



(RESEARCH ARTICLE)



## Financial literacy improvement strategy to encourage fintech adoption and MSMEs performance in Karanganyar Regency

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### Abstract

The understanding of financial literacy and the use of financial technology (fintech) among Micro, Small, and Medium Enterprises (MSMEs) in Indonesia is still low, including in Karanganyar Regency. This condition can hinder the performance of MSMEs amid increasingly competitive business competition. This study aims to analyze the impact of financial literacy on fintech adoption in improving the performance of MSMEs in Karanganyar Regency with user innovation as a mediator. Research sampling using purposive sampling method which is based on certain criteria. The research criteria are MSME players in Karanganyar Regency who have opened a business and adopted fintech  $\geq 1$  year and are still actively using fintech services. This research data was tested statistically through Smart PLS. The results found that financial literacy can increase user innovation and adoption of fintech services. User innovation can directly encourage MSME players to adopt fintech services. In addition, in mediation, the study found that user innovation can mediate the effect between financial literacy and fintech service adoption. Furthermore, the study found that fintech adoption can boost MSME performance, both in terms of marketing and finance.

**Keywords:** Financial technology (Fintech); Micro; Small; and Medium Enterprises (MSMEs) performance; Theory Acceptance Model (TAM).

### 1. Introduction

Micro, Small, Medium Enterprises (MSMEs) contribute greatly to economic development including in developing countries. Previous findings show that MSMEs are able to drive economic growth, increase innovation, create jobs, and reduce poverty in underdeveloped communities [1]. The World Bank reports that MSMEs contribute up to 45% of total employment and 33% of national income in developing countries [2]. Meanwhile, in Indonesia, the role of MSMEs is able to contribute to Gross Domestic Product (GDP) as much as 60.5% with a labor absorption of 96.9% of the total national employment [3].

Fundamental problems that are difficult to avoid in MSME actors in Indonesia related to financial management [4]. MSME actors in national economic development are limited by the low understanding of access to financial services, especially from formal financial institutions [5]. This is due to a low understanding of financial literacy [6]. Survey results by the Financial Services Authority reported that financial literacy in Indonesia experienced a positive increase from 38.0% in 2019 to 49.7% in 2022, but there are still 50.3% who do not understand financial literacy [7]. Referring to this, there are still challenges that need to be addressed especially at the provincial level, including in Central Java Province. The level of financial literacy in the province (51.69%) is second only to Banten (45.19%) when compared to other provinces in Java (56.10%) [7]. Therefore, further efforts are needed to improve financial literacy in the region.

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The digitization of financial services through fintech has great potential in improving the efficiency and growth of MSME businesses. The integration of traditional financial literacy with fintech helps MSMEs understand basic financial concepts and also the application of financial technology in managing their business finances [8]. The low understanding of digital financial literacy shows that there is a gap among MSME players in Central Java Province, including in Karanganyar Regency. Low fintech users can affect the performance of MSMEs in the future.

In the Theory Acceptance Model (TAM), fintech adoption is used to provide an understanding of the motives of MSME actors in technology acceptance [9]. Fintech adoption is beneficial for MSME players because it helps effective financial management, reach new markets with payment methods and digital platforms, and faster transaction processes at low costs. Previous findings have shown that financial literacy encourages people to adopt fintech [10;11]. However, other findings get different results that financial literacy is not proven in encouraging MSME players to adopt fintech [12]. Therefore, a mediating variable is needed to link financial literacy with fintech adoption, using user innovation. User innovation as an attitude in generating new ideas [12]. In this case, MSME players are expected to explore fintech services properly for business growth. Previous findings show that user innovation is able to mediate financial literacy with fintech adoption [11].

Through fintech services can reduce the possibility of fraud and errors in transactions and improve financial performance [13]. Such services can increase customer retention by improving services and maintaining financial transparency [14]. In addition, it can help increase sales and profitability [15], by supporting efficient and smooth transaction management [16]. With an understanding of financial literacy, MSMEs can wisely use fintech applications to transact, obtain loans, or manage payments. Therefore, the use of fintech can provide many benefits in digital-based financial management to boost the performance of MSMEs.

In TAM, the use of technology can encourage company performance due to its usefulness and ease of use [9]. Previous findings regarding the relationship between technology use and company performance, for example research on the integration of Internet of Things (IoT) adoption on MSME performance, have shown that IoT adoption can improve MSME performance [17]. In addition, there is literature review research on MSME actors which proves that financial literacy can encourage MSME performance [15]. However, some previous studies show that no one has examined the integration of TAM through fintech adoption with MSME performance including in Indonesia. In this case, business performance is divided into two variables, namely marketing and financial performance to determine its specific impact. Therefore, this study has a research novelty that provides a comprehensive understanding to understand the behavior of MSME players regarding financial literacy, the use of fintech, and its impact on MSME performance in Karanganyar Regency.

The integration of financial literacy, fintech adoption, and MSME performance is important because they often have limited resources in financial management. In TAM, fintech can help MSME actors to measure the impact of technology adoption and assess the potential for rejection from users due to the lack of technological infrastructure in financial management including in improving digital-based financial transaction services, so that the problem formulation in this study is whether financial literacy can affect fintech adoption and its impact on MSME performance. Referring to this, this study aims to measure financial literacy knowledge and fintech utilization to encourage MSME performance, especially in Karanganyar Regency. The results of this study are expected to assist local governments in designing strategies to improve financial literacy and the use of fintech services in MSME players to improve sustainable business performance. Referring to this, the research framework model is as follows.

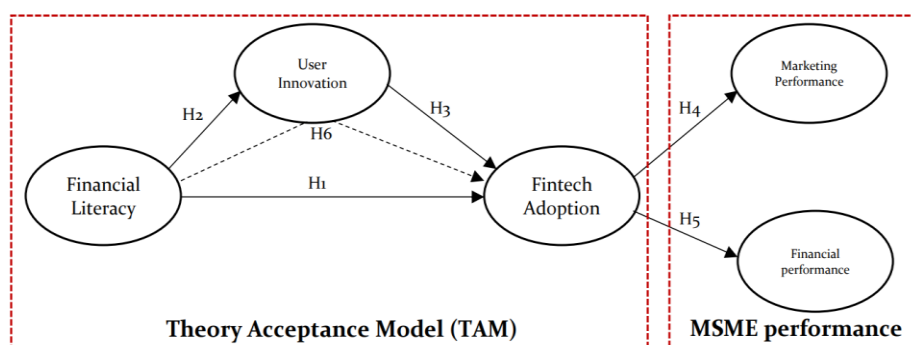


Figure 1 Thinking Framework Model

## 2. Methods

This study analyzes the effect of financial literacy on fintech adoption and its impact on MSME performance in Karanganyar Regency with user innovation as a mediating variable. Causality research is the study of the cause-and-effect relationship between variables [18]. In this type of research, researchers seek to determine whether one variable causes changes in another variable. The goal is to establish a causal relationship between variables, which can be used to make predictions and inform decisions [19]. The research data is primary data obtained from distributing questionnaires via google form which are generated directly. The operational definitions of the variables tested are as follows.

**Table 1** Operational Definition of Variable

Variables	Operational Definition	Item	Statement	Source
Financial Literacy	The ability to understand and effectively manage MSME finances which involves the knowledge and skills needed to make decisions relating to MSME finances.	LK1	I have the ability to make a budget	[15]
		LK2	I am able to manage my finances	
		LK3	I am able to manage debt	
		LK4	I can record financial transactions	
		LK5	I analyze financial statements periodically	
		LK6	I am able to calculate tax	
		LK7	I manage the source and use of funds	
User Innovation	The process of developing new products, services or processes by users with new ideas.	IP1	When I hear about a new product, my company looks for ways to try it out	[11]
		IP2	My company is usually the first to try new technology products	
		IP3	My company is experimenting with the latest fintech services	
Fintech Adoption	The extent to which MSMEs use and integrate fintech into their daily financial activities.	AF1	My company is willing to continue using fintech services	[11]
		AF2	My company wants to use fintech services immediately	
		AF3	My company would recommend fintech services to my friends	
Marketing Performance	Measurement and evaluation of the effectiveness of marketing activities in achieving business objectives.	KP1	Fast entry into new markets	[23]
		KP2	Introduce new products or services to the market quickly	
		KP3	Success rate of new products or services	
Financial Performance	measurement and evaluation of a company's financial health and profitability over a period of time.	KK1	Increase customer retention	[23]
		KK2	Increase sales growth	
		KK3	Increase profitability	

The research population is known as a group of individuals, objects, or events that have similar characteristics and are the focus of the research study [20]. The population of this study is MSME players in Karanganyar Regency who have used fintech. The number of MSME players who use fintech is 5,529 MSMEs [21]. In this study, sampling was carried out using purposive sampling method. This method is a sampling technique based on certain criteria [22]. The research sample criteria are MSME players in Karanganyar Regency who have adopted fintech  $\geq 1$  year and are still actively using the service until now.

The research data was obtained through a direct survey by distributing research questionnaires. The questionnaire was distributed via google form online to find out respondents' responses regarding financial literacy, user innovation, fintech adoption, and MSME performance both in marketing and finance. The results of the questionnaire distribution were tested empirically through the Smart PLS program with three stages of testing, namely: outer model test, inner model test and hypothesis testing. Hypothesis testing to analyze the influence between variables tested in the research model. The criteria used are the P-value  $\leq 0.05$ , then there is a significant influence between the research variables [24].

### 3. Results

#### 3.1. Respondent Characteristics

This research data was obtained through the distribution of questionnaires with the number of respondents who met the research sample criteria, namely 204 respondents who were MSMEs actors in Karanganyar Regency. Table 2 shows that most respondents are male (71 respondents; 34.8%) with ages 18 years to 30 years (100 respondents; 49.0%). They mostly have a Bachelor's/Postgraduate degree (106 respondents; 52.0%). Most MSMEs have been in business for 1 year to 5 years (91 respondents; 44.6%) with most adopting fintech for 4 years (129 respondents; 63.2%).

**Table 2** Respondent characteristics

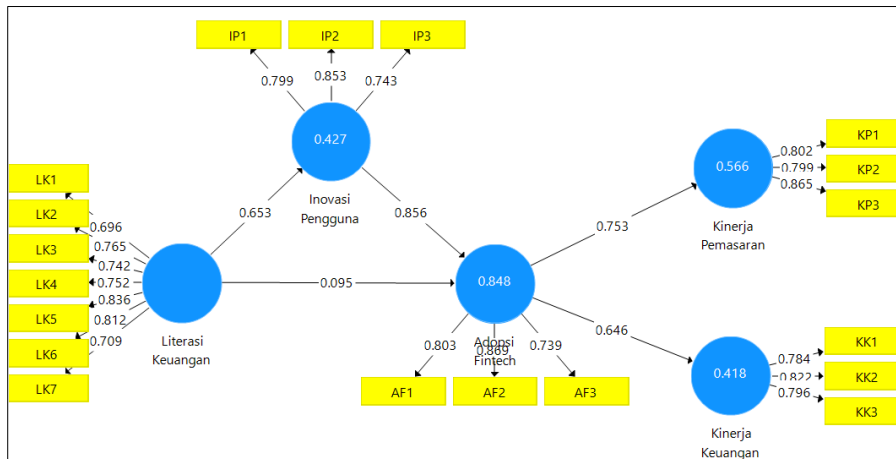
Characteristics	Category	Frequency	%
Gender	Male	71	34.8
	Female	133	65.2
Age	18-30 years old	100	49.0
	31-45 years old	62	30.4
	46-60 years old	30	14.7
	>60 years	12	5.9
Education	SD	6	2.9
	SMP	26	12.7
	SMA/SMK	66	32.4
	Undergraduate/Postgraduate	106	52.0
Length of business	1-5 years	91	44.6
	6-10 years	86	42.2
	>10 years	27	13.2
Fintech Usage	1 year	11	5.4
	2 years	19	9.3
	3 years	129	63.2
	4 years	13	6.4
	>4 years	32	15.7
Total		204	100%

#### 3.2. Outer Model Test Results

The outer model test is carried out to test the feasibility of the instrument with three methods, namely: convergent validity, composite reliability, and discriminant validity. The outer model test results in Table 3 show that the convergent validity evaluation on the five main variables has a Loading Factor value  $> 0.50$ . These results meet the convergent validity criteria. The composite reliability evaluation has a Cronbach Alpha value  $> 0.70$  and  $\rho_c > 0.70$  which means it meets the composite reliability criteria. The last evaluation is discriminant validity with an AVE value  $> 0.50$  which meets the discriminant validity criteria. Overall, the research results meet the outer model criteria, so it is feasible to do further testing, namely the inner model test.

**Table 3** Inner Model Test Results

Variables	Item	Loading Factor	Cronbach Alpha	$\rho_c$	AVE	Results
Financial Literacy	LK1	0.696	0.878	0.905	0.578	Valid & Reliable
	LK2	0.765				
	LK3	0.742				
	LK4	0.752				
	LK5	0.836				
	LK6	0.812				
	LK7	0.709				
User Innovation	IP1	0.799	0.716	0.841	0.640	Valid & Reliable
	IP2	0.853				
	IP3	0.743				
Fintech Adoption	AF1	0.803	0.727	0.846	0.649	Valid & Reliable
	AF2	0.869				
	AF3	0.739				
Marketing Performance	KP1	0.802	0.761	0.862	0.676	Valid & Reliable
	KP2	0.799				
	KP3	0.865				
Financial Performance	KK1	0.784	0.878	0.905	0.578	Valid & Reliable
	KK2	0.822				
	KK3	0.796				



**Figure 2** Outer Model Test Results

**3.3. Inner Model Test Results**

The inner model test is carried out to evaluate the feasibility of the structural model whether the research model and the tested model are comparable. There are three approaches used, namely: R Square ( $R^2$ ), Q Square ( $Q^2$ ), and Goodness of Fit (GoF). The research results in Table 4 show that in  $R^2$ , the variation of the four models is able to be explained by the tested variables.  $Q^2$  evaluation shows that the four models can be predicted by the tested variables. The results also show that from the GoF evaluation, the research model has a research model fit with sufficient strength in explaining the relationship between variables, making it feasible to test the research hypothesis.

**Table 4** Inner Model Test Results

Variables	R <sup>2</sup>	R <sup>2</sup>	GoF
User Innovation	0.427 (moderate)	0.267 (moderate)	0.510 (strong)
Fintech Adoption	0.848 (strong)	0.544 (strong)	0.726 (strong)
Financial Performance	0.418 (moderate)	0.260 (moderate)	0.519 (strong)
Marketing Performance	0.566 (moderate)	0.260 (moderate)	0.613 (strong)

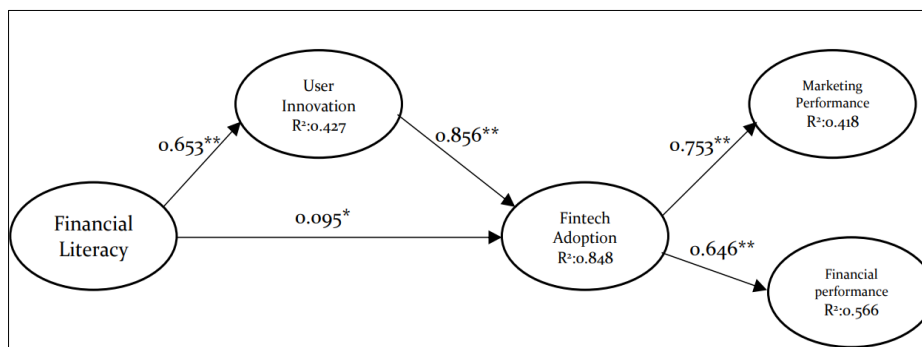
### 3.4. Hypothesis Test Results

The next test is to test the hypothesis. This test is used to test the influence between variables. The criteria used is the P-Value  $\leq 0.05$  then there is an influence between variables, so the hypothesis can be accepted. The results of hypothesis testing in Table 5 show that Financial Literacy -> Fintech Adoption ( $\beta$ : 0.095; P-Value: 0.040); Financial Literacy -> User Innovation ( $\beta$ : 0.653; P-Value: 0.000); User Innovation -> Fintech Adoption ( $\beta$ : 0.856; P-Value: 0.000); Fintech Adoption -> Marketing Performance ( $\beta$ : 0.753; P-Value: 0.000); and Fintech Adoption -> Financial Performance ( $\beta$ : 0.646; P-Value: 0.000) which means that it supports H1-H5. In terms of mediation, researchers found that Financial Literacy -> User Innovation -> Fintech Adoption ( $\beta$ : 0.559; P-Value: 0.000), thus supporting H6.

**Table 5** Hypothesis Test Results

	$\beta$	T Stat	P Values	Results
Financial Literacy -> Fintech Adoption	0.095	2.063	0.040*	H1 accepted
Financial Literacy -> User Innovation	0.653	15.127	0.000**	H2 accepted
User Innovation -> Fintech Adoption	0.856	19.009	0.000**	H3 accepted
Fintech Adoption -> Marketing Performance	0.753	22.085	0.000**	H4 accepted
Fintech Adoption -> Financial Performance	0.646	12.334	0.000**	H5 accepted
Financial Literacy -> User Innovation -> Fintech Adoption	0.559	11.887	0.000**	H6 accepted

Notes: \*\* significant at  $\alpha$  0.01 (1%); \* significant at  $\alpha$  0.05 (5%).



**Figure 3** Summary of Hypothesis Test Results

Description:  
 \*\* : Significant at 1%  $\alpha$   
 \* : Significant at 5%  $\alpha$   
 —————> : Hypothesis supported  
 - - - - -> : Hypothesis not supported

## 4. Discussion

The results showed that financial literacy can encourage MSME players to adopt fintech. These findings are in line with previous findings that there is a significant influence between financial literacy on fintech adoption [10; 11]. Researchers found that financial literacy such as the ability to make budgets, financial management, debt, recording

financial transactions, analyzing financial reports to managing the sources and uses of funds can encourage MSME actors to adopt fintech. Researchers also found that financial literacy can also encourage MSME actors to innovate.

Fintech users who feel financial literacy will find ways to try and experiment with new products, namely fintech services. [11]. In this case, users will adopt the service. This study found that user innovation can encourage them to adopt Fintech services. These results support research by Nugraha et al. (2022) [11]. Researchers found that users who have innovation in fintech services will be willing and want to use fintech services as soon as possible, and will recommend these services to others. Researchers also found that financial literacy can affect fintech adoption through user innovation as a mediator. financial literacy helps individuals to understand the benefits and uses of fintech services. Users who have high financial literacy tend to be better able to recognize the innovation opportunities offered by fintech services and more easily accept and adopt these services. User innovation mediates between financial literacy and fintech adoption, so that increasing financial literacy will indirectly increase fintech adoption through increased user innovation.

Further findings show that users who adopt fintech services can significantly improve business performance, both marketing performance and financial performance. Similar to some previous findings that marketing and financial performance in MSME players can be partially improved through the adoption of fintech. [16; 23]. This study found that MSME players who adopt fintech in running their business can facilitate improving marketing performance. For example, in market expansion, introduction of new products and success in accepting new products into the community. In addition, fintech adoption also has a positive impact on financial performance because it can increase customer retention, sales growth, and profitability. In this case, fintech adoption can be an effective strategy for MSME players to improve their business performance, both in terms of marketing and finance.

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## 5. Conclusion

Based on the research findings, it can be concluded that financial literacy has a significant role in encouraging MSME actors to adopt fintech services. Financial literacy, which includes the ability to budget, manage finances, record financial transactions, analyze financial statements, and manage the sources and uses of funds, allows MSME actors to better understand the benefits and uses of fintech services. Research shows that high financial literacy can encourage MSME players to innovate and adopt fintech services, as they tend to be better able to recognize innovation opportunities offered by fintech services. User innovation mediates between financial literacy and fintech adoption, so increasing financial literacy can indirectly increase fintech adoption through increased user innovation. In addition, the use of fintech by MSME players is also proven to improve business performance, both in terms of marketing and finance. Fintech allows MSME players to expand markets, introduce new products, increase customer retention, sales growth, and business profitability. However, this study has limitations in terms of generalization because it only involves samples from certain areas, namely in Karanganyar Regency. Therefore, future research can expand the sample coverage and consider other factors that can influence the adoption of fintech by MSME players, such as social, cultural, and government policy factors. In addition, future research can also further examine the long-term impact of fintech adoption on the business performance of MSME players as well as factors that can increase the effectiveness of using fintech services.

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## Compliance with ethical standards

### *Disclosure of conflict of interest*

No conflict of interest to be disclosed.

### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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## References

- [1] M. Ayyagari, T. Beck, and A. Demircuc-Ku, "Towards an idea-centered, principle-base design to as creation approach support learning knowledge," *Small Mediu. Enterp. across Globe*, vol. 29, no. 4, pp. 415–434, 2007.
- [2] W. Bank, *Global Development Finance: Mobilizing Finance and Managing Vulnerability*. 2005.

- [3] K. K. B. Perekonomian, “Perkembangan UMKM sebagai Critical Engine Perekonomian Nasional Terus Mendapatkan Dukungan Pemerintah,” 2022.
- [4] M. Susan, “Financial literacy and growth of micro, small, and medium enterprises in west java, indonesia,” *Int. Symp. Econ. Theory Econom.*, vol. 27, pp. 39–48, 2020, doi: 10.1108/S1571-038620200000027004.
- [5] T. Beck, A. Demirgüç-Kunt, and V. Maksimovic, “Financing patterns around the world: Are small firms different?,” *J. financ. econ.*, vol. 89, no. 3, pp. 467–487, 2008, doi: 10.1016/j.jfineco.2007.10.005.
- [6] G. O. C. Bongomin, J. M. Ntayi, J. C. Munene, and C. A. Malinga, “The relationship between access to finance and growth of SMEs in developing economies: Financial literacy as a moderator,” *Rev. Int. Bus. Strateg.*, vol. 27, no. 4, pp. 520–538, 2017, doi: 10.1108/RIBS-04-2017-0037.
- [7] Otoritas Jasa Keuangan (OJK) Indonesia, “Siaran Pers Survei Nasional Literasi Dan Inklusi Keuangan Tahun 2022,” *Otoritas Jasa Keuang.*, pp. 1–3, 2022.
- [8] J. Kass-Hanna, A. C. Lyons, and F. Liu, “Building financial resilience through financial and digital literacy in South Asia and Sub-Saharan Africa,” *Emerg. Mark. Rev.*, vol. 51, no. PA, p. 100846, 2022, doi: 10.1016/j.ememar.2021.100846.
- [9] I. Ajzen, “The Theory of Planned Behavior,” *Organ. Behav. Hum. Decis. Process.*, vol. 50, no. 2, pp. 179–211, 1991, doi: [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T).
- [10] Y. Kakinuma, “Financial literacy and quality of life: a moderated mediation approach of fintech adoption and leisure,” *Int. J. Soc. Econ.*, vol. 49, no. 12, pp. 1713–1726, 2022, doi: 10.1108/IJSE-10-2021-0633.
- [11] D. P. Nugraha, B. Setiawan, R. J. Nathan, and M. Fekete-Farkas, “Fintech Adoption Drivers for Innovation for SMEs in Indonesia,” *J. Open Innov. Technol. Mark. Complex.*, vol. 8, no. 4, p. 208, 2022, doi: 10.3390/joitmc8040208.
- [12] R. Hasan, M. Ashfaq, and L. Shao, “Evaluating Drivers of Fintech Adoption in the Netherlands,” *Glob. Bus. Rev.*, no. September, pp. 1–2, 2021, doi: 10.1177/09721509211027402.
- [13] H. Treiblmaier, “The impact of the blockchain on the supply chain: a theory-based research framework and a call for action,” *Supply Chain Manag.*, vol. 23, no. 6, pp. 545–559, 2018, doi: 10.1108/SCM-01-2018-0029.
- [14] A. Karamchandani, S. K. Srivastava, S. Kumar, and A. Srivastava, “Analysing perceived role of blockchain technology in SCM context for the manufacturing industry,” *Int. J. Prod. Res.*, vol. 59, no. 11, pp. 3398–3429, 2021, doi: 10.1080/00207543.2021.1883761.
- [15] Anshika and A. Singla, “Financial literacy of entrepreneurs: a systematic review,” *Manag. Financ.*, vol. 48, no. 9–10, pp. 1352–1371, 2022, doi: 10.1108/MF-06-2021-0260.
- [16] S. Bag, M. S. Rahman, S. Gupta, and L. C. Wood, “Understanding and predicting the determinants of blockchain technology adoption and SMEs’ performance,” *Int. J. Logist. Manag.*, 2022, doi: 10.1108/IJLM-01-2022-0017.
- [17] S. Mukherjee and M. M. Baral, “Achieving organizational performance by integrating industrial Internet of things in the SMEs : a developing country perspective,” 2023, doi: 10.1108/TQM-07-2022-0221.
- [18] D. Strijker, G. Bosworth, and G. Bouter, “Research methods in rural studies: Qualitative, quantitative and mixed methods,” *J. Rural Stud.*, 2020, doi: 10.1016/j.jrurstud.2020.06.007.
- [19] J. K. Lê and T. Schmid, “The Practice of Innovating Research Methods,” *Organ. Res. Methods*, 2022, doi: 10.1177/1094428120935498.
- [20] John W. Creswell, “John W. Creswell, Research Design: Qualitative, Quantitative, and Mixed Methods Approaches,” *J. Soc. Adm. Sci.*, 2017.
- [21] P. Kendal, “100 Hari Kerja Bupati Kendal 2021,” 2021, doi: [https://www.kendalkab.go.id/docs/pengumuman/digitalisasi\\_umkm\\_selama\\_100\\_hari\\_kerja\\_bupati.pdf](https://www.kendalkab.go.id/docs/pengumuman/digitalisasi_umkm_selama_100_hari_kerja_bupati.pdf).
- [22] D. R. Cooper and P. S. Schindler, *Business Research Methods 12th Edition*. 2014.
- [23] P. Maroufkhani, M. L. Tseng, M. Iranmanesh, W. K. W. Ismail, and H. Khalid, “Big data analytics adoption: Determinants and performances among small to medium-sized enterprises,” *Int. J. Inf. Manage.*, vol. 54, pp. 1–15, 2020, doi: 10.1016/j.ijinfomgt.2020.102190.
- [24] J. F. Hair, W. C. Black, B. J. Babin, and R. E. Anderson, “Multivariate Data Analysis,” *Vectors*. 2010. doi: 10.1016/j.ijpharm.2011.02.019.