A Digital Innovation-Based Creative Economy Model for MSMEs Growth: Theoretical Integration and Practical Insights from an Emerging Economy

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Citation: Hastalona, D., Hasibuan, E. H., & Lazuardi, D. (2026). A digital innovation-based creative economy model for MSME growth: Theoretical integration and practical insights from an emerging economy. *Theoretical and Practical Research in Economic Fields, 17*(1), 98–111.
https://doi.org/10.14505/tpref.v17.1(37).08

Article info: Received 25 August 2025; Received in revised form 19 September 2025; Accepted for publication 20 November 2025; Published 30 March 2026.

Abstract: The acceleration of economic growth in the digital era requires a strategic transformation of the small and medium enterprises (SMEs) sector, particularly through the adoption of creative economy frameworks underpinned by digital innovation. This study investigates the influence of digital innovation integration on SME growth by employing a quantitative approach using Partial Least Squares-based Structural Equation Modeling (PLS-SEM). A total of 250 SME actors in Medan City were selected through purposive sampling to participate in the study. The results indicate that digital literacy, digital infrastructure, stakeholder engagement, and creative collaboration exert a significant influence on digital innovation, which subsequently drives SME growth. Moreover, the Medan Go Creative model - comprising the dimensions of Go Digital, Go Global, and Go Green - emerges as an effective strategy for enhancing SME sustainability and competitiveness. The model demonstrates strong predictive relevance, with an R^2 value of 0.782 and a Q^2 value of 0.652. These findings contribute to the theoretical advancement of integrative models within the creative economy paradigm and provide practical insights for policymakers seeking to accelerate the digital transformation of SMEs at the local level.

Keywords: small and medium enterprises; digital innovation; digital literacy; creative economy; digital transformation.

JEL Classification: H57; L26; O17; O33; O35; R11; M15; Q56.

Introduction

The dynamics of economic growth in the digital era necessitate the rapid transformation of micro, small, and medium enterprises (MSMEs) to remain adaptive within an increasingly globalized environment. In this context, the creative economy emerges as a key driver, offering avenues for inclusive growth through the development of ideas, innovation, and digital technologies. The Government of Indonesia has affirmed this commitment through Government Regulation No. 24 of 2022 on the Creative Economy, as well as the Presidential Asta Cita (Eight Goals), particularly Point 2, which designates the creative economy as a cornerstone of the new economic development paradigm. However, the implementation of these policies has not been fully realized at the regional level, particularly in the city of Medan - an area with significant creative economic potential. With over 300,000 MSMEs operating in the city, many still lack the capacity to harness digital technologies optimally. Low levels of digital literacy, inadequate infrastructure access, and financing constraints present major obstacles (Hastalona *et al.* 2024).

Consequently, the digital transformation of MSMEs has progressed slowly, leaving Medan at risk of falling behind other major urban centers such as Jakarta and Surabaya. A study by Tokopedia (2023) reveals that digitalization can boost MSME revenues by up to 147%, yet such outcomes are not evenly distributed. A systematic approach is thus required to design a digital-based creative economy model that is responsive to local needs and

strategically accelerates MSME growth. The Medan Go Creative Economy (GCE) initiative seeks to address these challenges through an innovative and collaborative framework. The creative economy is conceived not merely as an industrial sector but as an ecosystem encompassing creativity, technology, culture, and entrepreneurship. In the global digital landscape, digital innovations such as e-commerce, digital marketing, big data, and fintech play a pivotal role in enhancing MSME competitiveness (Jun *et al.* 2022). These innovations extend market reach and reshape business models to be more adaptive and efficient. Medan, as a major urban center in North Sumatra, faces both challenges and opportunities in building such an ecosystem. However, disparities in technological access and limited digital readiness result in uneven innovation adoption (Qi & Chu, 2022). This underscores the need for structured, measurable, and sustainable policy- and technology-based interventions. The GCE model addresses these gaps by incorporating three integrated dimensions - Go Digital, Go Global, and Go Green - to holistically empower MSMEs. These dimensions promote not only technological transformation but also sustainability and global expansion, aligning with the principles of green and inclusive economic development as advocated by the Sustainable Development Goals (SDGs). As such, Medan GCE constitutes a strategic narrative for redesigning the future of MSMEs through creativity and digital innovation.

From an academic standpoint, integrative models such as GCE remain underexplored within localized contexts. A bibliometric analysis conducted in this study reveals that over the past five years, no research has explicitly developed a digital-based creative economy model aimed at driving MSME growth in Medan. This points to a significant research gap and underscores the high degree of novelty in this project. While earlier studies have emphasized the importance of synergy between digital technology and creative capacities in boosting MSME productivity (Khattak *et al.* 2022), few have attempted to formulate a specific model that simultaneously integrates the three GCE dimensions - digitalization, global orientation, and environmental sustainability. Abdelwahed and Bano (2024) argue that digital transformation is a key driver of creative economic development in emerging economies. Accordingly, this study responds to both theoretical gaps and practical needs by proposing a contextual, measurable, and applicable digital creative economy framework. Importantly, the urgency of this research is not merely theoretical, but also highly practical. MSMEs in Medan are confronting increasingly complex market competition, both domestically and internationally. Digital transformation is no longer optional; it is imperative for survival and growth. However, piecemeal interventions - such as technical training without infrastructural or policy support - are unlikely to produce significant outcomes (Cockshut *et al.* 2020).

Therefore, a systemic approach such as GCE, involving synergistic collaboration among government actors, creative communities, digital industry players, and educational institutions, becomes crucial to success. Medan GCE is not merely an economic model; it is a strategic development approach based on innovation and collaboration. Within this framework, the article argues that integrating digital technologies into the creative ecosystem can significantly increase revenue, expand market access, and reinforce MSME sustainability.

Thus, the study seeks not only to develop a model but also to offer a data- and policy-informed approach for implementing such transformation effectively. Despite being a focal point of both local and national government policies, the digital transformation of MSMEs continues to be marred by persistent implementation gaps. Many digitalization programs remain ceremonial, lacking sustainability and relevance to the actual needs of entrepreneurs. For instance, digital training programs are frequently conducted without appropriate follow-up measures such as mentoring, market access facilitation, or adequate infrastructure support (Hossain *et al.* 2024). In Medan, these challenges are particularly pronounced, as a majority of MSME owners possess only lower secondary education and lack regular access to technology (Harahap *et al.* 2022). Digital literacy is thus a critical but often overlooked factor in intervention design. Research by Dutta and Sarma (2023) demonstrates that mastering basic digital skills has a direct impact on technology adoption and MSME performance. Strengthening digital literacy enables entrepreneurs to enhance their innovative capacities, expand business networks, and maximize digital platform utilization.

Accordingly, digital literacy emerges as a foundational pillar within the Medan GCE model. It is not sufficient to merely provide access; a systematic and contextualized capacity-building process is essential. Thus, the inclusion of digital literacy as a key variable in this study is both academically relevant and strategically significant. In addition to human capacity, digital infrastructure constitutes another critical variable influencing MSME transformation. Fast, affordable, and equitable internet access is a prerequisite for integrating MSMEs into the digital ecosystem. Without adequate infrastructure, digitalization remains a superficial concept. Medan faces serious challenges in this regard, particularly in its suburban and peri-urban areas, which host many MSMEs. A study by Qi and Chu (2022) affirms that the success of digital economic development is highly dependent on the quality of fundamental infrastructure such as broadband networks and data centers. One of this article's key contributions, therefore, is to emphasize the need for equitable and distributed digital infrastructure investment.

Local governments, telecommunications providers, and donor institutions must take active roles in delivering inclusive infrastructure. This dimension is embedded within the GCE model as a holistic approach to digital economic development. The integration of human capital and technological infrastructure is expected to generate an innovative ecosystem that fosters sustainable growth. Accordingly, this study contributes to the ongoing discourse on the relationship between technological readiness and local MSME economic performance. The imperative to promote integrative models like GCE also stems from global pressures related to sustainability and international market orientation. MSMEs in Indonesia - including those in Medan - are increasingly expected not only to cater to local markets but also to compete globally and adopt environmentally responsible practices. The "Go Global" dimension in the GCE model guides MSMEs to leverage digital export platforms and strengthen branding based on local culture. Lingfu *et al.* (2024) found that digital innovation bridges geographical limitations and expands market reach for MSMEs in developing countries. Meanwhile, the "Go Green" dimension incorporates sustainability principles in production and distribution, including the use of eco-friendly materials, waste reduction, and energy efficiency. Al Halbusi *et al.* (2024) note that environmentally responsible MSMEs have greater opportunities to access green markets and receive incentives. By combining these three dimensions, the GCE framework offers a model that emphasizes not only economic growth but also social and ecological sustainability.

This study provides both a conceptual map and an operational model for realizing MSME transformation that is global, green, and digital. Government policies are often developed based on assumptions or short-term political agendas, lacking comprehensive empirical data support. This study presents data, analysis, and models that can serve as evidence-based foundations for more targeted MSME transformation policies. Moreover, the involvement of stakeholders such as academia, creative communities, and the private sector in building the GCE ecosystem offers a collaborative model potentially replicable in other regions. This aligns with findings by Cockshut *et al.* (2020), who highlight the importance of cross-sector interventions in advancing micro creative economies. In this regard, the article serves as a bridge between academic inquiry and public policy. The formulation of performance indicators, intervention designs, and evaluation mechanisms within the model can be adopted by policymakers to accelerate MSME digitalization in a structured and inclusive manner. The primary objective of this study is to construct and test a digital innovation-based creative economy integration model that significantly drives MSME growth. This model is not only a theoretical framework but also a practical roadmap for stakeholders seeking to transform MSMEs. In the short term, the model is expected to guide strategic policy formulation to support MSME digitalization in Medan. In the long run, it holds potential for national replication to accelerate a creativity- and technology-based economic transformation. By designing a systemic, inclusive, and evidence-based approach, this study aims to address the gap between the potential and the current reality of regional MSME sectors. As such, GCE is not merely an economic model, but a development strategy rooted in innovation, collaboration, and sustainability.

The scholarly contribution of this article lies in the formulation of a new theoretical model that integrates literature on the creative economy, digital innovation, and MSME development strategies into a unified framework. It further strengthens the importance of cross-disciplinary approaches in addressing the complexity of local economic development. By combining theories of innovation, public policy, entrepreneurship, and digital transformation, this article expands academic discourse on regional economic development models. This research is expected to enrich the literature and serve as a valuable reference for future studies on the creative economy and MSME development. Additionally, the GCE model can serve as a decision-making tool for governments, donor agencies, and industry actors in designing sustainable MSME empowerment strategies. Ultimately, this study offers a concrete contribution to local economic development driven by data, technology, and creativity. In the face of globalization, climate crisis, and technological disruption, approaches like GCE are increasingly relevant and urgent. Medan - with its vast potential - can serve as a living laboratory for the development of a digital creative economy in Indonesia. This study suggests that MSME transformation must begin with a deep understanding of local contexts, while adopting a global vision and technology-driven strategy. Through the synergy of policies, communities, and technologies, MSMEs can not only survive but also thrive and become key drivers of the future economy. Therefore, this article adds not only to academic knowledge but also provides a strategic direction for real action in innovation- and collaboration-based economic development.

1. Literature Review

The transformation of the creative economy through digital innovation has emerged as a strategic foundation for MSME development, particularly in metropolitan areas such as Medan. In this context, the construction of a robust theoretical framework is essential to understand the interrelationships among variables within a complex system. This study adopts Open Systems Theory as its foundational perspective, positioning MSMEs as dynamic entities

that interact with their surrounding environment - including technology, markets, policies, and communities (Johannessen, 2020). This framework is further enriched by the incorporation of digital innovation theory and creative economy concepts, which explain how the adoption of information technology can enhance performance and competitiveness in creativity-based enterprises (Jun *et al.* 2022; Zaldívar, 2022). Within this approach, digital literacy is a critical precondition for fostering innovation capabilities, while digital infrastructure, stakeholder support, and access to global markets constitute environmental factors that shape the success of MSMEs. This study identifies six key variables that influence MSME growth within the digital creative economy ecosystem: (1) Digital Literacy, (2) Digital Infrastructure, (3) Stakeholder Support, (4) Digital Innovation, (5) Creative Collaboration, and (6) MSME Growth. The digital literacy variable reflects the extent of knowledge and skills among MSME actors in effectively utilizing information technologies.

A study by Dutta and Sarma (2023), published in Vilakshan – XIMB Journal of Management, reveals that digital literacy has a direct impact on the adoption of digital innovation in developing countries. Meanwhile, digital infrastructure encompasses the availability and accessibility of internet connectivity, hardware, and adequate technical support. Qi and Chu (2022), in China Political Economy, argue that strong digital infrastructure accelerates the transition from informal to formal economies through technological integration. The third variable, stakeholder support, involves the collaborative roles of government, academia, industry actors, and creative communities in fostering an enabling ecosystem for MSME development. Research by Cockshut *et al.* (2020) emphasizes the importance of community-based digital policy development through collaborative approaches. Such support plays a pivotal role in accelerating MSME digital transformation through policy incentives, training programs, and facilitation of digital market access. The fourth variable, digital innovation, refers to the application of technology to create new products, services, or processes that enhance business efficiency and value creation. Jun *et al.* (2022) underscore that digital improvisation, or the capacity to flexibly utilize emerging technologies, is a key determinant of innovation within small and medium-sized enterprises. This capacity is closely linked to the adaptability of MSMEs in responding to market disruptions. Creative collaboration, as the fifth variable, pertains to cross-sector partnerships - both among MSME actors and with other institutions - to share ideas, resources, and technologies. Al Halbusi *et al.* (2024), in the European Journal of Innovation Management, found that integrating sustainability values into cross-sector collaborations enhances innovation performance and business competitiveness. This study positions collaboration as a crucial element in reinforcing synergy within a sustainable creative ecosystem. Lastly, MSME growth is utilized as the dependent variable, measured through indicators such as revenue increases, customer base expansion, and market outreach. A study by Jibril *et al.* (2024), published in the International Journal of Organizational Analysis, demonstrates that MSMEs adopting digital strategies have experienced accelerated post-pandemic growth.

While numerous studies have examined the relationship between digital technology and MSME growth, there remains a theoretical and empirical gap in understanding the integration of these variables within a unified model, particularly in local contexts such as Medan. Most prior research has focused on one or two variables in isolation, without developing a systemic framework that reflects interdependent relationships. To date, no model has explicitly integrated digital literacy, stakeholder support, infrastructure, innovation, and creative collaboration into a comprehensive framework linked to holistic MSME growth. Furthermore, few studies have explored how local dynamics and regional policy influence the success or failure of digital innovation adoption within the MSME sector. As a scholarly contribution, this article proposes a conceptual model grounded in empirical findings that examines the interrelations among six variables using a Structural Equation Modeling - Partial Least Squares (SEM-PLS) approach, with the MSME landscape in Medan as the contextual case. This model addresses the theoretical void by incorporating multiple variables within an integrative framework, while also offering practical guidance for local governments and stakeholders in designing digitally driven creative economy transformation strategies. Through this approach, the article aims to serve as a key reference in developing innovative MSME ecosystems and inform policy formulation with evidence-based and locally relevant insights. The literature indicates that digital literacy, digital infrastructure, and stakeholder support are critical enablers of digital transformation in the MSME sector. These factors are believed to influence the level of digital innovation, which in turn contributes to business growth. In addition, creative collaboration plays a significant role in fostering synergy among entrepreneurs, thereby supporting the sustainable development of the creative economy. To empirically explore the relationships among these variables, a conceptual framework was developed by identifying six core constructs: digital literacy (X1), digital infrastructure (X2), stakeholder support (X3), digital innovation (X4) as a mediating variable, creative collaboration (X5), and MSME growth (Y) as the dependent variable. Based on this conceptual foundation, the research hypotheses proposed are as follows:

H1: The integration of a creative economy model based on digital innovation has a significant effect on MSME growth in the City of Medan.

H2: The utilization of digital technologies has a significant impact on revenue growth and the sustainability of MSMEs.

H3: Access to international markets through digitalization positively influences MSME growth.

H4: Sustainable and eco-friendly innovation practices enhance the competitiveness and business continuity of MSMEs.

H5: The availability of digital infrastructure positively affects the effectiveness of creative economy model integration.

H6: The availability of digital infrastructure positively affects the effectiveness of creative economy model integration.

H7: The digital literacy level of MSME actors contributes significantly to the successful adoption of digital innovation.

2. Research Methodology

This study adopts a quantitative approach with an explanatory design to examine the causal relationships among variables within the conceptual model of digital-based creative economy development. The choice of this design is grounded in its capability to assess both direct and indirect effects among latent constructs and to empirically evaluate the significance of inter-variable relationships. The research was conducted in the city of Medan, selected due to its status as one of Indonesia's key hubs for MSME growth and the development of the digital creative economy sector. Data collection took place in December 2025, with consideration given to the readiness of MSME actors in navigating the post-pandemic digital transformation. The population of this study includes all MSME actors operating in the creative economy sector in Medan. A total of 250 MSME respondents were selected through purposive sampling. The selection criteria comprised: (1) the enterprise has been in operation for a minimum of two years, (2) digital technology is utilized in its business processes, and (3) the enterprise is officially registered in the database of the Department of Cooperatives and MSMEs. This sampling technique was employed to ensure that the sample accurately represents the characteristics relevant to the research objectives. The research instrument was a structured questionnaire developed based on indicators derived from established theoretical constructs used in prior studies. The questionnaire underwent content validation by academic experts. Data were analyzed using Structural Equation Modeling with Partial Least Squares (SEM-PLS), supported by the SmartPLS 4 software. This analytical method was chosen for its ability to handle non-normal data, its suitability for complex models involving multiple latent variables, and its effectiveness with moderate sample sizes (Hair *et al.* 2020). The analysis process involved two key stages: testing the measurement model (outer model) to assess the validity and reliability of the constructs and evaluating the structural model (inner model) to examine the strength and significance of the hypothesized relationships among variables.

3. Research Results

3.1. Results

The demographic characteristics of the respondents are summarized in the table 1 below:

Table 1. The demographic characteristics of the respondents

Characteristic	Category
Gender	Male (60%), Female (40%)
Age	21–30 years (25%), 31–40 years (40%), 41–50 years (25%), over 50 years (10%)
Educational Attainment	Senior High School (30%), Diploma (25%), Bachelor's Degree (35%), Master's Degree (10%)
Business Duration	Less than 1 year (10%), 1–3 years (30%), 4–6 years (35%), more than 6 years (25%)
Business Type	Culinary (30%), Fashion (25%), Handicrafts (20%), Digital Services (15%), Others (10%)

Source: The Result Data, 2025

The distribution indicates that the majority of MSME actors in this study are male, aged between 31–40 years, with a bachelor's degree as the most common educational background. Most businesses have been in operation for 4–6 years, with culinary and fashion being the dominant sectors. This profile provides a representative foundation for analysing digital innovation within the creative economy sector in Medan. The demographic characteristics of respondents in this study offer a representative overview of the MSME population in the city of Medan.

In terms of gender distribution, the majority of business actors are male (60%), while female participants account for 40%, indicating that the MSME sector in Medan remains predominantly male-driven. Regarding age, the largest proportion falls within the 31–40 age group (40%), followed by those aged 21–30 (25%), 41–50 (25%), and above 50 (10%). This pattern suggests that MSME actors are largely within the productive age range, which presents strong potential for digital transformation. The educational background of respondents is notably diverse, with the majority holding a bachelor's degree (35%), reflecting an intellectual readiness to embrace technological change.

Other educational levels include senior high school (30%), diploma (25%), and master's degree (10%), further highlighting a range of academic experiences that may shape perceptions and adoption of digital innovation. In terms of business experience, the majority of respondents have been operating their enterprises for 4–6 years (35%), followed by those with 1–3 years (30%) and more than 6 years (25%) of experience. Only 10% of participants reported having run their businesses for less than a year. These figures indicate that most MSME actors are in the growth or stabilization phase - critical stages for strengthening innovation and expanding market reach. Business types also show a compelling variation: the culinary sector represents the largest share (30%), followed by fashion (25%), handicrafts (20%), digital services (15%), and others (10%). This composition affirms that sectors with high creative value are integral to the broader creative economy ecosystem in Medan. This respondent profile is highly relevant to the aim of the present study, which focuses on developing a digital-based creative economy model. The diversity in demographics and business characteristics underscores the need for an inclusive and adaptive model that aligns with the local context.

Furthermore, this information serves as a crucial foundation for assessing the relevance of empirical test results and the external validity of the SEM-PLS model employed in the study. The balance across age, education level, and business type suggests that the selected sample is sufficiently representative of the overall MSME population in Medan. Overall, the respondent description reinforces confidence in the application of the Medan Go Creative model to this dataset. The diversity in business backgrounds also allows for more precise testing of the effects of variables such as digital innovation, Go Digital, Go Green, and other key dimensions. In the context of public policy, these findings can inform more targeted interventions based on the distinct characteristics of MSMEs. Therefore, the respondent profile presented here serves as a foundational element that strengthens the quality of subsequent analysis.

Table 2. Testing of Uji Validity and Reliability (Outer Model)

Variable	AVE	Composite Reliability (CR)	Cronbach Alpha
Go Digital	0.620	0.872	0.812
Go Global	0.655	0.885	0.825
Go Green	0.610	0.860	0.790
Digital Infrastructure	0.680	0.892	0.840
Digital Literacy	0.640	0.876	0.818
Stakeholder Support	0.670	0.890	0.835
Digital Innovation	0.695	0.900	0.850
UMKM Growth	0.705	0.915	0.870

Source: The Result Data, 2025

The outer model assessment was conducted to evaluate the reliability and validity of the indicators that form each latent construct within the SEM-PLS model. The analysis results indicate that the Average Variance Extracted (AVE) values for all variables exceed the threshold of 0.60, signifying that convergent validity is adequately met.

The highest AVE values were observed in the constructs of MSME Growth (0.705) and Digital Innovation (0.695), suggesting that the indicators for these constructs are capable of explaining more than 70% of the variance. The Go Green construct yielded an AVE of 0.610, which, while approaching the lower acceptable limit, is still considered adequate within SEM literature. These findings confirm that each indicator demonstrates a strong ability to reflect its corresponding construct. From a reliability perspective, the results for Composite Reliability (CR) also reveal highly satisfactory values, with all constructs scoring above 0.860. The highest CR values were recorded for MSME Growth (0.915) and Digital Innovation (0.900), indicating a high level of internal consistency among the indicators of these constructs. The Cronbach's Alpha values for all constructs ranged from 0.790 to 0.870, where a score above 0.70 is generally considered acceptable in social science research. These findings affirm that the research instrument possesses robust reliability and is suitable for further empirical testing. Discriminant validity was assessed using the Heterotrait-Monotrait Ratio (HTMT), and the results show that all HTMT values fall below the conservative threshold of 0.85. For instance, the HTMT value between *Go Digital* and *Go Global* is 0.56, while the value between *Digital Innovation* and *UMKM Growth* is 0.55. These results indicate strong discriminant validity between constructs. The low HTMT values confirm that each construct measures a conceptually distinct dimension, eliminating concerns of conceptual overlap or redundancy among variables. With convergent validity, composite reliability, and discriminant validity all satisfactorily met, it can be concluded that the constructs used in this model are both valid and reliable. This ensures that the measurement instrument is sufficiently robust to capture the concepts under investigation. Validity and reliability serve as critical foundations before advancing to the inner model analysis, which examines the causal relationships among constructs. Hence, the outer model testing process has met all methodological requirements, strengthening the overall integrity of the study.

Table 3. Structural Model Assessment (Inner Model)

Endogenous Variable	R-Square (R^2)	Q-Square (Q^2)
MSME Growth	0.782	0.652

Source: The Result Data, 2025

The inner model analysis represents a crucial step in SEM-PLS to evaluate causal relationships between latent constructs. In this study, the primary endogenous variable, *UMKM Growth*, recorded an R-Square value of 0.782, indicating that 78.2% of the variance in MSME growth can be explained by the exogenous variables within the model. This figure is considered high within social research contexts, suggesting that the *Medan Go Creative* model possesses strong predictive capability. All exogenous constructs - *Go Digital*, *Go Global*, *Go Green*, *Digital Infrastructure*, *Digital Literacy*, *Stakeholder Support*, and *Digital Innovation* - significantly contribute to explaining the variation in MSME growth. In addition to R-Square, the Q-Square value (predictive relevance) stands at 0.652.

Table 4. Hypothesis Testing

Hypothesis	Path Coefficient	t-Statistic	p-Value	Significance
H1	0.54	9.21	0.000	Significant
H2	0.48	8.45	0.000	Significant
H3	0.40	7.80	0.000	Significant
H4	0.32	6.50	0.000	Significant
H5	0.37	6.95	0.000	Significant
H6	0.45	7.90	0.000	Significant
H7	0.50	8.60	0.000	Significant

Source: The Result Data, 2025

As this value exceeds the 0.35 threshold proposed by Hair *et al.* it indicates a high degree of predictive relevance. This high Q-Square value implies that the model is not only statistically robust in explaining variance but

also possesses strong predictive utility for new data. This is especially relevant in policy implementation contexts, where models should offer forward-looking insights in addition to describing current conditions. Therefore, the model presents strong applicability for guiding local digital economic transformation. The inner model results also reinforce the findings from the outer model, confirming that all exogenous constructs are valid and significant.

These outcomes affirm the robustness of the *Medan Go Creative* framework as a replicable model. In policy terms, the high R^2 and Q^2 values suggest that targeted interventions in dimensions such as *Digital Innovation* and *Stakeholder Support* can yield substantial impact. With this data-driven approach, policymakers are better equipped to design strategies that are accurate, effective, and responsive to MSME needs. Overall, the inner model findings confirm that the SEM-PLS–based approach reliably explains the dynamics of MSME growth. This model is not merely theoretical - it is operational and well-positioned as a basis for strategic policy formulation. As such, the inner model demonstrates both scientific integrity and high practical relevance.

Hypothesis testing in this study was conducted to examine the significant influence of seven exogenous constructs on MSME growth in Medan. The results indicate that all hypotheses are statistically accepted, as evidenced by p-values < 0.001 and t-statistics above the 1.96 threshold for significance.

The primary hypothesis (H1), which investigates the impact of integrating a digital innovation–based creative economy model on MSME growth, yields a path coefficient of 0.54 with a t-statistic of 9.21, confirming a strong and significant influence. This finding supports the proposition that the *Medan Go Creative* framework serves as an effective integrative approach for advancing digital and creative transformation in the MSME sector.Hypothesis H2 (*Go Digital*) shows a significant influence (0.48, t = 8.45), suggesting that the adoption of digital tools such as e-commerce, digital marketing, and fintech enhances business sustainability and revenue. Similarly, H3 (*Go Global*) yields a coefficient of 0.40 (t = 7.80), indicating that international market orientation supported by digitalization contributes meaningfully to growth. This highlights the competitive advantage of MSMEs that extend their reach through global digital platforms.H4 (*Go Green*) also demonstrates a positive effect (0.32, t = 6.50), affirming that eco-friendly innovations can improve long-term sustainability. Systemic support variables such as *Digital Infrastructure* (H5: 0.37, t = 6.95) and *Digital Literacy* (H6: 0.45, t = 7.90) are also shown to significantly enhance the effective implementation of digital innovation in MSMEs. Without sufficient infrastructure and digital skills, transformative outcomes remain elusive.The final construct, *Stakeholder Support* (H7), demonstrates a strong effect (0.50, t = 8.60), emphasizing the vital role of collaboration among government, creative communities, and industry in establishing an innovative ecosystem. Accordingly, all tested hypotheses are significant, reinforcing the structural soundness of the *Medan Go Creative* model. The hypothesis testing provides strong empirical support for the SEM model structure. With high path coefficients and significant t-values, each dimension is shown to contribute substantively to MSME growth. These findings offer robust arguments for formulating evidence-based policies to advance sustainable and digital MSME development. The integration of all seven constructs forms a collaborative strategy that not only accelerates growth but also enhances local economic competitiveness. This contribution also enriches the academic discourse on technology-driven creative economy models.

Table 5. Model Fit Index (PLS Goodness-of-Fit)

Index	Value	Interpretation
SRMR	0.059	Good Fit
NFI	0.912	Good Fit
GoF	0.742	Large Fit

Source: The Result Data, 2025

Model fit in SEM-PLS is a critical indicator for evaluating how well the theoretical model aligns with the empirical data. In this study, three key indices were used to assess model fit: SRMR (Standardized Root Mean Square Residual), NFI (Normed Fit Index), and GoF (Goodness of Fit). The SRMR value was recorded at 0.059 - well below the recommended maximum of 0.08 - indicating an excellent fit. A low SRMR implies minimal discrepancy between the observed and predicted matrices, reflecting minimal model error. The NFI score, used to compare the structural model with a null model, was 0.912. This exceeds the recommended minimum of 0.90, signifying that the proposed SEM model explains the data significantly better than a baseline model with no relationships among variables. The high NFI further supports the model's strong representational capacity for capturing empirical realities within the MSME population of Medan. The final index, GoF, yielded a value of 0.742,

classified as a “large fit” based on Wetzels *et al.* (2009). GoF is calculated from the square root of the product of average AVE and R^2 values, and it reflects the overall quality of the measurement and structural components of the model. A score of 0.742 indicates that the model has a very high ability to explain the overall variance in the data. Taken together, the three fit indices confirm that the *Medan Go Creative* model meets statistical adequacy criteria. These results reinforce the interpretation that the SEM model is reliable and suitable for both further academic investigation and practical policy implementation. Therefore, the model is not only theoretically and empirically sound, but also a feasible tool for formulating city-level digital creative economy strategies

4. Discussions

The results of the first hypothesis test (H1) indicate that the integration of a creative economy model based on digital innovation has a significant influence on MSME growth in the city of Medan, with a path coefficient of 0.54 and a t-statistic of 9.21 ($p < 0.000$). These findings affirm that an integrative approach - combining technology, collaboration, and creativity - can drive overall MSME performance. The active involvement of various actors within the digital ecosystem has further accelerated the adoption of innovation among small business players. Digital transformation is no longer optional; it has become a strategic necessity for business sustainability. In the context of Medan, this model is articulated through the “Go Creative” strategy, which integrates the Go Digital, Go Green, and Go Global approaches as a development framework. Government programs and positive responses from local business communities have further strengthened the model’s practical implementation. These findings align with Hair *et al.* (2020), who assert that digital-based business models offer competitive advantages for MSMEs in the innovation-driven economy. Improvements in business performance can be observed through increased revenue, product diversification, and market expansion. Thus, this integrated model may be considered a strategic framework for strengthening regional creative MSME sectors. The second hypothesis (H2) confirms that the use of digital technology significantly influences MSME revenue growth and sustainability, with a path coefficient of 0.48 and a t-statistic of 8.45 ($p < 0.000$). The use of e-commerce, digital marketing, and financial technology (fintech) has demonstrably enhanced financial performance. MSMEs that actively engage with digital platforms report improved efficiency in business processes and broader market reach. Prasetyo & Lestari (2021) highlight that digitalization not only accelerates transactions but also strengthens consumer trust through service transparency. Strengthened digital capacity in internal management improves accountability and long-term business planning.

Respondents noted that using platforms such as Tokopedia, Shopee, and Instagram significantly boosted demand. Digital technology also facilitates real-time sales reporting, inventory management, and market analysis. Therefore, integrating technology into daily MSME operations can be seen as a primary engine of sustainable growth. For the third hypothesis (H3), results show that international market access through digitalization positively impacts MSME growth, with a path coefficient of 0.40 and a t-statistic of 7.80 ($p < 0.000$). In the era of digital globalization, geographic boundaries are no longer a barrier to reaching international consumers. MSMEs using digital export platforms such as Alibaba, Amazon, or cross-border B2B channels are significantly expanding their scale. This finding is consistent with research by Wijayanti *et al.* (2021), which noted that digitalization enables a more inclusive pathway to international trade for MSMEs. In Medan, MSMEs in the food and craft sectors have penetrated export markets through digital catalogs and international social media platforms. Global market access also accelerates adaptation to quality standards and international certifications that were previously out of reach. Government support through digital export facilitation programs is key to enhancing the export capacity of regional MSMEs.

Thus, digitalization not only broadens market access but also improves competitiveness and global presence. The fourth hypothesis (H4) demonstrates that sustainable and environmentally friendly innovation practices enhance MSME competitiveness and business continuity, with a path coefficient of 0.32 and a t-statistic of 6.50 ($p < 0.000$). Environmentally oriented innovation is now a global trend that cannot be ignored. Modern consumers prefer products that are ethically made, eco-friendly, and sustainable. In this context, MSMEs that integrate green business principles into their production and distribution processes earn greater market trust. Research by Handayani *et al.* (2022) shows that green innovation directly impacts customer loyalty and brand perception. In Medan, an increasing number of MSMEs are producing recycled bags, organic goods, and eco-friendly packaging in response to growing ecological awareness. Green innovation also reduces long-term production costs and enhances energy efficiency. These sustainable practices ultimately contribute to business longevity and open up partnership opportunities with institutions that prioritize social and environmental responsibility. The fifth hypothesis (H5) confirms that the availability of digital infrastructure positively influences the effectiveness of creative economy model integration, with a path coefficient of 0.37 and a t-statistic of 6.95 ($p < 0.000$). Digital infrastructure includes internet connectivity, hardware, and supporting digital systems that enable

digital business processes. Without adequate infrastructure, technological adoption remains slow and uneven. This finding supports the study by Siregar *et al.* (2022), which identifies infrastructure gaps as a major barrier to equitable MSME digitalization. In Medan, respondents with stable internet access and sufficient digital tools demonstrated higher engagement in digital business activities. The city government has facilitated public Wi-Fi access points and community-based digital literacy training. Equitable access to technology promotes economic inclusion across both urban and semi-urban areas. Therefore, developing digital infrastructure is a fundamental prerequisite for the effective implementation of the creative economy model. The sixth hypothesis (H6) reveals that digital literacy among MSME actors significantly contributes to the success of digital innovation adoption, with a path coefficient of 0.45 and a t-statistic of 7.90 ($p < 0.000$). Digital literacy extends beyond basic technology use; it includes strategic understanding of how digital tools support business decision-making. MSME actors with stronger comprehension of digital platforms adapt more quickly to changing trends and market demands. A study by Putri & Nugroho (2021) emphasizes that digital transformation success depends on the human resource capacity to understand and manage technology effectively. In this study, most respondents had middle to high educational attainment, making them receptive to advanced technology training. Improved digital literacy results in better platform usage, more effective online promotion, and increased data security.

Therefore, enhancing digital capacity should be a priority program in accelerating technology-based creative economic transformation. The seventh hypothesis (H7) shows that collaboration among government, industry, and creative communities significantly influences the development of a digital creative ecosystem, with a path coefficient of 0.50 and a t-statistic of 8.60 ($p < 0.000$). Cross-sector collaboration fosters synergy that accelerates innovation. Governments provide policy and regulatory support; industry contributes networks and capital; and creative communities serve as sources of ideas and innovation energy. Research by Ardiansyah *et al.* (2021) underscores the importance of collaborative approaches in building regional innovation ecosystems. In Medan, initiatives such as the Medan Creative Hub and integrated training programs have successfully fostered collaborative spaces. These partnerships also accelerate business incubation, technology dissemination, and local product promotion at national and international levels. Hence, an inclusive and collaborative ecosystem model forms the foundation of a sustainable digital creative economy at the local level.

Conclusions and Further Research

This study empirically confirms that integrating a creative economy model based on digital innovation significantly impacts MSME growth in Medan. The Medan Go Creative (GCE) model - structured around Go Digital, Go Global, and Go Green - has proven effective in systematically enhancing the competitiveness and sustainability of small and medium enterprises. All hypotheses within the conceptual framework were found to be statistically significant, demonstrating that digital technology utilization, international market access, sustainable innovation practices, digital literacy, infrastructure readiness, and multi-stakeholder collaboration all contribute meaningfully to revenue growth, market expansion, and business resilience. SEM-PLS analysis indicates that the GCE model possesses strong predictive power ($R^2 = 0.782$; $Q^2 = 0.652$) and meets all criteria for construct validity and reliability. With high model fit indices (GoF = 0.742; SRMR = 0.059; NFI = 0.912), the model is suitable for policy formulation and replication in other regions. These findings provide scientific justification that digital transformation cannot succeed in isolation but requires adequate infrastructure and human capacity. Therefore, cross-sector collaboration is essential to building an inclusive and sustainable digital creative ecosystem. The academic contribution of this study lies in the development of an integrative model based on six key variables - digital literacy, digital infrastructure, stakeholder support, digital innovation, creative collaboration, and MSME growth - which have been underexplored in local contexts such as Medan. The practical contribution lies in its potential to serve as a data-driven, context-sensitive, and implementable roadmap for digital MSME transformation. The results affirm that digitalization in the creative economy is not merely technical, but also strategic and multidimensional. Thus, Medan Go Creative may be adopted as a local economic development strategy grounded in technology, creativity, and inter-actor collaboration. Strengthening digital literacy and expanding infrastructure access must be pursued simultaneously and continuously to ensure that digitalization benefits reach all MSME actors, particularly in resource-limited areas. This study also confirms that global market orientation and eco-friendly practices are no longer optional trends but strategic necessities in facing global economic dynamics. Therefore, GCE offers a role model for accelerating MSME digital inclusion on a national scale. This study provides a strategic policy direction for digital-based MSME development at the regional level. Local governments should enhance digital literacy through practical and sustained training tailored to MSME needs. Equitable development of digital infrastructure is a primary condition for ensuring access and effectiveness in transformation. Additionally, stakeholder collaboration - including government, industry, and creative communities - should be institutionalized through innovation and incubation

centers such as Creative Hubs. Sustainable innovation practices should also be encouraged through incentives for MSMEs that adopt environmentally responsible approaches. Overall, policies should focus on building a digital creative economy ecosystem that is inclusive, competitive, and responsive to the challenges of the digital transformation era.

Declarations

Acknowledgments: This research was funded by the Ministry of Higher Education, Science, and Technology through the BIMA Research Grant under the Regular Fundamental Research Scheme for the Fiscal Year 2025. The authors express their sincere gratitude for the financial support that made this study possible.

Credit Authorship Contribution Statement:

Dina Hastalona: Conceptualization, Methodology, Data Collection, Formal Analysis, Writing – Original Draft. Dina Hastalona led the formulation of the research questions, constructed the conceptual framework, designed the data collection instruments, and carried out the fieldwork. She also conducted the data analysis using SEM-PLS and wrote the initial draft of the manuscript.

Eka Hayana Hasibuan: Supervision, Validation, Writing – Review & Editing, Funding Acquisition**,** Software, Data Curation, Visualization, Formal Analysis. Eka Hayana Hasibuan provided overall supervision of the research design and analytical strategy. She also validated the statistical methodology and contributed to refining the structure and arguments in the manuscript during the review process. **H**andled data preprocessing, performed SmartPLS 4 modeling, and produced tables and diagrams. He was responsible for ensuring data integrity and supported the statistical robustness of the findings.

Dedy Lazuardi: Resources, Investigation, Project Administration, Writing – Review & Editing. Dedy Lazuardi coordinated access to MSME respondents in the Nias Islands and managed the field team. He also ensured logistical execution of the study and contributed to editing the manuscript, especially in aligning theoretical discussions.

Declaration of Competing Interest: The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Declaration of use of generative AI and AI-assisted technologies: During the preparation of this manuscript, the authors did not use generative AI tools, only to assist in language enhancement, literature structuring, and technical proofreading. The AI was not used to generate content independently or substitute the authors' original analysis, critical thinking, or interpretations. The final content was reviewed, edited, and approved entirely by the authors, who take full responsibility for the integrity and accuracy of the manuscript.

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