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The Mediating Role of Innovation Capability on the Relationship Between Digital Transformation and Economic Competitiveness

Rahma WAHDINIWATY
Universitas Komputer Indonesia, Bandung, West Java, Indonesia, Email rahma@emial.unikom.ac.id
Corresponding Author

Eddy Soeryanto SOEGOTO
Management Science Program, Universitas Komputer Indonesia, Bandung, West Java, Indonesia, Email eddysoeryantos@email.unikom.ac.id

M. Yani SYAFEI
Universitas Komputer Indonesia, Bandung, West Java, Indonesia, Email yanisyafei@email.unikom.ac.id

Deri FIRMANSYAH
Department of Management STIE PASIM Sukabumi, West Java, Indonesia, Email deri@stiepasim.ac.id

Abdisamad Abdirahman OMAR
Ankara Haci Bayram Veli University, Ankara, Turkey, Email abdisamad@aims.edu.so

Sudadi PRANATA
Universitas Catur Insan Cendekia, Cirebon, West Java, Indonesia, Email, sudadi.pranata@cic.ac.id

Abstract

Increasing the economic competitiveness of MSMEs in the creative industry sector in tourism areas is very necessary to encourage the growth of Indonesian tourism amidst the challenges of digital disruption. Given its importance, this study examines the predictive causal relationship between digital transformation (DT) and economic competitiveness (CP) by examining the mediating role of innovation capability (IC) in the proposed construction model. The survey method was carried out by distributing research instruments to 158 respondents, the collected data was used to analyse the relationship between digital transformation, innovation capabilities and competitiveness, and was used to test hypotheses. Evaluation of predictions through a structural equation model with partial least squares-structural equation modelling (PLS-SEM). The findings of the study show that the suitability of the model is achieved and all hypotheses are accepted, where IC has a mediating effect on the influence of digital transformation on the economic competitiveness of MSMEs. There are important components that must be considered to strengthen the contribution of DT and IC to CP improvement, namely a set of competencies and adequate resources. The model of economic competitiveness of MSMEs in the creative industry sector based on innovation capabilities and digital transformation involving a set of competencies that include digital competencies, human resources, and economic resources as fundamental inputs that strengthen it, is a new thing to fill the existing gap. The contribution of this research expands the horizon of MSME effectiveness in highly competitive tourist areas so that it can improve the economic sector and creative industries that are able to encourage an increase in the growth of Indonesian Tourism in this era, where digital transformation capabilities, digital skills, and innovation capabilities must be prepared carefully.

Keywords: Economic competitiveness, innovation capability, digital transformation, growth of Indonesian tourism

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Introduction

Micro, Small and Medium Enterprises (MSMEs) are crucial to a country's socio-economic growth and development as they are an important part of the global supply chain. In Indonesia, MSMEs support the national economy. The large contribution of MSMEs to Gross Domestic Product (GDP) in 2021 reached 61.07 percent or worth IDR 8,573.89 (Kemenkeu, 2022). Where MSMEs in this country often grow side by side with the development of the tourism sector which simultaneously synergises to create a mutualistic symbiotic relationship that is mutually beneficial in terms of profits and benefits for the economic aspect, so that it has the potential to boost the regional economy and drive the national economy if there is an increase in economic competitiveness among MSMEs in the region. However, the extraordinary phenomenon, the Coronavirus Disease (COVID-19) pandemic, has had a serious impact on the health crisis, economy, transportation, and other industries, including MSMEs (Saepuloh et al., 2022; Wahdiniwaty et al., 2022). Until now after COVID-19, the impact is still felt, where the resilience and growth of MSMEs are disrupted, resulting in anti-fragility and instability of their competitive advantages (Wahdiniwaty et al., 2022), even worse than mere disruption where not a few MSME actors have decided to no longer operate because the conventional business model is no longer relevant to be adapted holistically as previously implemented. On the other hand, the development of the digital economy is underway, and business digitalisation in the Industrial Revolution (IR) 4.0 era shows the deviation of past expectations from MSME players, especially in matching supply and demand through traditional marketing communications. This signal has been seen with the great advancement and utilisation of the Internet of Things (IoT) which offers many new opportunities (Verhoef et al., 2021), currently has penetrated various aspects of human life, especially in the economic sector, this illustrates the importance of a customer-based business must have dynamic resources and capabilities in order to be able to utilise them to create new value (Firmansyah et al., 2022; Budiarti & Firmansyah, 2025; Verhoef et al., 2021) in an effort to pursue competitive advantage (Liu et al., 2011) which leads to sustainable business performance. The challenge is increasingly apparent with the shift in people's behaviour in meeting their economic needs, which is reinforced by the outbreak of the COVID-19 pandemic amidst digital disruption that has relatively provided positive wisdom after this outbreak has passed. In fact, we have now begun to enter the era of society 5.0, where rapid technological advances offer many alternative solutions to solving social, economic, business, and quality of life problems. This means that the development of digital

technology greatly helps MSMEs in their efforts to expand their market share quickly without having to meet customers directly (Firmansyah & Saepuloh, 2022), without continuing to get lost in the shadow of the failure of traditional business models whose relevance is increasingly eroded in the business landscape in the era of digital disruption (Pitri et al., 2025). This condition is an opportunity for MSME actors to rise, move up, and MSMEs that are advanced, independent, and competitive and contribute to the national economy, of course, must be able to transform from conventional business to digital (Firmansyah et al., 2021). Even MSMEs in the creative industry sector are located or operating in tourist areas. In addition to being able to fundamentally strengthen the national economy from various regions in a district, achieving stability and competitiveness of UMKM in this area also has the potential to increase tourism growth. Interestingly, currently, the majority of UMKM actors in tourist areas still rely on word-of-mouth marketing and are very dependent on visitors who come to tourist areas. UMKM actors do have Android smartphones equipped with internet facilities, but they are still rarely used optimally for digital marketing development. The digital transformation process is a never-ending challenge for most MSMEs in the creative industry sector in the tourism area of West Java, Indonesia, as a rural community is required to adopt e-commerce practices through a digital platform-based marketplace, due to the lack of digital literacy, so that the use of digital platforms is less than optimal. Digital transformation for business processes can indeed increase economic competitiveness if, in practice, MSMEs succeed optimally (Sui et al., 2024).

Interestingly, most MSMEs currently do not yet have a good understanding of how to manage a website-based platform provided by a third party for business purposes, starting from how to download online sales applications, design and manage content, upload photos, describe and share product information as the latest viral marketing communication media, as well as in optimising other features available on digital platforms that continue to emerge. As a result, opportunities to develop businesses and expand market reach through digital transformation practices are lost, making it difficult to achieve global economic competitiveness that can be increased if only relying on direct sales (offline) in this era. Therefore, MSMEs need to design and implement digital transformation strategies (Shehadeh et al., 2023), which are not limited to utilising various digitalisation and digital solutions (Vrana & Singh, 2021; Alkhwaldi et al., 2022) which emphasises adaptive behaviour, developing innovative thinking and capabilities towards achieving sustainable economic competitiveness (e.g., Firmansyah et al., 2024; Shehadeh et al., 2023; Marei et al., 2023; Leão & da Silva, 2021), which is simultaneously able to escape from various business disruptions and reflects the creation of business operational flexibility that has good resilience and antifragility (Corvello et al., 2023; Nikookar et al., 2021), in various situations with increasing cycles. However, the practice of digital transformation and innovation capabilities still needs to be tested for their effectiveness and success in growing business antifragility, which leads to increased economic competitiveness among MSMEs in tourism areas in today's dynamic business landscape, which is increasingly challenged by digital disruption. The latest relevant literature extensively conducts more studies by examining the issue of digital transformation, innovation capabilities and their impact on the competitiveness of MSMEs in the general business sector in the business landscape in the digital era, but explicitly there are still limited studies that focus more on examining the situation and development of MSME businesses in the creative industry sector in the tourism area. Many authors has focused on the phenomenon, for example, Zhao et al. (2025), Liu (2024) and Shehadeh et al. (2023) on the impact of digital transformation on the competitiveness of manufacturing companies, Sui et al. (2024) similar explorations were conducted with its driving mechanisms, Jin et al. (2024) on sources of digital transformation that strengthen international carbon competitiveness and domestic manufacturing, Ren & Lin (2024) on digital transformation and corporate value with a focus on the important role of leadership and transformation strategy, Safiullin & Akhmetshin (2019) digital transformation of universities and the application of digital university management as a guarantor of competitiveness, examining the distinctiveness and competitiveness of organisations predicted by exploitative and explorative digital transformation, Cardoso et al. (2023) exploring the use of technology and organisational competitiveness, Baierle et al. (2022) on which digital technologies are appropriate to improve the performance of agribusiness systems in the current status of digital technology implementation, Borissova (2021) prerequisites for digital transformation, economic effects and firm competitiveness, Kő et al. (2022) on digital agility, competitiveness and innovation performance, Nambisan et al. (2019) driving factors of entrepreneurial innovation capability in the digital technology era, Rajapathirana & Hui (2018) innovation capability and performance of insurance companies, Shahzad et al. (2024) highlighting innovation capability and firm competitiveness, Wongsansukcharoen & Thaweepaiboonwong (2023), on the relationship between innovation in human resource practices, innovation capability, competitive advantage, and SME performance, Ávila (2022) absorptive capacity and competitive advantage with the mediation of innovation capability in the manufacturing industry, Sultana et al. (2022) data-based innovation capability to achieve strategic competitive performance, and Firmansyah et al. (2024) model of economic competitiveness in the 21st century digital disruption era among SMEs in Indonesia. There is an important gap that needs to be filled through research that can contribute to broadening the horizon of SME effectiveness in the creative industry sector in the highly competitive tourism area in the era of digital disruption based on digital transformation practices and innovation capabilities.

Therefore, this study attempts to offer a model for increasing the economic competitiveness of micro, small, and medium enterprises (MSMEs) by testing and confirming the conceptual framework of the relationship between digital transformation (DT) practices, innovation capabilities (IC), and competitiveness (CP) among MSME actors in the creative industry sector in the tourism area of West Java, Indonesia in facing the challenges of business transformation and digitalisation in the digital economy era, and examining the mediating role of innovation capabilities (IC) in the relationship between the three. Given that the business potential in the area can be explored and developed along with the shift in traditional business practices, face-to-face relying on visitors who come to digital practices, along with the emergence of various digital platforms as a place to market products (marketplaces) digitally or a combination of both. The existence of innovation capabilities is

needed to encourage and ensure the success of business model transformation practices in a new face that is flexible and more adaptive in responding to changes in the business environment in the digital economy era in order to create new ones so that they can survive and continue to grow with better performance and competitiveness in a sustainable manner, so as to encourage an increase in the growth of Indonesian tourism and the national economy.

Theoretical background and hypothesis statement

Digital transformation

Digital transformation is a topical issue worldwide, so important for all business actors in all sectors, because it is able to transform customer relationships, internal processes, and value creation (Zaoui & Souissi, 2020). Digital transformation is an effort to change business models to be more relevant and up-to-date by utilising the latest digital technology that enables companies to create new value (Verhoef et al., 2021; Firmansyah et al., 2024; Shehadeh et al., 2023). Adaptation and transformation are the keys to success for MSMEs to survive, rise and develop in the digital era, especially where the business and market environment is rapidly changing (Firmansyah & Saepuloh, 2022a). The ability to adapt to high concepts with company-specific demands is a key factor to support SMEs to take advantage of technological opportunities in connection with the digitisation process (Fechtelpeter et al., 2017). However, digital transformation is more than just the use of technology; it must also consider changes in talent, culture, and organisational structure (Kane et al., 2017). Digital transformation is the use of digital technology (Negroponte, 1995; Morze & Strutynska, 2021), which fundamentally increases the productivity and value of the company (Westerman et al., 2014). Successful digital transformation requires organisations and actors involved to have digital literacy readiness and develop various capabilities according to the business context and needs (Reis et al., 2018), so that it is closely related to: the use and alignment of digital technology in a company, making organisational changes, enabling activities, creating and capturing new opportunities and value (e.g., Jeansson & Bredmar, 2019; Firmansyah & Saepuloh, 2022a). Business digital transformation, as a form of business model and process innovation to find and create new ones, is relevant to the development of the renewable economy in the current digital economy era (Firmansyah, et al., 2023). In today's renewable economy era, the focus of business actors and their personnel from actively competing industries around the world (Morze & Strutynska, 2021), exerts pressure to go digital before anyone else does, striving to survive and achieve competitive advantage (see Bharadwaj, 2000; Reis et al., 2018). The implication is that individuals and business actors need to prepare and improve digital skills and readiness that are potentially needed in this era (Firmansyah et al., 2022). The skill needed for business processes has changed, renewably along with technology, is digital literacy. Digital literacy emerged alongside the evolution of the internet and demanded knowledge of how to access, search, and critically analyse information (Liu et al., 2020; Farias-Gaytan et al., 2022; Firmansyah, 2022a). Although it must be emphasised that digital transformation is not about a single technology, but a major change based on a combination of information technology, computing, communication, and connectivity (Bharadwaj et al., 2013; Cichosz et al., 2020). Digital transformation is different from digitalisation (Monton, 2022; Shehadeh et al., 2023), digital transformation in practice describes the utilisation of various modern technologies without limits (Alkhwaldi et al., 2022), where digitalisation is the starting point to be ready to carry out digital transformation (Vrana & Singh, 2021), in an effort to pursue economic competitiveness and sustainable business performance in the era of digital disruption (e.g., Firmansyah et al., 2024; D. Liu et al., 2011; Zhao et al., 2025; X. Liu, 2024; Shehadeh et al., 2023; Sui et al., 2024; Jin et al., 2024; Budiarti & Firmansyah, 2025), by fostering adaptive behavior, developing innovative thinking and abilities (Shehadeh et al., 2023; Marei et al., 2023; Firmansyah et al., 2024; Leão & da Silva, 2021). Consequently, the following hypotheses are proposed:

H_1: There is an effect of digital transformation on competitiveness
H_2: There is an effect of digital transformation on innovation capabilities

Innovation capability

MSME creativity includes aspects of creativity and innovation ability to develop new ideas and methods. The process of continuous innovation is very important for business development in the modern era, in terms of profit generation and competitiveness (Marković et al., 2020). The creation and exploitation of knowledge play an important role in better positioning companies in the global market so as to strengthen business performance amid intense competition. Therefore, the exploitation and integration of digital technology often affects most companies at various scales and even beyond their limits, by affecting products, business processes, sales channels, and supply chains to be able to create sustainable competitive advantages (Firmansyah & Saepuloh, 2022). The digital transformation process explains the importance of multiliteracy to support the innovation process to strengthen competitiveness (Krumsvik, 2015). Innovation is the elixir of life in the journey of one's life that is full of creativity and appropriate in taking advantage of opportunities to always grow and continue to develop. Innovation is a firm's ability to strategically sense and respond to opportunities and threats, increasing competitive advantage (Liu et al., 2014). Innovation is the ability to change more in accordance with the demands of the environment that occurs (Herrera, 2015). Measurement of innovation can be seen from investment into technology, innovation processes, product development and marketing, development of new sources of supply, and discovery of new markets. Relevant business innovation practices are needed in this era to improve competitiveness (for example, Firmansyah & Saepuloh, 2022). Innovation arises from creativity, where creativity includes creative aspects of personality, motivation, intelligence, thinking style, and relevant knowledge (Mcmullan & Kenworthy, 2016). The results of research by Firmansyah et al. (2024), found that the ability to innovate can strengthen economic stability and the competitiveness of economic actors. Innovation arises because of creativity that includes

creative aspects of personality, motivation, intelligence, thinking style, and relevant multiliteracy, including adaptive behaviour, dynamic capabilities, competencies and adequate human resources digital transformation (HRDT) among MSMEs (e.g., Budiarti & Firmansyah, 2024; Marei et al., 2023; Firmansyah et al., 2024; Ávila, 2022; and Leão & da Silva, 2021). Therefore, it can be argued that:

H_3: There is an effect of innovation capabilities on competitiveness

Economic competitiveness

Competitiveness is the ability for good performance (Garengo et al., 2005), for others, implies the creation and sustainability of a source of competitive advantage (Ceptureanu, 2015). Chao-Hung & Li-Chang (2010), mentioned that a company's competitiveness is its economic strength against its competitors in a global market where products, services, people, and innovations move freely regardless of geographical restrictions. Meanwhile, Buckley (1988) in Schwab & Sala-i-Martín (2016), argue that economic competitiveness means the ability of a company to produce and sell products and services with superior quality and lower costs than its domestic and international competitors. According to Firmansyah (2024), economic competitiveness is the productivity of a business in an effort to produce products and services that have high quality at a lower cost than its competitors able to meet the market reach in terms of price, distribution channels, and optimisation of the chosen promotion method, so that it is able to grow sustainably over time followed by its ability to provide superior profit performance for owners and able to provide appropriate compensation for its employees. On the other hand, for company excellence, it also emphasises the aspect of competitive strategy, for example, Porter et al. (2008) mentioned that competitiveness is a relative concept, related to how competitive a company is when compared to other industries (Firmansyah, 2024). In the business environment in the era of the digital economy that continues to be renewed, it has been hinted that digital skills can increase the use of information and communication technology (ICT), social media transformation and engagement, competitiveness and organisational performance in SMEs (Rozak et al., 2021). The adequacy of digital knowledge and skills possessed by MSME actors can directly affect the competitiveness of their businesses, as well as the existence of digital knowledge, skills and readiness can give birth to the courage and ability to carry out digital transformation of businesses so which in finally indirectly impact the competitiveness of their businesses (Firmansyah & Saepuloh, 2022). Adaptation and transformation are the keys to success for MSMEs to be able to survive, rise and develop in the digital era, especially where the business environment and market are changing rapidly (Firmansyah & Saepuloh, 2022). The ability to adapt to high concepts with the specific demands of companies is a key factor to support SMEs in capturing and utilising technological opportunities in connection with the digitalisation process (Fechtelpeter et al., 2017; Firmansyah et al., 2024; Budiarti & Firmansyah, 2024). Following Firmansyah et al. (2023), which mentions the ability to carry out business digital transformation as a form of business model innovation to find and create new ones with a commitment to market orientation, both business processes and products or services that meet expectations and even exceed customer orientation as the target market that is the most important stakeholder, as well as relevant business model and process practices in line with economic development renewable in the current digital economy era, so that it will directly or indirectly strengthen competitiveness and increase competitiveness in a sustainable manner. The digital transformation process explains the importance of digital literacy and multiliteracy to support the innovation process to strengthen competitiveness (Krumsvik, 2015). In the era of the digital economy, digital transformation (DT) is a new approach for companies to gain a competitive advantage in the context of fierce and dynamic market competition (Firmansyah et al., 2024). Technological and environmental factors drive digital transformation which has a positive impact on the ability of organisations to create innovation capabilities for their competitiveness. Multiliteracy plays an important role in adopting technology and adapting the environment for successful digital transformation (Zhang et al., 2022). Hence the following hypothesis is proposed:

H_4: Innovation capabilities mediate the effect of digital transformation on competitiveness

Research methodology

This research is a survey research with a quantitative approach. Survey research seeks to quantitatively describe the tendencies, attitudes, or opinions of a particular population by examining a sample of that population (Creswell, 2014). Quantitative research is an approach to test objective theories by examining relationships between variables (Creswell, 2014). A total of 158 respondents became the sample of this study, selected by purposive sampling techniques developed with convenience sampling techniques related to the ease of reach of respondents' existence with consideration of existing respondents and can participate in the research (Taherdoost, 2016; Hibberts et al., 2012; Firmansyah, 2022), however, understanding and habits of using digital technology are considered, at least accustomed to using Android smartphones or other digital media for personal communication or business purposes and domiciled in the area or operating around the tourist area, actively participating in education and training organised by related partners, having adequate digital competence and literacy (information literacy, information and communication technology / ICT, media literacy, accustomed to digital communication and collaboration), accustomed to accessing information digitally through the internet network and the respondent's area is available stable internet network infrastructure. Therefore, respondent nominations are specifically based on criteria selected to meet certain objectives, the suitability of respondent nominations is obtained from the results of preliminary surveys. Data collection techniques, face-to-face questionnaire dissemination and Google Form dissemination through social media, but the combination of both showed better results, guaranteeing that the questionnaire criteria and answers were again accepted according to the number of

questionable items related to the object studied, but the research team remained independent. Primary data sources are used by deploying research instruments as data collectors, Likert scales ranging from 1-5 are used. Digital transformation (DT) with six statements (DT1-DT6); innovation capability (IC) with eight statements (IC1-IC8); and Competitiveness (CP) with seven statements (CP1-CP7). The collected data were analyzed with Partial least squares-structural equation modelling 4 (PLS-SEM4) selected for use in analyzing model construction. The evaluation of the model constructed in this study was carried out in two stages as the general procedure in the implementation of PLS-SEM, namely the outer model stage or phase and the inner model phase.

The outer model stage is commonly called model measurements are based on convergent and discriminant validity, Cronbach's alpha (Cα) value > 0.70 (Hair et al., 2011), AVE > 0,50 (Henseler et al., 2016), full collinearity of VIF ≤ 3.3 (Kock, 2017), Fornell-Larcker criterion (Fornell & Larcker, 1981), and Heterotrait-Monotrait (HTMT) < 0.90 (Hair et al., 2021; Franke & Sarstedt, 2019) or far < 1 (Henseler et al., 2016). Evaluation of model fit, where R^2 ranges values of 0,75, 0,50 and 0.25; strong to low (Henseler et al., 2016; Hair et al., 2019), the strength of partial or full mediating effect f^2 values ranges from 0.02, 0.15, and 0.35 (Cohen, 1988; Hair et al., 2019), SRMR < 0.10 fit model achieved (Henseler et al., 2016), NFI criteria refer to Henseler et al. (2016); and Hair et al. (2017). The second stage is the inner model or hypothesis testing phase of each latent variable pathway and the predicted mediation effect in the model constructed by applying the bootsrapping procedure. Significance of direct and indirect effect = t stat > 1,96 at α = 0.05. The magnitude of the structural mediating effect of the pathway, statistical upsilon (v) = $\beta^2_{YM.X} - (R^2_{Y.MX} - \rho^2_{YX})$ (Lachowicz et al., 2018; Ogbeibu et al., 2021), then in this study $v = \beta^2_{IC,DT}\beta^2_{CP,IC\cdot DT}$. Effect size criteria = 0.175 strong, 0.075 moderate, and 0.01 small mediated effect (Cohen, 1988; Ogbeibu et al., 2021), also comes with a value adjustment factor (VAF) on the VAF criterion >20 but <80% of partial mediation occurs, even if VAF >80% has a full mediation effect (Hair et al., 2012; Bagga et al., 2023; and Firmansyah & Wahdiniwaty, 2023).

Research analysis

Measurement model and model fit evaluation

Measurement model

Latent variable constructs are used to check the PLS-SEM measurement model. Convergent and discriminant validity are used to measure the construct of each indicator. Discriminant validity is done to ensure that each construct is similar to the item with other latent constructs. Improvement of the model for factor analysis is possible, if the loading factor of the latent variable is not at the minimum required value (<0,60).

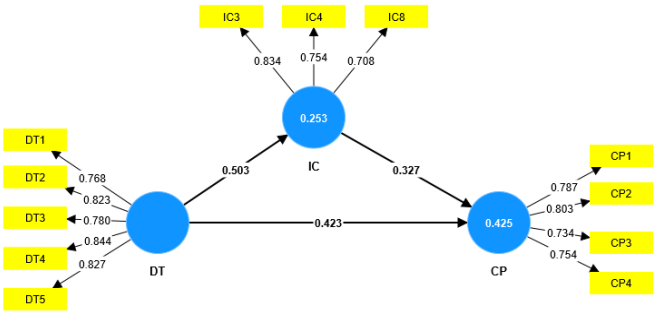

Figure 1: Structural model after factor improvement

The loading factor of the remaining twelve items was received (see figure 1), each having a value of Cα > 0,70 (between 0,708 and 0,844) after repairs and as many as nine items from the construct having a value of < 0,70 were discarded. In figure 1 and table 1, showing that each construct of DT, IC and CP has a value of Cα and CR > 0,70, and the required reliability scale is stated to be met (Hair et al., 2011), the construct has good consistency. In addition, validity is also acceptable (see Table 1) known AVE values for all constructs are greater than 0.5, constructs have reliability (Henseler et al., 2016). All three constructs match with the model.

Table 1: Model measurement results after modification

Latent Variables	Question items (after factor improvement)	Factors Loading	Cα	CR	AVE	VIF	
						OM List	IM Matrix
Digital Transformation (DT)	DT1	0.768	0.868	0.904	0.654	1.744	
	DT2	0.823				2.046	
	DT3	0.780				1.839	1.339
	DT4	0.844				2.439	
	DT5	0.827				2.310	
Innovation Capability (IC)	IC3	0.733	0.647	0.810	0.588	1.445	
	IC4	0.703				1.345	1.339
	IC8	0.784				1.174	
Economic Competitiveness (CP)	CP1	0.784	0.772	0.853	0.593	1.842	
	CP2	0.804				2.086	
	CP3	0.734				1.288	
	CP4	0.784				1.528	

Note: The significance value (***) of all indicators is at the level of 0,001 (p < 0.001).

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The results of collinearity detection between constructions, known cutt-off is met for all constructions with a VIF value of <3,3 for all constructs, there is no full collinearity in the model (Kock, 2017). The square root of the AVE and the correlation coefficients among the constructs were used to see the validity of the discriminant (table 2).

Table 2: Discriminant validity test results (Fornell-Larcker)

Latent Variables	AVE	DT	IC	CP
DT	0.654	0.770		
IC	0.588	0.588	0.809	
CP	0.593	0.540	0.503	0.767

Note: In columns DT, IC to CP, the topmost value diagonally indicates the square root value of the AVE.

Referring to the Fornell-Larcker criterion (Hair et al., 2019), the square root value of AVE for discriminant validity with provisions must have a value greater than the correlation of its latent variables. The test results show that the value of the diagonal square root of AVE > the value of the correlation coefficient of other latent variables on the matrix, the evaluation of discriminant validity is fulfilled.

Table 3: Heterotrait-Monotrait (HTMT) correlation test results

Latent Variables	DT	IC	CP
DT			
IC	0.676		
CP	0.701	0.749	

Note: Correlation DT, IC; DT, CP; and ICs with CP, each < 0.90.

Heterotrait-Monotrait (HTMT) is an estimate of factor correlation or rather, upper limit (Henseler et al., 2016). The robustness of the HTMT correlation ratio criterion between constructions should be < 0.90 or much less than 1. Test results (table 3) all values less than 0,90 (0,676; 0,701; 0,749 < 0,90; < 1,0) these evaluation results conclude good discriminant validity. In this study, model measurements on constructs were concluded to be reliable and valid.

Model fit evaluation

The analysis is carried out by model evaluation, the aim is to determine the predictive power of the proposed model seen from the value of the coefficient of determination (R^2) of endogenous latent construction. IC has an R^2 value of 0,253, and CP has an R^2 value of 0,425 (tends to be moderate) bermakna meaning that the model has moderate predictive power so that it can reflect all endogenous constructs (Henseler et al., 2016; Hair et al., 2019: p.18).

Table 4: Verification and evaluation of model suitability

Path Relationship	R^2	Adj. R^2	f^2	SRMR	NFI	d_ULS	d_G
DT - - → IC	0.253	0.413	0.339				
IC - - → CP	0.425	0.245	0.159				
DT - - → CP			0.232				
				0.095	0.735	0.702	0.253

Note: R^2; f^2, being on the threshold, SRMR; NFI, d_ULS; d_G, the criteria of the fit model.

In addition, f^2 is the ability to explain effects (Huang, 2021), in explaining dependent constructs in structural models (Hair et al., 2019). The magnitude of the effect size seen from the values of f^2 for H_1 = 0,232 (moderate), H_2 = 0,339 (strong), and H_3 = 0,159 (weak) are all at the thresholds of 0,02, 0,15, and 0,35, as suggested (Cohen, 1988; Hair et al., 2019). It can be concluded that exogenous variables have the ability to explain endogenous variables, with the criterion of explanatory effect values being in the medium category. The Normed fit Index (NFI) value of 0,735 is lower than the required criteria to be > 0,90, the fit model (Hu & Bentler, 1998). In this study, the evaluation and criteria for using NFI for model fit refer to Hair et al. (2021). NFI NFI has a value range between 0 to 1, the greater the NFI value, the better (Huang, 2021), NFI of 0,735 model fit is achieved. Also obtained Standardized Root Mean Square Residual (SRMR) value of 0,095 smaller than 0.10 (SRMR = 0,095 < 0,10), model fit can still be achieved (Hu & Bentler, 1998; Henseler et al., 2016). Meanwhile, d_ULS and d_G have values lower than the upper limits of 95% and 99% (Narzary, 2022; Alabdali & Salam, 2022), this ensures that the model fits.

Structural equation modelling analysis

The bootstrapping procedure is performed to measure the indirect effects of the mediation role, as recommended by Hair et al., (2011). Meanwhile, the PLS-SEM path analysis model for parameter estimation of direct effects is presented in table 5.

Direct effects

The verification results of direct path analysis show that all original sample values have positive values, meaning that DT and CP, DT and IC, and IC and CP have a unidirectional relationship (see Table 5).

Table 5: Parameter estimates of direct effects, path analysis verification

Hypothesis	Path Relationship	OS	Path Coefficient	T-Statistics	p-value	Results
H_1	DT - - → CP	0.588	0.423	8.936***	0.000	Accepted
H_2	DT - - → IC	0.503	0.503	5.283***	0.000	Accepted
H_3	IC - - → CP	0.327	0.327	3.382**	0.001	Accepted

Note: OS, original sample; path coefficient (β), parameter of direct effect; ** significant at p < 0.01; *** significant at p <0.001 (verification in Figure 1).

The findings also showed that DT with CP had a positive correlation (β = 0,423), significantly at p-value = 0,000 (t stat > 1,96), proving H_1 acceptable. A positive correlation between DT and IC was also found with β = 0,503 and significant at p-value = 0,000 (t stat > 1,96), H_2 was provenly accepted. IC path analysis with CP had a positive correlation with β = 0,327 and significant at p-value = 0,001 (t stat = 3,382 > 1,96), H_3 proved acceptable. The results of verification and parameter estimation of the direct effect conclude all accepted hypotheses.

Mediation role analysis

Detection of effect from the role of intermediaries can be seen from the t value of indirect effect (Huang, 2021). A comparison of the value of 1,96 with the statistical t was carried out, the stat value > 1,96 showed there was a mediation effect.

Table 6: Estimates of indirect effects, verification of mediation path analysis

Hypothesis	Path Relationship	IDE	TE	T Statistics	p-value	VAF	Results
H_4	DT → IC → CP	0.027	0.530	2.303*	0.021	0.0601	Accepted

Note: IDE, indirect effects; TE, total effects; * significant at $p < 0.05$; ** significant at $p < 0.01$.

To determine the magnitude (partial or full) of the mediating effect on some relevant literature, variance of VAF values with VAF value criteria VAF >20% or VAF value >80%, as prescribed by (Hair et al., 2012; Huang, 2021). In this study, structurally, the strength of the effect size of the mediation role was obtained from the upsilon statistic (v) =$\beta^2_{YM.X} - (R^2_{Y.MX} - \rho^2_{YX})$ as nested and developed by Lachowicz et al. (2018); and Ogbeibu et al., (2021), then $v = \beta^2_{IC,DT}\beta^2_{CP,IC.DT}$. The role of innovation capability (IC) in mediating the relationship between digital transformation (DT) and competitiveness (CP), indirect effects (IDE) seen from the VAF value of 0,0601 (< 20%), the range shows a low mediation effect (Hair et al., 2012; Huang, 2021). Meanwhile, when viewed from the effect of the IDE size obtained at 0,027, the effect of small size towards moderate. It can be concluded that H_4 is proven to be acceptable, innovation ability (IC) has a mediating effect on the effect of digital transformation (DT) on competitiveness (CP), and is significant at p value = 0,021 (t stat = 2,202 > 1,96).

Discussion

Digital transformation (DT) has a correlation with innovation capability (IC) and competitiveness (CP), as well as IC with CP. Where the direction of the relationship between the three is confirmed to be positive. The courage and ability to carry out digital transformation among SMEs in the creative industry sector in the tourism area can be followed by their innovation and competitiveness capabilities. The existence of readiness, courage and ability to carry out digital transformation among MSME actors can foster innovative thinking and increase the ability of innovation to maintain their business existence in the digital ecosystem so as to contribute to increasing their economic competitiveness, which at the same time brings positive effects to tourism growth. The practice of digital transformation supported by the ability to innovate is one of the relatively new and important approaches that needs to be done incrementally on the basis of the flow of change from time to time, so that businesses remain competitive in a tight and dynamic market competition. Research findings show that digital transformation directly has a significant positive effect on competitiveness (H_1). This finding is in line with the research results of Firmansyah & Saepuloh (2022), Zhao et al. (2025), Firmansyah et al. (2024), Liu (2024), Shehadeh et al. (2023), Sui et al. (2024) and Jin et al. (2024), where the utilisation and integration of digital technology in the practice of digital transformation of business models often affects most companies on various scales and even beyond their boundaries, by affecting products, business processes, sales channels, and supply chains to be able to create sustainable competitive advantages. The use and alignment of digital technology in an enterprise, making organisational change, enabling activities, creating and capturing new opportunities and value (Jeansson & Bredmar, 2019; Firmansyah & Saepuloh, 2022a). In today's renewable economy era, the focus of businesses and their personnel from actively competing industries around the world exerts pressure to go digital before anyone else does, striving to survive and achieve a competitive advantage (Morze & Strutynska, 2021; Bharadwaj, 2000; Reis et al., 2018). The findings also show that digital transformation has a significant positive effect on innovation capabilities (H_2). There is a greater effect of digital transformation on the ability to innovate than the direct effect of digital transformation on competitiveness. The practice of digital transformation as part of the ability to adapt to high concepts can simultaneously create innovation capabilities to answer company-specific demands, which is a key factor to support SMEs in taking advantage of technological opportunities related to the digitisation process. These findings are in line with Wongsansukcharoen & Thaweepaiboonwong (2023), Fechtelpeter et al. (2017), Firmansyah & Saepuloh (2022a), Zaoui & Souissi (2020), Wahdiniwaty et al. (2022), Firmansyah et al. (2024) and Budiarti & Firmansyah (2024). This finding also examines and proves the vital role of the ability of MSME actors in using and harmonising digital technology in creating and utilizing opportunities, where the critical mindset, set of competencies and digital literacy of MSME actors' human resources can ideally guarantee the success of digital transformation practices so as to contribute to increasing the economic competitiveness of MSME actors. Empirically, there is a long enough process to succeed in penetrating digital platforms that have a wider reach with complex audience characteristics, decorated with currents, changes and shifts in demand occur rapidly.

Predictions of innovation capability were found to have a significant positive effect on competitiveness (H_3). The ability to innovate is able to strengthen the economic competitiveness of economic actors. Innovation arises because of creativity that includes creative aspects of personality, motivation, intelligence, thinking style, and relevant multiliteracy. Creativity and continuous innovation ability as the keys to success for businesses in the modern era. This finding is in line with the research of McMullan et al. (2013), Budiarti & Firmansyah (2024), Wongsansukcharoen & Thaweepaiboonwong (2023),

Marei et al. (2023), Ávila (2022) and Leão & da Silva (2021). This confirms that relevant business innovation practices are needed in this era to improve entrepreneurial performance with better competitiveness (Firmansyah et al., 2023). This is inseparable from the readiness of MSME actors, both from the relevance of the core competencies possessed by HR to the needs of the transformation process as well as aspects of capital resources for investment and technology adoption so that the business practices carried out are able to answer the challenges of transformation and digitalisation, which operate above the interests of customers (users), market flexibility and rapid technological progress are used as drivers of innovation capabilities to facilitate and bridge efforts to increase economic competitiveness. As for the mediation path, the findings prove that innovation ability has a mediating effect on the influence of digital transformation on competitiveness (H_4). This finding is reinforced by the results of research done by Firmansyah et al. (2024), Darroch & Mazerolle (2013), Firmansyah et al. (2023), Zhang et al.(2022), Firmansyah & Saepuloh (2022a) and Krumsvik (2015). This innovation capability strengthens the link between digital transformation and competitiveness. To identify and recognise opportunities for digital market expansion, it is necessary to have the courage of digital adoption in business processes. This condition increasingly intervenes in the ability of SMEs to carry out business digital transformation as a form of business model and process innovation to find and create new ones, relevant to the development of the renewable economy in the current digital economy era, so that it will directly or indirectly strengthen the competitiveness of micro and small businesses in a sustainable manner. Technological and environmental factors drive digital transformation which has a positive impact on the ability of organisations to create innovation capabilities for their competitiveness. Multiliteracy plays an important role in adopting technology and adapting the environment for successful digital transformation (Zhang et al., 2022). The digital transformation process explains the importance of digital literacy and multiliteracy to support the innovation process to strengthen competitiveness. The findings of this study prove that successful digital transformation processes explain the importance of readiness, a set of resources, digital literacy and multiliteracy to support the innovation process to strengthen competitiveness. Also, the human resources digital transformation (HRDT) in the context of MSMEs with growing digital talents can trigger the growth of innovative thinking and innovation capabilities that facilitate and bridge stability, and better economic competitiveness can be achieved in a sustainable manner. Therefore, the novelty of this research is the discovery of a model for increasing the economic power of MSMEs in the creative industry sector based on innovation and digital transformation capabilities, which can be constructed through the following illustration:

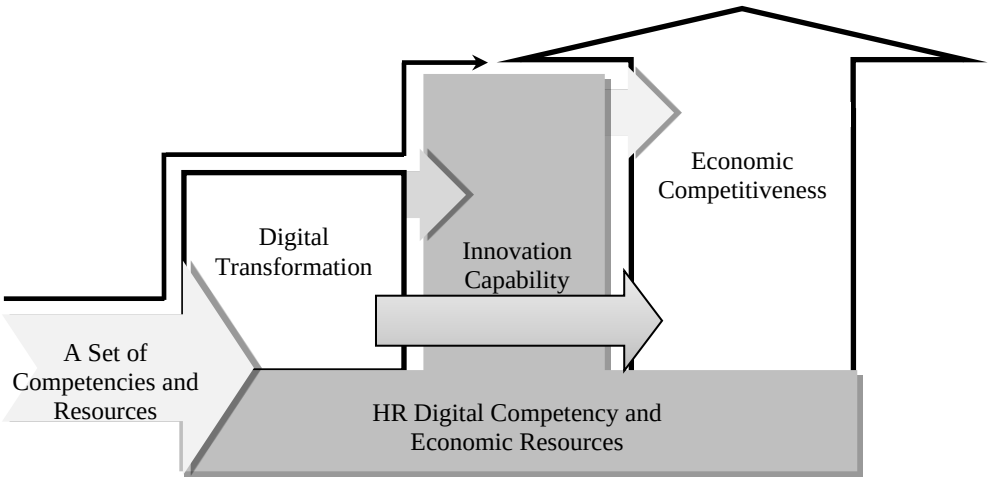

Figure 2: Competitiveness Model for Increasing the Economic of MSMEs in the Creative Industry Sector to Enhance the Growth of Indonesia Tourism

The stability of economic competitiveness of MSME players in the creative industry sector in the tourism area based on innovation capabilities and digital transformation can be achieved sustainably in the digital economy era by involving a set of competencies, including digital competencies, human resources (HRs), dynamic capabilities and economic resources as fundamental inputs that strengthen it. Digital transformation emphasizes the importance of a set of digital-based competencies that must be mastered by the human resources of MSME players in the creative industry sector in the tourism area, innovation is the elixir of sustainable business life where innovation thinking and innovation capabilities that are closely related to technology and digitalisation in the digital economy era become facilitators that bridge the achievement of stability and increase the economic competitiveness of MSME actors, which will also lift regional potential, uniqueness and tourist attraction to be known globally.

Conclusion

The results of the model measurement showed that reliability with good consistency, and the correlation coefficient between constructs for validity were met, judging from criteria Cα, HTMT and AVE also found no indication of collinearity (VIF) for all constructs. The results of the evaluation of model suitability, indicate that the value of R^2 for the construct of each latent variable is in the medium category, as well as for the size of the effect f^2 all values are at the threshold, the criteria for the explanatory effect value are in the medium category. In addition, evaluation results based on SRMR, NFI, d_ULS and d_G

show model fit is achieved and ensure model fit. From the results of path analysis. Findings from the results of structural model path analysis, show that: First, digital transformation directly has a significant positive effect on competitiveness (H_1 is proven to be acceptable). Second, digital transformation has a significant positive effect on innovation capabilities (H_2 has proven acceptance). Third, the ability of innovation has a significant positive effect on competitiveness (H_3 is proven to be acceptable). Fourth, innovation capabilities have a mediating effect on the effect of digital transformation on competitiveness (H_4 proved acceptable). Comprehensively, the novelty of this research is the discovery of a model for increasing the economic power of MSMEs in the creative industry sector in tourism areas based on innovation capabilities and digital transformation involving a set of competencies, including digital competencies, human resources, and economic resources as fundamental inputs that strengthen it. The implications and contributions of this research, empirically it is proven that digital transformation and innovation capabilities affect economic competitiveness within small and medium enterprises in the creative industry based on handmade (crafts, souvenirs, fashion, snacks and the like) in tourism areas, even though they are located in coastal or even urban areas. Indirectly, the contribution of this research is an effort to introduce and increase tourism growth in Indonesia, starting with strengthening aspects of insight, digital competence of human resources and economic resilience among actors and related partners in this sector. The potential of the region can be explored and developed along with the shift in traditional business practices, relying on visitors who come to digital practices, along with the emergence of various digital platforms as a place to market products (marketplace) digitally or a combination of both. Even in an effort to create a positive multiplier effect that mutually enlarges between MSME actors in the creative industry sector and tourism areas. Apart from the vision, mission to achieve business goals through various strategies selected to be implemented at the SME level, business digital transformation practices supported by the ability to innovate and adapt become strategic and relevant approaches in this era to survive and develop with better business stability and competitiveness. It is also expected to broaden horizons on the effectiveness of highly competitive businesses in this era, where digital transformation capabilities, digital skills and innovation capabilities must be prepared.

This research is inseparable from the rigour of the methodology applied. However, the study has several limitations that need to be considered when interpreting the findings and conducting future research. Obstacles and success factors of digital transformation among small and medium enterprises (SMEs) in an effort to increase competitiveness are not only digital transformation and innovation capabilities that affect it, relevant multiliteracy that is potentially needed by individuals and business actors in the digital economy era, such as skills, readiness, digital competencies and skills (digital literacy), social capital, digital talent, talent management. The involvement of partners who have authority related to MSMEs, policy aspects, ease of access to capital, and business licensing, of course, requires a clearer system in a procedural scheme that is easy to implement by prospective communities and MSME actors. Digital-based business training needs to be considered to strengthen economic competitiveness and ensure the accuracy of sustainable business success prediction. In addition, from a methodological aspect, using a combination of other research methods, it is possible to identify and examine the size and maturity of digital competence is among MSME actors. Therefore, these various aspects and conditions can be used as considerations for the direction of relevant research in the future.

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