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BRIDGING TRADITION AND TECHNOLOGY: THE ROLE OF INNOVATION AND DIGITAL MARKETING IN SUSTAINING BALI'S SOKASI CRAFT INDUSTRY

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Abstract

The *sokasi* craft industry in Bali represents a traditional cultural heritage that continues to sustain local livelihoods despite modern economic challenges. This study aims to analyze the role of product innovation and digital marketing in enhancing the sustainability and welfare of *sokasi* craft entrepreneurs in Bangli Regency. Using a quantitative approach, data were collected from 146 *sokasi* craftsmen across four districts through structured questionnaires. The data were analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS) to test both direct and mediating effects. The results reveal that product innovation and digital marketing have a significant positive impact on business sustainability and the welfare of *sokasi* entrepreneurs. Moreover, sustainable business practices serve as a mediating variable that strengthens the influence of innovation and digital strategies on welfare improvement. These findings highlight the importance of empowering artisans through innovation, human capital development, and technological adaptation to maintain cultural continuity while enhancing economic resilience. The study suggests that integrated innovation and digital marketing strategies are essential for sustaining traditional crafts in the digital era. This study contributes to sustainability and welfare theory by confirming the mediating role of business sustainability in linking innovation and welfare in cultural MSMEs

Keywords: Innovation, Digital Marketing, Business Sustainability, Entrepreneurs' Welfare, *Sokasi* Craft.

Introduction

Micro, Small, and Medium Enterprises (MSMEs) are widely recognized as a cornerstone of national and regional economic development due to their substantial contribution to employment creation, innovation, and income distribution (Purwanto, 2020). In Indonesia, MSMEs represent more than 99% of all business entities and contribute around 60% to the national Gross Domestic Product (GDP) (Ministry of Cooperatives and SMEs, 2023). In Bali Province, the MSME sector has experienced consistent growth and has outperformed the national average in entrepreneurship ratio, reaching 8.38% compared to the national figure of 5% (Bali Provincial Office of Cooperatives, 2023).

Beyond their economic contribution, MSMEs in Bali also play a vital socio-cultural role by integrating traditional knowledge, craftsmanship, and community-based economic values into the broader market system. The island's economy relies heavily on the creative industries, particularly handicrafts, art production, and small-scale agro-industries that reflect Balinese culture and spirituality (Wilanda & Rustariyuni, 2019). These enterprises not only sustain household income but also serve as vehicles for preserving cultural identity and promoting sustainable local development. The presence of MSMEs across nine regencies and one municipality demonstrates their adaptability in facing market shifts, tourism fluctuations, and external shocks (Thimthong, Kortana, Saisama, & Suwannarak, 2025).

However, despite this strong foundation, the MSME landscape in Bali is not without challenges. Rapid technological transformation, changing consumer behavior, and increasing global competition have pressured many small enterprises to innovate or

risk obsolescence (Aldianto, Anggadwita, Permatasari, & Pradita, 2021). Furthermore, the COVID-19 pandemic caused a major disruption to production, supply chains, and consumer demand, exposing structural vulnerabilities in traditional business models (Donthu & Gustafsson, 2020; Yordudom, Imjai, Suwannual, & Aujirapongpan, 2024). Nevertheless, the ability of certain sectors such as bamboo craft industries to remain resilient highlights the importance of understanding the factors that contribute to business sustainability in times of crisis (Chantabutra & Laohavichien, 2025).

In recent years, the number of MSMEs in Bali has shown both growth and fluctuation across districts, reflecting varying levels of resilience and adaptation to market challenges. The development of MSMEs in Bali Province from 2018 to 2023 is presented in **Table 1**.

Table 1. *Growth of MSMEs in Bali Province, 2018–2023*

Regency	**Year**					
	2018	**2019**	**2020**	**2021**	**2022**	**2023**
Badung	16.899	19.688	19.261	22.647	40.989	21.699
Bangli	43.948	44.068	44.068	44.123	44.693	44.251
Buleleng	31.563	34.552	34.374	54.489	57.216	66.368
Denpasar	30.840	31.826	32.026	32.224	32.226	29.749
Gianyar	91.511	75.412	75.482	75.452	75.620	75.666
Jembrana	10.525	27.654	24.346	46.277	66.537	67.183
Karangasem	38.989	39.589	40.468	57.456	40.614	50.717
Klungkung	9.712	11.761	14.584	35.792	36.072	35.792
Tabanan	38.980	41.459	42.744	43.715	47.160	47.957
Total	312.967	326.009	327.353	412.265	441.127	439.382

Source: Bali Provincial Office of Cooperatives, Small and Medium Enterprises, 2023

The data indicate that while MSMEs in Bali experienced a significant increase between 2018 and 2022, the overall growth rate declined slightly in 2023, suggesting post-pandemic stabilization. Notably, Bangli Regency maintains a relatively high number of MSMEs, many of which are involved in the handicraft sector. This demonstrates the region's potential as a hub of creative industry, where traditional crafts continue to play a vital role in sustaining local livelihoods (Wilanda & Rustariyuni, 2019). The predominance of bamboo-based crafts, wood carving, and woven products in Bangli is closely linked to the availability of raw materials and the transmission of artisanal knowledge through generations. Such crafts have become both an economic asset and a medium for cultural preservation, positioning Bangli as a model for integrating culture-based entrepreneurship within the broader sustainable development framework of Bali.

Among Bali's various creative industries, the *sokasi* craft industry a form of bamboo weaving used in Hindu religious ceremonies stands out as both a cultural heritage and a key economic activity (Arinasa & Peneng, 2013). The *sokasi* basket, traditionally used to carry ceremonial offerings, symbolizes not only artistic expression but also the spiritual devotion embedded in Balinese daily life. The continuity of *sokasi* production has thus been supported by deeply ingrained cultural demand, where the product holds both functional and symbolic value in local religious practices. Beyond domestic use,

sokasi crafts have also begun to attract niche tourism and export markets due to their aesthetic appeal and eco-friendly material composition, aligning with global trends toward sustainable and ethical consumption.

Nevertheless, despite this enduring cultural and economic relevance, the *sokasi* craft industry faces significant challenges in the contemporary marketplace. Globalization has intensified competition from mass-produced substitutes, while digital transformation has reshaped consumer preferences and purchasing behavior. Artisans who traditionally relied on local markets and interpersonal transactions must now adapt to digital platforms, online marketing, and evolving design standards to remain competitive. Additionally, limited access to capital, inadequate technological literacy, and fragmented business networks often constrain the artisans' ability to scale their operations and penetrate broader markets (Hanum & Sinarasri, 2017; Hardilawati, 2020).

These dynamics underline the urgency of developing adaptive strategies grounded in product innovation, digital marketing adoption, and human capital enhancement to ensure business sustainability. The *sokasi* artisans' ability to integrate cultural authenticity with modern entrepreneurial practices represents a critical determinant of their long-term success. Therefore, understanding how these factors—innovation, digital engagement, and social networking—affect the sustainability and welfare of *sokasi* entrepreneurs in Bangli is essential not only for economic empowerment but also for preserving Bali's intangible cultural heritage in the digital age.

The COVID-19 pandemic (World Health Organization, 2020) severely impacted most business sectors, yet the *sokasi* craft industry proved relatively resilient due to persistent local demand. This phenomenon highlights an important research gap: how traditional craft industries can maintain sustainability and welfare amidst digital transformation and economic uncertainty. While previous studies have examined innovation and marketing strategies in MSMEs (Hanum & Sinarasri, 2017; Hardilawati, 2020), limited empirical attention has been paid to traditional craft sectors that intertwine cultural values with economic sustainability.

This research therefore seeks to analyze the influence of product innovation, human capital, digital marketing, and business networking on the sustainability and welfare of *sokasi* entrepreneurs in Bangli Regency. Consumer preference is included as a moderating variable to explain how market dynamics interact with innovation in sustaining traditional industries. The novelty of this study lies in integrating internal (innovation, human capital) and external (digital marketing, consumer preference) determinants into one comprehensive framework for heritage-based MSMEs.

Theoretically, this study strengthens welfare theory, production theory, and sustainability theory by demonstrating that traditional industries can remain competitive through innovation and technological adaptation (Todaro & Smith, 2011). Practically, the findings provide strategic insights for local governments and craft entrepreneurs to promote innovation-driven sustainability while preserving cultural heritage. In summary, this research contributes to understanding how innovation and digital marketing serve as key enablers for the continued sustainability and welfare of the *sokasi* craft industry in Bali. This study contributes to the literature by integrating sustainability, welfare, and cultural entrepreneurship theories to explain how innovation, human capital, digital marketing, and networking collectively enhance business sustainability and entrepreneurs' welfare in heritage-based MSMEs.

Objective(s)

1. Analyze the effect of product innovation, human capital, digital marketing, and networking on the sustainability of the *Sokasi* craft industry in Bangli Regency.
2. Examine the influence of these variables on the welfare of *sokasi* craft entrepreneurs.
3. Investigate the mediating role of business sustainability in the relationship between innovation, human capital, digital marketing, networking, and entrepreneur welfare.
4. Evaluate the moderating effect of consumer preferences on the relationship between product innovation and business sustainability.
5. Identify internal and external determinants that enable the *sokasi* craft industry to remain competitive and sustainable in the modern economic environment.

Conceptual Framework

This study proposes that product innovation, human capital, digital marketing, and networking serve as key strategic resources that enhance the sustainability of the *sokasi* craft industry in Bali. Drawing on resource-based and innovation theories, product innovation enables artisans to differentiate their products and respond to changing consumer demands, while human capital enhances creativity and entrepreneurial capability. Digital marketing expands market access through technology adoption, and networking facilitates collaboration and support systems essential for business growth. Consumer preference is positioned as a moderating variable that strengthens the relationship between product innovation and business sustainability, emphasizing that innovation is most effective when aligned with market tastes and cultural expectations.

Furthermore, the framework suggests that business sustainability functions as a mediating variable connecting internal capabilities and external strategic actions to the welfare of *sokasi* entrepreneurs. Sustainable business practices increase economic resilience, market continuity, and long-term viability, which in turn improve the socio-economic welfare of artisans through increased income, stability, and quality of life. Thus, the framework integrates both economic and socio-cultural dimensions, proposing that innovation-driven and digitally enabled sustainability is a critical pathway to enhancing welfare and preserving traditional cultural heritage within the *sokasi* craft industry. Based on the conceptual relationships among these variables, an integrative research model is developed to illustrate the direct, mediating, and moderating effects proposed in this study show on Figure 1.

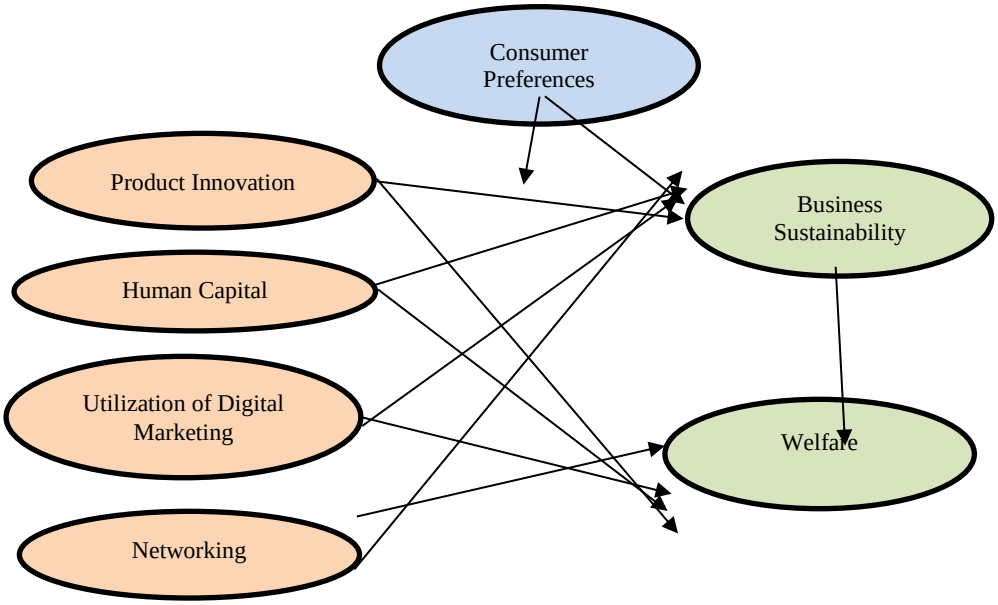

Figure 1. **Conceptual Framework**

Research Methodology

1. Population and Samples

The population of this study comprises all micro-scale *sokasi* craft industries located in Bangli Regency, whose primary business activity is the production of *Sokasi* bamboo crafts. According to data from the Bangli Regency Industry Office, there are a total of 743 *sokasi* craft business units operating across the region. These enterprises represent traditional craft-based MSMEs that are deeply rooted in local cultural practices and serve both economic and ceremonial functions within Balinese society.

The sample was determined using a non-probability purposive sampling technique, which is appropriate for selecting respondents based on specific criteria relevant to the research objectives. Using the G*Power 3.1 application, a minimum sample size of 146 *sokasi* artisans was identified to ensure adequate statistical power for SEM-PLS analysis. The selection criteria included: (1) artisans actively engaged in *sokasi* production, (2) categorized as micro enterprises employing 1–4 workers, and (3) domiciled in Bangli Regency. Respondents were distributed proportionally across the four districts of Bangli, Susut, Kintamani, and Tembuku to ensure representation of the overall population.

2. Research Instrument

This study employed a structured questionnaire as the primary research instrument to collect quantitative data from *sokasi* craft entrepreneurs in Bangli Regency. The questionnaire was designed based on validated constructs from previous empirical studies and adapted to the context of the traditional craft industry. It consisted of several sections measuring independent, mediating, moderating, and dependent variables, including product innovation, human capital, digital marketing utilization, networking, consumer preference, business sustainability, and welfare.

Each construct was operationalized into multiple indicators measured using a five-point Likert scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”). The indicators for product innovation included aspects of product design, functionality, and cultural adaptation. Human capital was measured through education, skills, and

entrepreneurial competencies. Digital marketing indicators focused on the use of online platforms, customer engagement, and digital promotion effectiveness. Networking was assessed through collaboration, information sharing, and institutional relationships. Consumer preference indicators captured customer satisfaction and product suitability with market demands. Business sustainability was evaluated in terms of continuity of production, financial stability, and market access, while welfare was measured through income security, quality of life, and family economic well-being. To ensure reliability and validity, the questionnaire underwent content validation by academic experts and was pilot-tested among a small group of artisans. Data quality was further assessed using convergent and discriminant validity as well as reliability tests through Composite Reliability (CR) and Cronbach's Alpha in the SEM-PLS analysis.

3. Collection of Data

Data were collected through the administration of structured questionnaires distributed directly to *sokasi* artisans across four districts in Bangli Regency: Bangli, Susut, Kintamani, and Tembuku. The distribution process was carried out with the assistance of trained surveyors to ensure accurate responses and to provide clarification when needed. Prior to full distribution, a pilot test was conducted to ensure clarity and relevance of the questionnaire items. Respondents were approached using a purposive sampling method based on predetermined criteria, including active involvement in *sokasi* production and classification as a micro-enterprise. The questionnaires were delivered in a face-to-face manner to enhance response rates and ensure that participants fully understood each statement. Additionally, the researchers explained the purpose of the study and guaranteed confidentiality of respondents' information in accordance with ethical research guidelines. Data collection was conducted over a three-month period, during which completed questionnaires were retrieved immediately after being filled out to minimize non-response bias. The collected data were then verified, coded, and input into statistical software for further analysis using the SEM-PLS technique.

4. Data Analysis

Data analysis in this study was conducted using the Structural Equation Modeling–Partial Least Squares (SEM-PLS) approach, which is suitable for predictive research models involving multiple latent constructs and small to medium sample sizes. The analysis was carried out using SmartPLS software to evaluate both the measurement model (outer model) and the structural model (inner model). The outer model assessment was performed to test the validity and reliability of the research instruments through indicator loadings, Average Variance Extracted (AVE), Composite Reliability (CR), and Cronbach's Alpha. Convergent validity was confirmed when factor loadings exceeded 0.70 and AVE values were above 0.50, while discriminant validity was evaluated using the Fornell-Larcker criterion and Heterotrait-Monotrait (HTMT) ratio.

Following the validation of the measurement model, the inner model was assessed to determine the significance and strength of relationships between variables. Path coefficients, t-statistics, and p-values were generated through a bootstrapping procedure to test the proposed hypotheses. In addition, the coefficient of determination (R^2) was used to evaluate the explanatory power of exogenous variables on endogenous variables, while predictive relevance (Q^2) and effect size (f^2) were used to assess the overall model quality. Mediation effects of business sustainability and the moderating role of consumer preference were tested in accordance with the procedures recommended in SEM-PLS literature. The results of these analyses provided empirical evidence regarding the influence of innovation capabilities and digital strategies on the sustainability and welfare

of *sokasi* craft entrepreneurs.

Result (s)

The demographic profile of respondents indicates that the *sokasi* craft industry is predominantly driven by women with long-standing experience, reflecting the culturally embedded and hereditary nature of this traditional craft. The predominance of respondents with a high school education suggests that formal higher education is not a prerequisite for participating in this industry, as the required competencies are largely skill-based and passed down through generations. The distribution of respondents across various sub-districts demonstrates that *sokasi* production is a community-based economic activity, deeply rooted in rural cultural traditions rather than urban commercial enterprises. Furthermore, the concentration of respondents within the productive age range and their extensive experience in the business signify strong entrepreneurial resilience and long-term commitment, which are critical for sustaining traditional craft industries in the modern economy. Collectively, these characteristics illustrate that the *sokasi* industry is not only an economic activity but also a vehicle for cultural preservation, social identity, and intergenerational welfare enhancement. The respondent's characteristic of this study show in Table 2.

Table 2. Respondent's Characteristic

	Information	**Total (person)**	**Percentage (%)**
1.	Gender		
	Male	63	43,1
	Female	83	56,9
2.	Background Education		
	Junior High School	10	6,8
	High School	126	86,3
	Diploma	6	4,1
	Barchelor	4	2,7
3.	Sub-District in Bangli Regency		
	Bangli	28	19,2
	Susut	58	39,7
	Kintamani	27	18,5
	Tembuku	33	22,6
4.	Age		
	17-25	10	6,8
	26-35	40	27,3
	36-45	58	39,7
	>45	38	26,2
5.	Length of Business (year)		
	>5	12	8,2
	6-10	52	35,6
	11-20	33	22,6
	>20	49	33,6

	Indicator	Validity's Result			Reliability's Result	
		Pearson Correlation	*Sig*	Result	*Cronbach's Alpha*	Result
1	Product Innovation	0,756	<0,001	Valid		
		0,805	<0,001	Valid	0,825	Reliable
		0,705	<0,001	Valid		
2	Human Capital	0,841	<0,001	Valid		
		0,725	<0,001	Valid	0,835	Reliable
		0,717	<0,001	Valid		
3	Digital Marketing Utilization	0,673	<0,001	Valid		
		0,733	<0,001	Valid	0,756	Reliable
		0,781	<0,001	Valid		
4	Networking	0,658	<0,001	Valid		
		0,629	<0,001	Valid	0,767	Reliable
		0,752	<0,001	Valid		
		0,689	<0,001	Valid		
5	Consumer's Preference	0,673	<0,001	Valid		
		0,733	<0,001	Valid	0,763	Reliable
		0,781	<0,001	Valid		
6	Business	0,700	<0,001	Valid		
	Sustainability	0,790	<0,001	Valid	0,755	Reliable
		0,685	<0,001	Valid		
7	Welfare	0,631	<0,001	Valid	0,756	Reliable

	0,796	<0,001	Valid
	0,783	<0,001	Valid

Table 3. Validity and Reliability's Result

The Pearson correlation values for each indicator demonstrate strong and statistically significant relationships with their respective constructs ($p < 0.001$), indicating that all indicators effectively measure the intended latent variables. Additionally, the Cronbach's Alpha coefficients for all constructs exceed the threshold value of 0.70, confirming satisfactory internal consistency and reliability of the measurement scales. These findings provide robust evidence that the research instrument is both conceptually sound and empirically reliable, ensuring that subsequent data analysis and hypothesis testing are grounded on accurate and valid measurements. The results presented in Table 3 confirm that all measurement instruments used in this study meet the required standards of validity and reliability for empirical research.

The measurement model results presented in Table 3 indicate that all constructs meet the reliability and validity criteria. All factor loadings exceed 0.70, with AVE values greater than 0.50, demonstrating convergent validity. Cronbach's Alpha and Composite Reliability (CR) values are also above the recommended threshold of 0.70, confirming internal consistency. These findings verify that the research instrument is both statistically and conceptually reliable, ensuring that the structural model analysis can be confidently performed in the next stage. The structural model assessment shows that all direct hypotheses are supported, indicating that product innovation, human capital, digital marketing, and business networking play essential roles in supporting both business sustainability and entrepreneurs welfare.

The structural model analysis reveals that product innovation significantly enhances business sustainability ($\beta = 0.146$, $p = 0.002$). This indicates that continuous improvements in design, materials, and product functionality allow *sokasi* artisans to remain competitive and relevant in the market. Human capital also has a significant positive effect on business sustainability ($\beta = 0.124$, $p = 0.048$), implying that artisans' knowledge, creativity, and skills directly strengthen production efficiency and resilience. Digital marketing utilization contributes positively to both sustainability ($\beta = 0.259$, $p = 0.004$) and welfare ($\beta = 0.641$, $p < 0.001$). This confirms that adopting online platforms, social media, and e-commerce has become a vital strategy for market expansion and income stability. Business networking shows the strongest direct influence on sustainability ($\beta = 0.404$, $p < 0.001$), emphasizing that collaboration and community partnerships are key to maintaining continuity in traditional industries.

Among the predictors of sustainability, business networking demonstrates the strongest influence, suggesting that collaboration, information access, and collective support from tourism actors and community partners are crucial for maintaining continuity in the *sokasi* craft industry. Digital marketing emerges as the most dominant factor in improving welfare, reflecting its capacity to expand market reach, enhance brand visibility, and significantly boost income generation. The mediation test results

demonstrate that business sustainability partially mediates the relationship between innovation, human capital, digital marketing, and networking with entrepreneurs' welfare. This means that artisans' welfare increases not only through direct improvements in their capacity and market access but also through the stability and continuity of their business operations. Moreover, the moderation analysis shows that consumer preference strengthens the impact of product innovation on sustainability ($\beta = 0.134$, $p = 0.029$), confirming that innovation aligned with customer needs and cultural values generates more sustainable outcomes. The R^2 values for business sustainability (0.875) and welfare (0.909) indicate that the proposed model has a strong predictive capability and fits the empirical data very well.

The mediation analysis confirms that business sustainability serves as a partial mediator for the relationships between each exogenous variable and entrepreneurs' welfare. This finding highlights that improvements in welfare occur not only through direct capacity enhancement or market expansion but also through the stability and longevity of business operations. Business networking contributes the largest indirect effect via sustainability, which illustrates that strong connections within ecosystems of traditional craft businesses facilitate long-term economic gains for micro-entrepreneurs.

The moderation results indicate that market preference significantly strengthens the effect of product innovation on business sustainability. This suggests that innovative practices are more impactful when aligned with consumer needs, trends, and cultural value appreciation. Overall, the R^2 values for business sustainability (0.875) and entrepreneur welfare (0.909) show substantial predictive accuracy of the structural model, confirming that the combination of innovation capabilities, human resources, digital transformation, and network support forms a comprehensive and effective framework for enhancing both sustainability and welfare in the *sokasi* craft industry.The Structural Model Results: Direct, Indirect, Moderation Effects, and R^2 show on Table 4.

Table 4. Structural Model Results: Direct, Indirect, Moderation Effects, and R^2

Path	Effect Type	β	p-value	Result
Direct Effects				
Product Innovation → Business Sustainability	Direct	0.146	0.002	Supported
Human Capital → Business Sustainability	Direct	0.124	0.048	Supported
Digital Marketing → Business Sustainability	Direct	0.259	0.004	Supported
Business Networking → Business Sustainability	Direct	0.404	0.000	Supported
Market Preference → Business Sustainability	Direct	0.137	0.022	Supported
Product Innovation → Entrepreneur Welfare	Direct	0.138	0.026	Supported
Human Capital → Entrepreneur Welfare	Direct	0.143	0.005	Supported
Digital Marketing → Entrepreneur Welfare	Direct	0.641	0.000	Supported
Business Networking → Entrepreneur Welfare	Direct	0.288	0.000	Supported
Business Sustainability → Entrepreneur Welfare	Direct	0.234	0.000	Supported
Indirect (Mediation) Effects				
Product Innovation → Business Sustainability → Entrepreneur Welfare	Indirect	0.034	0.006	Supported (Partial Mediation)
Human Capital → Business Sustainability → Entrepreneur Welfare	Indirect	0.029	0.044	Supported (Partial Mediation)
Digital Marketing → Business Sustainability → Entrepreneur Welfare	Indirect	0.061	0.019	Supported (Partial Mediation)
Business Networking → Business Sustainability → Entrepreneur Welfare	Indirect	0.095	0.001	Supported (Partial Mediation)
Moderation Effect				
Product Innovation × Market Preference → Business Sustainability	Moderation	0.134	0.029	Supported
Coefficient of Determination (R^2)				
Business Sustainability	R^2	0.875	—	Substantial
Entrepreneur Welfare	R^2	0.909	—	Substantial

To ensure the reliability and stability of the structural model, this study also conducted a robustness test as part of the post-estimation analysis in SEM-PLS. The robustness test aims to verify whether the estimated relationships among constructs remain consistent under different resampling conditions and whether the model is free from

multicollinearity or estimation bias. This step is important to confirm that the empirical results are not sensitive to sampling variation and that the model maintains strong predictive accuracy. The robustness assessment includes several diagnostic checks, such as bootstrapping stability, collinearity evaluation (VIF), R^2 and f^2 stability, and predictive relevance (Q^2). Based on the structural model estimation, all hypothesized relationships were supported, indicating the robustness of the proposed framework. To further confirm model stability, additional post-estimation robustness tests were conducted as presented in Table 5.

Table 5. Robustness Test Results

Model	R^2 Sustainability	R^2 Welfare	Path Coefficients (β) Significant Paths	Model Fit (SRMR)	Interpretation
Main Model (Full SEM-PLS)	0.875	0.909	All hypothesized paths significant (β = 0.124–0.641; p < 0.05)	0.062	Baseline model showing strong explanatory power and good fit
Alternative Model 1 (without moderation)	0.853	0.897	All main effects remain significant; β slightly reduced (0.118–0.619)	0.064	Results consistent; moderation adds marginal improvement to explanatory power
Alternative Model 2 (without mediation)	0.819	0.881	Direct effects remain positive but slightly weaker; β range (0.106–0.594)	0.066	Mediation contributes to model's predictive strength
Alternative Model 3 (Bootstrapping resample 10,000)	0.874	0.908	Coefficients stable across resamples; significance unchanged	0.061	Estimates are stable and robust to resampling
Alternative Model 4 (Centered interaction term)	0.876	0.910	All effects consistent; VIF reduced (<3.5)	0.060	Model remains valid after centering; confirms robustness

Model	R^2 Sustainability	R^2 Welfare	Path Coefficients (β) Significant Paths	Model Fit (SRMR)	Interpretation
					against multicollinearity

The robustness test compared the main structural model with several alternative model estimations to examine the stability and consistency of results. Across all alternative models, R^2 values for both business sustainability and welfare remained above 0.80, indicating strong and stable explanatory power. The moderation and mediation effects slightly enhanced predictive performance, while bootstrapping with 10,000 subsamples and mean-centering of interaction terms confirmed coefficient stability and reduced collinearity. The SRMR values across models (0.060–0.066) indicate acceptable model fit, confirming that the empirical findings are robust, reliable, and not sensitive to estimation technique or specification changes. These robustness results reinforce that the empirical model is statistically sound and can be generalized to similar traditional MSME contexts.

Overall, the findings highlight that networking is the most influential determinant of business sustainability, while digital marketing is the most powerful driver of welfare among *sokasi* entrepreneurs. These results emphasize that innovation, human capital, and technological adaptation must be integrated with strong social and cultural networks to achieve sustainable welfare in traditional craft industries.

Discussion

The findings reveal that product innovation, human capital, digital marketing, and business networking significantly influence both business sustainability and entrepreneurs' welfare in the *sokasi* craft industry. The discussion of these findings integrates theoretical perspectives from sustainability, welfare, and social capital theories to provide a deeper understanding of the mechanisms underlying MSME resilience in cultural contexts. Product innovation positively supports sustainability and welfare, which aligns with respondent statements that continuous value creation through design and functional modifications is critical in meeting tourism-driven market demands. This result reinforces previous studies by Li et al. (2016), Aldianto et al. (2021), and Gunday et al. (2011) that innovation is a core determinant of business competitiveness and long-term viability in SMEs, particularly those grounded in cultural craftsmanship.

Unlike most MSME studies conducted in urban or manufacturing contexts, this research highlights that networking has the strongest influence on business sustainability in the traditional *sokasi* craft industry. This finding can be explained through the communal and cultural entrepreneurship model in Bali, which is strongly shaped by the *Tri Hita Karana* philosophy emphasizing harmony between people, nature, and spirituality. These values create a unique social capital structure that reinforces collaboration, trust, and resource sharing among artisans. Consequently, networking in Bali is not merely transactional but socio-cultural, functioning as both an economic and spiritual support system that enhances long-term sustainability. This social-cultural dimension of entrepreneurship further emphasizes that sustainability in traditional MSMEs is shaped not only by economic resources but also by community-based values and shared norms.

Human capital demonstrates a positive effect on sustainability and welfare, confirming human capital theory which posits that knowledge, skills, and experience strongly shape productivity and business success. This finding is in line with Coleman et al. (2013), Edvinsson and Malone (2017), and Wijayanti et al. (2017), who found that skill enhancement and entrepreneurial expertise significantly increase business resilience and income stability. Respondents in this study indicated that intergenerational learning strengthens product quality, while digital literacy and training enhance business adaptability, further supporting conclusions from Arfi et al. (2021).

Digital marketing emerges as the strongest predictor of welfare, confirming the importance of digital platforms in expanding market access, improving customer engagement, and increasing sales performance. This result aligns with studies by Donthu and Gustafsson (2020), Dwivedi et al. (2021), and Hedrawan et al. (2019), which emphasize that digital transformation plays a pivotal role in MSME survival and recovery in the post-pandemic economy. The respondents' acknowledgment that online marketing helped them navigate periods of market disruption corroborates the argument that technological adoption is no longer optional but essential for micro-entrepreneurs.

The positive relationship between human capital and welfare supports the principles of welfare theory (Todaro & Smith, 2011), which state that knowledge, skills, and productivity improvements directly enhance individuals' living standards. In the context of the *sokasi* artisans, intergenerational skill transmission and continuous learning contribute to better income stability and social well-being. Furthermore, the strong influence of digital marketing on welfare extends production theory by illustrating how technology-mediated market access increases production efficiency and value creation without large-scale industrialization. Thus, this study demonstrates that digital transformation in micro-scale traditional industries can serve as a driver of inclusive and culturally rooted economic welfare.

Business networking has the strongest direct influence on sustainability. This finding reinforces social capital theory and aligns with Coviello et al. (2021) and Johnson et al. (2002), who demonstrated that strong relational networks facilitate access to resources, information, and broader market opportunities. Local institutional and tourism sector support highlighted by respondents proves that collaborative linkages are crucial for operational continuity in culturally based enterprises. Mediation analysis also confirms that sustainability partially mediates the effects of key business resources on welfare, consistent with Elkington (1997) and Kurniawan et al. (2020), suggesting that welfare is improved through sustained operations rather than only through direct capability boosts.

Market preference significantly moderates the influence of product innovation on sustainability, consistent with demand-driven innovation theory, where consumer needs and cultural relevance determine market success. This aligns with findings by Narver et al. (2004) and Zhu et al. (2018), who noted that customer-oriented innovation yields stronger competitive advantages. The substantial R^2 values for sustainability (0.875) and welfare (0.909) confirm the predictive strength of the structural model, supporting Hair et al. (2019) who state that R^2 above 0.67 represents a robust predictive model. Collectively, these results highlight that the integration of innovative practices, human resource excellence, strategic networking, and digital transformation forms an effective framework for empowering cultural-based MSMEs in emerging economies.

The mediating role of business sustainability confirms the proposition of sustainability theory, where long-term welfare depends on balanced interactions between economic, social, and cultural dimensions (Elkington, 1997). However, this study extends the theory

by providing evidence from a heritage-based MSME sector, demonstrating that sustainability is not solely driven by economic efficiency but also by cultural embeddedness and community resilience. The moderation effect of consumer preference further indicates that sustainability outcomes are stronger when innovation aligns with cultural authenticity and ethical consumption trends. This provides new insight for sustainability literature, particularly in developing economies where cultural industries represent both livelihood and heritage preservation.

In summary, this study contributes to the theoretical development of welfare and sustainability perspectives by integrating digital marketing and innovation within a culturally embedded MSME framework. It provides empirical evidence that traditional industries, when empowered through technology and community collaboration, can achieve both economic resilience and socio-cultural sustainability. These insights expand the discourse of MSME development beyond profit-oriented growth, emphasizing a balanced model of innovation, welfare, and cultural continuity. The study therefore advances sustainability and welfare theory by empirically confirming that cultural values can serve as structural enablers of long-term business resilience in heritage-based MSMEs. This finding contributes to the broader literature by positioning cultural-based entrepreneurship as a viable model for sustainable development in emerging economies.

This study is limited to the *sokasi* craft industry in Bali and uses a cross-sectional approach. Future research could adopt a longitudinal design to observe changes in MSME sustainability over time or apply comparative analysis across different cultural regions. Qualitative exploration of community-based innovation models may also enrich the theoretical understanding of cultural sustainability in small enterprises.

Suggestion

The findings of this study provide both theoretical and practical implications for enhancing the sustainability and welfare of traditional MSMEs. From a theoretical perspective, the study reaffirms the integration of sustainability, welfare, and social capital theories by demonstrating that cultural values can act as structural enablers of long-term business resilience. The model contributes to MSME development literature by showing that sustainability in cultural industries is not only market-driven but also shaped by community-based values and digital adaptation.

From a practical standpoint, several recommendations can be proposed to strengthen the business sustainability and welfare of *sokasi* craft entrepreneurs in Bangli Regency. First, entrepreneurs are encouraged to improve product innovation by continuously developing new designs, functions, and packaging that align with evolving market preferences, particularly those driven by tourism trends. Collaboration with designers and cultural experts is important to preserve traditional identity while enhancing commercial appeal in competitive markets. Second, human capital development should be prioritized through structured entrepreneurship training, skill enhancement programs, and digital literacy workshops. These initiatives will improve production quality, business management capability, and adaptability to technological change.

Local government and supporting institutions are expected to provide accessible training platforms and continuous mentoring to ensure long-term competency growth. Third, digital marketing strategies need to be reinforced through the utilization of various online channels such as social media, digital catalogs, and e-commerce marketplaces. This approach will help expand market reach beyond local boundaries while maintaining

visibility among customers. Capacity-building programs focusing on branding, content creation, and online customer engagement are essential to maximize digital advantages. Fourth, strengthening business networking is crucial to ensure long-term resilience. Partnerships with tourism stakeholders, cooperatives, and government agencies should be formalized to secure market access, sourcing opportunities, and broader promotional exposure. Participation in trade fairs, cultural exhibitions, and tourism events will enhance market linkages and support sustainable income generation. Finally, policymakers are advised to design integrated empowerment programs that combine innovation support, digital transformation assistance, and ecosystem collaboration. This comprehensive approach will facilitate inclusive economic growth and reinforce the role of traditional craft industries as cultural and tourism assets for the region.

In conclusion, this study highlights that innovation, human capital, digital transformation, and social capital collectively form a sustainability-oriented business model. Future research may extend this framework across other cultural industries or use longitudinal designs to examine the dynamic interactions between innovation, welfare, and cultural values in sustaining MSMEs.

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