The Effect of Intellectual Capital and Digital Literacy on Business Performance Through Innovation Capability in Halal SMEs in Malang City

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ABSTRACT

Enhancing the competitiveness of halal MSMEs in Malang City involves tapping into internal resources like intellectual capital and digital literacy, which have not been fully utilised. The hurdles in the way include managing human resources, internal processes, and client relationships, along with limited digital literacy that obstructs market reach and operational effectiveness. This research aims to examine the impact of Intellectual Capital and digital literacy on the performance of halal SMEs in Malang City, with innovation capability acting as an intermediary factor. The study follows a quantitative descriptive and explanatory approach using path analysis. Data was gathered through a Likert scale questionnaire from 222 halal SME participants associated with the Malang City Cooperative and SME Agency. Descriptive statistics and path analysis were carried out with the help of the most recent SPSS update. The research indicates that Halal SME actors in Malang City view intellectual capital, digital literacy, innovation capabilities, and business performance positively. Intellectual capital, digital literacy, and innovation capabilities are the key factors directly impacting business performance. Additionally, intellectual capital and digital literacy were found to indirectly enhance business performance through innovation capabilities as a mediator. The implications of these findings emphasize the importance of integrated development between knowledge management, technological literacy, and innovation capacity to enhance the competitiveness and sustainability of Halal SMEs.

Keywords: Business Performance, Digital Literacy, Innovation Capability, Intellectual Capital

1. INTRODUCTION

In the digital age and era of globalisation, Micro and Small Enterprises (MSEs) play a crucial part in driving the economic growth of a nation, such as in Malang City, where there has been a noticeable rise in the number of culinary MSEs over the past couple of years. Despite the fact that there were a total of 16,417 culinary MSEs in 2023, only approximately 520 of them have obtained halal certification, indicating significant obstacles in enhancing the competitiveness of MSEs according to religious principles. Malang City, where the majority of the population is Muslim and characterized as an educational and digital city, makes it an important context for developing halal MSEs. However, the geographical distribution of halal MSEs is still unequal, with dominance in Lowokwaru District (35%) and minimal contribution from areas such as Kedungkandang (14%). This imbalance indicates disparities in market access, infrastructure, and business literacy towards halal certification and modern business management. In fact, the development of halal MSEs has great potential in expanding employment and increasing community income, especially when supported by strengthening digital literacy and utilizing intellectual capital. Therefore, an area-based empowerment strategy and a targeted business performance measurement approach are needed so that halal MSEs in Malang City can grow sustainably and inclusively.

Business performance conceptually consists of two indicators, namely finance performance and market performance (Garg & Gupta, 2020). In this theory, it means that the commonly used indicators of successful business performance are profit income and customer satisfaction levels. The achievement of business

performance in MSEs cannot be separated from the various factors that underlie the formation of relevant variables. One of them is innovation capability that has an influence on business performance. According to Tatoi and Senaji (2017) the performance of a business is positively influenced by its ability to innovate. Efficient management of innovation resources leads to improved performance and brings advantages to management. Organisations with strong innovation capabilities are able to continuously create new products or services in response to market changes, incorporating innovation into all aspects of their strategic planning, processes and support systems. According to Guan and Ma (2003) inventing ability includes seven different factors: learning, research and development, production, advertising, organizational, resource management, and strategic abilities.

From the research conducted by Rahayu (2022) A positive factor affecting business performance is Intellectual Capital. Intellectual resources, comprising human, structural, and customer resources, contribute positively to the success of small and medium-sized enterprises (SMEs) in Madiun City. To enhance business performance and achieve organizational objectives, SMEs should invest in their employees' skills, adhere to operational standards aligned with the company's vision and mission, foster a positive work environment, and maintain positive relationships with customers and external stakeholders. The key components of Intellectual Capital are human resources, infrastructure, and customer relationships (Bontis, 1998).

Furthermore, Aji (2023) shows that having digital skills can greatly enhance the success of businesses. In today's world, digital literacy is essential for the growth of small and medium-sized enterprises (MSMEs) as it allows them to reach a larger customer base and operate more efficiently. Through the use of digital technology, MSMEs can expand their market reach from local to global by utilising e-commerce platforms and social media for promotion and sales.

Innovation capability plays an important role as an intervening variable that bridges the influence of Intellectual Capital and digital literacy on business performance. In the perspective of Resource-Based View and Dynamic Capability Theory, internal resources such as knowledge and digital competencies need to be processed through innovative processes in order to generate sustainable competitive advantage (Guan & Ma, 2003; Teece et al., 1997). Without an innovation mechanism, the advantages of digital literacy and intellectual capital do not automatically impact business performance. According to Inkinen (2015), innovation capability is a key driver in transforming potential resources into measurable business outputs, such as customer satisfaction and increased revenue. This is supported by research Kianto et al. (2014), which shows that the relationship between Intellectual Capital and performance is stronger if mediated by the organisation's ability to innovate. Thus, in the context of halal MSEs facing competitive pressures and high consumer expectations, innovation capability is an important mechanism to ensure the success of value and technology-based businesses.

In addition, digital literacy also has a positive impact on the operational efficiency of MSEs. With a good understanding of digital tools, MSEs can manage their businesses more effectively through the use of management software, digital accounting systems and online collaboration platforms. This helps to reduce operational costs and increase productivity. In addition, data-driven decision-making becomes easier with access to analytics tools that allow MSEs to analyse consumer behaviour, sales trends and market performance in real-time. Thus, digital literacy not only drives innovation in products and services, but also helps MSEs stay relevant amidst economic challenges and rapid technological changes, and more resilient in the face of crises such as pandemics that demand rapid adaptation to the digital world. Indicators of digital literacy include skills like searching the internet, navigating hypertext, evaluating content, and assembling knowledge (Gilster, 1997).

According to the findings of the review of literature, there are conflicting results in various previous research regarding the impact of Intellectual Capital, digital literacy, and innovation capabilities on the performance of small and micro businesses. Some research suggests that Intellectual Capital has a beneficial effect on enhancing the performance of these businesses (Cahyani et al., 2025; Kim & Tran, 2024; Muda et al., 2020; Mulyadi & Basuki, 2024). However, different findings were revealed by Jayanti & Romli (2023), Li et al. (2020), dan Liu et al. (2022) which shows that there is no significant influence between Intellectual Capital and MSE business performance. This discrepancy indicates that the variable has not provided consistent results across various research contexts.

A similar situation occurs with digital literacy, where some studies find that high levels of digital literacy are positively correlated with improved MSE business performance (Aji, 2023; Chatterjee et al., 2021; Rakib, 2024; Sariwulan et al., 2020). However, a number of other studies such as the one conducted by Nurbaiti and Sidiq (2025) and Wulandari et al. (2024), Instead, it shows that digital literacy does not have a significant influence on MSEs' business performance. This strengthens the argument that the relationship between digital literacy and business performance still needs to be explored further in different contexts.

In addition, the innovation capability variable also shows inconsistencies in research results. Some researchers such as Busyeri et al. (2024), Hanaysha et al. (2022), Isfianadewi et al. (2019), Purwati et al. (2021), and Widyanti and Mahfudz (2020) stated that innovation capability has a significant impact on improving the business performance of MSEs. However, Isa et al. (2024) dan Rochma et al. (2025) found that the influence was not statistically significant. This inconsistency may be due to differences in business sectors, levels of business maturity, and methodological approaches used.

Thus, there is a clear research gap from previous studies that have produced conflicting results. This shows the urgency of conducting further research to answer the unclear relationship between intellectual capital, digital literacy, and innovation capabilities on the business performance of MSMEs. Further research is not only important theoretically to strengthen or reject previous findings, but also practically provides real implications in formulating MSME development policies that are more evidence-based and contextually relevant.

Most previous studies have focused on the general context of SMEs without distinguishing the unique characteristics of halal-based SMEs. However, halal SMEs have distinctive dimensions because they involve Sharia values, Islamic business ethics, and consumer preferences based on trust and compliance with halal standards. Consumer demand for product halal assurance requires a managerial approach that is not only efficient but also ethical and religious. Theoretical and empirical approaches to halal SMEs should not be equated with conventional SMEs. Although digital literacy and intellectual capital have been extensively studied individually in relation to SME business performance, very few studies have simultaneously examined their interconnection through the mediation mechanism of innovation capabilities. In the digital economy era, digital skills and intellectual assets must be translated into concrete innovations to impact business performance. Furthermore, the research context specifically addressing halal SMEs in urban areas like Malang, which has a large Muslim market potential and a rapidly developing digital business ecosystem, has not been extensively explored in academic literature.

Therefore, this study offers a novel contribution by filling this gap, namely examining the relationship between intellectual capital and digital literacy on business performance with the mediating role of innovation capabilities in halal SMEs. This approach is expected to provide a more comprehensive and applicable perspective in developing the sustainable competitiveness of halal SMEs in the digital era.

2. LITERATURE REVIEW

2.1. Grand Theory

This research examines the foundational concept known as Dynamic Capabilities Theory, which was first proposed by Teece et al. (1997). Dynamic Capabilities Theory is a concept that outlines how businesses can gain a competitive edge and keep it in a fast-paced and ever-evolving business landscape. It builds upon the Resource-Based View (RBV) approach by highlighting a company's capacity to actively adjust, merge, and reshape their inner and outer capabilities in reaction to shifts in the environment. The theory of Dynamic Capabilities identifies three key elements: perceiving (the skill to identify and evaluate possibilities), seizing (the knack to take advantage of opportunities), and transforming (the ability to consistently refresh and restructure organisational resources).

2.2. The Influence of Intellectual Capital on Business Performance

Extensive research has been carried out on how intellectual capital affects the performance of businesses, with consistent findings. Intellectual capital, comprising human capital, structural capital, and customer capital, is a valuable intangible asset that plays a crucial role in gaining a competitive edge, particularly in

small and medium enterprises (Bontis, 1998). In the context of halal SMEs, intellectual capital is a key resource for improving internal efficiency and building customer trust based on religious values.

Rahayu (2022) suggest that Intellectual Capital plays a key role in enhancing the performance of small and medium enterprises in the food and beverage industry in Madiun City. The study highlights that enhancements in the quality of human resources, efficient work systems, and positive customer relationships have a direct impact on profitability and customer satisfaction. This is in line with research Cahyani et al. (2025), Kim and Tran (2024), Muda et al. (2020), and Mulyadi and Basuki (2024) which state that Intellectual Capital is beneficial for the business performance of MSMEs is based on the belief that Human Capital, Structural Capital, and Relational Capital can enhance efficiency, innovation, and competitive advantage, ultimately resulting in improved performance.

In Malang City, the management of Intellectual Capital is crucial for halal MSMEs as consumer trust plays a key role in the success of halal products. By enhancing the skills of their employees, implementing effective work processes, and fostering customer loyalty, halal SMEs can enhance their financial results and overall customer satisfaction. As a result, there is a strong belief that Intellectual Capital has a beneficial impact on the performance of businesses in this sector.

H1: Intellectual Capital has a significant positive impact on business performance in halal SMEs in Malang City.

2.3. The Impact of Digital Literacy on Business Performance

The emergence of digital technology has brought about both advantages and obstacles for small and medium-sized enterprises (SMEs) in enhancing their business efficiency. Possessing digital literacy, involving the skills to access, assess, and make use of information using digital technology, is now considered a crucial aspect in effective and adaptable business administration (Gilster, 1997). In the context of MSMEs, particularly in the halal sector, understanding digital technology supports improved marketing, operational efficiency, and stronger customer relationships.

Research by Aji (2023) emphasises that digital literacy plays a significant role in enhancing innovation and performance among culinary SMEs in East Java. SMEs with high digital literacy are able to utilise digital platforms for promotion and transactions, as well as leverage customer data for decision-making. Similarly, research by Rakib (2024) in Makassar City found that digital literacy significantly promotes competitive advantage and business existence through business innovation.

Chatterjee et al. (2021) emphasising the significance of integrating social media into digital literacy to aid the advancement of MSMEs in developing nations. Digital literacy is more than just having access to technology; it involves the skill to use technology strategically to enhance value. When SMEs can integrate digital capabilities into their daily business activities, such as digital accounting, e-commerce platforms, and online communication, their financial and market performance tends to improve. Thus, digital literacy has proven to be a key driver in creating efficiency, innovation, and competitive advantage for halal SMEs, thereby significantly influencing their business performance in the era of digital transformation.

H2: Digital literacy has a significant positive effect on business performance in halal MSMEs in Malang City.

2.4. The Influence of Innovation Capabilities on Business Performance

Innovation capability is an organisation's ability to identify, develop, and implement new ideas that result in value-added products, processes, or services. In the context of MSMEs, especially those based on halal, innovation capability is very important for maintaining business sustainability, meeting evolving consumer needs, and adapting to changes in the market environment (Terziovski, 2010).

Research by Tatoi & Senaji (2017) shows that effective innovation management has a direct impact on improving business performance, as innovation enables companies to create product differentiation and process efficiency. Similar findings were reported by Guan & Ma (2003), which identifies seven dimensions of innovation capabilities, including learning, R&D, marketing, and strategy, as key determinants in improving business performance, particularly in the manufacturing and export sectors. Innovation capabilities have been proven to have a positive effect on the performance of MSMEs because the ability to create new products, processes, and strategies drives increased competitiveness, operational efficiency, and customer satisfaction

(Busyeri et al., 2024; Hanaysha et al., 2022; Isfianadewi et al., 2019; Purwati et al., 2021; Widyanti & Mahfudz, 2020).

Within the realm of halal small and medium-sized enterprises, being able to come up with new ideas for halal products, online services, and marketing strategies that adhere to sharia principles is seen as a valuable asset for attracting and retaining customers as well as enhancing profits. Consequently, it is thought that the ability to innovate has a strong correlation with better business outcomes.

H3: Innovation capabilities have a significant positive effect on business performance in halal MSMEs in Malang City.

2.5. The Influence of Intellectual Capital on Innovation Capabilities

Intellectual Capital is vital for boosting innovation in businesses, especially in SMEs. The three core elements of Intellectual Capital- human capital, structural capital, and customer capital- are essential for generating and sharing knowledge crucial for innovation (Bontis, 1998). Dalam konteks UMK halal, pengembangan produk dan proses inovatif sangat tergantung pada kualitas sumber daya manusia, sistem internal, dan relasi eksternal yang terbangun

Research by Cabello-Medina et al. (2011) shows that companies with high levels of intellectual capital are more likely to develop sustainable innovation because they are able to integrate knowledge from various sources. Similarly, research by Inkinen (2015) concludes that quality human capital directly improves a company's ability to generate new ideas and accelerate the innovation process. Intellectual capital has been proven to have a significant positive effect on the innovation capabilities of MSMEs because components such as human capital and structural capital encourage the creation of knowledge, skills, and work systems that support the innovation process (Fajri & Aziz, 2020; Wendra et al., 2019). Thus, it can be concluded that Intellectual Capital is not only a knowledge asset, but also a driving factor in the development of innovation capabilities. Therefore, the higher the management and optimisation of Intellectual Capital in halal MSMEs, the greater their ability to innovate sustainably.

H4: Intellectual capital has a significant positive effect on the innovation capabilities of halal MSMEs in Malang City.

2.6. The Influence of Digital Literacy on Innovation Capabilities

Digital literacy is the ability of individuals or organisations to understand, evaluate, and use digital technology to access and manage information effectively. In the digital economy era, digital literacy is the main foundation for driving innovation capabilities, especially for small businesses such as MSMEs. With good digital literacy, MSME players have access to various sources of information, online collaboration tools, digital marketing systems, and analytical platforms that strengthen the innovation process (Gilster, 1997).

Aji (2023) in his research on culinary MSMEs in East Java shows that digital literacy encourages the creation of new products, creative marketing strategies, and the development of more efficient business processes. Meanwhile, research by Rakib (2024) also shows that improving digital literacy among MSMEs in Makassar has a direct impact on business innovation capabilities through technology adoption and new market exploration. Thus, digital literacy significantly drives innovation capabilities in MSMEs because the ability to access, manage, and optimise digital technology enables businesses to accelerate product innovation and business processes (Jasin et al., 2024; Liaqat & Ullah, 2024; Wulandari et al., 2024). Thus, digital literacy not only supports technology-based business operations, but is also a key driver of innovation capabilities that enable halal MSMEs to remain relevant and competitive in the face of a dynamic business environment.

H5: Digital literacy has a significant positive effect on the innovation capabilities of halal MSMEs in Malang City.

2.7. The Influence of Intellectual Capital on Business Performance Through Innovation Capabilities

In the business world, it has been acknowledged for a while that being innovative is crucial for leveraging internal resources like intellectual capital to improve performance. Intellectual capital, comprising human, structural, and customer capital, serves as the foundation for generating new ideas and gaining a competitive edge through innovation (Bontis, 1998). When intellectual capital is managed optimally, organisations are better prepared to build innovative processes that ultimately improve business performance.

In line with the results of the study (Aljuboori et al., 2021) which shows that there is a clear connection between intellectual capital and the success of a company, especially when innovation plays a role in enhancing competitiveness. For halal MSMEs, leveraging knowledge based on ethics and local culture in product development and digital strategies is crucial for achieving success. As a result, the impact of intellectual capital on business performance is maximised when supported by innovation capabilities.

H6: Intellectual capital indirectly influences business performance through innovation capabilities in halal MSMEs in Malang City.

2.8. The Influence of Digital Literacy on Business Performance Through Innovation Capabilities

In the era of digital transformation, digital literacy not only has a direct impact on business performance but also functions as an enabler in increasing innovation capabilities, which ultimately impacts business performance. High digital literacy enables SMEs to access market information, utilise digital platforms for promotion, automate processes, and establish broader relationships with customers and business partners (Gilster, 1997). However, the impact of digital literacy on business performance is not always direct but rather through the enhancement of innovation capabilities.

Aji (2023) argues that MSMEs with good digital literacy are faster in creating product innovations and digital-based marketing strategies, which ultimately drives revenue growth. Research by Rakib et al. (2024) also shows that improving digital literacy in MSMEs contributes significantly to innovation capabilities, which are the main drivers of competitive advantage and business sustainability.

Next, research by Abuseta et al. (2025) and Ji and Zhuang (2023) reinforcing these findings by stating that digital literacy promotes innovative adaptation capabilities, such as customer service digitisation, the use of business analytics, and the exploration of new business models. Without innovation, the potential of digital technology cannot be fully leveraged to create economic value. Specifically for halal SMEs, digital literacy can expand the reach of product promotion based on sharia values and develop trust-based service innovations. Thus, innovation capabilities serve as a crucial bridge between digital literacy and improved business performance for halal SMEs.

H7: Digital literacy indirectly affects business performance through innovation capabilities in halal MSMEs in Malang City.
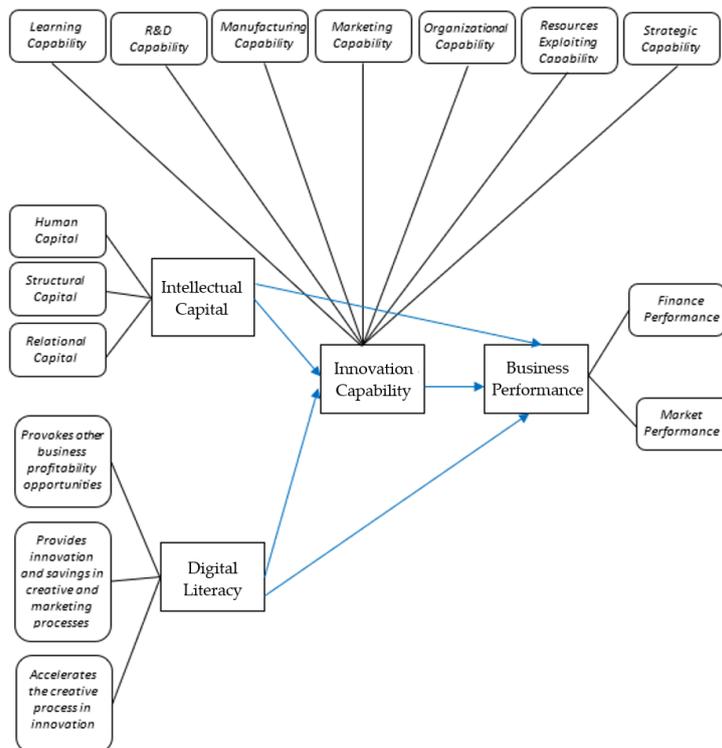

Figure 1. Research Conceptual Framework
Source: Data processed by the author, 2025

3. RESEARCH METHODS

3.1. Research Design

This research is descriptive and explanatory research, using a quantitative approach. In this research design, path analysis is used.

3.2. Population and Sample

This research uses a finite population, which means that the size of the population is known with certainty. The population in this study consists of 520 halal SMEs that have obtained halal certification in Malang City, as stated by the Head of the Cooperative, Industry, and Trade Office of Malang City. Therefore, the population in this study is classified as a finite population. In sampling, the researcher used purposive sampling (Sugiyono, 2021). Based on the sampling technique selected and calculated using a sample size calculator, 222 halal SME respondents in Malang City will be used as the sample for this study.

3.3. Research Instruments

The Likert scale, employed in this study, assesses the viewpoints, beliefs, and perspectives of an individual or a group regarding societal issues (Sugiyono, 2021). Therefore, the Likert scale is effective for gauging the reaction of the general population. The Likert scale allows respondents to select from a scale of options, ranging from strongly agree (5) to strongly disagree (1).

3.4. Data Collection Techniques

The type of data in this study is quantitative, which is research data in the form of numbers obtained from questionnaires.

The data used is primary and secondary data. Primary data is data obtained directly through questionnaires and interviews based on the research objectives with halal SME managers in Malang City. Meanwhile, secondary data is obtained indirectly through journals and books related to the research topic.

3.5. Data Analysis Techniques

This research utilises descriptive statistical methods to outline the spread of information regarding intellectual capital, digital literacy, innovation abilities, and the financial performance of halal MSMEs in Malang City. The data was assessed using a Likert scale with five points and was grouped into categories with a class interval of 0.8 (Sugiyono, 2021). Before the main analysis, classical assumption tests were conducted, including normality and linearity tests. The normality test aimed to ensure that the residuals were normally distributed using a P-P Plot graph (Ghozali, 2018). Linearity testing examines the suitability of the relationship between independent and dependent variables, with a significance criterion of ≥ 0.05 indicating a linear relationship.

The main analysis uses path analysis to measure the direct and indirect effects between variables, with innovation capability as the intervening variable (Ghozali, 2018). Hypothesis testing was conducted using the t-test for partial effects and the F-test for simultaneous effects. The testing criteria were based on tcount > ttable and Fcount > Ftable with significance < 0.05 (Sugiyono, 2017).

4. RESULTS AND DISCUSSION

4.1. Research Results

4.1.1. Classical Assumption Test Results

The classical assumption test used in this study was to determine whether the research had normality and linearity.

A. Normality Test

The researchers employed the normality test to ascertain if the data followed a normal distribution. In this research, the normality test was executed by utilising a PP Plot Regression Standardised Residual chart, which is depicted in the subsequent visual aid:
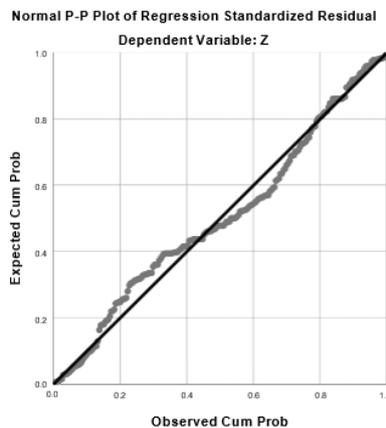
Figure 2. Results of Normality Test for Block I Model
Source: Data processed by researcher, 2025

A normal distribution pattern is evident from the PP Plot displayed in Figure 2, indicating that the normality test for the initial regression analysis involving innovation capability, intellectual capital, and digital literacy as variables results in residual values that are evenly dispersed around the line and align with the diagonal direction.
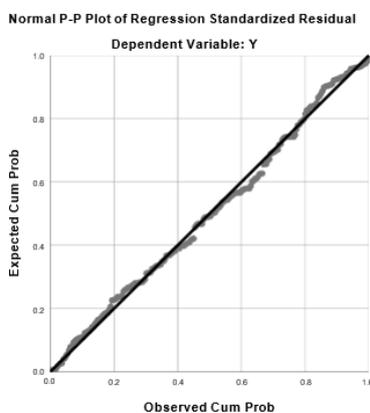

Figure 3. Results of Normality Test for Block II Model
Source: Data processed by researchers, 2025

According to Figure 3, the PP Plot indicates that in the initial regression analysis with business performance as the outcome and independent variables including intellectual capital, digital literacy, and innovation capability, the data exhibits a normal distribution pattern as the residuals are evenly dispersed around the line and align with the diagonal direction.

B. Linearity Test

The purpose of linearity testing is to determine whether the relationship between independent variables and dependent variables is linear or not (Ghozali, 2018).

Table 1 Results of Linearity Test of Block I Model of Innovation Capability Variable on Intellectual Capital

			Sum of Squares	df	Mean Square	F	Sig.
Z * X1	Between Groups	(Combined)	4,706	12	,392	1,920	,034
		Linearity	1,458	1	1,458	7,138	,008
		Deviation from Linearity	3,248	11	,295	1,446	.154
	Within Groups		42,686	209	,204		
	Total		47,392	221			

Source: Data processed by researcher, 2025

The probability for the deviation from linearity value in Table 1, Sig. = 0.154 > 0.05, means that there is no difference in linearity between the innovation capability variable and intellectual capital. This shows that the data for the innovation capability variable and intellectual capital are linear.

Table 2. Results of the Linearity Test of Block I Model of Innovation Capability Variables on Digital Literacy

			Sum of Squares	df	Mean Square	F	Sig,
Z * X2	Between Groups	(Combined)	7,881	14	,563	2,949	,000
		Linearity	3,725	1	3,725	19,517	,000
		Deviation from Linearity	4,156	13	,320	1,675	,068
	Within Groups		39,511	207	,191		
	Total		47,392	221			

Source: Data processed by researcher, 2025

The probability for the deviation from linearity value in Table 2, Sig. = 0.068 > 0.05, means that there is no difference in linearity between the innovation capability variable and digital literacy. This shows that the data for the innovation capability variable and digital literacy are linear.

Table 3. Results of the Linearity Test of Block II Model Business Performance Variables on Intellectual Capital

			Sum of Squares	df	Mean Square	F	Sig,
Y * X1	Between Groups	(Combined)	4,140	12	,345	1,476	,135
		Linearity	2,023	1	2,023	8,658	,004
		Deviation from Linearity	2,116	11	,192	,823	,617
	Within Groups		48,842	209	,234		
	Total		52,981	221			

Source: Data processed by researcher, 2025

The probability for the deviation from linearity value in Table 3, Sig. = 0.617 > 0.05, means that there is no difference in linearity between business performance variables and intellectual capital. This shows that the data for business performance variables and intellectual capital are linear.

Table 4. Results of the Linearity Test of Block II Model of Business Performance Variables on Digital Literacy

			Sum of Squares	df	Mean Square	F	Sig,
Y * X1	Between Groups	(Combined)	8,733	14	,624	2,918	,000
		Linearity	4,244	1	4,244	19,854	,000
		Deviation from Linearity	4,488	13	,345	1,615	,083
	Within Groups		44,249	207	,214		
	Total		52,981	221			

Source: Data processed by researchers, 2025.

The probability for the deviation from linearity value in Table 4. Sig. value = 0.617 > 0.05 means that there is no difference in linearity between business performance variables and digital literacy. This shows that the data for business performance variables and digital literacy are linear.

4.1.2. Path Analysis Results

Path analysis is an analysis used to analyse whether variables have a direct or indirect effect on independent variables with dependent variables. The total coefficient of determination of the data explained by the measurement model using the following formula:

R2m = 1 – P2e1. P2e2

R2m = 1 – (0, 097)2 . (0,113)2

R2m = 1 – (0,009) . (0,013)

R2m = 1 – 0,000117

R2m = 0,999

The results above show that the diversity of data that can be explained by the model is 99.9%. In other words, the analysis model can explain 99.9% of the information contained in the data studied, while 0.1% is explained by other variables outside the scope of this study.
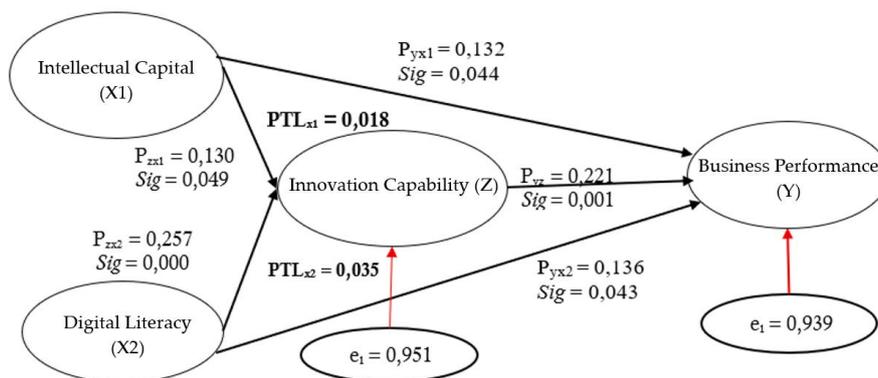

Figure 4. Diagram of the Relationship Between Research Variables
Source: Data processed by researcher, 2025

Description

⟶ : Residual or prediction error

⟶ : Direct influence

PTL : Indirect influence

Table 5. Summary of Calculations of the Influence Between Variables

Relationships Between Variables	Direct Influence	Indirect Influence	Total Influence	Significance Value	Description
X1 → Y	0,132	-	0,097	0,044	H1 accepted
X2 → Y	0,136	-	0,113	0,043	H2 accepted
Z → Y	0,221	-	0,136	0,001	H3 accepted
X1 → Z	0,130	-	0,132	0,049	H4 accepted
X2 → Z	0,257	-	0,221	0,000	H5 accepted
X1 → Y	-	0,018	0,097	0,049	H6 accepted
X2 → Y	-	0,035	0,113	0,000	H7 accepted

Source: Data processed by researchers, 2025

4.2. Discussions

4.2.1. The Influence of Innovation Capabilities on Business Performance

Based on the results of research conducted on halal MSMEs in Malang City, it was found that innovation capabilities have a direct influence on business performance. This can be seen from the descriptive analysis, which shows that the majority of respondents stated that their innovation capabilities had been well applied

in business management. Strong innovation capabilities enable SMEs to respond to market changes, create new products and processes, and develop adaptive strategies to face competition.

This aligns with the findings of a study by Tatoi and Senaji (2017), which stated that effective innovation management directly impacts business performance improvement. Innovation enables companies to create differentiation, improve operational efficiency, and respond more accurately to consumer needs. Guan and Ma (2003) also emphasise that the seven dimensions of innovation capabilities, such as learning, research and development, marketing, and strategy, are key determinants of business performance improvement, particularly in the manufacturing and export sectors.

Researchers' views on the direct influence of innovation capabilities on business performance are that the achievement of optimal business performance is greatly influenced by the ability of SMEs to create and implement innovations in products, services, and business processes. The better the respondents' perception of the innovation capabilities implemented by halal SMEs in Malang City, the higher the potential for achieving sustainable business performance. In the context of halal SMEs, the ability to innovate in accordance with sharia values is a strategic strength for building customer loyalty and increasing business competitiveness amid market dynamics.

4.2.2. The Influence of Intellectual Capital on Innovation Capabilities

Based on the results of research conducted on halal SMEs in Malang City, it was found that Intellectual Capital directly influences innovation capabilities. This can be seen from the descriptive analysis showing that the majority of respondents stated that the intellectual resources possessed by halal SMEs have supported the innovation process in business. Good Intellectual Capital can create innovative capabilities through the quality of human resources, structured work systems, and strong relationships with customers.

This is in line with what Bontis (1998) discovered, indicating that intellectual capital has a strong and positive impact on innovation capability. Human capital, structural capital, and customer capital are integral in developing the knowledge, abilities, and operational processes that drive innovation. Cabello-Medina et al. (2011) further noted that organisations with substantial Intellectual Capital are better equipped to generate long-lasting innovation as they can combine insights from diverse origins. Meanwhile, Inkinen (2015) states that superior human capital directly drives the formation of new ideas and accelerates the innovation process within an organisation.

According to Bontis (1998), it was found that intellectual capital plays a significant role in enhancing innovation capabilities. Human capital, structural capital, and customer capital all contribute to the development of knowledge, skills, and operational systems that fuel innovation. Cabello-Medina et al. (2011) also observed that companies with a strong Intellectual Capital are more capable of producing sustainable innovation by synthesizing various perspectives. The better the respondents' perception of the intellectual capital applied, the higher the innovation capabilities that can be developed by halal SMEs in Malang City.

4.2.3. The Influence of Digital Literacy on Innovation Capabilities

Based on the results of the study conducted on halal SMEs in Malang City, it was found that digital literacy has a direct influence on innovation capabilities. Descriptive analysis shows that the majority of respondents have good capabilities in aspects of digital literacy, ranging from searching for information on the internet (internet searching), navigating online content (hypertextual navigation), to evaluating and assembling knowledge from various sources (content evaluation and knowledge assembly). This reflects that respondents already have digital literacy that supports innovative processes in their business activities.

This is in line with the findings of a study conducted by Gilster (1997), which states that digital literacy is a key skill in understanding, evaluating, and effectively using digital technology to manage information. Digital literacy enables business actors to access a wide range of information sources, use online collaborative tools, and optimise technology in business development. Aji (2023) in his research on culinary MSMEs in East Java shows that digital literacy encourages product innovation, more creative marketing strategies, and efficiency in business processes. Furthermore, Rakib (2024) also found that increasing digital literacy among MSMEs in Makassar has a significant impact on their ability to adopt new technologies and explore broader markets. Other studies by Jasin et al. (2024), Liaqat and Ullah (2024), and Wulandari et al. (2024) further reinforce these findings, stating that digital literacy is a determining factor in enhancing innovation capabilities in the SME sector.

Researchers' opinions on the direct influence of digital literacy on innovation capabilities are that the higher the level of digital literacy possessed by halal SME actors, the greater their opportunities to create innovations in terms of both products and processes. The ability to access, manage, and integrate digital information will strengthen the innovative capacity of business actors in responding to market and technological changes. The better the respondents' perception of digital literacy, the higher the innovation capabilities that can be achieved by halal MSMEs in Malang City.

4.2.4. The Influence of Intellectual Capital on Business Performance Through Innovation Capabilities

Based on the results of research conducted on halal MSMEs in Malang City, it was found that intellectual capital has an indirect influence on business performance through innovation capabilities. This can be seen from the analysis results showing that Intellectual Capital contributes to improved business performance when mediated by innovative capabilities. Descriptive analysis indicates that the majority of respondents rated various Intellectual Capital indicators, such as employee expertise, structured work systems, and good customer relationships, as 'good.' Meanwhile, respondents also gave positive responses to the dimensions of innovation capabilities, such as learning ability, product development, production technology, and adaptive marketing strategies and resource exploitation. These positive ratings indirectly reflect that strong Intellectual Capital enhances innovation capabilities, which ultimately contribute to improved business performance, both financially and in the market.

This aligns with the findings of Bontis (1998), who stated that Intellectual Capital is the foundation of innovative processes that drive organisational competitive advantage. Components such as human capital, structural capital, and customer capital provide the knowledge and skills needed to create and implement new ideas to strengthen business positions. Aljuboori et al. (2021) also found that the influence of Intellectual Capital on company performance becomes stronger when mediated by innovation capabilities, as innovation serves as a strategic bridge connecting intellectual assets with tangible business outcomes. In the context of halal SMEs, the use of local values and innovative business practices further emphasises the importance of literacy and the utilisation of knowledge-based resources.

Researchers believe that intellectual capital has an indirect effect on business performance, meaning that intellectual assets such as employee expertise, internal systems, and customer relationships do not necessarily result in high business performance without the driving force of innovation capabilities. The stronger the innovation capabilities of halal SMEs in utilising Intellectual Capital, the greater the impact on revenue growth, customer loyalty, and business competitiveness in a dynamic market.

4.2.5. The Impact of Digital Literacy on Business Performance Through Innovation Capabilities

Based on the results of a study conducted on halal SMEs in Malang City, it was found that digital literacy does not directly influence business performance but indirectly influences it through innovation capabilities. This can be seen from the analysis results showing that although the digital literacy of SME operators is quite good, it does not directly improve business performance but requires mediation through innovation capabilities first. Descriptive analysis shows that the majority of respondents have a good understanding of the use of digital devices, business management applications, and the utilisation of social media in marketing activities. On the other hand, respondents also gave positive assessments of innovation capability indicators, including the ability to develop new products, respond to market changes, and integrate technology into production and distribution processes. This reflects that high digital literacy is more meaningful when accompanied by the ability to innovate in applying technology to enhance value addition and competitive advantage.

This aligns with the findings of a study conducted by Purwati et al. (2022), which showed that digital literacy has a positive influence on innovation capabilities, and its impact on business performance is only significant through the innovation mediation channel. Digital literacy helps businesses understand and adopt technology effectively, but without innovation, this capability will not maximise business growth. In another study, Riyanto and Putri (2021) emphasise that innovation capabilities play a strategic role as an intermediary between digital skills and business outcomes, as innovation is a key factor in creating products or services that are relevant to market needs. In the context of halal MSMEs, digital literacy is not merely a technical skill, but must be translated into innovation that is in line with sharia values and halal consumer trends.

Researchers' views on the indirect influence of digital literacy on business performance are that the digital skills possessed by business actors must be actualised through an innovative process in order to have a real impact on business outcomes. The higher the level of innovation in utilising digital technology, the greater the potential for halal SMEs to create superior products, expand their market reach, and improve operational efficiency, which in turn impacts revenue growth and business sustainability.

5. CONCLUSIONS

The results of the study indicate that Halal SME actors in Malang City generally have a positive perception of intellectual capital, digital literacy, innovation capabilities, and business performance. Statistically, there is a significant direct influence between intellectual capital, digital literacy, and innovation capabilities on business performance. Additionally, intellectual capital and digital literacy have been proven to influence innovation capabilities, which then act as mediators in strengthening their impact on business performance. This means that to optimally improve business performance, the utilisation of intellectual assets and digital literacy must be directed to support innovation processes within the business. Based on these findings, it is recommended that Halal SMEs continue to develop intellectual capital management and enhance strategic digital literacy to support innovation and data-driven decision-making. Efforts to strengthen innovation culture and adapt to market changes are also key to enhancing business competitiveness sustainably. For future research, it is recommended to use a mixed-method approach and expand the scope of the study to include additional regions and business sectors. Adding variables such as entrepreneurial orientation or technological readiness could enrich the research model and provide a more comprehensive understanding of the dynamics of Halal SMEs.

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