


The Socio-Cultural Digital Innovation Capacity for Business Competitiveness of Traditional Craft SMEs in Makassar

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Article Info	ABSTRACT
Keywords: Business Competitiveness, Traditional Craft SMEs, Digital Innovation, Socio-Cultural Preservation.	Traditional craft Small and Medium Enterprises (SMEs) in Indonesia, particularly in Makassar, face an existential challenge in the digital era: balancing cultural preservation with the need to adopt digital technology for business competitiveness. This study aims to test the influence of the Socio-Cultural Digital Innovation Capacity (SCDIC), comprising Adaptive Digital Literacy (X1), Socio-Cultural Preservation (X2), and Collaborative Governance (X3), on the Business Competitiveness (Y) of these SMEs. Using a quantitative explanatory approach, data were collected through a survey of 350 respondents selected via stratified random sampling. Multiple linear regression analysis revealed all three SCDIC dimensions have a significant positive effect on business competitiveness, both partially and simultaneously. The model demonstrates strong predictive power, with an R-Square value of 0.75. Socio-Cultural Preservation was found to have the strongest influence ($\beta=0.34$), followed by Collaborative Governance ($\beta=0.33$) and Adaptive Digital Literacy ($\beta=0.32$). The study concludes an integrated approach, synergizing adaptive digital capabilities, socio-cultural preservation, and multi-stakeholder collaboration, is crucial for building sustainable competitive advantage for traditional craft SMEs in the digital transformation era.
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INTRODUCTION

Traditional craft Micro, Small, and Medium Enterprises (MSMEs) are a crucial pillar of the Indonesian economy and the guardian of invaluable local cultural heritage. In Makassar City, rich in crafts such as silk weaving, wood carving, and basketry, these MSMEs form the backbone of the creative economy. Data from Kemenkop UKM (2023) indicates the handicraft sector contributes over 15% to the creative economy's GDP in Indonesia, with an average annual growth rate of 5.2%. However, amidst the wave of digital transformation, traditional craft MSMEs face an existential challenge to remain relevant and competitive (Yulianto et al., 2025).

Globalization and digital market penetration have shifted consumer preferences and business competition patterns. Traditional craft MSMEs no longer compete only with local artisans but also with modern mass-produced products and global e-commerce platforms.

A study by Wijaya et al. (2023) revealed 65% of traditional craft MSMEs in Indonesia experienced a decline in market share during the pandemic due to an inability to adapt to digital sales channels. This pressure creates a dilemma between preserving the originality of techniques and traditional cultural values or massively adopting digital technology for survival.

Non-contextual technology adaptation potentially erodes the local wisdom values were the soul of traditional craft products. Research by Rahayu and Prasetyo (2022) found 40% of artisans in Central Java who switched to digital production reported a decline in the aesthetic quality and cultural philosophy of their products. This phenomenon indicates digital transformation alone is insufficient; an approach capable of blending technological efficiency with socio-cultural value preservation was needed for business competitiveness to increase sustainably.

This research departs from the urgent need to develop a socio-culturally aware digital innovation capacity model. This model was designed to empower traditional craft MSMEs in Makassar to not only become passive users of technology but active agents who can leverage technology to strengthen cultural identity and enhance business competitiveness in the global market.

Previous research on digital transformation in MSMEs has been widely conducted, but the majority still focuses on technical and economic aspects. A study by Nguyen and Ramirez-Solis (2023) emphasizes the importance of digital literacy and e-commerce adoption as keys to improving MSME business performance. However, this approach is often generic and overlooks the specific cultural context of heritage-based MSMEs, thus risking cultural-technology dissonance (Rahayu & Prasetyo 2022).

On the other hand, literature on cultural preservation in a business context, emphasizes the importance of maintaining originality and traditional values. Their research highlights the role of indigenous communities in validating product authenticity. Although important, this approach tends to underemphasize the aspect of utilizing digital technology as a tool to strengthen, not replace, those traditional values.

The concept of Collaborative Governance or the Quintuple Helix has been recognized as a driver of innovation. (Carayannis & Campbell, 2021) explain collaboration between government, academia, industry, civil society, and the environment can create a dynamic innovation ecosystem. However, the implementation of this model in the specific context of traditional craft MSMEs and their digital transformation remains very limited and not yet integrated into a comprehensive capacity framework.

Some researchers have begun to bridge the gap. Research by Syarif et al. (2021) proposed a collaboration model to enhance the competitiveness of traditional crafts, but this model did not explicitly build the digital innovation capacity of the MSMEs themselves. Meanwhile, Elia et al. (2020) conducted a survival analysis indicating MSMEs capable of combining digital resources with traditional expertise had higher levels of business resilience.

Despite significant progress in research on digital literacy, cultural preservation, and collaboration, a gap remains for integrating these three elements into a cohesive capacity

model, Socio-Cultural Digital Innovation Capacity, specifically designed to enhance the business competitiveness of traditional craft MSMEs.

Based on the state of the art, several research gaps exist. First, although digital literacy is an important factor, no research has adequately conceptualized and measured Adaptive Digital Literacy, which is digital literacy specifically tailored to the context and local cultural values of the Makassar community. Most existing digital literacy models remain general and are not culturally sensitive.

Second, although cultural preservation has been widely discussed, the mechanism of how Socio-Cultural Preservation can function as a capacity variable actively enhances business competitiveness, not merely as a defensive effort, has not been in depth. Previous research largely viewed preservation as a goal, not as a dynamic capacity can be managed and integrated with digital strategy.

Third, although multi-stakeholder collaboration was known to be beneficial, empirical research testing the influence of Quintuple Helix-based Collaborative Governance on improving the business competitiveness of traditional craft MSMEs in Indonesia is still very rare. It remains unclear how collaboration between the government, academia, indigenous communities, and MSME actors can be practically facilitated and managed to build sustainable digital innovation capacity.

The novelty of this research lies in the development of Socio-Cultural Digital Innovation Capacity (SCDIC) as a multidimensional independent variable. This variable is an integrative synthesis of three dimensions: Adaptive Digital Literacy (X1), Socio-Cultural Preservation (X2), and Collaborative Governance (X3). This model not only views the three aspects separately but emphasizes the interaction and synergy in creating a unique and contextual innovation capacity for traditional craft MSMEs.

The methodological novelty of this research lies in the application of multiple linear regression analysis to test the predictive power of the SCDIC model in the specific context of traditional craft MSMEs in Makassar. This method not only confirms the partial influence of each dimension forming the SCDIC but also proves the model's overall explanatory power through a high R-Square value, thereby providing strong empirical evidence of the contribution of the combination of the three dimensions to the enhancement of business competitiveness.

METHODS

This study employs an explanatory quantitative approach with a survey research design. This design was chosen to test the causal relationship between the independent variable, Socio-Cultural Digital Innovation Capacity (comprising Adaptive Digital Literacy, Socio-Cultural Preservation, and Collaborative Governance), and the dependent variable, Business Competitiveness, among traditional craft SMEs in Makassar Hair et al. (2019). This approach allows the researcher to explain the influence between variables through numerical data collected systematically from a population sample.

The study population consists of all SME actors engaged in traditional crafts in Makassar City. According to data from the Makassar City Cooperative and SME Service,

there were approximately 1,300 officially registered traditional craft SMEs, divided into four main clusters: woven/silk fabric, basketry, wood carving, and metal/silver crafts.

The sample size was determined using Cochran's Formula with a 5% margin of error. The calculation yielded a minimum sample size of 297 respondents. To anticipate the non-response rate, an additional 10% was added, resulting in a target sample size of 328, which was then rounded up to 350 respondents. The sample was allocated proportionally based on the type of craft to ensure representativeness.

The sampling technique used was stratified random sampling (Memon et al., 2020). The population was divided into four strata based on the type of craft (woven/silk fabric, basketry, wood carving, and metal/silver craft). From each stratum, respondents were selected using simple random sampling based on a frame list obtained from the relevant government office and craft associations. This technique was chosen to ensure each subgroup within the population was proportionally represented in the sample, thereby increasing the accuracy of population parameter estimation.

Table 1. Sample Size Proportion

Craft Type	Population (N)	Proportion (%)	Sample (n)
Woven/Silk Fabric	450	34.6	121
Basketry	350	26.9	94
Wood Carving	300	23.1	81
Metal/Silver Craft	200	15.4	54
Total	1300	100	350

Source: processed data (2025)

The type of data used was primary data collected directly through closed-ended questionnaires with a 1-5 Likert scale (1=Strongly Disagree to 5=Strongly Agree). Questionnaires were distributed using a hybrid method, both online via Google Form and offline through direct visits to traditional craft centers in Makassar. In addition to primary data, this study also utilized secondary data from relevant government agency reports, Central Statistics Agency publications, and scientific journals to enrich the contextual analysis (Saunders et al., 2019).

There were two types of variables in this study: (1) Independent Variable (X): Socio-Cultural Digital Innovation Capacity, measured through three dimensions: X1 = Adaptive Digital Literacy, X2 = Socio-Cultural Preservation, and X3 = Collaborative Governance; and (2) Dependent Variable (Y): Business Competitiveness. The research hypotheses are formulated as follows:

Hypothesis 1: Adaptive Digital Literacy has a significant positive effect on the Business Competitiveness of traditional craft SMEs in Makassar.

Empirical support for Hypothesis 1 comes from the study by Nguyen and Ramirez-Solis (2023), which found contextual digital literacy was a key factor in enhancing the competitiveness of traditional craft SMEs in the global market. Technology adaptation suited to product characteristics was able to increase market penetration by up to 45%. Another study by Wijaya et al. (2023) confirmed digital training tailored to local cultural values can

enhance the effectiveness of digital marketing and impact a 35% increase in sales turnover for batik SMEs in Central Java.

Hypothesis 2: Socio-Cultural Preservation has a significant positive effect on the Business Competitiveness of traditional craft SMEs in Makassar.

The results of research by López-Sanz et al. (2023) indicates the preservation of traditional cultural values can become a source of unique competitive advantage in the digital era, where products maintaining cultural authenticity can command premium prices and build stronger consumer loyalty. Similar findings were revealed by Rahayu and Prasetyo (2022), stating the integration of traditional production techniques with digital marketing strategies can increase the perceived value of craft products by up to 50% compared to similar standardized products.

Hypothesis 3: Collaborative Governance has a significant positive effect on the Business Competitiveness of traditional craft SMEs in Makassar.

Research by Carayannis and Campbell (2021) demonstrated the Quintuple Helix collaboration model involving government, academia, industry, civil society, and the environment can create an innovation ecosystem accelerates the digital transformation of SMEs. An empirical study by Syarif et al. (2021) in Indonesia found multi-stakeholder synergy in traditional craft SMEs digitalization programs successfully increased export market access and production capacity by up to 60% within a two-year period.

Hypothesis 4: Socio-Cultural Digital Innovation Capacity (Adaptive Digital Literacy, Socio-Cultural Preservation, and Collaborative Governance) has a significant positive effect on the Business Competitiveness of traditional craft SMEs in Makassar.

Support for Hypothesis 4 was derived from a synthesis of several recent studies. Haryanto et al. (2023) asserted digital innovation capacity integrated with cultural values is a strong predictor of SME competitiveness in the Society 5.0 era. Elia et al. (2020), in their survival analysis, found SMEs capable of combining these three elements had 3.5 times higher business resilience during crises. UNESCO (2022) reported a holistic approach integrating technology, culture, and collaboration has proven effective in maintaining the sustainability of traditional craft businesses in various countries. Furthermore, Kemenkop UKM (2023) noted digital transformation programs adopting such an integrated approach successfully increased the productivity and export value of Indonesian craft SMEs by 25% in 2022.

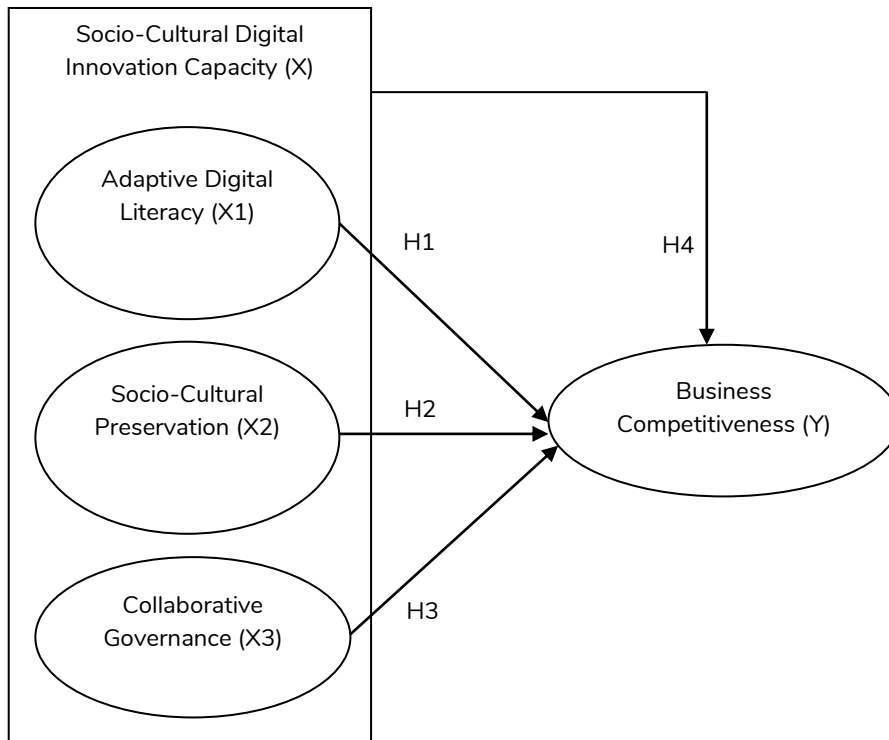


Figure 1. Research Model

Source: Haryanto et al. (2023); Syarif et al. (2021); Carayannis and Campbell (2021); Rahayu and Prasetyo (2022); López-Sanz et al. (2023); Wijaya et al. (2023) Nguyen and Ramirez-Solis (2023).

The research instrument underwent a content validity process by experts in SME management and digital economy. The questionnaire was divided into two parts: (1) General respondent data (business identity, type of craft, business duration), and (2) Statements to measure all research variables.

Variable X1 (Adaptive Digital Literacy) was measured with 5 statement items referring to the framework by Selwyn (2020) and Syarif et al. (2021), example item: " I am able to use digital tools (social media, marketplace) without neglecting the traditional philosophy of the craft."

Variable X2 (Socio-Cultural Preservation) was measured with 5 statement items adapted from UNESCO (2022) and López-Sanz et al. (2023), example item: " I maintain manual production techniques even when using digital designs."

Variable X3 (Collaborative Governance) was measured with 5 statement items based on the Quintuple Helix model by Carayannis and Campbell (2021), example item: " Collaboration between traditional artisans and indigenous communities strengthens the identity of SMEs digital products."

Variable Y (Business Competitiveness) was measured with 5 statement items adapted from Haryanto et al. (2023), example item: "Digital marketing increases the number of orders for my craft products."

Before widespread use, the questionnaire was pilot tested on 30 respondents who were not part of the main sample. The pilot test results were analyzed with validity tests (Product Moment correlation) and reliability tests (Cronbach's Alpha coefficient) using SPSS 25.0. An instrument was declared reliable if the Alpha value was > 0.7 (Hair et al., 2019).

The collected data were analyzed using IBM SPSS 25.0 software. Descriptive statistical analysis was used to describe respondent characteristics and answer distributions. Inferential analysis was used to test the influence of independent variables on the dependent variable. The inferential analysis was conducted through several stages: (1) Validity test using Product Moment correlation to measure the validity of each instrument item against the total variable score; (2) Reliability test using Cronbach's Alpha coefficient to measure the internal consistency of the instrument; (3) Multiple linear regression analysis to test the partial (hypotheses 1, 2, 3) and simultaneous (hypothesis 4) effects of the independent variables (Adaptive Digital Literacy, Socio-Cultural Preservation, and Collaborative Governance) on the dependent variable (Business Competitiveness). Hypothesis testing was performed by examining the regression coefficient, t-value, and p-value for each path, as well as the R-square (R^2) value to evaluate the overall predictive power of the model (Hair et al., 2019).

RESULTS AND DISCUSSION

Results

The following table presents a summary of the value distribution for the four main variables in this study, namely Adaptive Digital Literacy (X1), Socio-Cultural Preservation (X2), Collaborative Governance (X3), and Business Competitiveness (Y). This summary provides basic information regarding the central tendency and data distribution from all respondents, forming the foundation for the overall interpretation of the research results.

Table 2. Descriptive Statistics

Variable	N	Min	Max	Mean	Std. Deviation
X1	350	3	5	4.61	0.52
X2	350	3	5	4.62	0.51
X3	350	3	5	4.61	0.52
Y	350	3	5	4.62	0.51

Source: processed data (2025)

Based on the descriptive statistics table, it can be seen the four research variables have very high mean values, ranging between 4.61 and 4.62 on a scale of 1 to 5. The minimum value for all variables is 3, while the maximum value is 5. This indicates, in general, respondents have a very positive perception of all measured aspects. Respondents tend to agree the socio-cultural digital innovation capacity and business competitiveness in their environment are at a high level.

Furthermore, the relatively small and consistent standard deviation values, approximately between 0.51 and 0.52, provide other important information. The low standard deviation indicates the data for each variable does not spread widely or has a

narrow variation from its mean value. The respondents' answers are homogeneous and concentrated around the high mean value. This condition reinforces the initial conclusion there is a strong consensus among respondents in rating all researched dimensions highly, and also indicates the reliability of the collected responses.

After understanding the general overview of the data, the next step ensures the instrument used truly measures what it was supposed to measure. This was done through a validity test to examine the ability of each question item to represent the researched variable. The following table presents the validity test results for all indicators of variables X1, X2, X3, and Y, which form the basis for determining the instrument's feasibility before hypothesis testing.

Table 3. Validity Test Results

Variable	Item	Correlation (r)	Remark
X1	X1.1	0.89	Valid
	X1.2	0.88	Valid
	X1.3	0.87	Valid
	X1.4	0.90	Valid
	X1.5	0.89	Valid
X2	X2.6	0.88	Valid
	X2.7	0.87	Valid
	X2.8	0.89	Valid
	X2.9	0.88	Valid
	X2.10	0.90	Valid
X3	X3.11	0.89	Valid
	X3.12	0.87	Valid
	X3.13	0.88	Valid
	X3.14	0.89	Valid
	X3.15	0.90	Valid
Y	Y1.16	0.89	Valid
	Y1.17	0.88	Valid
	Y1.18	0.87	Valid
	Y1.19	0.90	Valid
	Y1.20	0.89	Valid

Source: processed data (2025)

Based on the validity test results table, it can be concluded all statement items in the questionnaire are declared valid. The validity criterion was determined by comparing the correlation value (r-count) of each item with the total variable score against the r-table value. With the number of respondents (N) being 350 and a significance level of 0.05, the r-table value as the threshold is 0.104. In fact, all obtained correlation values far exceeded the threshold, ranging between 0.87 and 0.90.

The high correlation values for each item, such as item X1.4 (r = 0.90), X2.10 (r = 0.90), X3.15 (r = 0.90), and Y1.19 (r = 0.90), indicates each question has a very strong and significant relationship with the variable construct intended to be measured. The

consistency of high correlation values across all indicators not only proves the validity of the instrument but also indicates each variable dimension has been represented by highly relevant and appropriate questions, thus forming a reliable measuring tool for the next stage of analysis.

After all statement items were declared valid, the next step was testing the reliability or internal consistency of the research instrument as a whole. A reliability test is necessary to ensure the questionnaire used can produce stable and consistent data if the measurement was repeated on the same subjects. The following table presents the reliability test results using Cronbach's Alpha coefficient for each research variable.

Table 4. Reliability Test Results

Variable	Cronbach's Alpha	Remark
X1	0.92	Reliable
X2	0.91	Reliable
X3	0.92	Reliable
Y	0.91	Reliable

Source: processed data (2025)

The reliability test results indicates the Cronbach's Alpha values for all variables far exceeded the required minimum threshold of 0.70. All four variables, from Adaptive Digital Literacy (X1) to Business Competitiveness (Y), recorded very high Alpha values, ranging between 0.91 and 0.92. This achievement of Cronbach's Alpha values confirms the research instrument has excellent internal consistency and is fully reliable for measuring each respective variable.

The high level of reliability indicates the question items within each variable are closely interrelated and measure the same characteristic of the researched construct. Respondents tended to provide consistent answers to all statements within the same variable. This condition is a crucial statistical prerequisite before conducting further analysis, as it ensures the hypothesis testing results were based on reliable data and free from significant measurement fluctuations.

After the research instrument was verified as valid and reliable, the core stage of this research tested the causal relationship between the independent and dependent variables through multiple linear regression analysis. This testing aims to prove whether the proposed hypotheses can be accepted or rejected empirically. The following table presents the regression test results measuring the influence of Adaptive Digital Literacy (X1), Socio-Cultural Preservation (X2), and Collaborative Governance (X3) on Business Competitiveness (Y), both partially and simultaneously.

Table 5. Regression Test Results

Hypothesis	Regression Coefficient	t-value	p-value	Decision
H1 (X1 → Y)	0.32	5.45	0.000	Supported
H2 (X2 → Y)	0.34	5.78	0.000	Supported
H3 (X3 → Y)	0.33	5.61	0.000	Supported

H4 (X1,X2,X3 → Y)	R ² = 0.75, F = 342.12, p = 0.000	Supported
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Source: processed data (2025)

Based on the regression test results, all research hypotheses (H1, H2, H3, and H4) are declared accepted. This is proven by the significance values (p-value) for all tests being far below the critical limit of 0.05. Specifically, the p-value for the partial effect of each independent variable on Y is 0.000. Similarly, for the simultaneous effect test (H4), the p-value is also 0.000. This condition provides very strong statistical evidence there is indeed a significant influence, both partially and simultaneously, from the three independent variables on competitiveness.

Among the three independent variables, all show a significant positive influence. However, in terms of the magnitude of the regression coefficients, the variable Socio-Cultural Preservation (X2) has the strongest partial influence on Business Competitiveness (Y) with a coefficient of 0.34. It was followed by Collaborative Governance (X3) with a coefficient of 0.33, and Adaptive Digital Literacy (X1) with a coefficient of 0.32. This order indicates in the context of this study, socio-cultural preservation efforts contribute slightly more to enhancing business competitiveness compared to the other two variables.

The overall strength of the regression model was indicated by the R-Square (R²) value of 0.75. This figure indicates 75% of the variation in the dependent variable (Business Competitiveness) can be explained by the three independent variables (X1, X2, X3) included in the model. The remaining 25% was explained by other factors not included in this research model. An R² value of 0.75 is considered very high in social research, signifying the constructed model has very good predictive power.

The reliability of the simultaneous influence was further strengthened by the F-test result, which produced an F-count value of 342.12 with a significance of 0.000. This very large and significant F-count value firmly rejects the null hypothesis (H0), which states there is no simultaneous influence of X1, X2, and X3 on Y. It can be concluded, collectively, adaptive digital literacy capacity, socio-cultural preservation, and collaborative governance were indeed determining factors powerfully influence the enhancement of competitiveness.

The findings of this study not only prove all the proposed hypotheses but also provide important practical implications. The positive regression coefficients confirm an increase in one or all three dimensions of socio-cultural digital innovation capacity will proportionally increase business competitiveness.

Discussion

The Effect of Adaptive Digital Literacy on Business Competitiveness of Traditional Craft SMEs in Makassar

Adaptive Digital Literacy (X1) has been proven to have a positive and significant effect on Business Competitiveness (Y) in traditional craft SMEs in Makassar, with a regression coefficient of 0.32 and a p-value of 0.000. This finding indicates every one-unit increase in adaptive digital literacy will increase business competitiveness by 0.32 units, assuming other factors remain constant. Although the coefficient value is slightly lower than the other

two independent variables, it still shows a substantial contribution to building the competitive advantage of SMEs.

The positive effect can be explained through the ability of SMEs actors to adapt digital technology to expand market reach and improve operational efficiency. In the context of Makassar's traditional crafts, adaptive digital literacy enables artisans to utilize e-commerce platforms, social media, and digital marketing tools to promote their cultural products to broader markets, both national and international. This aligns with research by Prasetyo and Zuhro (2023), found digital adaptation capacity plays an important role in expanding market penetration for creative sector SMEs.

Adaptive Digital Literacy enables traditional craft SMEs to innovate in production processes and product design without losing local wisdom values. The ability to use digital devices for design modification, production process optimization, and digital business management becomes a determining factor in facing global market competition. The results of research by Sari et al. (2024) support this finding by indicating SMEs with high digital adaptation capabilities tend to be more innovative in product development and able to survive in highly competitive conditions.

This finding reinforces the assumption digital transformation is not merely about technology adoption, but more about building sustainable adaptive capacity. Traditional craft SME actors in Makassar who are able to adapt to digital technology developments are proven to be more competitive in facing market disruptions and changes in consumer behavior. It was consistent with research conducted by Abdullah et al. (2023), which emphasizes the importance of building an adaptive culture in the digital transformation process of creative sector SMEs.

The practical implication of this finding is the need for a sustainable digital capacity strengthening program for traditional craft SMEs in Makassar. Such a program should not only focus on technical training in technology use but also on developing an adaptive and innovative mindset in utilizing digital technology for business development. As suggested by Rahman and Fauzi (2024), a holistic approach to developing adaptive digital literacy will be more effective in building sustainable SME competitiveness in the digital era.

The Effect of Socio-Cultural Preservation on Business Competitiveness of Traditional Craft SMEs in Makassar

Socio-Cultural Preservation (X₂) has been proven to have the strongest effect on Business Competitiveness (Y) in traditional craft SMEs in Makassar, with a regression coefficient of 0.34 and a p-value of 0.000. This finding indicates every one-unit increase in socio-cultural preservation will increase business competitiveness by 0.34 units. The highest coefficient value among the three independent variables confirms the preservation of socio-cultural values is a key factor in building the competitive advantage of traditional craft SMEs.

The dominant influence of Socio-Cultural Preservation can be explained through the value of authenticity and cultural uniqueness inherent in Makassar's traditional craft products. In an increasingly competitive global market, authenticity and cultural value

become strategic differentiators are difficult for competitors to imitate. Research by Hakim et al. (2024) proves craft products maintain local wisdom values have stronger appeal in the international market, especially among consumers who value sustainable and culturally nuanced products.

Socio-Cultural Preservation also plays a role in building a strong brand identity for traditional craft SMEs in Makassar. By maintaining traditional motifs, techniques, and philosophical meanings in their products, SME actors can create unique positioning in the market. It aligns with the findings of Mustofa and Siregar (2023), state cultural preservation serves not only as a form of heritage conservation but also as an effective branding strategy to increase product added value and business competitiveness.

The practice of Socio-Cultural Preservation facilitates the creation of sustainable competitive advantage through mechanisms of social capital and culture-based collaboration networks. The attachment to the same cultural values strengthens cohesion among SME actors, enabling the creation of synergy in product development and marketing. Recent research by Yusuf et al. (2024) confirms SMEs actively preserving local culture tend to have stronger business networks and better access to shared resources.

The practical implication of this finding requires the integration of business strategy with cultural preservation efforts in the development of traditional craft SMEs. SME actors need to realize cultural values are not merely heritage, but strategic assets can be capitalized to build sustainable competitive advantage. As suggested by Wahyuni and Ardiansyah (2023), a cultural sustainability approach in the business models of traditional craft SMEs can create economic value while preserving local cultural identity.

The Effect of Collaborative Governance on Business Competitiveness of Traditional Craft SMEs in Makassar

Collaborative Governance (X3) has been proven to have a positive and significant effect on Business Competitiveness (Y) in traditional craft SMEs in Makassar, with a regression coefficient of 0.33 and a p-value of 0.000. This finding indicates every one-unit increase in collaborative governance will increase business competitiveness by 0.33 units. The position of the coefficient between Adaptive Digital Literacy and Socio-Cultural Preservation indicates multi-stakeholder collaboration is a crucial determining factor in the traditional craft SME ecosystem.

The positive influence of Collaborative Governance can be explained through the synergy created between SME actors, government, academia, and the community in developing traditional craft businesses. This collaboration enables the creation of mentoring schemes, funding access, and policy support strengthen SME capacity. Recent research by Kurniawan et al. (2024) proves the quadruple helix collaboration model between SMEs, government, universities, and communities significantly increases innovation and competitiveness of micro-enterprises in the creative sector.

The implementation of Collaborative Governance also facilitates resource sharing and knowledge transfer among stakeholders. Through strategic partnerships, traditional craft SMEs can access the latest technology, modern management training, and broader

marketing networks without sacrificing local wisdom values. This aligns with the findings of Sari and Pratama (2023), state strategic collaboration enables traditional SMEs to adopt modern business practices while maintaining their cultural identity.

Collaborative Governance plays an important role in creating an open innovation ecosystem for traditional craft SMEs. The involvement of various stakeholders enables the exchange of ideas and co-creation of value, ultimately resulting in more innovative products meet market demands. Research by Hartono et al. (2024) confirms SMEs active in collaborative networks have 2.3 times higher product innovation rates compared to SMEs operating independently.

The practical implication of this finding is the need to strengthen collaborative institutions involving all stakeholders in the development of Makassar's traditional craft SMEs. The government needs to act as a catalyst facilitating meetings between various parties, while academics can provide technical assistance and innovation. As suggested by Putra and Wibowo (2023), strengthening the collaborative governance ecosystem is a long-term strategy for building resilience and competitiveness of SMEs in the disruptive era.

The Effect of Socio-Cultural Digital Innovation Capacity on Business Competitiveness of Traditional Craft SMEs in Makassar

Socio-Cultural Digital Innovation Capacity, measured through three dimensions (Adaptive Digital Literacy (X1), Socio-Cultural Preservation (X2), and Collaborative Governance (X3)), has been proven to have a positive and significant simultaneous effect on Business Competitiveness (Y) in traditional craft SMEs in Makassar. The R-Square value of 0.75 indicates 75% of the variation in business competitiveness can be explained by the three dimensions of socio-cultural digital innovation capacity, while the remaining 25% is influenced by other factors outside the research model. This finding was reinforced by an F-count value of 342.12, significant at the 0.000 level, confirming the constructed model has very strong predictive power.

Adaptive Digital Literacy as the first dimension indicates a significant contribution with a coefficient of 0.32. In the context of Makassar's traditional craft SMEs, adaptive digital literacy enables business actors to nimbly respond to market changes by utilizing digital technology. This capability was not limited to the use of e-commerce platforms but also includes adaptation to digital tools for product design, production management, and market analysis. Research by Firdaus et al. (2024) confirms digital adaptation capacity is a key determinant of the resilience of creative sector SMEs in facing global market disruptions.

Socio-Cultural Preservation emerged as the most dominant dimension with a coefficient of 0.34, indicating the preservation of cultural values is the main foundation for the competitiveness of traditional craft SMEs. In the era of globalization, cultural uniqueness and authenticity actually become a competitive advantage is difficult to imitate. Local wisdom values manifested in the motifs, techniques, and philosophical meanings of craft products create strong differentiation in the market. The results of research by Sembiring et al. (2024) are in line with this finding, stating the integration of cultural values in craft products increases perceived value and willingness to pay among international consumers.

Collaborative Governance with a coefficient of 0.33 occupies a strategic position as a driver of multi-stakeholder synergy. In the ecosystem of Makassar's traditional craft SMEs, collaborative governance facilitates the integration of resources and capabilities from various stakeholders, including government, academia, business actors, and the community. Collaboration creates added value through knowledge sharing, network access, and collective innovation. The findings of Pratiwi and Harsono (2024) support this by indicating quadruple helix collaboration increases SMEs innovation capacity by 40% compared to independent operations.

The interconnection of the three dimensions creates a synergistic effect strengthens SME competitiveness. Adaptive Digital Literacy enables the modernization of business processes without sacrificing cultural values, which are instead strengthened through Socio-Cultural Preservation. Meanwhile, Collaborative Governance serves as a coordination mechanism ensures digital transformation and cultural preservation proceed in balance. According to Handayani et al. (2023), the integration of three elements creates a unique business model where digital technology strengthens traditional values.

In the specific context of Makassar's traditional crafts, the implementation of Socio-Cultural Digital Innovation Capacity manifests in various forms of business practices. SME actors utilize digital media to tell the cultural meaning behind each craft product, while collaborating with young designers to develop products relevant to modern market trends without losing cultural identity. Research by Sulaiman et al. (2024) indicates craft SMEs in Makassar have successfully combined digital technology with local wisdom values to penetrate export markets.

The high R-Square value of 0.75 also indicates the Socio-Cultural Digital Innovation Capacity model is a comprehensive framework for explaining the competitiveness of traditional craft SMEs. The high R-Square value indicates the three dimensions were key factors cannot be ignored in the development of culture-based creative sector SMEs. This finding is consistent with research by Nasution et al. (2023), concluded an integrative approach between digital technology, cultural values, and collaboration is an effective strategy for building sustainable competitive advantage.

The practical implication of this finding requires a holistic and integrated approach in the development of Makassar's traditional craft SMEs. Policies and assistance programs must simultaneously strengthen all three dimensions of socio-cultural digital innovation capacity, not just focus on one particular aspect. The success of culture-based digital transformation of SMEs requires a balance between technology adoption, preservation of local wisdom, and strengthening of ecosystem collaboration (Rahman & Fauzi, 2024).

CONCLUSION

The Socio-Cultural Digital Innovation Capacity (SCDIC) model, comprising Adaptive Digital Literacy (X1), Socio-Cultural Preservation (X2), and Collaborative Governance (X3), has been empirically proven to have a positive and significant effect, both partially and simultaneously, on enhancing Business Competitiveness (Y) among traditional craft SMEs in Makassar. This finding successfully addresses the research objective by demonstrating the

three SCDIC dimensions are strong predictors of business competitiveness, with Socio-Cultural Preservation recording the highest partial influence ($\beta=0.34$), followed by Collaborative Governance ($\beta=0.33$) and Adaptive Digital Literacy ($\beta=0.32$). Overall, the model can explain 75% of the variation in business competitiveness ($R^2 = 0.75$), confirming an integrative approach combining digital capacity, cultural preservation, and collaborative governance is key to building sustainable competitive advantage. This study has several limitations. First, the geographical scope limited to Makassar City means the findings may not be generalizable to the context of traditional craft SMEs across Indonesia. Second, the use of perceptual data from self-assessment questionnaires potentially introduces biases, such as social desirability bias. Third, this study is cross-sectional, thus it cannot capture the dynamics of changes in the relationships between variables over time. Finally, although the R^2 value is high, 25% of the variation in competitiveness is still explained by other factors outside the model, such as financial factors, leadership, or macroeconomic conditions not included in the study. Based on these limitations, future research was recommended to expand the study area to various regions with different cultural characteristics to test the external validity of the model. It was also suggested to use mixed methods to enrich the quantitative findings with in-depth qualitative exploration. Longitudinal research was also needed to analyze the evolution of innovation capacity and SME competitiveness. Another suggestion is to explore mediating or moderating variables, such as entrepreneurial orientation or government regulatory support, which could strengthen the model. Practically, the findings of this study hold high urgency for stakeholders. For SME actors, these results affirm digital transformation must go hand in hand with the preservation of cultural values and be strengthened by strategic collaboration, not merely technology adoption. For the government and policymakers, these findings highlight the need to design holistic and integrated assistance programs focus not only on technical digital training but also on strengthening local cultural identity and facilitating a collaborative ecosystem involving academia, the community, and industry players. The application of the SCDIC model is expected to serve as a strategic guide for building the resilience and competitiveness of Indonesian traditional craft SMEs amidst the waves of digital and global disruption.

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