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“Exploring the link between business intelligence and financial performance in SMES”

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EXPLORING THE LINK BETWEEN BUSINESS INTELLIGENCE AND FINANCIAL PERFORMANCE IN SMEs

Abstract

The utilization of business intelligence has become increasingly crucial for small and medium-sized enterprises (SMEs) to remain competitive amid rapid advancement in information technology and heightened business uncertainty. This study analyzes the influence of business intelligence on the financial performance of SMEs, focusing on the mediating role of financial ambidexterity. Additionally, it examines how financial access, financial availability, and financial information quality enable effective business intelligence adoption. Data were collected from a survey of 233 SME managers in Central Java, Indonesia, conducted between December 2023 and February 2024. Smart PLS 3 was used to analyze the data and test the proposed hypotheses. The findings revealed that business intelligence significantly affects financial performance ($\beta = 0.655$, $p = 0.044$). Furthermore, the indirect effect analysis confirmed that financial ambidexterity plays a crucial role in mediating the relationship between business intelligence and financial performance ($\beta = 0.531$, $p = 0.018$). Additionally, the results confirmed that financial resources positively influence business intelligence implementation, with financial availability ($\beta = 0.243$, $p = 0.000$), financial information quality ($\beta = 0.335$, $p = 0.016$), and financial access ($\beta = 0.768$, $p = 0.025$) all showing significant effects. This study highlights the critical role of business intelligence and financial ambidexterity in enhancing financial performance and underscores the importance of financial resources for successful business intelligence implementation in SMEs.

Keywords

financial resources, business intelligence, financial
ambidexterity, financial performance

JEL Classification

G40, D91, L25, M15

INTRODUCTION

Digitalization is essential for SMEs to enhance efficiency, expand markets, and strengthen customer interactions. Among the tools enabling this transformation, business intelligence has emerged as a key solution for data analysis and decision-making. Once limited to large corporations due to its complexity and cost (Wei & Pardo, 2022), recent advancements have made it accessible and user-friendly for small businesses, addressing resource constraints (Popovič et al., 2019). Reports highlight the increasing adoption of business intelligence by SMEs as it becomes more affordable. For example, Ragazou et al. (2023) emphasize the growing trend of SMEs utilizing business intelligence to enhance decision-making and efficiency. In industries such as retail and hospitality, SMEs leverage business intelligence to understand customer behavior, optimize inventory, enhance operational efficiency, streamline decision-making, and ultimately improve financial performance (Ali et al., 2017; Stjepi, 2021).

Despite its potential benefits, the adoption of business intelligence by SMEs faces significant challenges, particularly in resource-constrained environments. Several studies have explored how SMEs im-

plement business to achieve financial improvements, yet findings remain inconsistent. For example, while some research indicates that business enhances financial performance (Popović et al., 2019), other studies highlight limited or uncertain impacts, especially in SMEs with insufficient financial management capabilities (Bhatiasavi & Naglis, 2018; Ghasemaghahi & Calic, 2020). These findings suggest that factors like the ability to balance financial resources effectively play a critical role in determining the success of business implementation.

This study examines financial ambidexterity as a mediating factor between business intelligence adoption and SME financial performance. Based on the resource-based view (RBV) and dynamic capability theory, financial ambidexterity reflects an organization's ability to balance financial stability – managing liquidity and reserves – with the flexibility to adapt to changes and seize opportunities (Baños-Caballero et al., 2016; Morgan & Pontines, 2017). RBV highlights financial resources as critical competitive advantages (Paradza & Daramola, 2021), while dynamic capability theory explains how SMEs reconfigure resources to thrive in dynamic environments (Khurana et al., 2022). This capability helps SMEs balance short-term stability with long-term adaptability, enabling effective business intelligence utilization for financial improvements.

Additionally, this study examines how key aspects of financial resources – availability, access, and information quality – influence business intelligence implementation in SMEs. The financial availability, financial access, and quality of financial information play a pivotal role in enabling effective business intelligence utilization (Baños-Caballero et al., 2016). However, there are challenges such as limited capital and the inability of SME managers to optimize financial information for strategic decisions (Lateef & Keikhosrokiani, 2023). Given these challenges, exploring how financial resources influence business intelligence implementation is essential to identify actionable strategies for SMEs to overcome resource limitations and unlock the full potential of business intelligence for performance improvement.

1. LITERATURE REVIEW AND HYPOTHESES

Business intelligence is a technological system designed to collect, process, and analyze large datasets into actionable information to support business decision-making. Research indicates that the use of business intelligence enhances operational efficiency, decision-making strategies, and market competitiveness (Chen & Lin, 2021; Salisu et al., 2021). Liu et al. (2022) highlight that effective business intelligence implementation improves financial performance by enabling more accurate and faster data-driven decision-making. Additionally, business intelligence helps businesses respond to dynamic changes in the business environment (Salisu et al., 2021). It can be concluded that business intelligence is a vital tool for enhancing operational efficiency, decision-making, and financial performance, while also enabling businesses to remain competitive and adaptive in a dynamic environment.

The adoption of business intelligence is becoming increasingly important for small businesses

in today's competitive landscape. SMEs adopting business intelligence can integrate their operations into platforms that offer comprehensive solutions for sales management, customer relationships, team scheduling, project management, and overall business outcomes (Edward et al., 2023; Rosa, 2018). This information provides insights that support strategic, tactical, and operational decision-making more effectively (Bhatiasavi & Naglis, 2020; Huang et al., 2022). However, while business intelligence adoption has been widely regarded as beneficial, challenges persist in ensuring its effective implementation within SMEs, particularly under resource constraints. Thus, addressing these challenges is essential to fully leverage the potential of business intelligence in enhancing SME performance.

Previous research has investigated the factors influencing the business intelligence implementation process in small businesses, such as company policies, organizational culture, management support, and engagement (Memon et al., 2020). Furthermore, some researchers have focused on

the impacts of business intelligence implementation, including improvements in operational efficiency, decision-making accuracy, and overall business performance (Ghasemaghaei & Calic, 2020; Wamba-Taguimdje, 2020). However, the impact of business intelligence on SME performance remains inconsistent, with studies showing contradictory findings. For instance, Bhatiasavi and Naglis (2020) found that business intelligence adoption among SMEs in Thailand did not significantly improve financial performance. Similarly, Ghasemaghaei and Calic (2020) observed that managing large volumes of business intelligence data does not necessarily lead to better financial outcomes. They argue that SMEs have limited ability to align business intelligence adoption with effective financial resource management. This inconsistency highlights a gap in understanding why business intelligence adoption does not significantly impact the financial performance of SMEs, warranting further investigation.

In the face of dynamic market conditions, effective financial management becomes essential for small businesses to navigate uncertainties and seize opportunities. This is where financial ambidexterity plays a crucial role, as it reflects a company's ability to maintain financial strategy to market changes (Callegari, 2021; Malki, 2022). Based on dynamic capability theory, financial ambidexterity in this study is conceptualized as an organization's ability to simultaneously manage two different financial dimensions: financial stability and financial flexibility (O'Reilly & Tushman, 2008). Financial stability refers to an organization's ability to maintain a healthy financial balance and avoid risks that could threaten operational continuity (Nguyen, 2021; Valaskova, 2021). This includes maintaining sufficient liquidity, managing debt wisely, and having adequate financial reserves to deal with unexpected situations. On the other hand, financial flexibility includes an organization's ability to adapt to market changes, business opportunities, or economic challenges (Baños-Caballero et al., 2016). This includes the ability to quickly allocate resources to the most strategic areas or take necessary actions to respond to changing situations (Jameson, 2021; Salehi, 2016). This concept is particularly important for SMEs to

balance healthy financial stability with the flexibility needed to face market challenges and seize opportunities (Dolz, 2019; Husien et al., 2020). Business intelligence plays a vital role in reinforcing financial ambidexterity, as the real-time information it generates enables management to make strategic decisions more quickly and accurately (Wamba-Taguimdje, 2020). For instance, Popović et al. (2019) illustrate that faster and more accurate information allows companies to respond more effectively to changes in market conditions or business opportunities, enhancing the flexibility of resource allocation to the most strategic areas. In this study, financial ambidexterity acts as a mediator between business intelligence and financial performance, ensuring that generated information is utilized for strategic decisions that balance the exploration of new opportunities and the management of financial risks (Bhatiasavi & Naglis, 2020; Boronat-Navarro et al., 2021; Hao et al., 2022).

In addition, every company will aggressively seek financial resources to navigate market uncertainty and drive substantial growth, using these resources to support strategic initiatives like business intelligence. In this study, the keys of financial resources are categorized into financial access, financial availability, and financial information quality (Ismail, 2022; Ruggiero, 2018). Financial access refers to an SME's ability to obtain necessary funds and financial services for operation (Cowling, 2018), enabling them to acquire capital for starting or expanding operations (Maharaj & Doorasamy, 2024; Regasa, 2021). Financial availability encompasses the resources within the company, including capital and liquidity, that allow it to meet financial obligations (Owusu, 2019; Pártlová, 2018). Lastly, financial information quality pertains to the availability of accurate, reliable, and relevant financial data, which is essential for informed decision-making (Gonzales & Wareham, 2019). The three key elements of financial resources play a crucial role in the effective utilization of business intelligence in small businesses. Financial access enables businesses to secure the necessary funding to invest in business intelligence tools and technologies, enhancing their operational capabilities (Maharaj & Doorasamy, 2024; Pártlová, 2018; Khan, 2020; Maldonado-

Guzmán, 2022). Financial availability ensures that companies have the liquidity to maintain ongoing business intelligence initiatives and adapt to changing market conditions (Khan, 2020; Maldonado-Guzmán, 2022). Lastly, high-quality financial information is vital for driving informed decision-making, allowing businesses to leverage business intelligence effectively to analyze data, optimize processes, and ultimately improve their financial performance (Gonzales & Wareham, 2019). Therefore, these dimensions collectively determine the effectiveness of small businesses in implementing business intelligence strategies and reaping their associated benefits.

The study aims to examine how financial access, the availability of funds, and the quality of financial information affect the implementation of business intelligence in SMEs. Additionally, this study will explore how financial ambidexterity acts as a mediator linking business intelligence to the financial performance of SMEs in Indonesia. By understanding these dynamics, the study seeks to contribute to the broader discourse on effective financial management strategy within the SME sector. Based on this literature review, the following hypotheses can be formulated:

- H1: Financial access has a significant impact on business intelligence in SMEs.*
- H2: Financial availability has a significant impact on business intelligence in SMEs.*
- H3: Financial information quality has a significant impact on business intelligence in SMEs.*
- H4: Business intelligence has a significant impact on financial performance in SMEs.*
- H5: Business intelligence has a significant impact on financial performance in SMEs.*
- H6: Financial ambidexterity has a significant impact on firm performance in SMEs.*
- H7: Financial ambidexterity mediates the relationship between business intelligence and financial performance in SMEs.*

2. METHODOLOGY

2.1. Participants

This study involves a survey focused on SME owner-managers in Central Java, a province in Indonesia known for its rapid growth in small businesses. Data were collected through questionnaires completed by 290 owner-managers between August and November 2023, engaging a total of 233 SMEs and achieving a commendable response rate of 73.44%. Invaluable assistance was received from the consulting team at CIS Central Java and the Ministry of Cooperatives and SMEs of Indonesia, who facilitated licensing, provided crucial data, and supported communication with the SMEs. Notably, many of the studied SMEs are affiliated with CIS Central Java.

According to the characteristics of the respondents, 71.35% are male, while 28.65% are female. The largest segment of respondents (33.18%) aged under 25 years, followed by the 25-35 years age group (30.23%). The majority of respondents (35%) hold a high school education, and approximately 20% hold a bachelor's degree. The majority of respondents (40%) represent micro-businesses (1-10 employees), with small businesses (11-50 employees) following closely at 35%. Respondents represent various sectors, with the largest proportions from the service sector (35%) and food & beverage sector (35%). Examples of service SMEs include travel agencies, event management companies, and beauty salons. The food & beverage sector includes cafes, restaurants, and catering businesses. The manufacturing sector (14%) features furniture producers and local crafts businesses, while the retail sector (16%) consists of small clothing stores and grocery shops. These businesses often leverage social media, internet platforms, and IT solutions in their operations. In terms of technology adoption, the majority of respondents (45.24%) report a moderate level, followed by a high adoption rate of 25%. About 29.76% of respondents report a low level of technology adoption. The business age distribution is fairly even, with the 6-10 years group having the highest representation (30%), followed by the 1-5 years and 16 years and above groups, each at 25%.

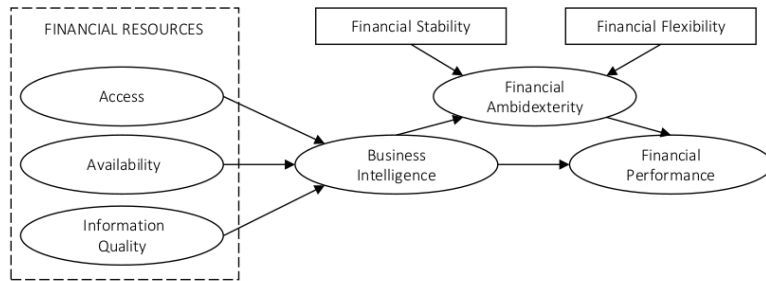


Figure 1. Conceptual model

2.2. Measurement

The variables used in this study employ a self-reported questionnaire with a 5-Likert scale of "strongly agree" to "strongly disagree". The measurement of the business intelligence variable in this research uses the 15-item indicator used by Huang et al. (2022). The financial availability variable referred to the study by Memon et al. (2020) uses 6-item indicators. Financial access and information quality are measured respectively with 5-item indicators modified from research (Ivanich & Kotey, 2006). Next, the measurement of the financial ambidexterity variable was modified from research (Mom et al., 2018) to become a 5-item indicator of financial stability and a 5-item indicator of financial flexibility. The financial performance variable refers to financial performance in this research using the 10-item indicator developed by Huang et al. (2022).

3. RESULTS

This study examines the connection between financial resources and business intelligence, and investigates the mediating effect of financial adaptability in the business intelligence and financial performance relationship. The initial phase involves scrutinizing the measurement model to assess the validity and reliability of constructs, while the subsequent phase entails assessing the structural model to test the relationship between independent and dependent variables within the empirical model. This study employs Smart PLS version

3 to test the hypothesis of the research. This study provides the model fit assessment with an SRMR score of 0.65, less than 0.06 (Hu & Bentler, 1998), and an NFI value of 0.87 is above 0.09 (Bentler & Bonett, 1980). Thus, it can be claimed for a significant model fit.

3.1. Measurement model assessment

The assessment of the measurement model was conducted to test the constructs' validity and reliability (Hair et al., 2017). The indicator construct is valid if the outer loading value of the construct indicator is above 0.7. The results of the analysis show that several business intelligence and financial performance variable items were removed from the research model (BI2, BI7, BI8, BI11, BI14, FP5, and FP7) because the loading factor value was <0.7. Based on testing, the validity and reliability of the variables can be seen in Table 1.

Table 1. Evaluation of loading factor, Cronbach's alpha, composite reliability, and convergent validity

Variables	Constructs	Loading Factor	Mean	SD
Business Intelligence (BI) AVE = 0.812 CR = 0.911 CA = 0.822	BI1	0.740	2,79	0.071
	BI3	0.749	3,07	0.033
	BI4	0.788	3,02	0.046
	BI5	0.712	2,74	0.084
	BI6	0.737	3,41	1.083
	BI9	0.796	2,63	0.055
	BI10	0.701	3,37	0.013
	BI12	0.701	2,62	0.046
	BI13	0.741	3,55	0.017
	BI15	0.787	2,66	0.037

Table 1 (cont.). Evaluation of loading factor, Cronbach's alpha, composite reliability, and convergent validity

Variables	Constructs	Loading Factor	Mean	SD
Financial Performance (FP) AVE = 0.723 CR = 0.856 CA = 0.756	FP1	0.756	3,14	0.015
	FP2	0.754	3,12	0.024
	FP3	0.801	2,77	0.026
	FP4	0.784	3,43	0.035
	FP6	0.759	3,13	0.060
	FP8	0.837	3,2	0.040
	FP9	0.816	3,05	0.040
	FP10	0.766	2,81	0.034
	FS1	0.811	3,26	0.033
	FS2	0.866	2,88	0.071
Financial Stability (FS) AVE = 0.821 CR = 0.923 CA = 0.762	FS3	0.838	3,21	0.078
	FS4	0.731	3,46	0.077
	FS5	0.721	3,3	0.067
	FF1	0.875	3,36	0.040
Financial Flexibility (FF) AVE = 0.753 CR = 0.865 CA = 0.731	FF2	0.788	3,34	0.010
	FF3	0.867	2,62	0.071
	FF4	0.826	2,96	0.019
	FF5	0.882	2,87	1.068
Financial Availability (FA) AVE = 0.675 CR = 0.776 CA = 0.812	FA1	0.850	3,51	0.029
	FA2	0.827	2,63	0.073
	FA3	0.752	3,51	1.017
	FA4	0.835	2,91	0.050
	FA5	0.942	2,64	0.009
	FA6	0.755	2,81	0.048
Financial Information Quality (FI) AVE = 0.852 CR = 0.875 CA = 0.812	FI1	0.703	3,07	0.062
	FI2	0.769	2,95	1.049
	FI3	0.775	2,74	0.072
	FI4	0.877	3,42	0.058
	FI5	0.708	2,73	0.064
Financial Access (FC) AVE = 0.845 CR = 0.902 CA = 0.864	FC1	0.856	3,21	0.038
	FC2	0.845	3,4	0.086
	FC3	0.840	3,15	0.058
	FC4	0.900	2,66	0.021
	FC5	0.754	3,07	1.050

Table 1 shows that based on the criteria set by Henseler et al. (2009), all variables in the research model have met the cut-off value for average variance extracted (AVE > 0.5), composite reliability

ity (CR > 0.8), and Cronbach Alpha (CA > 0.7). Furthermore, Table 2 indicates that the square root of the AVE was greater than the construct inter-correlation with other constructs, which ensures the fulfillment of discriminant validity. This study also conducted validity and reliability tests for second-order constructs. A repeated indicator approach is used to estimate models with higher-order constructs (financial ambidexterity). The result in Table 3 showed that the loading factor value, which indicates the strength of the relationship between the first and higher-order construct, exceeds the minimum limit, namely 0.7. On the other hand, the CR, CA, and AVE values are greater than 0.8, 0.7, and 0.5, which provides an assessment of reliability, convergent validity, and discriminant validity. Thus, the 5-item financial stability indicator and the 5-item financial flexibility indicator, as a whole, can be used to measure the financial ambidexterity variable.

Table 3. Assessment of second-order constructs

Construct	Dimensions	Outer loading	CA	CR	AVE
Financial Ambidexterity	Financial Stability	0.861	0.882	0.878	0.782
	Financial Flexibility	0.903			

3.2. Structural model assessment

The structural model testing in this research (see Table 4) aims to explain the direct and indirect influences between exogenous and endogenous variables. First, this study examines the influence of the financial resources dimension on business intelligence. The research results showed that financial access ($\beta = 0.768$, $p = 0.025$), financial availability ($\beta = 0.243$, $p = 0.000$), and financial information quality ($\beta = 0.335$, $p = 0.016$) have a significant influence on business intelligence,

Table 2. Discriminant validity

Variables	BI	FA	FAC	FAV	FF	FP	FS	IQ
Business Intelligence (BI)	0.699							
Financial Ambidexterity (FA)	0.618	0.773						
Financial Access (FAC)	0.089	0.345	0.830					
Financial Availability (FAV)	0.103	0.307	0.742	0.823				
Financial Flexibility (FF)	0.004	0.483	0.631	0.717	0.848			
Financial Performance (FP)	0.503	0.708	0.108	0.148	0.035	0.775		
Financial Stability (FS)	0.489	0.451	0.097	0.095	0.193	0.602	0.742	
Financial Information Quality (IQ)	0.148	0.077	0.376	0.358	0.356	0.221	0.222	0.667

Table 4. Structural model assessment

Variables	Path Coefficient	SD	t-Statistics	p -Values	Hypothesis
Financial access → Business intelligence	0.768	0.340	2.259	0.025	H1: Supported
Financial availability → Business intelligence	0.243	0.056	4.339	0.000	H2: Supported
Financial information quality → Business intelligence	0.335	0.121	2.768	0.016	H3: Supported
Business intelligence → Financial ambidexterity	0.655	0.323	2.028	0.044	H4: Supported
Business intelligence → Financial performance	0.365	0.111	3.288	0.001	H5: Supported
Financial ambidexterity → Financial performance	0.812	0.239	3.397	0.001	H6: Supported
Specific Indirect Effect					
Business intelligence → Financial Ambidexterity → Financial Performance	0.531	0.223	2.381	0.018	H7: Supported

which means that *H1*, *H2*, and *H3* were supported. Furthermore, the test results show that business intelligence has a significant effect on financial ambidexterity ($\beta = 0.655$, $p = 0.044$) and financial performance ($\beta = 0.365$, $p = 0.001$). Therefore, *H4* and *H5* can be accepted. Financial ambidexterity also displays a significant influence on financial performance ($\beta = 0.812$, $p = 0.001$), supporting *H6*. According to the specific indirect effect, financial ambidexterity has partially mediated the influence of business intelligence on financial performance ($\beta = 0.531$, $p = 0.018$). These results prove that *H7* is accepted.

4. DISCUSSION

The findings of this study illuminate the significant impact of business intelligence on financial performance, with financial ambidexterity serving as a mediating variable. A comprehensive analysis revealed that business intelligence exerts a substantial effect on financial performance ($\beta = 0.655$, p -values = 0.044). Furthermore, the indirect effect test confirmed that financial ambidexterity plays a vital role in mediating the relationship between business intelligence and financial performance ($\beta = 0.531$, p -values = 0.018). This study also delves into the relationship between financial resource dimensions and business intelligence, yielding important results. Specifically, the analysis indicates that financial availability ($\beta = 0.243$, p -values = 0.000), financial information ($\beta = 0.335$, p -values = 0.016), and financial access ($\beta = 0.768$, p -values = 0.025) all positively influence business intelligence.

First, the results affirm that business intelligence implementation has a statistically significant im-

pact on financial performance. In SMEs, business intelligence provides managers with actionable insights to optimize financial outcomes. By leveraging information on customers, market trends, internal operations, and integrated dashboards, SMEs can develop more effective strategies. These findings align with prior studies (Chen, 2021; Huang et al., 2022) that underscore the critical role of business intelligence in enhancing financial performance. business intelligence equips managers with real-time and accurate data that serve as a basis for informed decision-making.

The result reveals that business intelligence is very useful for managers in SMEs to get actual and updated information, which will be used as a basis for decision-making. Additionally, a test of the mediating effect showed that the business intelligence-financial performance connection is mediated by financial ambidexterity. This means that the effectiveness of business intelligence in enhancing financial performance depends significantly on how well managers in small businesses can balance financial stability and flexibility. The results align with past studies (Boronat-Navarro et al., 2021; Husien et al., 2020) that state the use of business intelligence in small businesses has to be accompanied by managerial skills in managing finances, as a form of financial ambidexterity. Financial ambidexterity encompasses both maintaining a solid financial foundation and being agile enough to respond to new opportunities and challenges.

Moreover, the mediating effect of financial ambidexterity illustrates that the effectiveness of business intelligence depends on managers' ability to balance financial stability and flexibility. This aligns with previous research (Boronat-Navarro et

al., 2021; Husien et al., 2020), which emphasizes the need for managerial skills to effectively manage finances in SMEs. Financial ambidexterity involves maintaining a solid financial foundation while remaining agile to seize new opportunities and address challenges. This balance enables SMEs to maximize the benefits of business intelligence in dynamic market environments.

The study also highlights the critical influence of key elements of financial resources on business intelligence implementation. First, financial access plays a significant role, as greater access to external funding enables SMEs to invest in and enhance their business intelligence systems. This is consistent with prior research (Bokpin, 2018; Chu, 2021; Fatoki, 2021), which indicates that financial access facilitates loans with favorable terms, simplifying the process for SMEs to expand their business intelligence infrastructure. Second, financial availability is essential for busi-

ness intelligence development. While many cost-effective business intelligence options exist, adequate financial resources improve implementation efficacy. Previous studies (Becerra-Godínez, 2020; Owusu, 2019) have shown that investments in technology infrastructure and software are often prerequisites for successful business intelligence adoption, emphasizing the importance of sufficient funding in supporting these initiatives. Lastly, financial information quality is critical to successful business intelligence implementation. Accurate and reliable financial data ensure that business intelligence systems provide meaningful insights into a company's financial condition. This finding aligns with previous research (Gonzales & Wareham, 2019) highlighting the importance of accurate, timely information in supporting rapid responses to market changes or operational needs. High-quality financial information enables SMEs to enhance the efficiency and effectiveness of their business intelligence systems.

CONCLUSION

¹² This study aimed to examine the impact of business intelligence on financial performance in SMEs, with financial ambidexterity as a mediating variable. The findings confirm that business intelligence significantly enhances financial performance by equipping managers with actionable insights to optimize operations, adapt to market demands, and develop effective strategies. By utilizing business intelligence, SMEs can make informed decisions based on accurate and timely data, leading to improved financial outcomes. The study also emphasizes the importance of financial ambidexterity in mediating the relationship between business intelligence and financial performance. This suggests that the effectiveness of business intelligence depends on the ability of SME managers to balance financial stability with flexibility. Financial ambidexterity allows SMEs to navigate uncertainties and seize opportunities, enhancing their adaptability in dynamic market environments. In addition, this study highlights the critical role of financial resources in supporting the implementation of business intelligence. Adequate access to funding and the availability of financial resources enables SMEs to invest in business intelligence systems, while high-quality financial information ensures that these systems provide meaningful insights to guide strategic decisions. These elements collectively contribute to the effective adoption of business intelligence.

This study contributes to the theoretical discourse by linking business intelligence, financial ambidexterity, and financial resource dimensions, offering insights into how these elements interact to improve financial performance in SMEs. From a practical perspective, the findings underline the importance of developing managerial skills in financial management, optimizing financial resources, and prioritizing investments in business intelligence. Policymakers and advisors should support initiatives that improve access to funding, promote financial literacy, and encourage the adoption of business intelligence technologies. This study has several limitations that provide avenues for future research. The diverse industries represented in this study may lead to variations in the needs and applications of business intelligence. Future research should focus on a single industry to gain more specific insights. Furthermore, the use of a cross-sectional approach limits the ability to establish causal relationships. A longitudinal design is recommended to better understand the temporal interactions among the variables.

AUTHOR CONTRIBUTIONS

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 Formal Analysis: Irfan Helmy.
 Funding Acquisition: Susanti Widhiastuti, Slamet Ahmadi.
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PAGE 6

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PAGE 9

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PAGE 11

PAGE 12