

Analysis of Factors Influencing Technology Mastery in Technopreneur SMES in Malang: Innovation Creativity, Resilience, and Social Networking



Putra Ramadhani Nurwijayanto¹, Fajar Supanto², Dyah Setyawati³, Muhammad Mahendra Dharmawan⁴

^{1,2,3,4}Fakultas Ekonomi dan Bisnis Program Studi Manajemen, Universitas Merdeka Malang, Terusan Raya Dieng 62-64 Malang 65146, Malang, Indonesia

ABSTRACT: Digital technology is indispensable for micro, small, and medium-sized enterprises (MSMEs) in today's landscape. In Malang, East Java, a city renowned for its thriving MSMEs, particularly in the creative industry, the Malang Creative Center serves as a key hub. This research explores the relationship between creativity, innovation, resilience, social networking, and technology mastery in MSMEs, with a focus on technopreneurship in Malang. Through a quantitative approach, researchers collected data via structured questionnaires distributed among technopreneur MSME owners in Malang. The analysis reveals that creativity, innovation, and social networking significantly influence the level of technology mastery in MSMEs with a technopreneurship orientation. The fusion of creativity and innovation enhances MSMEs' capacity to adopt technology. Moreover, social networking has a positive impact on technology mastery, facilitating information and knowledge exchange related to technological innovation. This study underscores the critical roles of resilience and social networking in enhancing technology mastery within MSMEs, particularly those focused on technopreneurship. The practical implication involves implementing programs that boost MSME resilience and encourage the formation of supportive social networks, fostering knowledge exchange about technological innovation. These measures are crucial for helping MSMEs navigate technological changes, expand their markets, and harness innovative potential in the digital era.

KEYWORDS: MSME'S, Digital, Technopreneur, Social Networking, Resilience

I. INTRODUCTION

In the era of globalization and rapid technological advancement, Micro, Small, and Medium Enterprises (MSMEs) play a crucial role in the economic growth of a country. With the Covid-19 pandemic, MSMEs in Indonesia were forced to undergo digital transformation. Previously, MSMEs conducted transactions directly through markets and offline stores, but they were compelled to shift to online platforms, whether through social media or marketplaces. This trend has continued to prevail among the Indonesian population, as social distancing measures pushed MSMEs to actively engage with consumers online.

In Indonesia, the MSME sector makes a significant contribution to the GDP and employment. With the development of digital technology and ongoing digital transformation, MSMEs need to adapt to remain competitive in an increasingly competitive market (Redi, et al., 2022).

Malang, as one of the centers for education and technology in Indonesia, holds great potential to drive the development of technology-oriented MSMEs, also known as technopreneurs. However, the challenges faced by technopreneur MSMEs cannot be underestimated. They must possess resilience to cope with market changes and build strong social networks to exchange knowledge and information about technological innovations (Margi Utomo, et al., 2022).

Resilience is the ability to withstand pressure and challenges. Technopreneur MSMEs with high resilience tend to be more capable of adapting to rapid changes in the business environment, including technological changes (Sofyan, A.T., 2021).

Social networking also plays a crucial role in the development of technopreneur MSMEs. Extensive social networks allow business actors to exchange information, learn from others' experiences, and access new opportunities. In the context of MSMEs,

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social networks can assist in the exchange of knowledge about technology, marketing, and business management (Trulline, P., 2021).

To examine whether there is a correlation between innovation creativity, resilience, and social networking on technology mastery in the realm of MSMEs, particularly those engaging in technology-based businesses in Malang, research is needed. Research incorporating the resilience factor of MSMEs has not yet been found. Therefore, researchers attempt to examine whether these three factors influence technology mastery in MSMEs, specifically those engaging in technology-based businesses in Malang. The benefits of this research include providing input for the city government's policy considerations for the sustainable implementation of digital transformation in MSMEs in Malang.

The presence of Small and Medium Enterprises is a fundamental strategy for the economic growth of society, as the Small and Medium Enterprises (SME) sector is the key to economic growth in East Java. This is evidenced by the SMEs' contribution to the Regional Gross Domestic Product (GDP) reaching 54.98% or approximately IDR 1, 1689.88 trillion. In the 8 cities in East Java, the number of SMEs in Malang ranks second after Surabaya, with 77,778 SMEs in Malang compared to Surabaya's 260,762 SMEs.

Creativity and innovation have been identified as crucial elements in the development of technopreneur MSMEs. According to research by Ananda et al. (2017), "creativity is the ability to generate original and useful ideas," while innovation is the "implementation of these ideas in the form of new or improved products, services, or processes." Technopreneur MSMEs need to generate innovative solutions to overcome technological challenges and competition. The creativity of individuals and teams in generating new ideas and their ability to implement these ideas into innovation play a crucial role in developing unique and marketable technology products or services.

Research conducted by Sofyan AT (2021) emphasizes that resilience is a dynamic process involving interactions between individuals, the environment, and experiences. Technopreneur MSMEs in Malang are faced with rapid market and technological changes. Their ability to persevere and bounce back after facing failures or obstacles is crucial in advancing technology mastery. Through the development of resilience, MSMEs can overcome obstacles and continue to innovate.

PA Kusumawardhany (2018) proposed the concept of "weak ties" in social networks. Weak ties refer to strong relationships within the same group and weak relationships outside the group. Strong social networks with colleagues in similar industries can provide useful practical information and support to enhance technology mastery. On the other hand, weak ties with individuals outside the industry can open up opportunities for cross-sector collaboration that supports technological innovation.

This research follows the roadmap set by the lead researcher with the ultimate goal of making Universitas Merdeka Malang a center for MSME development and incubation in East Java. The research will span over 4 months. The first research reference conducted aims to identify business skills and MSME performance. The second research reference aims to identify the government's role in developing MSMEs affected by COVID. The subsequent research is the analysis of creativity and innovation, resilience, and social networking as factors influencing technology mastery in technopreneur MSMEs in Malang. The final stage of the research will develop a supporting model for technopreneur MSMEs with the integration of resilience, social networking, and technology mastery, with the ultimate goal of making Unmer a center for incubation and MSME development in East Java.

II. RESEARCH METHOD

The method in this research utilizes a survey method through questionnaire distribution. The sample of this research consists of 30 technopreneur MSMEs in Malang city. In the context of this research, the steps that can be taken include:

Data Collection: Collecting primary data through questionnaires distributed to technopreneur MSME owners in Malang city. The collected data includes the level of resilience, social networking connections, and the level of technology mastery of MSMEs.

Correlation Analysis: Conducting statistical analysis to identify the correlation between resilience, social networking, and technology mastery. This will help identify the extent to which these factors are related to each other.

Regression Analysis: Using regression analysis to test how resilience and social networking can predict the level of technology mastery in MSMEs. This will help understand the influence of each factor more deeply.

Path Analysis: In path analysis, you can identify direct and indirect paths of influence between the variables under study.
Resilience Program Development: Based on the research results, a specific resilience development program can be designed for technopreneur MSMEs in Malang city. This program may involve training, mentoring, and coaching to help MSMEs overcome business challenges.

Formation of Social Networks: Encouraging the formation of communities or social networking forums for technopreneur MSMEs in the region. This can serve as a platform for sharing experiences, information, and business opportunities related to technology.

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III. RESULT AND DISCUSSION

Table 1 describes the results of reliability and validity tests for each latent variable used in this study. Based on the estimation results, it is known that convergent validity, as indicated by the Cronbach's alpha values, is greater than 0.7. Similar results are also observed for reliability values measured through composite reliability. Additionally, this study also uses the average variance extracted (AVE) as a proxy to measure the level of reliability and validity of each indicator in forming latent variables. Based on the test, it is observed that the values are greater than 0.5. These values align with the expected results in reliability and validity tests (Purwanto, 2021), indicating that the data used is valid for PLS-SEM estimation. be set as follows:

Table 1: Construct Validity and Reliability

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Technology Mastery (Y)	0.829	0.846	0.886	0.660
Creativity and innovation (x1)	0.804	0.810	0.872	0.630
Resilience (x2)	0.725	0.744	0.826	0.544
Social Networking (x3)	0.756	0.769	0.859	0.671

The Research Data Processing Results (2023)

Table 2, there are the outer loading values of each indicator which serve to explain each latent variable. From the estimation results, it can be seen that all indicators have values greater than 0.5. Therefore, it can be concluded that the data from each indicator in this study has good strength to become constructs of its latent variables."

Table 2: Outer Loading

	X1	X2	X3	Y
X1.1	0.733			
X1.2	0.791			
X1.3	0.836			
X1.4	0.812			
X2.2		0.752		
X2.3		0.684		
X2.4		0.728		
X2.5		0.783		
X3.1			0.809	
X3.4			0.772	
X3.5			0.874	
Y2				0.861
Y3				0.750
Y5				0.812
Y1				0.822

The Research Data Processing Results (2023)

Table 3: Significance Test Result

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ((O-STDEV))	P values
X1 → Y	0.528	0.527	0.089	5.933	0.000
X2 → Y	-0.007	0.017	0.102	0.065	0.948
X3 → Y	0.200	0.195	0.118	1.689	0.092

The Research Data Processing Results (2023)

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Table 3, illustrates the results of bootstrapping using a significance level of 10%. Based on the estimation results, it can be observed that the variables of creativity and innovation, as well as the social networking variable, have p-values less than 0.10, specifically 0.000 and 0.092, respectively. This indicates that both variables have a significant effect on technology mastery. However, conversely, the resilience variable shows a p-value of 0.948, indicating that this variable does not significantly influence technology mastery.

A. Impact of Creativity and Innovation on Technology Mastery

The use of technology in business has opened up significant opportunities for innovation, allowing entrepreneurs to create new solutions, optimize processes, and respond to evolving market needs. Technology is not just a tool but also a catalyst that accelerates the innovation process. One of technology's main contributions to innovation is through faster and wider access to information. The internet allows entrepreneurs to explore market research, industry trends, and innovative opportunities more efficiently. By having a deep understanding of the business environment, entrepreneurs can design relevant and targeted innovations. Adopting new technologies is also a critical step for entrepreneurs seeking to innovate. By using software, management systems, and automation tools, entrepreneurs can improve their operational efficiency. This not only saves time and costs but also creates space for creativity and experimentation in developing new products or services.

The iterative process of innovation creation can drive opportunities for entrepreneurs to hone their technology skills. They can learn from past successes and failures, refine their approaches, and delve deeper into technology applications to enhance business operations. This hands-on experience plays a crucial role in building a profound understanding of how specific technologies can be adapted and utilized to meet their business needs.

Moreover, entrepreneurs who regularly innovate with technology tend to have a more accurate understanding of the latest trends and developments in the technology world. They can identify new opportunities, respond to market changes more quickly, and ensure that their businesses remain relevant and competitive. This forms a continuous learning cycle, where entrepreneurs continually improve their technological knowledge and skills over time. Success in creating innovation using technology not only strengthens individual capabilities but also builds a solid foundation for overall business competitiveness. Entrepreneurs who can master technology through sustainable innovation can create strong competitive advantages, improve operational efficiency, and expand their business capacity. Thus, the more entrepreneurs engage in technology-driven innovation processes, the better they can master technology to support the growth and success of their businesses in this digital era. This result confirm with previous research (Bunga Aditi 2018) that creativity and innovation has impact on Technology Mastery

B. Impact of Resilience on Technology Mastery

Resilience is one critical aspect of entrepreneurship leadership and management often regarded as a determinant of success in facing business challenges. However, in the context of technology mastery, resilience does not always have a significant impact. The main reason behind this is that entrepreneurs' resilience focuses on the ability to adapt and overcome obstacles without necessarily directly improving understanding or mastery of technology. A resilient entrepreneur is more likely to develop business strategies that are responsive to market or technological changes without deeply understanding every aspect of the underlying technology. They can rely on technology expert teams or strategic partnerships with technology companies to address emerging challenges. Therefore, in some cases, technology mastery may not always be the top priority for entrepreneurs who prioritize resilience as their main focus.

In the ever-evolving and rapidly changing business world, resilience becomes the key to survival and growth. Entrepreneurs with high levels of resilience can face market and technological changes without being trapped in efforts to master every emerging technological innovation. They focus more on identifying new opportunities, developing innovative business strategies, and adapting to evolving market needs. By understanding that resilience and technology mastery are not always directly correlated, entrepreneurs can develop a balanced approach. A combination of the courage to adapt with a selective technology mastery policy can be the key to long-term success. This allows entrepreneurs to remain resilient in facing changes without losing control over the underlying technological developments, Thus, it confirm previous research (Noorlaila Ghazali,2023) SME that advance on technology mastery is more resilience in term of business competition.

C. Impact of Social Networking on Technology Mastery

Social networking has become a highly significant means of communication and collaboration in the business world, especially among Micro, Small, and Medium Enterprises (MSMEs). MSMEs' involvement in social networks not only involves sharing information or promotions but also can enhance understanding and application of technology to improve competitiveness and business growth. One of the main reasons social networking promotes technology mastery is through strengthening collaboration and information exchange among MSMEs. Through these platforms, business practitioners can share experiences, tips, and

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knowledge related to the technologies they use. Such collaborations open up opportunities for MSMEs to understand and master various technologies needed to improve their efficiency and productivity.

Social networking also provides easier and faster access to technology resources and information. Business groups or communities on social networking platforms often share articles, tutorials, and other resources discussing the latest developments in technology. This provides MSMEs with more democratic access to technology knowledge, which may have been previously difficult to access without additional costs or specialized expertise. Social networking also plays a role in facilitating product and service innovation through discussions and feedback from the business community. Entrepreneurs can gain insights into the latest technology and market trends through interactions with fellow business practitioners. This encourages MSMEs to develop products and services that integrate new technologies, enhancing their competitiveness in the ever-changing market.

Engagement in social networking not only helps MSMEs master technology but also increases visibility and business opportunities. Through the exposure gained from social networking, MSMEs can attract the attention of potential partners, investors, and customers. By implementing relevant and up-to-date technologies, MSMEs can strengthen their image as innovative and reliable business players. In the ever-evolving business world, social networking proves to be a highly effective means of promoting technology mastery by MSMEs. With collaboration, information exchange, and innovation facilitation, social networking provides a dynamic platform for MSMEs to continue learning and applying relevant technologies in their businesses. The increased visibility and business opportunities gained from participation in social networking are significant additional benefits. Therefore, increased MSME participation in social networking not only helps strengthen the business community but also drives economic growth through increasingly better technology mastery. Thus, it confirms previous research (Dinesh, 2022) that social networking has a positive impact on developing Technology Mastery.

IV. CONCLUSIONS

In the ever-changing business landscape, creativity, innovation, resilience, and engagement in social networks play key roles in technology mastery. Entrepreneurs who leverage technology for innovation gain an advantage in responding to market needs. They not only utilize technology as a tool but also as a catalyst for creating new solutions and optimizing business processes.

The adoption of new technology is not just a crucial step but a necessity for entrepreneurs who want to remain relevant. The iterative innovation process helps them hone their technology skills, deepen their understanding of technology applications, and monitor current trends. However, there is a balance to be maintained between the courage to innovate and the need for selective technology mastery. Resilient entrepreneurs may not always prioritize technology mastery, but they can withstand and adapt to changes with responsive business strategies.

Social networks serve as a crucial foundation for SMEs to understand and implement technology. Collaboration and information exchange on these platforms enable them to access technology knowledge democratically. This not only enhances their technology capabilities but also expands business opportunities and engagement in the economy.

Overall, the use of technology in innovation, resilience, and engagement in social networks has been a major driver in technology mastery for entrepreneurs. The conclusion drawn from the research conducted suggests that a balanced strategy between technological innovation, resilience, and social networking utilization can lead to long-term success in meeting the demands of the current digital era.

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