

Enhancing MSMEs Performance through Innovation: Evidence from East Java, Indonesia

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Abstract: This study aims to determine the influence of knowledge management, financial Literacy, and technology orientation on the innovation capabilities and performance of halal-certified MSMEs in East Java, Indonesia. Innovation capabilities mediate the influence of knowledge management, financial Literacy, and technology orientation on MSME performance. The quantitative approach explores data by distributing questionnaires to 175 MSME owners certified halal in the Malang and Pasuruan areas. Based on the data analysis using PLS-SEM (Smart PLS 4), this research shows findings that emphasize the power of innovation capabilities in the relationship between knowledge management and financial Literacy as an antecedent to MSMEs' performance. Meanwhile, the influence of technology orientation on the innovation capability and performance of MSMEs is insignificant in improving MSMEs' performance. Knowledge resources must be acquired, shared, and applied to enhance product quality, production methods, and markets. Halal-oriented MSME owners should adopt new products and create new variants to maximize innovation. Additionally, to outperform rivals, Halal-oriented MSME owners must find ways to enhance the production process and begin implementing other MSME production processes. The findings of this study also contribute to the existing literature on knowledge management, financial Literacy, and technology orientation on MSMEs' performance.

Keywords: Knowledge Management, Financial Literacy, Technology Orientation, MSMEs Performance, Halal Industry, Innovation Capabilities

INTRODUCTION

The halal industry has become one of the industries with the fastest growth rate on the global market as the Muslim population reaches 3 billion (Nurrachmi, 2018), so the halal market is currently experiencing a trend (Soon et al., 2017). Gunawan (2020) stated that because halal products have become the norm for the global community, they are not only enjoyed by Muslims. According to the Thomson Reuters report, "State of the Global Islamic Economy," published in 2015/2016, "spending on the food industry and the halal lifestyle reached \$ 1.8 trillion in 2014 and is expected to continue experiencing growth of up to \$ 3.1 trillion in 2022," halal products continue to grow on a global scale.

The growth of Indonesia's Muslim population in 2020 is estimated to amount to 229,620,000 or around 87.296% of the number of Muslims worldwide, reaching 1.9 billion (databooks.metadata.co.id/). It indicates that the Indonesian state is ranked first as a consumer of halal products in the food sector. The state's efforts in protecting and providing guarantees for halal products in Indonesia are realized by Law Number 33 of 2014 concerning Halal Product Guarantees, which emphasizes that halal certification and labeling of each product is mandatory and no longer voluntary (Ahyar, 2019).

Halal certification is also one of the weapons of Indonesian MSMEs to rise. The reason is that the halal status in MSME products can be Indonesia's competitive advantage in the international market, and by 2024, all MSMEs must be halal certified. Creating free halal certification for MSMEs is the first step to continue supporting Indonesian MSMEs not only to exist domestically but also globally (www.kneks.go.id).

On the opposite side, the study's results showed that the halal industry in Indonesia had not grown optimally (Azam & Abdullah, 2020). Research on the halal industry in Indonesia shows a need for more public awareness about the importance of understanding the implementation of halal for MSMEs. Some reasons are the need for Islamic financial Literacy, knowledge about halal, and lack of technology development for the halal product (Gunawan, 2020). Ratnawati et al. (2022) also indicate that the knowledge management system in LPPOM MUI, especially knowledge sharing between halal food producers, the community, and LPPOM MUI, needs to be improved. Gunawan (2020) noted that the government organization BPJPH, which handles certification and provides Islamic financial Literacy, has yet to operate well.

Halal food knowledge becomes a crucial need for the community. Public access to information on halal food knowledge is required. Therefore, it is essential to manage the knowledge of halal food properly. Knowledge management requires a control mechanism in the form of policy, guidance, and procedure to manage appropriately (Ahyar, 2019). As stated in Komite Nasional Keuangan Syariah (2021), The Chairman of the Expert Council of the Islamic Economic Community (MES), Perry Warjiyo, strongly encourages strengthening the research and innovation in the Islamic economic sector and the halal industry. Indonesia is ranked 14th for research and innovation in Southeast Asia and 87th globally, so industry players, especially MSMEs in the halal food sector, can be more serious about increasing their innovation capacity. Literacy greatly influences financial decisions (Antara et al., 2016). Therefore, an observation of public understanding is needed, especially from the MSME sector in the halal food and beverage related to these aspects, knowledge management, financial Literacy, and technology orientation.

Knowledge management is a series of processes for using knowledge to add company value for the organization's survival (Aliyu, 2015) and overcoming business competition challenges (Gharakhani & Mousakhani, 2012). The context of knowledge management, especially in the MSME sector, is now an increasingly interesting topic (Souza et al., 2016). Financial Literacy is the knowledge/understanding of financial concepts and the confidence to manage finances by making the right decisions (Eniola & Entebang, 2015). MSMEs need financial Literacy to be able to manage their resources in order to survive and achieve a competitive advantage. Technology orientation is an organization's tendency toward applying the latest technologies to introduce new products and improve existing products and services by encouraging and supporting innovative ideas. Research has yet to position technology orientation as a significant factor for strategic orientation. Research on technology orientation, while many focus on larger organizations, it still needs to be more frequent to conduct studies on technology orientation in small and medium-sized enterprises (Yousaf & Tariq, 2020).

Previous research examining the effect of knowledge management on financial performance shows ambiguous results (Shahzad et al., 2016). Research findings (Aliyu, 2015); (Ha et al., 2016), (Samir, 2020) show that knowledge management affects performance, while research by Gharakhani & Mousakhani (2012) and Oztekin et al. (2015) shows no influence. Previous research linking financial Literacy and MSME performance has also shown different results. Many research (Mabula & Ping, 2018); (Eniola & Entebang, 2015); (Halabi et al., 2010); (Baby Stephani Kasendah, 2019) concluded that financial Literacy affects the performance of MSMEs. In contrast, different results are shown by research conducted by Idawati & Pratama (2020) and Yanti (2019).

Competitive environmental conditions provide business challenges for MSMEs to win the competition so the business can survive. Some research shows other factors that affect performance, such as innovation (Capaldo et al., 2001) and what is needed, especially for MSMEs, to face a changing environment to survive and achieve competitive advantage (Darroch, 2005).

Innovation capability develops ideas and inventions for various services and goods (Thornhill, 2006). The ability of SMEs to innovate is more than just a critical factor in determining how successful they will develop, claims Lesakova Libya (2009). The ability of SMEs to innovate helps them perform at a higher level. According to several research studies, employing innovation for small businesses (SMEs) is essential for increasing operational effectiveness (Nybakk, 2012). SME innovation is challenging in innovative practice, claim Zhang &

Chen (2014). SME innovation must address issues, consequences, and strategies to improve performance. According to Rosli (2013), innovative SMEs perform better in terms of product and process innovation. MSMEs' innovation has a positive and significant impact on the economy (Serna et al., 2016); Sauna et al. (2013); and Anton (2016).

According to the above description, a study on SMEs' innovation is required to mediate the influence of knowledge management, financial literacy, and technology orientation on the performance of SMEs developed in one model.

2. LITERATURE REVIEW AND HYPOTHESES

2.1. Knowledge Management

Knowledge management is processing data or information effectively and efficiently to achieve a common goal (Aliyu, 2015). Darroch (2005) defined *knowledge management* as identifying and analyzing needed and available knowledge to accomplish organizational goals. The existence of knowledge management will encourage an organization to be more adaptive, innovative, intelligent, and sustainable (Samir, 2020). Knowledge Management is also viewed as generating value by leveraging intangible assets (Salojärvi et al., 2005). It encompasses operations in all relevant managerial areas (Massaro et al., 2016). Massaro et al. (2016) research findings show that the study of knowledge management in the SME sector is an increasingly important research area in many countries. Knowledge management is the key for MSMEs in exploiting and commercializing science, technology, and R&D (Li et al., 2020), utilizing efficient management of the intellectual work produced in R&D, design, and more general business activities. More people are interested in knowledge management techniques that foster innovation and get around value chain fragmentation in an increasingly global and unregulated industrial environment (Shahzad et al., 2016), increase industry sophistication, and deliver more intense product solutions from knowledge management (Oztekin et al., 2015).

In the context of the halal industry, which is developing very rapidly, research (Sugiarti et al., 2019) underlines the need for an intense knowledge management process about halal food information to be easily accessible to the public. In order to be able to carry out knowledge management about halal food properly, it is necessary to build a control mechanism in the form of policies, guidelines, and procedures. Furthermore, Sugiarti et al. (2019) explain four elements of knowledge management: acquisition, storage, dissemination, and the use of knowledge. According to Byukusenge et al. (2016), knowledge management includes gathering knowledge, its application, and its responsiveness. Another definition of *knowledge management* is the process of gathering, organizing, comprehending, disseminating, and applying knowledge concerning the organization (Cheng Seng & Kuan Yew, 2015). Samir (2020) employed the constructs of knowledge management consisting of knowledge acquisition, knowledge sharing, and responsiveness to knowledge. Indicators for knowledge management based on Wirakurnia & Nuanmark (2021) and Hasan et al. (2020) consist of knowledge acquisition, creation and generation, application and utilization, knowledge transferring and transfer sharing, and knowledge storage and documentation.

Knowledge management is regarded as the best tactic used by businesses to increase their level of competition (Byukusenge & Munene, 2017). Since knowledge is a strategic resource, it enables them to innovate and compete at a higher level. According to the knowledge-based theory (KBT), an organization's competitive advantage stems from intangible assets like its employees' tacit knowledge and the ability to apply knowledge resources, as well as organizational-specific knowledge (explicit knowledge) (Zack et al., 2009). Further, Gholami et al. (2013) stated that it had been argued that when knowledge is adequately managed, performance improves. According to KBT, knowledge management practices like knowledge creation, sharing, implementation, and storage are crucial for achieving superior business performance (Hussain et al., 2021). Businesses that want to stay competitive should focus more on managing the knowledge resources essential for growing their revenues, profits, and market share (Shahzad et al., 2016). The level of participation rises when group members share and exchange knowledge, which aids in creating original ideas (Lee et al., 2012).

Thus, it is reasonable to assume that innovation and knowledge sharing are related in a positive way (Massaro et al., 2016). The acquisition of knowledge and organizational innovation was found to be positively and significantly correlated in some studies (Ha et al., 2016), (Inkinen et al., 2015), (Kör & Maden, 2013), (Lee et al., 2012). Knowledge management can boost innovative activities and capability by using acquired knowledge to make practical business decisions (Darroch, 2005), (Get & Samson, 2016).

H1: Knowledge management significantly influences MSME performance.

H2: Knowledge management significantly influences innovation capabilities.

2.2. Financial Literacy

Financial Literacy is regarded as a crucial component for the success of MSMEs because it aids in understanding and evaluating the data required to make decisions that have a financial impact on the business's day-to-day operations (Eniola & Entebang, 2017). MSMEs owners who are financially literate can use their financial expertise to make wise decisions (Esiebugie et al., 2018).

Rahim & Balan (2020). Argue that the proper implementation of financial Literacy will assist in meeting financial obligations through financial planning, resource allocation, and requests for financial services to maximize profits (Babajide et al., 2021). In the context of the Halal Industry (Wahyuny et al., 2018) stated that using Islamic Financial Literacy Education Module can increase Islamic financial Literacy and improve the MSMEs perpetrators.

The results of previous empirical studies on the effect of financial *Literacy* on the performance of MSMEs were conducted by (Ratna et al., 2018), (Jati et al., 2021), (Esiebugie et al., 2018), (Agyei, 2018), (Kulathunga et al., 2020), (Xiao et al., 2020), (Sulaiman & Master, 2016) found that financial Literacy affects MSMEs' financial performance. Research by Liu et al. (2021) stated that financial Literacy is a critical factor that affects innovation. By improving the financial Literacy of MSMEs owners, they can run their SMEs more effectively and successfully through the innovation they build (Ali et al., 2020).

H3: Financial Literacy significantly influences the performance of MSMEs.

H4: Financial Literacy significantly influences innovation capabilities.

2.3. Technology Orientation

Technology orientation is an organization's tendency towards applying the latest technologies to introduce new products and improve existing products and services by encouraging and supporting innovative ideas (Yousaf & Tariq, 2020). The logic of technology orientation highlights that a firm with technology orientation is always proactive in R&D activities, acquiring the newest technology and using the latest technology in producing new products and services. Research studies (Kocak et al., 2017) recommend that an organization's long-term success depends on the orientation of technologies that present opportunities for the provision of new technological products, procedures, and services that affect performance improvement. In the industry Halal context, (Komite Nasional Keuangan Syariah, 2021) noted that Halal food technology is essential to halal supply chain management. It is very urgent to ensure the level of halalness of halal food products that will impact customer satisfaction.

Technology orientation is critical to updating new technologies and playing an essential role in meeting relevant challenges related to business performance (Masa'deh et al., 2018). Technology orientation is considered an essential determinant of innovation in companies dependent on technology. It is also a starting idea for innovation-based organizations (Yousaf & Tariq, 2020).

Technology-based businesses use technologies such as information sources. They are intensely focused on R&D processes for performance improvement (Al-Ansari et al., 2019) and improving their firms' innovativeness (Ramírez-Solis et al., 2022). All of this is managed by allocating a large budget to collect and store innovative information that significantly aids in enhancing strategic performance. Accordingly, the present study investigates the impact of orientation technology on performance, incorporating innovation capability as a mediator. The technology orientation supports firms' technology capacities for improving technology, segregates products, and sets strong performance foundations (Zhani et al., 2021).

H5: Technology orientation significantly influences MSME performance

H6: Technology orientation significantly influences innovation capabilities

2.4. Innovation Capability

Innovation capability is continuously transforming knowledge and ideas into new products, processes, and systems to benefit the firm and its stakeholders (Mahmoud Mohammad Migdadi, 2020). According to Liu et al. (2021), innovation is a shift and an expansion of resources that assist MSMEs in adding value (new wealth). *Innovation* is the term used to describe developing ideas and creating inventions, from products and procedures to customer services. M. Saqib et al. (2014) stated that innovation could be a new product or service, a new production process technology, a new structure or administrative system, or a new plan or program for organizational members.

Innovation is crucial for large businesses and MSMEs (Delener et al., 2017), (Mahmoud Mohammad Migdadi, 2020). According to Saunila et al. (2014), innovation is one of the most crucial competitive tools and is frequently used as a barometer for assessing a company's capabilities. In the context of the Halal industry, (Komite Nasional Keuangan Syariah, 2021) stated that innovation capabilities related to halal products are needed for the intense development of business expansion and performance of business actors in the halal industry.

Maldonado-guzmán & Garza-Reyes, (2018) lists the product, process, and product process innovation as three dimensions of MSME innovation. The three dimensions (Ali et al., 2020) used were concurrently innovation in the product, process, and output. Framework Rosli & Sidek (2013) mentions that innovation capability comprises product, process, and market innovation. Furthermore, Nybakk (2012) notes that the MSME innovation indicators also consider innovations in procedures, business systems, and products. Previous research results (Maldonado-guzmán & Garza-Reyes, 2018), (Keskin, 2002), (Ali et al., 2020), (Haroon Hafeez et al., 2013) show the strong influence of innovation capabilities on MSME performance.

H7: Innovation capabilities significantly influence MSME performance

2.5. MSME Performance

Micro-small and medium-sized enterprises (MSMEs) are essential as a base for business expansion for financial backers and entrepreneurs to address long-term economic development, job creation, and unemployment (Eniola & Entebang, 2017). MSMEs need to be aware of their resources, claims Bahiti (2008) if they want to perform at their best and make money. MSMEs manage their businesses with a constant focus on achieving their goals. Based on Mahmoud Mohammad Migdadi (2020), performance is used to gauge a company's success and accomplishments and is considered a multidimensional construct. The performance of MSMEs can typically be assessed using complex (objective) and soft (perceptual or responsiveness) metrics. Quantified financial indicators obtained from organizations are referred to as objective performance measures. However, in a highly competitive environment, conventional financial measures cannot give the organization an advantage (Hudson et al., 2001). In order to achieve robustness of results, the current study makes use of a variety of performance

measures (Samir, 2020). Therefore, the three performance dimensions for MSMEs are financial performance, operational performance, and product quality.

With the same perspectives, Haroon Hafeez et al. (2013) stated that financial and market performance are two sources of MSME performance indicators. Operating profit and annual Return on Investment serve as benchmarks for financial performance. SMEs' sales and market share levels over three years show market performance. According to Eniola & Entebang (2015), financial indicators, innovation, production, and markets are used to gauge financial performance.

2.6. Mediation Effects

Based on findings from the study (Byukusenge & Munene, 2017), it was noted that knowledge management itself could only directly affect the business performance of Rwandan SMEs with innovation. It implies that managers of SME owners may only improve business performance with innovation. This study demonstrates that the relationship between knowledge management and business performance is entirely mediated by innovation. Innovation enables knowledge management's contribution to business performance. Several empirical research (López-Nicolás & Meroño-Cerdán, 2011), (M. Saqib et al., 2014), (Byukusenge et al., 2016), (Mahmoud Mohammad Migdadi, 2020), (Durmuş-Özdemir & Abdulkhoshimov, 2018) demonstrates that the critical role of innovation can effectively mediate the relationship between knowledge management and business performance.

Research findings (Yousaf & Tariq, 2020) proved that technology orientation could predict firm performance and firm innovation mediate the relationship between technology and firm performance. The same thing is shown by research results (Kocak et al., 2017); collaborating the latest technology applications with innovations in processes and other mechanisms will improve firm performance.

H8: Innovation capabilities can significantly mediate knowledge management's influences on MSME performance.

H9: Innovation capabilities significantly able to mediate the influences of financial Literacy on MSME performance

H10: Innovation capabilities significantly able to mediate the influences of technology orientation on MSME performance

Based on this description, a conceptual framework can be compiled as follows:

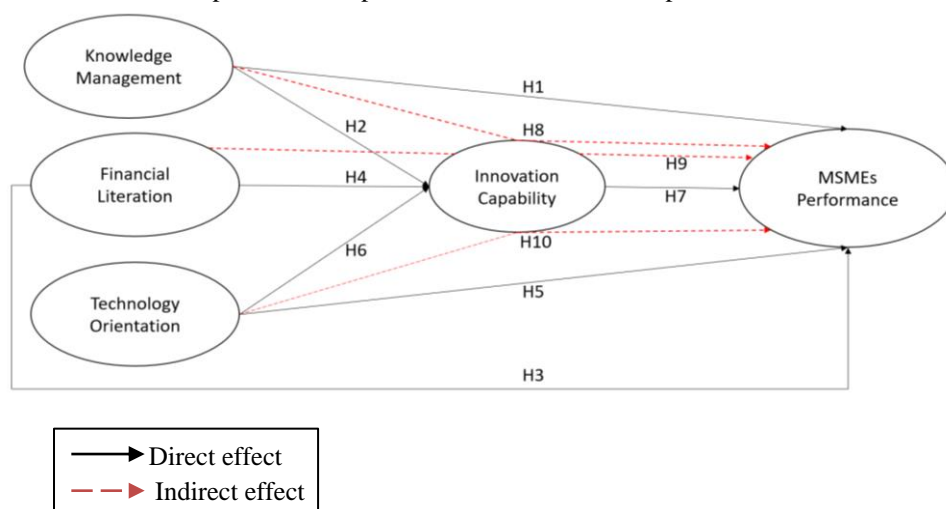


Figure 1. Conceptual Framework

3. METHODS

3.1. Data collection process

This study employs a quantitative methodology by examining the innovation capability as a mediator between the performance of MSMEs built on a single knowledge management model, Financial Literacy, and technology orientation. This study was carried out in Pasuruan City, Pasuruan Regency, Malang City, and Malang City. The population of this study consisted of MSME owners who were assisted in obtaining halal certification by the Office of Cooperatives, Industry, and Trade, and the sample selected is 175. The demographic profile of respondents is as follows:

Table1. Respondents 'demographic distribution

Respondent Profile		Frequency	Percentage (%)
Gender	Male	37	21,1
	Female	138	78,9
Education	Junior High School	27	15,4
	Senior High School	105	60,0
	Diploma	6	3,4
	Undergraduate	35	20,0
Region	Postgraduate	2	1,1
	Malang City	40	22,9
	Malang Regency	100	57,1
	Pasuruan City	15	8,6
	Pasuruan Regency	20	11,4
	2018	16	9,1
Certification	2019	29	16,6
	2020	11	6,3
	2021	81	46,3
	2022	38	21,7
Income	< Rp 50.000.000	129	73,7
	Rp 51.000.000 – Rp 100.000.000	34	19,4
	Rp 101.000.000 – Rp 200.000.000	2	1,1
	Rp 200.000.000 – Rp 300.000.000	5	2,9
	> Rp 300.000.000	5	2,9
Number of Employees	1-4 people	150	85,7
	5-19 people	25	14,3

Note: n = 175 samples

3.2. Measurement scales

Furthermore, primary data from respondents were collected directly for this study through questionnaires using the Likert scale model to measure the research variables with a score of 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, and 5= strongly agree. The following operational variables as follows:

No	Variables	Indicators	Items	Source
1	Knowledge Management	Knowledge acquisition	<ol style="list-style-type: none"> MSME owners allow their employees in training/courses to gain new knowledge about halal. MSME owners gain new knowledge 	(Cheng Seng & Kuan Yew, 2015), (Samir, 2020), (Wirakurnia & Nuanmark, 2021),

			from the government about halal regulation (Hasan et al., 2020)
	Knowledge Creation and generation	<ol style="list-style-type: none"> 1. MSME owners facilitate employees to work together to develop new knowledge about halal. 2. MSME owners reward employees who create new knowledge, ideas, and solutions. 	
	Knowledge application and utilization	<ol style="list-style-type: none"> 1. MSME owners can encourage employees to apply new knowledge about halal to solve problems. 2. MSME owners feel the benefit of implementing new ideas that are practiced. 	
	Knowledge transferring and sharing	<ol style="list-style-type: none"> 1. MSME owners and employees exchange information and knowledge about halal in formal and informal activities. 2. MSME owners share halal information and knowledge with strategic partners. 	
	Knowledge storage and documentation	<ol style="list-style-type: none"> 1. MSME owners and employees are accustomed to documenting the experience of halal certification practices 2. MSME owners emphasize that the best experience is always stored and documented properly 3. MSME owners have halal certification 4. MSME owners can encourage employees to contribute to the filing of information and its use 	
2	Financial Literation	<p>Bookkeeping literacy</p> <ol style="list-style-type: none"> 1. MSME owners have basic bookkeeping skills 2. MSME owners record income and expenses 3. MSME owners understand the preparation of financial statements 4. MSME owners always analyze financial statements <p>Budgeting literacy</p> <ol style="list-style-type: none"> 1. MSME owners do financial planning at the beginning of opening a business 2. MSME owners set financial budgets to be on target 3. MSME owners make a budget comparing the costs incurred with the profits obtained <p>Debt literacy</p> <ol style="list-style-type: none"> 1. MSME owners can generate business income to return loans to lenders regularly every month 2. MSME owners can choose loan products that are under their business 	(Jati et al., 2021), (Eniola & Entebang, 2015), (Alharbi et al., 2021), (Rahim & Balan, 2020), (Liu et al., 2021), (Buchdadi et al., 2020), (Antara et al., 2016), (Agyei, 2018), (Kulathunga et al., 2020).

			level	
			<ol style="list-style-type: none"> MSME owners understand that the assets pledged can be used to get loans MSME owners understand that their business can meet the requirements for loan interest rates imposed by financial institutions 	
3	Technology Orientation	<p>The use of technology</p> <p>Integration of new technology</p> <p>Technology development</p>	<ol style="list-style-type: none"> MSMEs owners prioritize ease of use of technology MSME owners use technology in the development of new products. MSME owners develop new technology based on test results first MSME owners integrate new technologies in the operational implementation of the production process MSME owners proactively develop new technologies MSME owners always allocate funds for the development of new technologies 	(Al-ansari et al., 2019), (Kocak et al., 2017), (Rezazadeh et al., 2016), (Ramírez-Solis et al., 2022), (Masa'deh et al., 2018)
4	Innovation Capability	<p>Product innovation</p> <p>Process Innovation</p> <p>Marketing innovation</p>	<ol style="list-style-type: none"> MSME owners develop new product MSME owners do Product modification MSME owners always create new designs or functions for the product MSME owners carry out imitation capabilities for existing products MSME owners are actively looking for new ways to improve existing production processes MSME owners upgrade existing machinery and equipment MSME owners can improve processes at all stages of production, distribution, and logistics Actively creating new production processes is an important process for the success of a business MSME owners have close relationship management with key customers MSME owners present new product options via online media MSME owners have a good knowledge of new market segments MSME owners using online media to broaden marketing reach 	(Keskin, 2002), (Delener et al., 2017), (Kolbe, 2021), (Al-ansari et al., 2019), (Byukusenge & Munene, 2017).
5	MSME Performance	Financial performance	<ol style="list-style-type: none"> The increasing profit achievement The growth of working capital Addition fixed asset of the business 	(Hudson et al., 2001), (Karadag, 2017), (Eniola & Entebang, 2015),

	(work equipment, means of production)	(Delener et al., 2017),
	4. Addition of current assets (deposits or other financial products)	(Aliyu, 2015)
Product performance	1. Conformity of product quality with business specifications	
	2. Increasing the number of production	
	3. Increasing efficiency of the production process	
	4. Increasing product requests	
Marketing performance	1. Increasing sales growth	
	2. An increasing number of purchase volumes from customers	
	3. Increased frequency of purchases from customers	
	4. Increased number of new customers	

4. RESULTS

4.1. Measurement model

In management research, partial least squares structural equation modeling (PLS-SEM) is a widely used approach that offers a reliable way to analyze survey data (J. Hair et al., 2017), (Sarstedt et al., 2022), so in this study, we use SmartPLS 4. The summary results of the respondents' answers can be seen in **Table 2**, which shows the mean of each variable, between the lowest value of 3.99 (Technology orientation) and the highest value of 4.30 (Innovation capability), and each variable is correlated with significance at the level of 0.01.

Table 2. Summary of mean, standard deviation, and correlation

Variable	M	SD	1	2	3	4	5
1. Knowledge Management	4,17	0,58	1				
2. Technology Orientation	3,99	0,56	.294**	1			
3. Financial Literation	4,23	0,60	.565**	.334**	1		
4. Innovation Capability	4,30	0,60	.585**	.271**	.601**	1	
5. SMEs Performance	4,27	0,60	.514**	.353**	.589**	.591**	1

Notes. **Correlation is significant at the 0.01 level, *Correlation is significant at the 0.05 level; M = mean; SD = standard deviation.

Furthermore, to ensure construct validity, we examined convergent validity (the degree to which different items used to measure the same concept are related) and discriminant validity (the degree to which items differ between constructs or measure distinct concepts). We evaluated the convergent validity using factor loadings (I_i), Cronbach alpha (α), reliability coefficients (ρ_A), and average variance extracted (AVE) (J. Hair et al., 2017). **Table 3** shows that the factor loadings (I_i) for each construct ranged from 0.508 to 0.968. The Cronbach alpha (α) ranges from 0.617 to 0.938, and reliability coefficients (ρ_A) range from 0.636 to 0.940. The average variance extracted (AVE) range from 0.502 to 0.859, exceeding the recommended level of 0.50 (Sarstedt et al., 2022) and confirming convergent validity for each construct (J. Hair et al., 2017).

Table 3. Result of the measurement model, reliability, and validity

Constructs	Items	I_i	α	ρ_A	AVE
Knowledge Management	Knowledge Acquisition	0.698	0.905	0.916	0.502

Constructs	Items	I_i	α	ρ_A	AVE
	<i>Knowledge Application</i>	0.896			
	<i>Knowledge Creation</i>	0.787			
	<i>Knowledge Storage</i>	0.948			
	<i>Knowledge Transfer</i>	0.895			
<i>Knowledge Acquisition</i>	Kacq_1	0.812	0.617	0.636	0.721
	Kacq_2	0.884			
<i>Knowledge Application</i>	Kapp_1	0.904	0.773	0.773	0.815
	Kapp_2	0.902			
<i>Knowledge Creation</i>	Kcre_1	0.919	0.692	0.757	0.759
	Kcre_2	0.820			
<i>Knowledge Storage</i>	Kstor_1	0.809	0.788	0.819	0.617
	Kstor_2	0.783			
	Kstor_3	0.618			
	Kstor_4	0.905			
<i>Knowledge Transfer</i>	Ktrans_1	0.912	0.804	0.805	0.836
	Ktrans_2	0.917			
Financial Literacy	<i>Book Keeping Literacy</i>	0.940	0.909	0.919	0.532
	<i>Budgeting Literacy</i>	0.944			
	<i>Debt Literacy</i>	0.890			
<i>Book Keeping Literacy</i>	Booklit_1	0.822	0.849	0.851	0.689
	Booklit_2	0.821			
	Booklit_3	0.870			
	Booklit_4	0.806			
<i>Budgeting Literacy</i>	Budglit_1	0.837	0.823	0.830	0.741
	Budglit_2	0.927			
	Budglit_3	0.815			
<i>Debt Literacy</i>	Debtlit_1	0.830	0.780	0.810	0.600
	Debtlit_2	0.820			
	Debtlit_3	0.789			
	Debtlit_4	0.645			
Technology Orientation	<i>Use of Technology</i>	0.820	0.888	0.891	0.643
	<i>Integration of Technology</i>	0.929			
	<i>Technology Development</i>	0.908			
	Usetech_1	0.923	0.836	0.837	0.859
	Usetech_2	0.930			
	Intech_1	0.910	0.800	0.800	0.833
	Intech_2	0.915			
	Techdev_1	0.905	0.760	0.762	0.807
	Techdev_2	0.891			
Innovation Capability	<i>Product Innovation</i>	0.919	0.906	0.919	0.505
	<i>Process Innovation</i>	0.952			
	<i>Market Innovation</i>	0.935			
<i>Product Innovation</i>	Prodinn_1	0.761	0.702	0.735	0.537
	Prodinn_2	0.818			
	Prodinn_3	0.802			
	Prodinn_4	0.508			
<i>Process Innovation</i>	Procinn_1	0.859	0.875	0.875	0.727
	Procinn_2	0.856			

Constructs	Items	I_i	α	ρ_A	AVE
<i>Market Innovation</i>	Procinn_3	0.872	0.827	0.866	0.671
	Procinn_4	0.824			
	Markinn_1	0.837			
	Markinn_2	0.572			
	Markinn_3	0.913			
MSMEs Performance	Markinn_4	0.907			
	<i>Financial Performance</i>	0.908	0.938	0.940	0.598
	<i>Production Performance</i>	0.922			
	<i>Marketing Performance</i>	0.968			
<i>Financial Performance</i>	0.907				
<i>Financial Performance</i>	Finperf_1	0.907	0.891	0.896	0.755
	Finperf_2	0.918			
	Finperf_3	0.811			
	Finperf_4	0.835			
<i>Production Performance</i>	Prodperf_1	0.858	0.859	0.862	0.703
	Prodperf_2	0.886			
	Prodperf_3	0.828			
	Prodperf_4	0.779			
<i>Marketing Performance</i>	Markperf_1	0.755	0.880	0.886	0.739
	Markperf_2	0.872			
	Markperf_3	0.921			
	Markperf_4	0.880			

Notes: I_i = factor loadings between 0.4 and 0.7 are acceptable; ρ_A (rho_a) = reliability coefficient between 0.60 and 0.70 are acceptable; α = Cronbach's alpha > 0.5 are acceptable; AVE = Average Variance Extracted should be 0.5 or higher (J. F. J. Hair et al., 2018).

Table 4 shows the discriminant validity of each construct suit with the criteria developed by Fornell & Larcker (2018). Discriminant validity is evaluated by comparing the AVE with the squared correlations or the square root of the AVE with the correlations. The square root of the AVE between each pair of factors is greater than the correlation estimated between factors suggesting that the measures used in this study are distinct and exhibit sufficient discriminant validity (Bagozzi & Yi, 1988). These findings determined that the analysis was reliable, AVE-compliant, and valid in both convergent and discriminant terms.

Table 4. Discriminant validity

Fornell-Larcker Criterion	1	2	3	4	5
1. Financial Literacy	0.730				
2. Innovation Capability	0.203	0.711			
3. Knowledge Management	0.249	0.279	0.708		
4. MSMEs Performance	0.299	0.094	0.095	0.773	
5. Technology Orientation	0.229	0.158	0.228	0.271	0.802

Heterotrait–Monotrait (HTMT) Ratio	1	2	3	4	5
1. Financial Literacy					
2. Innovation Capability	0.227				
3. Knowledge Management	0.280	0.319			
4. MSMEs Performance	0.317	0.133	0.142		
5. Technology Orientation	0.251	0.193	0.268	0.297	

Notes: Fornell-Larcker Criterion: Diagonal elements in bold are the square root of AVE. Off-diagonal elements are the correlations between constructs. For discriminant validity, diagonal values should be larger than off-diagonal ones (Fornell & Larcker, 2018). **HTMT Criterion:** Off-diagonal elements are the correlations between the constructs. Discriminant validity measures the distinctiveness of a construct. It is achieved if elements are lower than the cutoff score of 0.90 (Bagozzi & Yi, 1988).

4.2. Structural model

The result of the structural model captured in **Figure 1** and **Table 4** indicated that five of 7 of the structural model and beta paths were statistically significant ($p < 0.05$), that are: (1) The relationship between Knowledge Management à Innovation Capability, (2) The relationship between Financial Literacy à MSMEs Performance, (3) The relationship between Financial Literacy à Innovation Capability, (4) The relationship between Technology Orientation à MSMEs Performance, and (5) The relationship between Innovation Capability à MSMEs Performance. However, the Knowledge Management à MSMEs Performance and Technology Orientation à MSMEs Performance structural model and beta paths were not statistically significant ($p > 0.05$). In addition, the findings indicated that the R² three latent variables, "Knowledge management, Financial literacy, and Technology Orientation," explain 46,7% of the variance in "Innovation Capability." In contrast, the remaining 53,3% are described by other variables that are not included in the study. Furthermore, the variables "Knowledge management, Financial literacy, Technology Orientation, and Innovation Capability" explain 47,1% of the variance in "MSMEs Performance," which is the remaining 52,9% described by other variables not included in the study. The two-model contribution rate is moderate (Hair et al., 2019).

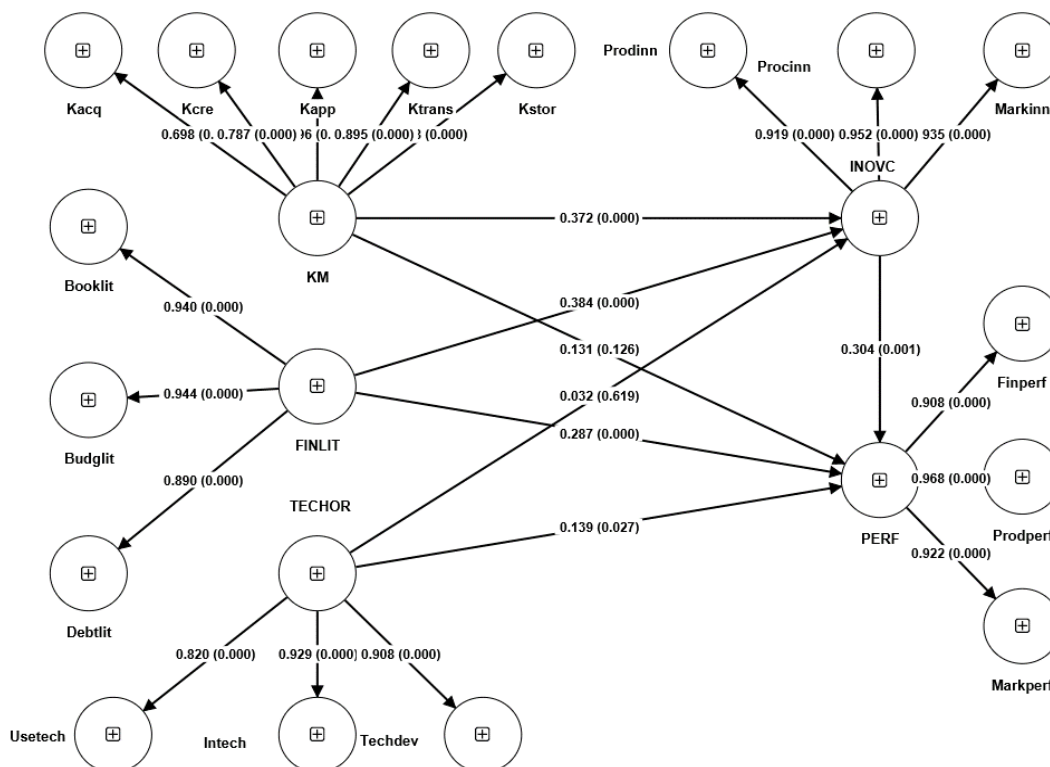


Figure 2. Structural model estimates

5. DISCUSSION

From the results, the calculation of path coefficients and t-values ($p < 0.05$) were seen in **Table 4**. The hypotheses were tested by examining the magnitude of the standardized parameter estimates between latent

variables together with the corresponding t-values (> 1.96 , $p < 0.05$). For direct effect, the results support H2, H3, H4, H5, and H7. Knowledge management has a significant positive correlation with innovation capability (H2: 0.372/0.000), but it has a non-significant correlation with MSMEs performance (H1: 0.131/0.126). Financial Literacy correlates significantly positively with MSMEs' performance (H3: 0.287/0.000) and innovation capability (H4: 0.384/0.000). Technology orientation has a significant positive correlation with MSMEs performance (H5: 0.139/0.027), but it has a non-significant correlation with innovation capability (H6: 0.032/0.619). Innovation capability positively correlates significantly with MSMEs performance (H7: 0.304/0.001). The bootstrap procedure of 1000 re-samples was used to recalculate the path coefficient estimates and t-ratios for the latent variable innovation. Seven paths were revealed as significant and produced results that matched those of the original sample reported above. The path coefficients were very stable concerning the estimates from the original sample.

Table 5. Structural model results

Hypotheses	β	T values	P Values	Result
Knowledge Management → MSMEs Performance	0.131	1.531	0.126	Not Supported
Knowledge Management → Innovation Capability	0.372	4.106	0.000	Supported
Financial literacy → MSMEs Performance	0.287	3.493	0.000	Supported
Financial literacy → Innovation Capability	0.384	4.466	0.000	Supported
Technology Orientation → MSMEs Performance	0.139	2.219	0.027	Supported
Technology Orientation → Innovation Capability	0.032	0.497	0.619	Not Supported
Innovation Capability → MSMEs Performance	0.304	3.365	0.001	Supported

Quality indicators
 R^2 Innovation Capability = 0.467
 R^2 MSMEs Performance = 0.471

Notes: Significance of estimates; *** $p < 0,001$, ** $p < 0,01$, * $p < 0,05$; β = Path coefficients

5.1. The Influence of Knowledge Management on MSMEs Performance

The finding of a weak direct influence of knowledge management on the performance of MSMEs shows that knowledge management owned by MSME owners does not contribute to the performance of halal-oriented MSMEs in East Java. The findings of the weak direct influence of knowledge management on performance are similar to the findings of previous studies (Mahmoud Mohammad Migdadi, 2020), (Byukusenge et al., 2016), which show that knowledge management practices do not have a direct effect on the performance of MSMEs except through innovation capabilities. This finding is also consistent with the Rodriguez (2010), that found knowledge practices are not directly related to financial performance.

The knowledge creation and storage process has yet to be adequately realized, so it has not been able to improve the performance of MSMEs. MSME owners should no longer consider the implementation of knowledge management only as a rule but as a need for corporate sustainability and clarity of tasks in the company, so that management can be more considerate in making decisions to improve the profitability and performance of the company.

5.2. The Influence of Knowledge Management on Innovation Capability

The finding of a strong direct influence of knowledge management on the innovation capability shows that knowledge management owned by MSME owners contributes to the innovation capability of MSMEs in East Java. The finding of the substantial direct influence of knowledge management on innovation capability is similar to the findings of previous studies (Ha et al., 2016), (Inkinen et al., 2015), (Kör & Maden, 2013), (Lee et al., 2012), (Darroch, 2005), (Get & Samson, 2016). It shows that knowledge management practices substantially

directly affect innovation capabilities. Knowledge management practices like knowledge creation, sharing, implementation, and storage are crucial for achieving product, process, and market innovation capability.

5.3. The Influence of Financial Literacy on MSMEs' Performance

The finding of a strong direct influence of Financial Literacy on the MSMEs' performance shows that financial Literacy owned by MSME owners contributes to the performance of MSMEs in East Java. The finding of the substantial direct influence of Financial Literacy on innovation capability supports the findings of previous studies (Ratna et al., 2018), (Jati et al., 2021), (Esiebugie et al., 2018), (Agyei, 2018), (Kulathunga et al., 2020) (Xiao et al., 2020), (Sulaiman & Master, 2016), which show that financial Literacy has a substantial direct effect on the MSMEs performance. Bookkeeping literacy, budgeting literacy, and debt literacy are crucial for achieving financial, production, and market performance.

5.4. The Influence of Financial Literacy on Innovation Capability

The finding of a strong direct influence of Financial Literacy on the innovation capability shows that financial Literacy owned by MSME owners contributes to the innovation capability of MSMEs in East Java. The substantial direct influence of Financial Literacy on innovation capability supports the findings of previous studies (Liu et al., 2021), which show that financial Literacy has a substantial direct effect on innovation capabilities. Bookkeeping literacy, budgeting literacy, and debt literacy are crucial for achieving innovation capability of product, process, and market.

5.5. The Influence of Technology Orientation on MSMEs Performance

The strong effect of technology orientation on business performance is similar to the findings of previous studies (Yousaf & Tariq, 2020) (Rezazadeh et al., 2016). The halal-orientated MSMEs in East Java have realized the critical roles that their technology policies play in enhancing their performance. They have some little funds allocated for technology development to improve performance.

5.6. The Influence of Technology Orientation on Innovation Capability

MSMEs need a stronger orientation towards technology that does not significantly affect innovation capability. This finding is not consistent with previous studies (Al-Ansari et al., 2019), (Yousaf & Tariq, 2020), (Ramírez-Solis et al., 2022). The findings demonstrate that MSMEs in East Java with a halal orientation have not used technology to support their innovative activities. Additionally, they show that they have not adopted new technology's role in improving their internal procedures and techniques. It may be explained by the market's halal-focused MSMEs' slow adoption of new technologies and the local MSMEs' propensity to create incremental or advanced technologies.

5.7. The Influence of Innovation Capability on MSMEs Performance

This finding, in line with earlier studies (Al-Ansari et al., 2019), (Maldonado-guzmán & Garza-Reyes, 2018), shows that innovation significantly impacts business performance within halal-oriented MSMEs in East Java. MSMEs can use innovation to gain a competitive advantage, which improves their business performance (Haroon Hafeez et al., 2013). Innovation seems to be a wise choice to help halal-focused MSMEs in East Java enhance their commercial performance. It demonstrates an understanding of consumer needs and rival behavior that could lead to developing new methods, products, services, and market niches. As a result, the link between innovation and business performance may help halal-focused MSMEs in East Java develop more innovative long-term plans and competitive advantages.

Table 6. Indirect hypothesis (mediation)

Indirect hypothesis	β	T Values	p Values	BC 95% CI	Result
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				<i>Lower</i>	<i>Upper</i>	
KM → INOVC → PERF	0.113	2.502	0.012	0.037	0.222	Supported
FINALIST → INOVC → PERF	0.117	2.507	0.012	0.036	0.224	Supported
TECHOR → INOVC → PERF	0.010	0.534	0.593	-0.025	0.050	Not Supported

Notes: β = Path coefficients; BC= *bias-corrected*, CI= *confidence interval*; FINLIT = Financial Literacy; KM = Knowledge Management; TECHOR = Technology Orientation; INOVC = Innovation Capability; PERF = SMEs Performance.

5.8. The ability of innovation capability to mediate the influence of knowledge management on the MSME's performance.

The results in **Table 5** show that the mediating (indirect) influence of innovation capabilities can significantly link knowledge management and MSME performance (p-value 0.012, lower BC 0.037, and upper CI 0.222). There is hypothesis 1 that when knowledge management and business performance are only considered, the relationship is insignificant. However, when innovation is a mediating effect, the relationship between knowledge management and business performance becomes significant. The results of this study show complete mediation (Baron & Kenny, 1986), showing that knowledge management can only affect business performance in MSMEs with innovation. In complete mediation, predictor variables lose their power to influence dependent variables except through mediators.

It suggests that knowledge acquired through various channels (short courses, conferences, exhibitions, qualified staff), disseminated among all employees, and used can only indirectly cause noticeably different profits, sales growth, and market share. The results of earlier studies (Darroch, 2005), (Inkinen et al., 2015) have consistently shown a significant and favorable relationship between knowledge management and the business performance of MSMEs through innovation capabilities. (Byukusenge et al., 2016), (Mahmoud M. Migdadi et al., 2017) study also supported the need for more significance in the direct relationship between knowledge management and business performance without innovation mediation. This situation can be explained by the fact that some owners of MSMEs prevent the outflow of knowledge from the company and thus block the sharing of knowledge and lack of systematic knowledge management of halal information that leads to business performance.

5.9. The ability of innovation capability to mediate the influence of financial Literacy on the MSME's performance.

The results in Table 5 show that the mediating (indirect) influence of innovation capabilities can significantly link between financial Literacy and MSME performance (p-value 0.012, lower BC 0.036, and upper CI 0.224). There is hypothesis 3 indicates that financial Literacy has a significant positive effect on performance, then the results of this study show partial mediation (Baron & Kenny, 1986). These findings support previous research (Stolper & Walter, 2017) that expressing all actions regarding personal financial management in making decisions is implemented in financial Literacy. An adequate understanding of sound financial Literacy can improve one's ability to innovate processes and products so that individuals can choose the best alternative and affect their financial performance.

5.10. The ability of innovation capability to mediate the influence of technology orientation on the MSME's performance.

The results in Table 5 show that the mediating (indirect) influence of innovation capabilities cannot significantly link between technology orientation and MSME performance (p-value 0.593, lower BC -0.025, and upper CI 0.050). There is also hypothesis 6, indicating that technology orientation does not significantly affect performance. This finding supports the result of (Al-Ansari et al., 2019) the link between technology orientation and business performance is not linear and is not mediated through innovation. It implies that Halal-oriented

MSMEs need more resources of MSMEs in the development of advanced technology, especially in the halal industry, which requires advanced technology and significant funds.

6. CONCLUSION

This study examines how knowledge management, financial Literacy, technology orientation, and MSME performance relate and how innovation capability mediation affects those relationships. The results of this study suggest that innovation capabilities entirely mediate the relationship between knowledge management and MSME performance. This study has demonstrated that, in the absence of innovation capabilities, knowledge management cannot directly impact the performance of halal-focused MSMEs in East Java, Indonesia. It implies that applied to enhance product quality, production methods, and markets.

Similar to how financial Literacy relates to innovation, MSME owners should concentrate on practices that directly raise innovation achievement by mastering financial Literacy. Also, to translate their available knowledge resources into developing new products, processes, and markets to improve their business performance. It can be done by utilizing qualified personnel, inspiring and empowering staff members through short courses, and enabling them to participate in seminars, conferences, and exhibitions to learn new information. Additionally, MSMEs will be able to prioritize their market, production, and technology strategies with the aid of a clear understanding of the true nature of innovation, which a future action plan will follow.

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