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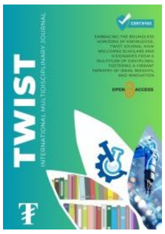

Financial Performance SMEs: The Mediating Effect of Digitalization on Financial Literacy and Accounting Skill

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Abstract

This paper investigates the mediating effect of digitalization on the relationship between financial literacy, accounting skills, and the financial performance of small and medium-sized enterprises (SMEs). The purpose of this study is to explore how digitalization can enhance the financial outcomes of SMEs by leveraging financial literacy and accounting capabilities. Utilizing a quantitative research design, data were collected through questionnaires distributed to 211 small business owners in the Bekasi district of West Java, Indonesia. The analysis was conducted using Structural Equation Modeling - Partial Least Squares (SEM-PLS) to evaluate the relationships between the variables. The findings reveal that both financial literacy and accounting skills significantly influence the digitalization of SMEs, which in turn positively impacts their financial performance. Additionally, digitalization serves as a crucial mediator in enhancing the effects of financial literacy and accounting skills on financial outcomes. These results underscore the importance of integrating digital tools in financial management practices to improve efficiency and profitability. The implications of this study extend to both theory and practice, suggesting that policymakers and business educators should prioritise financial literacy and accounting training while promoting digitalization initiatives among SMEs. This research contributes to the existing literature by highlighting the interconnectedness of financial literacy, accounting skills, and digitalization in driving SME performance, offering valuable insights for future studies and practical applications in the field of small business management.

Keywords

Financial literacy, Accounting skills, Digitalization, Financial performance, Small and medium-sized enterprises (SMEs)

INTRODUCTION

SMEs are the backbone of economies, especially in developing countries, where they contribute significantly to employment and GDP (Munkongsujarit, 2018). SMEs are vital for job creation and economic growth. They represent a significant share of enterprises and employment in both developed and developing countries (Mira et al., 2019). SMEs drive innovation and competition, often more agile and adaptable than larger firms. They contribute to the development of new products and services, fostering economic dynamism (Mari & Poggesi, 2020).

However, SMEs often struggle with limited finance, technology, and skilled labour access. These constraints can hinder their growth and competitiveness (Mer & Virdi, 2024). Entering and competing in international markets can be challenging due to limited resources and capabilities. However, globalisation also presents opportunities for SMEs to expand their reach. Ensure the rationale for the study is compelling and linked to identified gaps (Prasanna et al., 2019). Financial performance is vital for a company's growth and survival, acting as its lifeblood. Insufficient funds or poor performance can lead to financial difficulties, affecting operations and growth potential, while strong financial performance enhances resource control and future performance (Ahinful et al., 2023). Digitalization positively impacts SME performance by enhancing innovation and operational efficiency (Abdallah et al., 2024). SMEs with strong digital skills are better positioned to adapt and thrive in dynamic environments. These skills enable better financial management, risk handling, and access to financial services, which are crucial for the growth and sustainability of SMEs (Culebro-Martínez et al., 2024).

In India, SMEs have adapted to economic reforms by focusing on cost, quality, and human resource development to remain competitive (Sigh et al., 2008). In Thailand, gap analysis and need assessments are used to develop growth roadmaps for SMEs (Munkongsujarit, 2018). In North Kolaka, Indonesia, local government support is crucial for SME development, providing access to capital and markets (Djabbar & Baso, 2019). Despite improvements in perceptions of opportunities and entrepreneurial skills since 2001, South Africa faces a net loss of small businesses due to a significantly lower rate of new business formation compared to closures, highlighting the urgent need for policy measures to address these challenges (Fatoki, 2014). SMEs contribute significantly to innovation, with various programs in place to foster this, especially in the European Union (Mari & Poggesi, 2020).

The emergence of digitalization has significantly changed the business landscape leading to both challenges and opportunities for SMEs (Malhotra & Mishra, 2024). Digitalization significantly improves productivity, efficiency, and customer experience, which are critical for SMEs' growth and competitiveness (Erina & Kunnamkara, 2024). It enables SMEs to expand their market reach, improve customer relationships, and enhance brand visibility on a global scale (Unegbu et al., 2024). Digitalization has become a pivotal factor for the growth and competitiveness of small and medium-sized enterprises.

Long-term studies to assess the sustained impact of digitalization on financial performance over time are limited. How digital platform capabilities, when aligned with network capabilities, positively affect financial performance (Cenamor et al., 2019). Digitalization significantly improves the financial performance of SMEs by increasing productivity and sales without accelerating total costs (Luu et al., 2024). By adopting digital technologies, SMEs can improve efficiency and reduce costs. This includes better data management and operational efficiency, which ultimately enhances financial performance (Garmann-Johnsen et al., 2024). Digital transformation in accounting processes has led to increased efficiency in data management (González et al., 2024).

Digitalization opens up greater access to financial information and resources, such as online lending platforms and digital finance courses. SMEs that have a good understanding of financial literacy are better able to utilise digital technology to manage their finances more efficiently. Financial literacy significantly influences SME's performance by enhancing financial management capabilities and business outcomes (Abdallah et al., 2024). Financial literacy improves corporate performance by alleviating financing constraints and improving risk management (Tian et al., 2022). Financial literacy fosters a better attitude towards financial risks, contributing to SME sustainability (Masdupi et al., 2024). financial literacy enhances financial capability, which in turn improves performance (Appiah & Agblewornu, 2024).

Small and medium-sized enterprises (SMEs) face challenges in financial management due to a lack of training, insufficient collateral, and high intermediation costs, which limit their access to adequate credit. Although initiatives exist to improve access to affordable credit and financial management, it remains unclear if these efforts have led to better financial practices and performance among SMEs (Prisca, 2016). This shows that SMEs that have limitations in financial literacy tend not to have good financial performance. Sometimes they even prioritise sales results over assessing their performance.

In other cases, accounting knowledge is needed by SMEs to support financial performance. The quality of accounting information significantly impacts the financial performance of SMEs. High-quality accounting information enhances access to bank financing and positively affects financial performance (Frimpong et al., 2022). The adoption of management accounting practices, such as cost accounting, budgeting, and key performance indicators, positively influences the financial performance of SMEs (Roffia et al., 2024). However, SMEs often face resource constraints and may lack familiarity with advanced management accounting tools, which can limit their financial performance (Joseph & Piorce, 2019). Informal financing, while sometimes necessary, can negatively impact overall financial performance if not managed properly (Ciza et al., 2025).

The research objective is to analyse the effect of financial literacy and accounting knowledge directly on the performance of SMEs and add digitalization as a mediator. Digitalization improves customer relationships and competitiveness by enabling online selling and digital marketing (Malhotra & Mishra, 2024). It also enhances user experience and market reach, which are critical for SMEs in dynamic economies (Erina & Kunnamkara, 2024). Digitalization significantly enhances SME performance by improving financial outcomes, operational efficiency, and competitiveness. However, SMEs must navigate the challenges and strategically align their digital initiatives to fully realize these benefits.

MATERIALS AND METHODS

Financial Performance SMEs

The resource-based view (RBV) emphasizes a firm's internal strengths as key to achieving competitive advantage. This theory identifies a firm's resources—such as assets, processes, capabilities, and knowledge—as crucial for developing strategies that enhance effectiveness and efficiency. A firm's strategic strength is determined by the resources it controls, categorized into physical, human, and organizational capital resources (Ahinful et al., 2023). Numerous studies outline standardized approaches for evaluating performance by examining how well a reporting entity meets its goals through the economical acquisition of resources and their efficient and effective utilization (Lontchi et al., 2023).

There are various methods to assess financial performance, but all metrics should be considered collectively. Metrics like revenue from operations, operating income, cash flow from operations, and total unit sales can all be utilized (Helmold et al., 2022). Effective accounting record-keeping and financial management are vital for SMEs to make the most of their economic resources and accomplish their business objectives. Since SMEs frequently function in resource-limited settings, efficient financial management is critical for them to attain growth and improve their overall performance (Somathilake & Pathirawasam, 2020).

Financial Literacy

Financial literacy significantly improves the financial management capabilities of SME owners, leading to better business outcomes (Abdallah et al., 2024). Financial literacy enhances the ability to make sound financial decisions, which in turn boosts performance (Appiah & Agblewornu, 2024). Financial literacy helps in alleviating financing constraints and improving risk management, which are crucial for the performance of SMEs (Tian et al., 2022). Financial literacy plays a significant role in enhancing the financial performance of MSMEs, as a higher level of financial literacy leads to improved financial management behavior in the businesses being operated (Yahya et al., 2024). Digital financial literacy is becoming increasingly important in education, especially with the rise of the gig economy (Tan et al., 2025). The convergence of technological and financial literacy is essential for SME performance (Ratmono et al., 2023). It enhances enterprise risk management practices and overall business performance (Kulathunga et al., 2020). Business owners who have good financial literacy will more quickly understand the use of digital finance, such as QR payments (Shehadeh et al., 2024). Financial literacy significantly boosts the use of digital finance, including mobile payments, online borrowing, and online financial products. This effect is more pronounced for more complex digital financial services like online borrowing and financial products (Yang et al., 2023). Improving digital financial literacy contributes to greater financial development, as demonstrated by a significant and time-varying relationship between digital financial literacy and financial development indices (Al-Majali et al., 2024; Kusumawardhani et al., 2024).

H_1: Financial Literacy has a direct positive impact on the Digitalization of SMEs

H_2: Financial Literacy has a direct positive impact on the financial performance of SMEs

Accounting Skill

Accounting skills encompass a variety of abilities, including record keeping, attention to detail, financial management, and reporting. These skills are essential for facilitating informed decision-making, evaluating performance, and ensuring accurate business reporting within any organisation (Nwaigburu & Eneogwe, 2013). Micro and small businesses encounter challenges in their daily transactions, which can result in errors and shortcomings, thereby highlighting the risks associated with internal controls. Accounting literacy, particularly in record keeping, is essential for business success, as it enables informed decision-making and effective financial management. (Roslan et al., 2018). Numerous small businesses successfully handle their bookkeeping using fundamental accounting skills, which play a significant role in their growth and development (Borromeo et al., 2024). Implementing digital accounting systems can significantly reduce costs by automating processes and improving efficiency (Kusumawardhani et al., 2024), thereby minimising manual intervention and errors (Ratmono et al., 2023). Digitalization encourages SMEs to innovate their business models, integrating new technologies to enhance their operations and competitive advantage. Improved management accounting practices often mediate this innovation (Kumarasinghe & Haleem, 2020).

H_3: Accounting Skill has a direct positive impact on the Digitalization of SMEs

H_4: Accounting Skill has a direct positive impact on the financial performance of SMEs

Digitalization of SMEs

The effects of digital transformation are mainly evaluated at the organisational level, serving as a key tool for companies to gain competitive advantages in the digital era. While digital transformation is aimed at improving operational efficiency and reducing costs, and has been shown to enhance specific business processes like services, sales, and supply chains, there is limited research on its impact on operating costs or efficiency at the firm level (Guo & Xu, 2021). Digitalization enhances financial performance by improving productivity, sales, and operational efficiency without significantly increasing costs (Luu et al., 2024). European SMEs experienced increased financial performance during the COVID-19 pandemic due to digitalization, which helped mitigate the negative effects of the pandemic (Savvakis et al., 2024). Improved performance of SMEs with digitalization (Eller et al., 2020). The development of dynamic digital capabilities is essential for SMEs to achieve higher performance (Karadağ et al., 2024). SMEs often face challenges in digitalization due to limited resources and capabilities (Teng et al., 2022; Zhang et al., 2022). SMEs should adopt a capability-based, agile methodology to advance digital services from prototype to practical application (Görzig et al., 2019). Developing a step-by-step guide for digital transformation can help SMEs implement changes efficiently and effectively (Chavez et al., 2020).

H_5: Digitalization of SMEs has a direct positive impact on the financial performance of SMEs

H_6: Digitalization of SME mediate the effect of financial literacy on the financial performance of SMEs

H_7: Digitalization of SME mediate the effect of accounting skill on the financial performance of SMEs

Methodology

The type of research used in this study is quantitative research. This method is used to determine and examine the effect of the digitalization of SMEs as a mediator of the impact of financial literacy and accounting knowledge on the financial performance of SMEs.

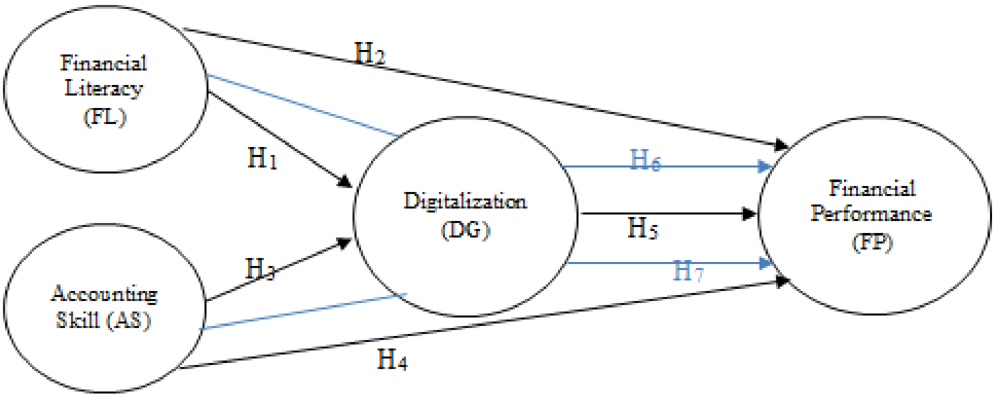

Fig. 1 Research Model

The population in this study were business owners in Bekasi district area, West Java, Indonesia. For determining the sample, we used the accidental sampling method. Sample and data collection in this study used a questionnaire distributed to the SMEs community in the Bekasi district area. From the questionnaire distribution we received 211 small business owner respondents from various types of businesses. This research emphasises the financial performance of SMEs through digitalization and financial capability, and accounting skills.

Indicators of financial literacy encompass the awareness, knowledge, skills, attitudes, and behaviors necessary for an individual to make wise financial choices and ultimately attain personal financial well-being (Dewi et al., 2020; Nurjanah et al., 2024; Yahya et al., 2024). Financial accounting skills are essential foundational skills that enable individuals to confidently and effectively manage daily business transactions (Msomi & Olarewaju, 2021; Pratiwi et al., 2024). Increased awareness of SMEs on the use of digital transformation the importance of digitalization as a critical factor for business growth, efficiency and customer focus (Kumarasinghe & Haleem, 2020; Olsson & Bernhard, 2021). Financial metrics are generally regarded as short-term indicators that are purely based on past performance. Their significance lies in their ability to assess performance across four key areas: efficiency, liquidity, profitability, and capital structure (Matsoso & Benedict, 2016; Yakob et al., 2021).

The measurement scale for the distributed questionnaires uses a Likert scale from '1:strongly disagree to 5: strongly agree'. In the data analysis technique, we conducted descriptive statistical analysis on the questionnaire data of financial literacy, accounting skills, digitalization, and financial performance. In testing the questionnaire data, we processed the data using SEM-PLS (Structural Equation Modelling - Partial Least Squares) (Hair et al., 2017).

RESULTS

The questionnaire that we have distributed to business owners as many as 211 respondents. We processed the questionnaire data by conducting descriptive analysis on general statements and statements on each variable. Based on the results of the questionnaires that have been distributed by length of business, gender, education level, and business income. In length of business explained that the average business owner runs their business between 1-4 years. This indicates that business owners are still in the beginner business category. Business owners are dominated by women as much as 60.2% and men 39.8%. In terms of education level, 66.9% of high school graduates and 23.2% of bachelor's and other graduates. Meanwhile, the average income of business owners is still relatively low at less than 50 million per month. The following description of respondents is attached in Table 1.

For reliability, Cronbach's Alpha can be used. This value reflects the reliability of all indicators in the model. The minimum value is 0.8, while the ideal is 0.8 or 0.9. The results from analysing the reliability of the scales of measurement for the factors financial literacy, accounting skill, digitalization, and financial performance, with all coefficients for Cronbach's alpha greater than 0.7 (Hair et al., 2024). For validity, it can be seen from the Average Variance Extracted

(AVE) value, with a value of more than 0.5 (Henseler et al., 2015). The results of the validity analysis show the AVE value is more than 0.5 (Table 2). That means the analysis data have fulfilled reliability and validity.

Table 1 Description of respondents

Description	Amount	Percentage
Length of business		
1 – 4 years	110	52.1
5 – 10 years	86	40.7
>10 years	15	7.1
Gender		
Female	127	60.2
Male	84	39.8
Graduation		
High Scholl	148	69.8
Diploma	14	6.6
Bachelor and other	49	23.2
Income		
<50 million	156	73.9
50 – 500 million	42	19.9
>500 million	13	6.2

Table 2 Construct Reliability and Validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
AS	0.838	0.840	0.885	0.607
DG	0.877	0.878	0.905	0.576
FL	0.907	0.908	0.927	0.644
FP	0.766	0.771	0.850	0.587

After fulfilling reliability and validity, the next model evaluation includes path coefficient, R^2, dan model fit. Testing model fit is used to determine whether a model.

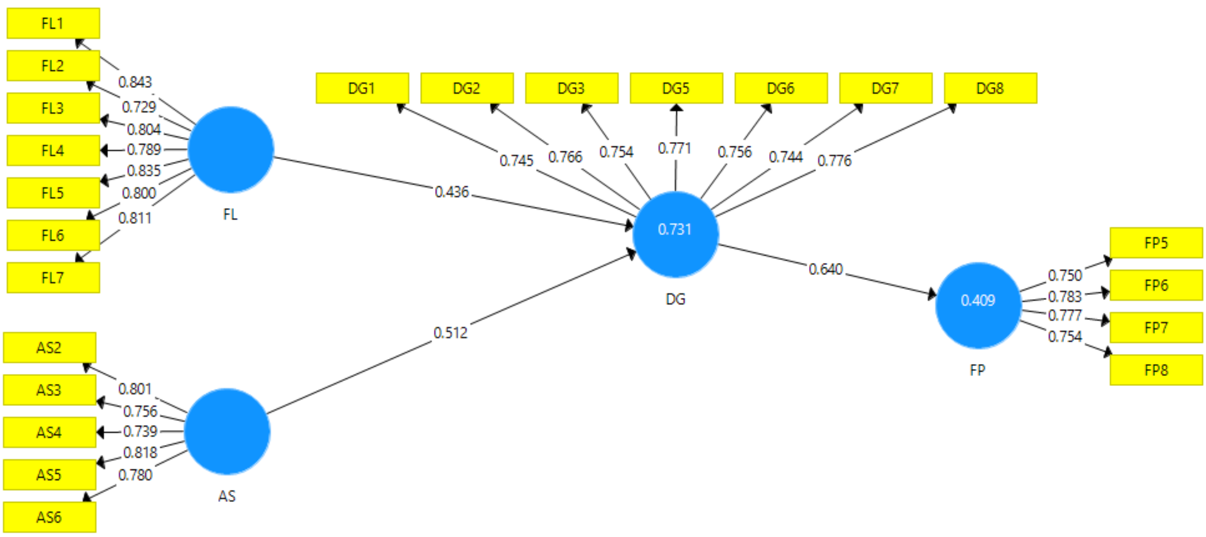

Fig. 2 Data processing results

The results of path analysis in Table 3, show that financial literacy has a value of 0.436 (43.6%), accounting skills 0.512 (51.2%) and digitalization 0.640 (64%) on financial performance. The R² value can be used to assess the effect of endogenous variables and exogenous variables, whether they have a substantive effect.

Table 3 Path Analysis

Path analysis	FP	%
FL	0.436	43.6
AS	0.512	51.2
DG	0.640	64.0

The R² results of 0.67, 0.33, and 0.19 indicate that the models are "good", "moderate", and "weak", respectively (Hair et al., 2019). Based on the R Square test results in Table 4 below, digitalization is influenced by financial literacy and accounting skills by 0.731 (73.1%), classified in the "good" category, while financial performance is influenced by digitalization by 0.409 (40.9%), classified in the "moderate" category.

Table 4 R Square test results

	R Square	R Square Adjusted
DG	0.731	0.729
FP	0.409	0.407

For the fit model refers to the NFI value, the model has a high fit if the NFI value is close to 1. Based on the table above, the NFI value is 0.798, which means that the model fit can be declared good can be seen in table 5 below:

Table 5 Model Fit test results

Model Fit	Saturated Model
NFI	0.798

To determine the structural relationship between latent variables, hypothesis testing must be carried out on the path coefficient between variables by comparing the p-value with alpha (0.005).

Table 6 Hypothesis test results

	T Statistics (|O/STDEV|)	P Values	Conclusion
FL -> DG	3.588	0.000	H_1 Accepted
AS -> DG	4.136	0.000	H_2 Accepted
FL -> FP	3.218	0.001	H_3 Accepted
AS -> FP	3.818	0.000	H_4 Accepted
DG -> FP	9.771	0.000	H_5 Accepted
FL -> DG -> FP	3.218	0.001	H_6 Accepted
AS -> DG -> FP	3.818	0.000	H_7 Accepted

Based on Table 6, it can be explained that the test results for all hypotheses are accepted as evidenced by p-values less than 0.05.

DISCUSSION

Financial literacy in this study has a positive and significant effect on financial performance. SMEs have a good level of financial literacy that supports the achievement of financial performance. Financial literacy refers to an individual's ability to understand and use financial information needed to make informed decisions in financial management. In the context of SMEs, business owners with good financial literacy are likely to make more informed decisions regarding investment, spending and debt management SMEs (Tian et al., 2022). They can analyse financial statements and understand the implications of their decisions, thereby minimising risks and maximising profits. In addition, a good understanding of budgets enables SME owners to plan and manage cash flow more effectively, avoid shortages, and ensure capital is available for day-to-day operations. Financial literacy also helps in debt management, where owners can choose appropriate loan products and avoid excessive debt. As such, SMEs managed by individuals with good financial literacy tend to have higher profitability, better financial stability, and greater growth potential. Improving financial literacy among SME owners is therefore crucial, not only for the sustainability of their businesses, but also for their contribution to overall economic growth (Ratmono et al., 2023).

Financial literacy has a positive and significant influence on the digitalization of Small and Medium Enterprises (SMEs) as business owners who have a good understanding of financial concepts tend to be more open and ready to adopt digital technology in their business management. With high financial literacy, SME owners can understand the benefits of various digital tools and platforms, such as accounting software, inventory management systems, and online payment applications, which can improve operational efficiency and reduce costs (Shehadeh et al., 2024). In addition, financially literate owners are better able to evaluate investments in digital technologies and understand how they can improve their financial performance. They are also more likely to utilise analytical data generated from digital systems to make better and strategic decisions. Thus, financial literacy not only helps SME owners manage their finances but also encourages them to innovate and adapt to technological developments, which is crucial in today's digital age (Al-Majali et al., 2024; Kusumawardhani et al., 2024). Therefore, improving financial literacy among SME owners can be a key step in accelerating the digitalization process, which will ultimately contribute to the growth and sustainability of their businesses.

Accounting skills have a positive and significant influence on the financial performance of Small and Medium Enterprises (SMEs) because good accounting allows business owners to manage and analyse financial information effectively. With adequate accounting skills, SME owners can prepare accurate financial statements, such as balance sheets, income statements, and cash flow statements, which provide a clear picture of the financial condition of their businesses. This information is critical for making informed decisions, such as budget planning, cost management, and determining investment strategies. In addition, good accounting skills help SME owners monitor their financial performance regularly, allowing them to identify problems or opportunities that may arise (Nwaigburu & Eneogwe, 2013). Thus, owners who understand accounting principles can optimise the use of resources, improve operational efficiency, and minimise financial risks. This contributes to increased profitability and financial stability, which in turn promotes business growth. Therefore, the development of accounting capabilities among SME owners is crucial to achieving better and sustainable financial performance (Sanama & Manigo, 2024).

Accounting skills have a positive and significant influence on the digitalization of Small and Medium Enterprises (SMEs), as business owners with good accounting skills are better able to understand and utilise digital technology in their financial management. With adequate accounting skills, SME owners can easily adapt to digitally-based accounting software and financial management systems, which allow them to automate the process of recording transactions, financial reporting, and data analysis (Kusumawardhani et al., 2024). This not only improves operational efficiency, but also reduces the possibility of human error that often occurs in manual record-keeping. In addition, owners who are skilled in accounting can better evaluate and select digital solutions that suit their business needs, thereby maximising the benefits of technology investments. Accounting skills also enable owners to analyse the financial data generated by digital systems, providing deeper insights into business performance and aiding in strategic decision-making. Thus, accounting mastery not only supports the digitisation process but also strengthens the financial foundation of SMEs, which is critical for business growth and sustainability in the increasingly competitive digital era (Kumarasinghe & Haleem, 2020).

Digitalization has a positive and significant influence on the financial performance of small and medium-sized enterprises (SMEs) by increasing operational efficiency, expanding market reach, and improving financial data management. By adopting digital technology, SMEs can automate various business processes, such as transaction recording, inventory management, and customer service, which reduces operational time and costs (Guo & Xu, 2021). In addition, digitalization enables SMEs to leverage e-commerce and social media platforms to reach new customers and increase sales, which in turn can increase revenue. The use of digital analytics tools also provides better insights into customer behaviour and market trends, allowing business owners to make more informed and strategic decisions. In addition, digitalization facilitates better financial management through cloud-based accounting systems that allow owners to monitor cash flow in real-time and generate accurate financial reports with ease (Luu et al., 2024). Thus, digitalization not only improves efficiency and productivity, but also contributes to increased profitability and financial stability of SMEs, making them more competitive in an increasingly digitalised market.

Digitalization acts as a mediator between financial literacy and financial performance of Small and Medium Enterprises (SMEs), by linking good financial literacy with the application of technology that can improve operational efficiency and effectiveness. When SME owners have high financial literacy, they are better able to understand and utilise the various digital tools available to manage their finances. Digitalization allows them to automate accounting processes, monitor cash flow in real-time, and generate accurate financial reports more easily. As such, financially literate owners can make better decisions based on data generated by digital systems, such as cost analyses and revenue projections (Teng et al., 2022; Zhang et al., 2022). In addition, digitalization also expands SMEs' access to a wider market through e-commerce platforms and social media, which can increase sales and revenue. In other words, good financial literacy encourages SME owners to adopt digital technologies, and these technologies, in turn, improve their financial performance. Therefore, digitalization serves not only as a tool, but also as a bridge that connects financial knowledge with better financial outcomes, making SMEs more competitive and sustainable in an increasingly digitalised marketplace.

Digitalization serves as a mediator between accounting skills and the financial performance of small and medium-sized enterprises (SMEs), by linking good accounting skills with the application of technology that can improve efficiency and accuracy in financial management. When SME owners have solid accounting skills, they are better able to understand and utilise accounting software and digital-based financial management systems. Digitalization allows them to automate the process of recording transactions, financial reporting, and data analysis, which not only reduces the risk of human error but also saves time and resources. With digital systems, SME owners can easily generate accurate and timely financial reports, providing better insights into their business performance (Görzig et al., 2019).. In addition, good accounting skills enable owners to analyse the data generated by digital systems, allowing them to make more strategic decisions regarding cost management, investment, and financial planning. Thus, digitalization not only improves operational efficiency but also amplifies the positive impact of accounting capabilities on financial performance, making SMEs more adaptive and competitive in an increasingly complex and technology-driven market (Chavez et al., 2020)..

CONCLUSION

The research results confirm the validity and reliability of the research model, showing that independent and mediating variables positively influence the dependent variable. Financial literacy and accounting skills significantly impact the digitalization of SMEs more than financial performance. Among the variables affecting financial performance, digitalization has the highest impact, followed by accounting skills and financial literacy. Digitalization plays a crucial mediating role in enhancing SME financial performance, suggesting that SMEs should prioritize it to achieve better business outcomes. The findings emphasize the importance of improving financial literacy and accounting skills to support financial performance. However, the study has limitations, including its focus on a single region, which may not represent the broader SME landscape. Future research should expand the geographical scope and include comparative studies to provide a more comprehensive understanding of SMEs in Indonesia.

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DECLARATION OF CONFLICT

We have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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