Governance dimension is visualized through an egalitarian informal wage structure between the design creator (yarn installer) and the executor (weaver), determined through fair social consensus without exploitation.

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Critical Challenges: Digital Transformation, Innovation, and Financial Inclusion Access

Despite securing a promising feasibility ratio (profitability), reality on the ground indicates that the operations' expansion capacity and market absorption volume of artisans are still held far below their potential ceiling. This discussion highlights two main structural residues acting as bottlenecks: the deficit in transforming the marketing ecosystem toward digitalization, and the shallow penetration level of capital financial inclusion.

The first challenge is rooted in market penetration methodologies that remain held hostage by past orthodoxies. Conventional supply chains relying on information asymmetry place intermediaries (middlemen) in a dominant position to dictate price margins, instead of the sarong creators. The absence of digital literacy is a veil preventing artisans from penetrating cross-provincial market landscapes and global arenas (Sultan et al., 2023). This is where regulatory interventions and fiscal policies from local government institutions become essential. The government must initiate e-commerce literacy injections, the development of capable village internet infrastructure, and digital branding incubation programs (such as the establishment of a Digital Lapolea Weaving Gallery). Education on navigating online marketplaces and promotions via social media algorithms will provide massive price leverage for premium masterpieces like the Lantoga motif, allowing them to directly reach end-users.

The second structural challenge stems from the limited liquidity of capital (independent working capital). The artisans' business cycle often experiences stagnation when attempting to innovate by creating highly complex motifs that demand the purchase of expensive raw materials, such as gold or silver threads, amidst fluctuating yarn commodity prices. The construction of the conventional banking system that requires physical collateral categorizes this micro-artisan group as unbankable. Overcoming this, financial inclusion facilitation from the state, particularly through subsidized Micro KUR schemes, becomes a rescuing instrument. Alongside KUR, revitalizing grassroots collective economic institutions like Special Women's Weaving Cooperatives or revolving capital equity from BUMDes will create a buffer ecosystem. It is these hyper-local institutions that can procure raw materials in bulk to reduce the cost of goods sold, ensuring that traditional Muna weaving can transform from merely a subsistence economic shield into a competitive regional creative industry power.

CONCLUSION

This research and analytical review affirm the conclusion that the traditional Muna woven sarong craft industry in Lapolea Village, West Muna Regency, possesses fundamental resilience and highly impressive financial feasibility metrics. Measured through a R/C Ratio index reaching 2.0, this micro-scale industry is proven to be doubly efficient, with the power to generate an average net profit surplus of Rp679,933 per month for every artisan family's balance sheet. This communal creative economic activity is empirically validated as a solid pillar supporting grassroots economic resilience, simultaneously transforming into a role model for the pure implementation of Green Economy sustainability principles through ancient manual loom manufacturing techniques entirely free from carbon pollution.

Nevertheless, to multiply the economic impact of this sector into a primary generator of regional development, holistic structural interventions are absolutely necessary. The regional executive, along with all stakeholder pillars, must orchestrate digital transformation policies—in the form of massive incubation of e-commerce skills and digital branding literacy—to liberate artisans from the snare of local supply chain monopolies (middlemen). Simultaneously, the execution of an aggressive capital

financial inclusion policy mix through the injection of KUR funds, as well as the optimization of funding capital from Village Cooperatives and BUMDes, must be immediately realized to solve the scarcity problem of high-quality yarn procurement capital. By tackling these two structural constraints, the philosophical existence of the Muna tribe's ancestral cultural heritage will not only endure across ages but will also become a sustainable welfare engine for its preserving community.

LIMITATION

This research design is constrained by the cross-sectional observation timeframe centered solely on one main production center locus (Lapolea Village), with a sample distribution that is statistically considered relatively small (30 observation units) by macro standards. Furthermore, the feasibility analysis spectrum in this study focuses more on short-term static cost accounting parameters. Constructive recommendations for future longitudinal (time-series) empirical studies are to expand the research cluster area to include inter-regency scopes, test the significance level of digital technology adoption on profitability spikes through causality regression econometric models, and conduct experimental research related to the monetization valuation of the zero-carbon footprint (carbon credit valuation) contributed by this manual craft industry.

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DECLARATION OF CONFLICTING INTERESTS

The authors of this study formally and explicitly declare that there are no indications or manifestations of conflicts of interest—whether in the form of extra financial compensation, institutional affiliation interventions, or personal pretensions—that could potentially compromise independence and objectivity across all research phases: from field data collection, analytical processes, formulation of conclusions, to the publication stage of this scientific article.

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