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THE INFLUENCE OF ENTREPRENEURIAL GRIT, COGNITIVE FLEXIBILITY, DIGITAL PAYMENT ADOPTION, AND INFORMAL NETWORKING ON MSME GROWTH IN INDONESIA

Ahmad Zalani Adnan[1], Agung Zulfikri[2]
[1]Institute Teknologi Petroleum Balongan, Indonesia
[2]Telkom University, Indonesia
Email: ahmadzaelani.adnan@gmail.com

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Abstract. This study investigates the influence of entrepreneurial grit, cognitive flexibility, digital payment adoption, and informal networking on the growth of Micro, Small, and Medium Enterprises (MSMEs) in Indonesia. Using a quantitative research design and structural equation modeling (SEM) with data collected from 312 MSME owners across Java Island, the study finds that all four variables have a positive and significant effect on MSME growth. Entrepreneurial grit and cognitive flexibility represent internal psychological capacities that enable entrepreneurs to persist and adapt amid challenges, while digital payment adoption and informal networking reflect external and relational resources that facilitate operational efficiency and market access. The results show that these combined factors explain 52.9% of the variance in MSME growth. The findings suggest that strengthening both internal capabilities and external linkages is essential for promoting MSME development. Practical implications are discussed for entrepreneurship training programs, digital transformation strategies, and community-based support mechanisms.

Keywords: Entrepreneurial Grit, Cognitive Flexibility, Digital Payment, Informal Networking, MSME Growth

Abstrak. Penelitian ini mengkaji pengaruh grit kewirausahaan, fleksibilitas kognitif, adopsi pembayaran digital, dan jejaring informal terhadap pertumbuhan Usaha Mikro, Kecil, dan Menengah (UMKM) di Indonesia. Dengan menggunakan pendekatan kuantitatif dan pemodelan persamaan struktural (SEM) berdasarkan data dari 312 pelaku UMKM di Pulau Jawa, penelitian ini menemukan bahwa keempat variabel tersebut berpengaruh positif dan signifikan terhadap pertumbuhan UMKM. Grit kewirausahaan dan fleksibilitas kognitif mencerminkan kapasitas psikologis internal yang memungkinkan wirausahawan untuk gigih dan adaptif dalam menghadapi tantangan, sedangkan adopsi pembayaran digital dan jejaring informal merupakan sumber daya eksternal dan relasional yang mendukung efisiensi operasional serta akses pasar. Hasil penelitian menunjukkan bahwa kombinasi keempat faktor tersebut menjelaskan 52,9% variansi pertumbuhan UMKM. Temuan ini menunjukkan bahwa penguatan kemampuan internal dan keterhubungan eksternal sangat penting dalam mendorong pengembangan UMKM. Implikasi praktis dibahas terkait pelatihan kewirausahaan, strategi transformasi digital, dan mekanisme dukungan berbasis komunitas.

Kata Kunci: Grit Kewirausahaan, Fleksibilitas Kognitif, Pembayaran Digital, Jejaring Informal, Pertumbuhan UMKM

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INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) play a vital role in the Indonesian economy, contributing significantly to employment generation, income distribution, and poverty alleviation. According to the Indonesian Ministry of Cooperatives and SMEs, MSMEs account for approximately 99% of total business units and contribute over 60% to the national Gross Domestic Product (GDP) (Afini & Rahayu, 2022). This dominant share underlines their importance not only as economic actors but also as social stabilizers. Despite this impressive contribution, many MSMEs continue to face structural and strategic challenges that hinder their sustainable growth, such as limited access to finance, inadequate infrastructure, and low technological adoption. In this context, understanding the key behavioral and strategic determinants of MSME growth has become increasingly crucial for policymakers, scholars, and practitioners (Dana et al., 2024).

One of the emerging perspectives in entrepreneurship literature emphasizes the psychological traits of entrepreneurs as a determinant of business success. Entrepreneurial grit, defined as the perseverance and passion for long-term goals, has been identified as a critical success factor for entrepreneurs operating in uncertain and resource-constrained environments (Lim, 2021; Nambisan & Baron, 2013). In the MSME context, where business sustainability often hinges on the resilience and commitment of the owner-manager, entrepreneurial grit can provide the inner drive to overcome setbacks, maintain effort, and pursue continuous improvement. Indonesian MSMEs, especially those operating in competitive and low-margin sectors, may benefit significantly from this psychological construct. Yet, the empirical understanding of how grit influences MSME growth in Indonesia remains underexplored (Mohd Noor et al., 2023).

Closely related to grit is the concept of cognitive flexibility—the mental ability to switch between thinking about different concepts and to think about multiple concepts simultaneously. In entrepreneurial settings, cognitive flexibility enables individuals to adapt to new information, reassess situations, and innovate in response to changing market dynamics (Goncalves et al., 2025; Greene, 2020). For Indonesian MSMEs, which often operate in volatile market environments and face frequent regulatory or technological changes, cognitive flexibility can serve as a competitive advantage. Entrepreneurs who are cognitively flexible may be more likely to pivot business strategies, adopt new technologies, or reconfigure their value propositions to respond to market signals (Khan et al., 2025). As digital transformation accelerates in Indonesia, cognitive flexibility may also influence how MSMEs navigate and integrate digital tools into their operations.

Digital payment adoption represents another increasingly relevant factor for MSME growth in Indonesia, particularly in the aftermath of the COVID-19 pandemic, which accelerated the shift toward cashless transactions and e-commerce. According to (Sodik & Riza, 2023), the use of digital payment platforms such as QRIS (Quick Response Code Indonesian Standard) has seen rapid growth, offering MSMEs greater efficiency, transparency, and access to broader markets. The adoption of digital payments allows small businesses to reduce transaction costs, improve cash flow management, and cater to tech-savvy consumers. Nevertheless, disparities remain in digital adoption among MSMEs due to factors such as digital literacy, perceived complexity, and infrastructural limitations. Hence, examining how digital payment adoption influences MSME growth provides important insights into the digital inclusion of Indonesian entrepreneurs.

In addition to individual traits and technological adoption, social capital plays a vital role in entrepreneurial ecosystems, particularly in the form of informal networking. In many developing countries, including Indonesia, where formal institutional support may be limited, informal networks often substitute for formal channels of information, financing, and mentorship (Greve & Salaff, 2003; Melia, 2020). These networks, which include family, community groups, religious associations, and peer networks, can serve as critical sources of trust, information, and support that influence entrepreneurial decisions and growth trajectories. Informal networking also facilitates knowledge sharing, access to suppliers and customers, and collaborative problem-solving—factors that can enhance competitiveness and adaptability. However, despite its significance, informal networking remains an understudied variable in relation to MSME growth outcomes in Indonesia’s decentralized and culturally diverse business landscape.

Although Indonesia’s MSMEs are recognized for their economic importance, many continue to struggle with stagnant growth, limited scalability, and vulnerability to external shocks. Existing research tends to focus predominantly on macroeconomic or financial barriers, with less emphasis on the behavioral, cognitive, and relational dimensions that shape entrepreneurial success. The role of entrepreneurial grit, cognitive flexibility, digital payment adoption, and informal networking as multidimensional drivers of MSME growth remains insufficiently explored, particularly in the Indonesian context. This knowledge gap limits the development of integrated policy and capacity-building interventions that could enhance MSME resilience and competitiveness. Furthermore, the interplay among these factors—such as how digital adoption may be facilitated by cognitive flexibility or how informal networks reinforce grit—is largely unexamined. Therefore, a comprehensive understanding of how these individual and structural elements influence MSME growth is urgently needed. This study aims to examine the influence of entrepreneurial grit, cognitive flexibility, digital payment adoption, and informal networking on the growth of MSMEs in Indonesia.

METHOD

This study employed a quantitative research approach using a survey method to examine the influence of entrepreneurial grit, cognitive flexibility, digital payment adoption, and informal networking on MSME growth in Indonesia. The population of this study consisted of MSME owners and managers across several provinces, including West Java, Central Java, and East Java, as these regions represent high concentrations of MSME activity according to national statistics. A purposive sampling technique was utilized to select respondents who had been operating their businesses for at least two years and had experienced either growth or stagnation, allowing for a more focused analysis of the influencing variables. Data were collected through structured questionnaires distributed both online and offline between January and March 2025.

The questionnaire was developed based on previously validated measurement instruments adapted from relevant literature. Entrepreneurial grit was measured using the 12-item Grit Scale developed by Duckworth et al. (2007), while cognitive flexibility was assessed using items adapted from the Cognitive Flexibility Scale (Martin & Rubin, 1995). Digital payment adoption was measured by evaluating the frequency and perceived usefulness of digital transactions based on indicators from recent studies by Bank Indonesia (2023) and the World Bank (2021). Informal networking was measured using a modified version of the social capital scale focused on informal ties, adapted from (Nahapiet & Ghoshal, 1998). MSME growth was assessed through self-reported changes in revenue, customer base, and number of employees over the past 12 months. All items were measured on a 5-point Likert scale ranging from “strongly disagree” to “strongly agree.” The instrument was pilot-tested on 30 respondents to ensure reliability and clarity before full-scale deployment.

Data analysis was conducted using Structural Equation Modeling (SEM) with the help of SmartPLS 4.0 software. This technique was chosen due to its suitability for analyzing complex models involving multiple latent variables and its robustness in handling data that may not meet normality assumptions. The analysis involved two main stages: (1) assessment of the measurement model to evaluate construct validity and reliability, including convergent and discriminant validity; and (2) assessment of the structural model to test the hypothesized relationships between variables. Control variables such as business sector, years of operation, and geographical location were included to account for external influences on MSME growth. The findings from this analysis are expected to offer empirical insights into the psychological, technological, and social factors that significantly contribute to the growth trajectories of MSMEs in Indonesia.

RESULTS ← 12pt, bold, UPPERCASE

Measurement Model Assessment

To evaluate the reliability and validity of the constructs, the measurement model was assessed using indicators including outer loadings, composite reliability (CR), average variance extracted (AVE), and discriminant validity. Table 1 shows that all outer loadings exceeded the recommended threshold of 0.700, indicating indicator reliability. Composite reliability values ranged from 0.842 to 0.926, surpassing the minimum criterion of 0.700 (Hair et al., 2019). AVE values were all above 0.500, confirming convergent validity.

Table 1. Construct Reliability and Convergent Validity

Construct	CR	AVE	Cronbach's Alpha
Entrepreneurial Grit	0.894	0.586	0.865
Cognitive Flexibility	0.873	0.576	0.830
Digital Payment Adoption	0.926	0.682	0.902
Informal Networking	0.842	0.572	0.781
MSME Growth	0.888	0.612	0.851

Source: Data Analysis

Discriminant validity was tested using the Fornell-Larcker criterion. As shown in Table 2, the square root of AVE for each construct (bold diagonal values) was greater than the correlations with other constructs, indicating adequate discriminant validity.

Table 2. Discriminant Validity – Fornell-Larcker Criterion

Construct	1	2	3	4	5
Entrepreneurial Grit	**0.765**				
Cognitive Flexibility	0.521	**0.759**			

Digital Payment Adoption	0.437	0.469	**0.826**		
Informal Networking	0.495	0.453	0.402	**0.757**	
MSME Growth	0.612	0.587	0.538	0.563	**0.783**

Source: Data Analysis

Structural Model Assessment

After confirming the validity and reliability of the measurement model, the structural model was assessed. Collinearity was examined using the Variance Inflation Factor (VIF); all VIF values ranged from 1.302 to 2.015, below the critical value of 5, indicating no multicollinearity issues. The R^2 value for MSME Growth was 0.529, indicating that the independent variables explained 52.9% of the variance in MSME growth.

Table 3. R^2 Value

Endogenous Construct	R^2
MSME Growth	0.529

Source: Data Analysis

The model's predictive relevance (Q^2) was assessed using the blindfolding procedure. A Q^2 value of 0.317 was obtained for MSME growth, which exceeds zero, indicating predictive relevance.

Hypothesis Testing

Path coefficients were estimated through bootstrapping with 5,000 subsamples. Table 4 presents the results of hypothesis testing, including path coefficients (β), t-statistics, p-values, and decision outcomes.

Table 4. Hypothesis Testing Results

Hypothesis	Relationship	β	t-Statistic	p-Value	Decision
H1	Entrepreneurial Grit → MSME Growth	0.289	4.372	0.000	Supported

H2	Cognitive Flexibility → MSME Growth	0.246	3.928	0.000	Supported
H3	Digital Payment Adoption → MSME Growth	0.221	3.315	0.001	Supported
H4	Informal Networking → MSME Growth	0.198	2.984	0.003	Supported

Source: Data Analysis

All hypothesized relationships were found to be positive and statistically significant ($p < 0.05$), indicating that entrepreneurial grit, cognitive flexibility, digital payment adoption, and informal networking each have a meaningful influence on MSME growth in Indonesia.

DISCUSSION

The results of this study provide compelling evidence that entrepreneurial grit, cognitive flexibility, digital payment adoption, and informal networking significantly contribute to the growth of MSMEs in Indonesia. These findings align with the broader understanding in entrepreneurial literature that business growth, especially in developing economies, is shaped not only by structural and financial factors but also by behavioral, cognitive, technological, and relational capabilities. By employing a structural equation modeling approach, this study validates the direct effects of these four key variables, thereby offering a multidimensional insight into MSME growth determinants.

The first major finding is the significant and positive impact of entrepreneurial grit on MSME growth. This reinforces previous studies by (Aliyu, 2020; Ogunmuyiwa, 2022), which highlight grit as a psychological trait associated with perseverance, long-term goal commitment, and resilience in the face of adversity. In the Indonesian context, where MSMEs often operate under resource constraints, regulatory complexities, and market uncertainties, the entrepreneurial grit of the business owner becomes a vital source of internal strength.

Entrepreneurs with high levels of grit are more likely to sustain their business efforts during downturns, pursue learning and innovation persistently, and continue to invest energy into expanding their operations even when faced with obstacles. This finding underscores the importance of incorporating character development into entrepreneurship training programs, especially in rural or underserved areas, where external support structures may be limited.

The second key result is the statistically significant effect of cognitive flexibility on MSME growth. This finding supports the work of Khan et al. (2025), who argue that cognitive flexibility enables entrepreneurs to respond effectively to dynamic and unpredictable business environments by switching between different mental models and adapting to new information. In the Indonesian MSME landscape, cognitive flexibility may be particularly relevant in light of fast-evolving consumer preferences, regulatory changes, and digital disruptions. Entrepreneurs with high cognitive flexibility are better equipped to pivot business models, reconfigure strategies, and learn from failure—all critical capabilities for long-term growth. Moreover, flexible thinking may enhance an entrepreneur's ability to balance short-term operational demands with long-term strategic planning, enabling more sustainable growth. This study contributes to the relatively limited body of empirical research on cognitive traits in entrepreneurship in Southeast Asia, particularly among small and informal businesses.

The study also found that digital payment adoption positively and significantly affects MSME growth. This aligns with the growing body of research emphasizing the role of digital technologies in enhancing business performance, especially in emerging markets (Peric, 2015; Raharjo, 2022). The adoption of digital payments, such as QRIS, e-wallets, and mobile banking, can improve transaction efficiency, reduce cash handling risks, and expand customer reach through online platforms. The COVID-19 pandemic further accelerated the digitalization of transactions, pushing many MSMEs to adopt these technologies out of necessity. However, beyond mere adoption, the effective integration of digital payment systems can also provide business intelligence—such as sales tracking and customer analytics—that support data-driven decision-making. The positive relationship found in this study suggests that efforts to promote digital literacy and infrastructure among MSMEs can yield tangible growth benefits. Policymakers and financial institutions should continue supporting MSMEs not just through incentives for adoption but also through capacity-building initiatives that ensure entrepreneurs understand and leverage the full potential of digital tools.

Furthermore, the study highlights the significant role of informal networking in supporting MSME growth. This finding resonates with the conceptualization of social capital as a vital resource for entrepreneurs in resource-scarce environments (Lim, 2021). Informal networks—

such as family, religious groups, community associations, and peer circles—play a crucial role in knowledge exchange, opportunity recognition, emotional support, and even informal financing. In Indonesia's collectivist culture, where trust and relational embeddedness are deeply valued, these networks may provide a buffer against external shocks and facilitate access to resources that would otherwise be unavailable. Importantly, these networks are often more accessible and culturally resonant than formal support systems like incubators or venture capital. The finding confirms that strengthening MSME ecosystems cannot rely solely on formal infrastructure but must also recognize, protect, and enhance informal support structures that entrepreneurs rely on in their daily operations.

The combination of these four factors—grit, cognitive flexibility, digital payment adoption, and informal networking—explains more than half of the variance in MSME growth ($R^2 = 0.529$), indicating a strong explanatory model. The findings suggest that while external factors such as government policies, access to finance, or macroeconomic stability remain important, internal and relational capabilities are equally critical. This reinforces a holistic view of MSME development, where psychological, technological, and social dimensions must be integrated into capacity-building strategies.

From a theoretical standpoint, this study contributes to the growing literature on entrepreneurship in emerging markets by empirically integrating psychological traits (grit and flexibility), technological readiness (digital payments), and social embeddedness (informal networking) within a single model. This interdisciplinary approach bridges gaps between cognitive-behavioral theories of entrepreneurship and innovation adoption models, offering a more complete picture of what drives MSME growth. Future researchers can build on this model by incorporating moderating variables such as gender, regional differences, or business sector to uncover more nuanced patterns.

Several limitations of this study should be acknowledged. The use of cross-sectional data limits the ability to draw causal inferences. Longitudinal studies could help establish the temporal dynamics between these variables and business performance. Additionally, while the study covered diverse regions in Indonesia, it may not fully represent MSMEs in remote or underrepresented provinces. Further research could explore the role of cultural or sectoral differences in moderating the effects identified in this study. Moreover, while this study focused on four key factors, other variables such as innovation capability, financial literacy, or environmental uncertainty could also influence MSME growth and deserve future exploration.

CONCLUSION

This study concludes that entrepreneurial grit, cognitive flexibility, digital payment adoption, and informal networking significantly influence the growth of Micro, Small, and Medium Enterprises (MSMEs) in Indonesia. The findings emphasize that internal psychological traits and external relational and technological factors collectively shape the performance and sustainability of MSMEs in a dynamic and competitive environment. Entrepreneurs who exhibit high levels of perseverance and adaptability are better positioned to navigate uncertainty, seize opportunities, and implement innovations such as digital payments that enhance efficiency and customer engagement. Furthermore, informal networks continue to serve as crucial support systems, especially in resource-constrained and culturally collectivist settings like Indonesia. With more than half of the variance in MSME growth explained by these four factors, the study highlights the need for a holistic approach in entrepreneurship development—one that integrates personal capacity building, digital empowerment, and community engagement. These insights are particularly valuable for policymakers, business support institutions, and development agencies aiming to strengthen Indonesia's MSME ecosystem as a driver of inclusive economic growth.

RECOMMENDATIONS

Practically, these findings have several important implications. First, entrepreneurship development programs should go beyond technical training and address the cultivation of perseverance, adaptive thinking, and emotional intelligence. For example, business incubators or local government initiatives could integrate resilience-building workshops and peer-mentoring systems. Second, initiatives to promote digital transformation among MSMEs should be tailored to different cognitive profiles and digital readiness levels. A one-size-fits-all approach may not be effective, especially for older entrepreneurs or those in rural areas. Third, policymakers and ecosystem actors must recognize the value of informal networks and consider how to work with them rather than replace them. This could include facilitating community-based business forums, enabling knowledge-sharing events, or creating digital platforms that enhance community cohesion.

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