

Financial literacy as mediating factors affecting the financial performance of MSMEs in digital cities and special economic zones in 3T regions

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Abstract: The Disadvantaged, Frontier, and Outermost (3T) regions are parts of Indonesia that, as a whole, have less developed social, economic, geographical, and cultural conditions compared to other regions throughout Indonesia. The financial performance of Micro, Small, and Medium Enterprises (MSMEs) in the 3T regions needs to be improved so that the sustainability of MSMEs as a contributor to Indonesia's economic growth can be guaranteed. The purpose of this quantitative research is to examine how accounting applications, internal perspectives, external perspectives, marketplace, and financial literacy in MSMEs in 3T areas correlate with each other. In addition, this study also investigates the mediating impact of financial literacy. A survey was conducted on 28 MSME players in North Lembeh Sub-district, Bitung City. For analysis, the SmartPLS statistical analysis technique was also used. This study found that the limitations that exist in the 3T areas make accounting applications, internal perspectives, external perspectives, and marketplaces, both directly and mediated by financial literacy, have no impact on the financial performance of MSMEs.

Keywords: Accounting application, Financial literacy, Financial performance, Management strategy, MSMEs.

1. Introduction

The sustainability of Micro, Small and Medium Enterprises (MSMEs) due to the inability to manage their finances is an important problem faced by MSMEs in Indonesia including in Digital Cities and Special Economic Zones in Disadvantaged, Frontier and Outermost (3T) Areas [1]. Many MSMEs in 3T areas become seasonal MSMEs due to manual financial records and the absence of financial reports so that they cannot measure how well their business is doing. One of the assessments of MSME success is through financial performance [2-4]. Financial performance is a specific measure that can be used to measure how well a business achieves profits and measures the financial position of a company by analyzing financial ratios over time [4-7]. There are differences between the financial performance of large companies and MSMEs due to differences in financial composition [8].

Financial statement components are used to measure the Company's financial performance [4, 9, 10]. The growth of MSMEs in Indonesia is not in line with the awareness of MSMEs to prepare financial reports so that they cannot measure the failure or success and even the sustainability of MSMEs [1, 3, 11-13]. Based on Bank Indonesia data, only 25% of MSMEs get capital opportunities because many MSMEs have not prepared financial reports as a requirement for access to finance from third parties [14]. The initial step to encourage MSMEs to prepare financial reports through financial knowledge and competencies owned by MSMEs or called financial literacy [12, 15, 16]. Financial literacy owned by MSME actors is a major factor affecting the financial performance of MSMEs [17-19]. Considering their very important role in sustaining the growth of the Indonesian economy, MSME players must be equipped with financial literacy skills to face increasingly complex financial challenges

[12, 20]. Especially for MSMEs located in Digital Cities as well as Special Economic Zones in Disadvantaged, Frontier and Outermost (3T) Areas, namely Bitung City.

Government Regulation No. 32/2014 establishes Bitung City as a City with Special Economic Zones and in 2021 it is designated as a Digital City. However, one of the challenges is the use of information technology as a manifestation of the Digital City. Information technology is very influential on financial performance [21]. Information technology will greatly assist MSMEs in preparing financial reports and marketing products [21-25]. Most MSMEs in Indonesia do not understand how to prepare financial statements based on the Financial Accounting Standards for Micro, Small and Medium Entities (SAK EMKM) [26]. Even though financial reports are used to see the success or failure of MSME financial management. The use of information technology in the form of accounting applications will help MSMEs prepare financial reports. Therefore, the government and the private sector create accounting applications to help MSMEs prepare financial reports based on SAK EMKM. There are many accounting applications made by both the government and the private sector, including MS. Excel, Lamikro, Si APIK, [27] Accounting and so on.

Good financial performance is also determined by the owner's ability in three important things, namely serving customer needs, being above the ability of competitors and being within the business capacity owned [4]. This is called the strategic perspective owned by the business owner. The strategic perspective is divided into two, namely the internal and external perspectives of the company. Internal perspectives are strengths from within the organization such as resources that are strong over time, provide open market access both short and medium term, capabilities that are difficult to imitate and special assets that must be owned or improved. The external perspective relates to how the company's external environment affects the company in determining strategies such as market trends and customer needs. Both perspectives affect the financial performance of MSMEs. Through this research, it is hoped that it can produce products that can be utilized by MSMEs and the Bitung City government to improve financial performance in supporting the Bitung City Government to realize Digital Cities and Special Economic Zones in the 3T Region.

Previous studies have discussed digitalization in terms of marketing, strategic management and financial performance of MSMEs [4, 21, 25, 28-30]. However, research on the digitalization of MSMEs in the process of recording or accounting, financial literacy, strategic management and financial performance of MSMEs, especially in Digital Cities and Special Economic Zones in the 3T Region has not been conducted. Thus, this study contributes new work on the digitalization of accounting and strategic management from the lens of MSMEs in the 3T region. First, this research contributes to the accounting digitalization literature of MSMEs which first conceptualizes and tests the use of accounting applications that theoretically provide convenience and usefulness for MSMEs in preparing and analyzing financial statements and ultimately affect financial performance. Second, this research will utilize internal and external perspectives to examine the strategic management process from the perspective of MSMEs in the 3T Region thereby overcoming the limited understanding of the mechanisms that guide strategists in making decisions especially in the context of Indonesian MSMEs.

1.1. Literature Review and Hypothesis Development

The Resource-Based View (RBV) theory is one of the main approaches in strategic management that highlights the importance of a company's internal resources and capabilities as key factors in achieving competitive advantage and superior performance [31, 32]. This theory emphasizes identifying, developing, and managing resources and capabilities that are unique and difficult for competitors to replicate [3, 4, 11, 33]. It highlights the significance of internal resources and capabilities as key factors in achieving sustainable competitive advantage. Small and medium-sized enterprises that possess unique resources, such as specialized expertise, advanced technology, or a well-known brand, can leverage them to improve their financial performance. examines three schools of strategic thought: resource advantage theory, dynamic capabilities, and adaptive marketing capabilities. These schools of thought highlight the need for businesses to continually reinvent themselves in today's fast-paced and highly competitive

global marketplace. These streams add to the ongoing discussion regarding the orientation of strategic focus - inward or outward - and the dynamic versus static nature of strategy. Inward strategic or internal perspective and outward strategic or external perspective. The RBV highlights that the primary source of competitive advantage for a business is its distinct and valuable internal resources and competencies. The internal perspective emphasizes how important it is to leverage these internal assets to maintain competitive advantage [4, 34, 35]. Meanwhile, this viewpoint has come under fire for not taking into account the external market environment, where an outside-in approach or external perspective becomes relevant. To create a successful strategy, businesses must consider competitor and customer data. In the context of *marketplaces*, the utilization of these digital platforms can be considered as technological tools that enhance the ability of MSMEs to manage sales, marketing, and customer service [35-37]. RBV suggests that if the *marketplace* is used efficiently, it can be a valuable, rare, hard-to-imitate, and well-structured resource; all of which can play a role in improving financial performance.

Financial performance can also be supported by the use of accounting applications. The problem often faced by MSMEs is the difficulty in preparing financial reports. With the help of technology, it will make it easier to prepare financial reports. The use of information technology, especially accounting applications, has become an important factor in the financial management of Micro, Small and Medium Enterprises (MSMEs). To understand the impact of accounting applications on the financial performance of MSMEs, the *Technology Acceptance Model* (TAM) proposed by Davis [38] provides a useful theoretical framework. TAM explains the factors that influence the acceptance and use of new technology in an organizational context. According to the Technology Acceptance Theory (TAM), the use of accounting applications by Micro, Small and Medium Enterprises (MSMEs), which is influenced by perceived benefits and ease of use, will have a positive impact on financial performance. Accounting applications allow MSMEs to manage cash flow more efficiently, monitor expenses and income in *real-time*, and make better financial decisions. Studies conducted by Beranová and Polák [39] found that firms that regularly use accounting applications report improvements in profitability, operational efficiency, and compliance with financial regulations.

1.2. Hypothesis

H₁: accounting applications have a positive effect on the financial performance of MSMEs

The use of accounting applications has a positive impact on the financial performance of MSMEs. Accounting applications can improve financial management by presenting accurate and timely financial reports, as well as making it easier to monitor cash flow and expenses [22]. Based on the Technology Acceptance Theory (TAM) proposed by , there are two main factors that influence technology acceptance, namely views on usefulness and ease of use. View of usefulness refers to the extent to which users believe that the technology will improve their performance, while view of ease of use relates to the extent to which users find the technology easy to use. This hypothesis will investigate the impact of these two factors on the financial performance of MSMEs. The use of accounting software can improve financial management by providing accurate and timely financial reports, as well as making it easier to monitor cash flow and expenses. Research by Hertati, et al. [40] shows that the implementation of accounting software in MSMEs in Indonesia contributes to increased operational efficiency and better financial decision-making. Therefore, it is expected that the utilization of accounting applications will improve the financial performance of MSMEs through more structured and precise financial management.

H₂: internal perspective has a positive effect on the financial performance of MSMEs

The internal perspective in strategic management highlights the importance of an organization's internal resources and capabilities in achieving competitive advantage and superior financial performance [4, 31]. This perspective is focused on developing and utilizing the resources owned by the firm to create value and achieve business objectives. In the context of Micro, Small and Medium Enterprises (MSMEs), the internal perspective can provide insight into how internal factors, such as managerial capabilities and unique resources, impact financial performance. The Resource-Based View

(RBV) theory proposed by Barney [41] is the main foundation of the internal perspective. The RBV states that lasting competitive advantage is gained through the ownership and management of valuable, rare, difficult-to-imitate, and irreplaceable resources. These resources include physical assets, managerial skills, technological know-how, and corporate reputation. According to RBV, firms that possess valuable, rare, difficult to imitate, and irreplaceable resources are able to achieve better financial performance than their competitors.

H₃: External perspectives have a positive effect on the financial performance of MSMEs.

The external perspective in business management focuses on external elements such as consumer needs, market trends, and competitive dynamics to influence the company's decision-making and operations [4, 42]. Within the framework of the Resource-Based View (RBV) theory, which highlights the importance of internal resources as the foundation of competitive advantage, the external perspective provides an approach to combine outside influences with internal capabilities. In this situation, the external perspective strengthens the RBV by using external data to improve the utilization of internal resources. MSMEs that have the ability to collect and analyze feedback from customers can turn that information into unique product innovations. In addition, MSMEs equipped with strong analytical resources are able to understand market trends, forecast changes, and analyze and respond to competitors' strategies. Innovation driven by external insights from customers and markets can be key in creating relevant and superior products and services. External perspectives on financial performance have varied impacts. First, the provision of products and services that better meet consumer needs can increase sales and market share. Second, satisfied consumers tend to remain loyal, providing stable revenue. Third, an understanding of market trends can assist companies in optimizing operations and reducing unnecessary expenses. Fourth, awareness of external risks allows companies to plan for and mitigate financial losses. Fifth, an understanding of market dynamics can strengthen competitive positions and increase profitability. Thus, combining the external perspective with RBV theory can improve the financial performance of MSMEs by ensuring that strategies are based on a deep understanding of market and customer needs, and efficiently utilize unique internal resources. MSMEs that successfully implement this approach can achieve sustainable growth, higher profitability and a resilient competitive advantage [4, 42, 43].

H₄: Marketplace and financial performance

An online platform, such as a marketplace, is a place in cyberspace that connects people who sell and buy to conduct transactions [29, 37, 44]. In today's digital age, online marketplaces have become an important part of many companies' business strategies. To understand the effect of marketplaces on the financial performance of a company, it is important to view it through the perspective of Resource-Based View (RBV) Theory, which emphasizes the importance of internal resources as the basis for competitive advantage. These resources can be physical assets, intellectual assets, technological capabilities or managerial capabilities. Marketplaces can strengthen a company's financial position through several mechanisms in accordance with RBV principles, such as access to extensive customers, operational efficiency, data analysis and market insight and product innovation. In this case, the ability to manage large and complex customer relationships, efficient utilization of technology and processes as well as strong analytical capabilities and the ability to innovate continuously are considered as important resources. The impact on financial performance includes revenue growth cost savings better risk management and competitive advantage. Study by Shahriar Ferdous, et al. [45] who found that advances in digital technology and the use of online trading platforms contribute to improved financial performance of firms through increased operational efficiency and access to new markets; Hunt and Madhavaram [35] who showed that the utilization of data from online trading platforms enables firms to segment markets more effectively; Gorton, et al. [37] who noted that companies that innovate products and services based on customer feedback on online commerce platforms experience significant revenue growth; Shahriar Ferdous, et al. [45] which found that the integration of technology and analytics capabilities in online commerce platforms improved operational efficiency as well as profitability; and Puspitasari, et al. [44] who identified that the use of online commerce platforms helps

companies diversify their markets and reduce business risks. Thus, the alignment of online trading platforms with RBV theory confirms that firms can improve their financial performance by leveraging strong internal resources and digital platforms to gain broad market access, improve operational efficiency, and drive innovation on an ongoing basis.

Financial Literacy as the mediating relationship of accounting application, internal perspective, external perspective, and financial performance

Financial literacy is a term that refers to financial management knowledge and skills, which is an important asset that helps businesses grow [12, 19, 46]. Businesses that have expertise in financial management tend to make better financial choices and commit fewer management mistakes than businesses that lack financial expertise. In the business world, financial literacy plays an important role in making strategic decisions that affect the financial performance of a company. The importance of financial literacy is increasing with the development of technology and digitalization, which encourages companies to adopt accounting applications and online trading platforms as part of their strategy. Financial literacy can act as a link between accounting applications, online trading platforms, internal and external perspectives, and the financial performance of a company. Accounting apps, as one of the valuable technological tools, help companies in managing financial information efficiently. Financial knowledge enables users to make maximum use of accounting applications to analyze finances and make informed decisions [47]. Thus, effective use of accounting applications can improve the accuracy of financial reports and transparency, which has a positive impact on the financial performance of the company.

The internal perspective in RBV focuses on the management capabilities, technology, and innovation owned by the company. Improving financial literacy can improve managerial capabilities in managing internal resources and planning finances effectively. By better managing internal resources through financial literacy, operational efficiency and profitability can be improved. Therefore, financial literacy is a key factor in optimizing the internal capabilities of the company to achieve better financial performance. The outside perspective in RBV highlights the importance of adaptation to the external environment, including market trends and customer needs. Understanding financial literacy helps companies analyze and anticipate external changes in depth. The ability to adapt to the external environment supported by financial literacy can improve a firm's competitiveness and financial performance. Thus, financial literacy enables companies to respond to market dynamics more quickly and accurately. The marketplace is an external resource that provides opportunities to access markets and customers more broadly. In this situation, financial literacy helps companies interpret financial information derived from transactions in the marketplace, enabling them to improve their marketing and sales strategies. With wider market access and better analysis of financial data through financial literacy, it can increase a company's revenue and profitability. Therefore, financial insights play a crucial role in gaining maximum benefits from utilizing the marketplace.

H₅, H₆, H₇, H₈: Financial literacy mediates the effect of accounting applications, internal perspective, external perspective, marketplace on financial performance.

2. Methods

2.1. Measurement Scale

Accounting application is measured by 7 question items from Abu-Taieh, et al. [2]; Menon and Shilpa [48]; Abdalla [49] and Tusyanah, et al. [50]. Four components, derived from Nguyen, et al. [4] and Meyer [51] are used to measure internal and external perspectives. In this study, three items modified from Puspitasari, et al. [44] and Cano, et al. [52] were used to measure internal and external perspectives were used to assess the marketplace. For financial literacy, this study used six components from Rahmawati, et al. [19]. On the other hand, four items modified from were used to assess the financial performance of MSMEs [4]. Table 2 shows all items rated on a five-point Likert scale, ranging from "strongly disagree" to "strongly agree".

2.2. Data Collection and Samples

This research was conducted on MSMEs in North Lembeh District, Bitung City as a Digital City which is an area in underdeveloped, frontier and outermost (3T) areas and has a Special Economic Zone (SEZ). The data source for this research is primary data which is directly taken from MSMEs in Bitung City. The population of this research is all MSMEs in North Lembeh District, Bitung City which are registered in North Lembeh District. Because the number of MSMEs is below 30, namely 28, the population is the same as the research sample. The questionnaire items were taken from previous research and modified according to the needs of the research object.

Table 1.
Descriptive Statistics.

Index	Total	Presentation
Education		
HIGH SCHOOL	11	39
S1	17	61
Age		
17-20	0	
21-30	7	25
31-40	12	43
41-50	8	28
>51	1	4
Length of time running the business		
< 1 Year	7	25
2-5 Years	16	57
6-10 Years	3	11
>11 Years	2	7

Table 2.
Variable description and convergent validity.

Variables	Item	Decrypt	Loading Factor	References
Accounting application	AA1	The price of the application is affordable so that it does not interfere with the financial performance of my business	0.859	Abu-Taieh, et al. [2]; Menon and Shilpa [48]; Abdalla [49] and Tusyanah, et al. [50]
	AA2	The performance of the accounting application that I use can help in calculating the financial performance of my business	0.855	
	AA3	The accounting application I use is stable	0.845	
	AA4	The accounting application I use is flexible enough	0.815	
	AA5	Easy to use the accounting application that I use	0.804	
	AA6	The accounting application I use is to my liking	0.816	
	AA7	Easy to communicate with the vendor of the accounting application I use	0.774	
Internal Perspective	PI1	Through my business's current capabilities and core technologies, I can increase my business capital	0.928	Nguyen, et al. [4] and Meyer [51]
	PI2	I run my business according to my core capabilities and sales continue to increase.	0.937	
	PI3	The starting point of all strategies is my	0.882	

		business-specific skills.		
	PI4	My business focuses on market opportunities that are closest to its core competencies.	0.805	
External Perspective	PE1	If my business takes advantage of market opportunities, my business can always expand competencies and appropriate technologies.	0.951	Nguyen, et al. [4] and Meyer [51]
	PE2	My business should pursue the best market opportunities, not necessarily the ones that I can afford. closest to the current business competencies.	0.918	
	PE3	I believe that focusing only on the core competencies of my business can slow down its capabilities. to capture market opportunities quickly.	0.899	
	PE4	My business is always ready to acquire resources after pursuing market opportunities	0.929	
Marketplace	M1	Using marketplaces minimizes marketing costs	0.969	Puspitasari, et al. [44] and Cano, et al. [52]
	M2	Through the marketplace that I use promotional activities become easier	0.979	
	M3	Using a marketplace increases sales outside my place of business	0.966	
Financial Literacy	LK1	I understand the importance of preparing financial reports	0.931	Rahmawati, et al. [19]
	LK2	I understand how to prepare financial statements	0.957	
	LK3	I understand how to calculate the rate of return on capital	0.955	
	LK4	I understand how to calculate return on sales	0.950	
	LK5	I understand how to calculate the rate of return on assets	0.963	
	LK6	I understand how to calculate the rate of return on investment	0.893	
Financial Performance	KK1	My rate of return on capital has increased	0.900	Nguyen, et al. [4]
	KK2	Return on sales of my business increased	0.915	
	KK3	Return on my business assets increased	0.862	
	KK4	Return on my business investment is increasing	0.911	

2.3. Validity and Reliability

The data collection technique for this research was through a questionnaire distributed to MSMEs which became the research sample. The questionnaire was prepared in the form of a *google* form to facilitate distribution and filling. The data obtained from the questionnaire was analyzed with the Partial Least Square Structural Equatuin Model (PLS-SEM) analysis tool with the help of Smart PLS software version 3.0.0. The type of PLS SEM used is covariance based (CB-SEM) because it is to confirm the existing theory. The analysis process of this research goes through several stages starting

from the outer model test to the inner model. In the outer model, convergent validity is used to evaluate the correlation between indicators or measures and their constructs. This can be done by assessing the outer loading or loading factor and average variance extracted (AVE). This study uses *loading factors* to determine convergent validity. The loading factor value must be greater than 0.7 to indicate a positive relationship between the measure and the structure and the *loading factor* value of the variable indicators of this study is above 0.70 as shown in table 2. In addition to convergent validity, it is necessary to ensure discriminant validity which confirms that the constructs measured in the model are truly different from each other. In PLS, discriminant validity is often tested using several approaches, such as the Fornell-Larcker Criteria and Cross Loadings. This study uses the Fornell-Larcker criterion, namely the AVE root value must be greater than the correlation between constructs and other constructs. The results of this study's discriminant validity test can be seen in table 3 which shows that the AVE root value of each construct is greater than the correlation between constructs and other constructs. Furthermore, internal consistency is used to measure reliability at the construct level. This is measured by a combination of composite reliability and Cronbach's alpha. The combined value of composite reliability and Cronbach's alpha of this study is greater than 0.7, which means the constructs are reliable. The results of the reliability test are shown in table 4.

Table 3.
Fornell-Larcker Discriminant Validity Test Results.

	Accounting Application	External Perspectives	Financial Literacy	Financial Performance	Internal Perspectives	Marketplace
Accounting Application	0.824					
External Perspectives	0.758	0.925				
Financial Literacy	0.794	0.725	0.942			
Financial Performance	0.746	0.867	0.742	0.897		
Internal Perspectives	0.713	0.792	0.693	0.876	0.890	
Marketplace	0.732	0.776	0.579	0.817	0.806	0.971

Table 4.
Reliability Test Results.

	Cronbach's Alpha	Composite Reliability
Accounting Application	0.922	0.937
External Perspectives	0.943	0.959
Financial Literacy	0.974	0.979
Financial Performance	0.919	0.943
Internal Perspectives	0.913	0.938
Marketplace	0.970	0.980

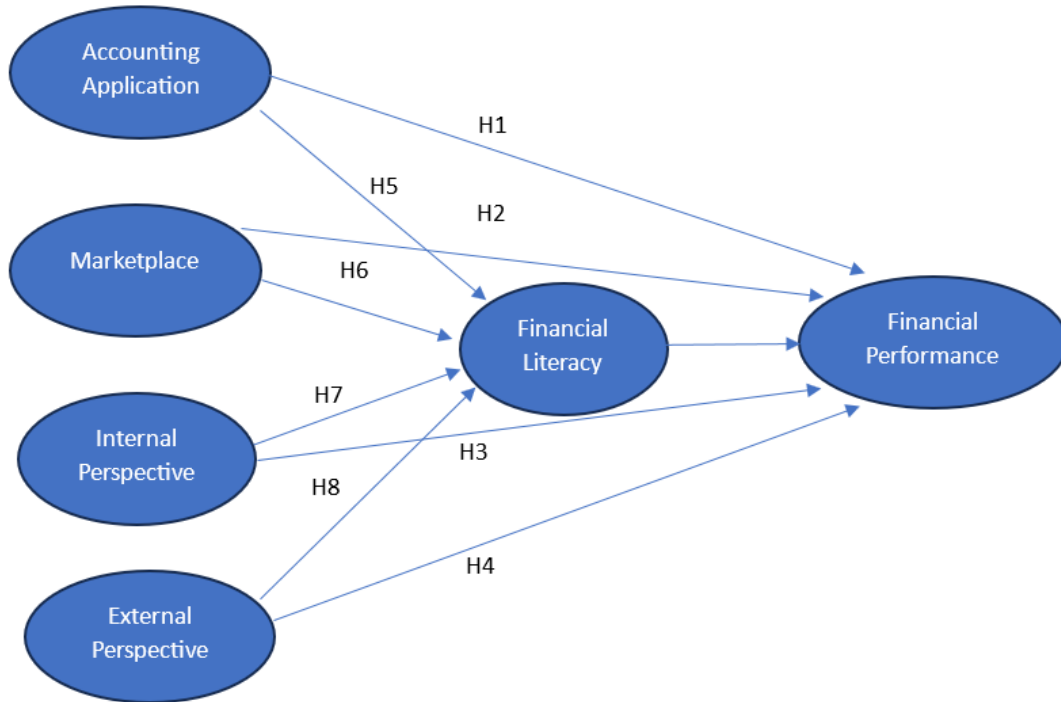


Figure 1.
Research Model

3. Results and Discussion

Inner model testing is used to test the direct influence of variables on the model. The results of testing the inner model consist of the R square test and hypothesis.

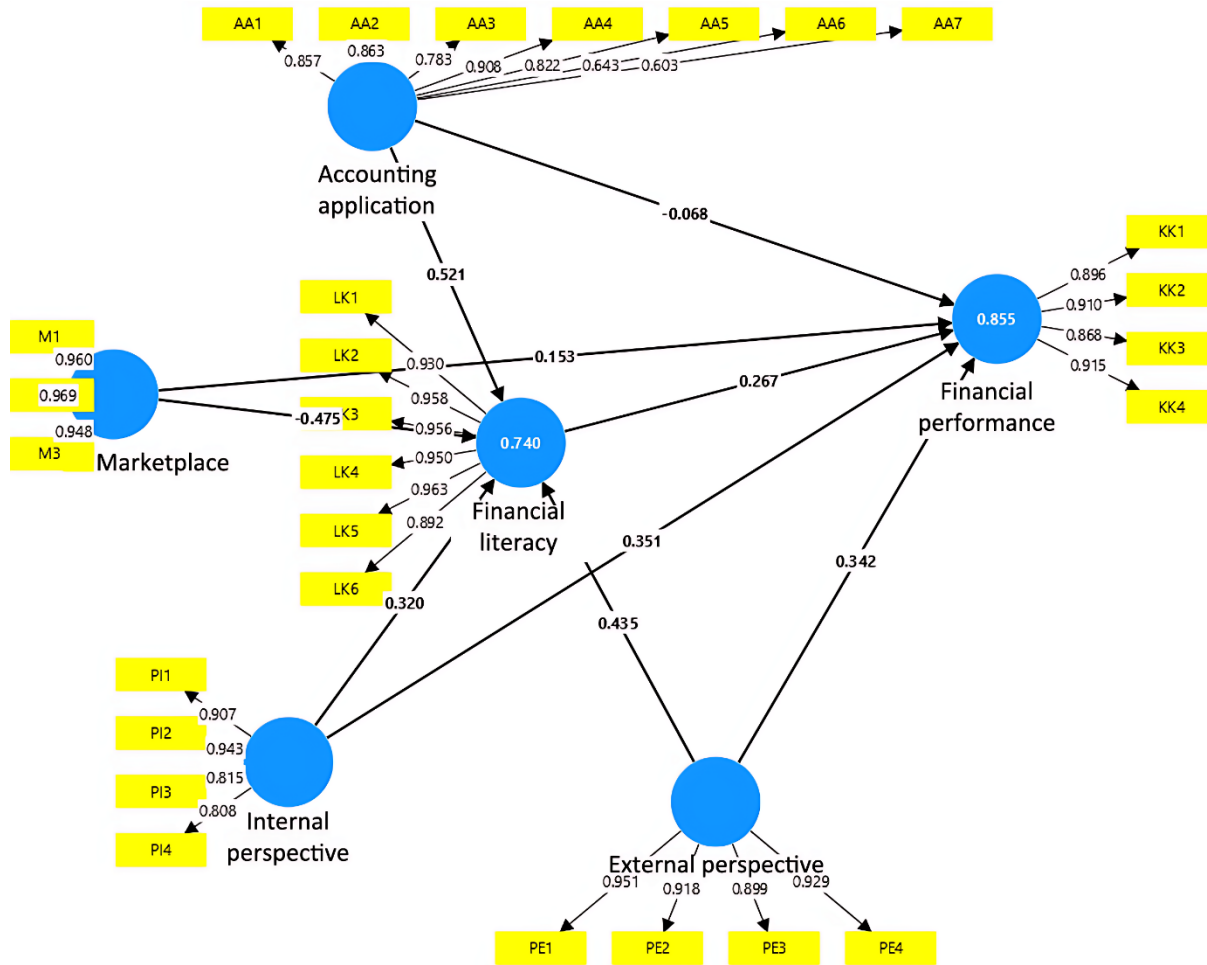


Figure 2.
Empirical Result.

Table 5.
R Square Test Results.

	R Square	R Square Adjusted
Financial Literacy	0.704	0.653
Financial Performance	0.864	0.834

Table 5 shows that the r square adjusted value of the financial literacy variable is 0.653, which means that the internal perspective, external perspective, accounting application and marketplace variables are able to explain the financial literacy variable and the model is considered moderate. For the r square adjusted value of the financial performance variable in Table 5 is 0.834, indicating that the internal perspective, external perspective, accounting application, marketplace and financial literacy variables are able to explain financial performance and it is concluded that the model is considered strong.

Table 6.
Hypothesis Testing Results.

	Path coefficient	T statistics	P Values	Hypothesis
Accounting Application -> Financial Performance	0.101	0.690	0.490	Not Supported
External Perspectives -> Financial Performance	0.047	0.533	0.594	Not Supported
Internal Perspectives -> Financial Performance	0.050	0.579	0.562	Not Supported
Marketplace -> Financial Performance	-0.054	0.601	0.548	Not Supported
Accounting Application -> Financial Literacy -> Financial Performance	0.101	0.690	0.490	Not Supported
External Perspectives -> Financial Literacy -> Financial Performance	0.047	0.533	0.594	Not Supported
Internal Perspectives -> Financial Literacy -> Financial Performance	0.050	0.579	0.562	Not Supported
Marketplace -> Financial Literacy -> Financial Performance	-0.054	0.601	0.548	Not Supported

This study uses TAM and RBV to examine the relationship between accounting applications, internal perspective, external perspective, *marketplace*, and financial performance of MSMEs. We found that accounting applications, internal perspectives, external perspectives and marketplaces neither directly nor mediated by financial literacy positively affect the financial performance of MSMEs (see Table 6). Factors such as lack of training, incompatibility with existing business processes, resistance to change, and low level of financial knowledge are often the main reasons why accounting applications do not deliver results as expected. This study assessed the use of accounting applications in various MSMEs and found that while the applications could improve operational efficiency, their impact on financial performance was not stable. Most MSMEs face difficulties in combining accounting applications with existing business processes, so the benefits are not fully realized. According to the diffusion of innovation theory introduced by Rogers, et al. [53] the acceptance of new technologies such as accounting applications is influenced by perceptions of relative usefulness, level of complexity, and fit with existing values. If users feel that accounting applications are too complex or do not fit their business needs, they are unlikely to adopt the technology thoroughly, which may ultimately affect their financial performance. Failure to fully integrate accounting applications into daily operations can reduce their effectiveness. As research Li, et al. [54] who found that digital transformation did not have a significant impact on the performance of manufacturing companies in China. This suggests that the performance of manufacturing companies will fall after the initial investment in information technology development. In addition, the lack of training and user understanding of the application causes the available features not to be fully utilized. Although accounting applications can assist in financial management, not all MSMEs experience improved financial performance after adopting this technology. Many MSME owners feel pressured by the cost and time required to implement and learn accounting applications.

While the internal perspective concept promises the potential to improve the financial performance of MSMEs through efficient management of internal resources, in reality, many MSMEs face significant challenges. Constraints such as limited resources, lack of dynamic capabilities, and inadequate external support are often barriers to implementing this strategy effectively. Therefore, a holistic approach and adequate support are required for internal resources to be optimally utilized to improve the financial performance of MSMEs. MSMEs often experience limitations in terms of financial resources, labor, and technology. These limitations may hinder the ability of MSMEs to develop and utilize internal resources effectively. Research conducted by Dejardin, et al. [55] shows that many MSMEs lack sufficient resources to fully utilize dynamic capabilities, so the positive impact of internal resources on financial performance is not always significant.

The external perspective in the theory emphasizes on how companies can gain competitive advantage by adjusting to the external environment. This approach involves a deep understanding of

markets, consumers and competitors, and adjusting strategies to meet changing market demands. MSMEs are often limited in effectively utilizing external market opportunities due to limited resources. Even when information about markets and competitors is readily available, small businesses may not have the ability to adjust their strategies quickly and efficiently. According to research Wiklund and Shepherd [56] resource limitations can hinder the ability of MSMEs to respond to changes in the external environment. Many MSMEs focus more on developing internal capabilities and day-to-day operations rather than analyzing and responding to external market changes. Research by Ginsberg and Venkatraman [57] shows that firms that focus more on internal development tend to be less responsive to external market dynamics, which can reduce the impact of an outside-in perspective on financial performance. Unstable and uncertain markets can make the external perspective less effective. Market uncertainty can make prediction and planning difficult, thus reducing the potential impact of strategies that focus on the external environment. According to research by Miller and Friesen [58] firms operating in highly uncertain environments may find that an external entry strategy does not always result in the desired financial performance. MSMEs may not have enough access or skills to effectively analyze market information. Limitations in market data collection and analysis could be an obstacle for them in designing effective strategies from an outside-in perspective. Day and Wensley [59] highlights that the ability to use market information is key to success from an external perspective, yet many SMEs do not have the necessary resources or expertise to conduct in-depth market analysis.

A marketplace platform is a place in cyberspace that connects merchants and consumers, facilitating online transactions. According to the marketing concept, marketplace platforms are expected to expand market coverage and increase sales volume. However, the success of marketplace platforms is greatly influenced by various factors, including the ability of MSME players to make the most of these platforms. Many MSMEs experience difficulties in implementing digital technology effectively. Lack of understanding about digital literacy and limited human resources in managing digital platforms are the main obstacles in utilizing online marketplaces to improve financial performance. The use of marketplace platforms often carries substantial fees and commissions. These costs can reduce the profit margins of micro, small and medium enterprises (MSMEs), so even though sales increase, financial performance in general does not always show improvement. Success in the marketplace is heavily influenced by external factors such as changes in platform policies, ever-changing consumer preferences, and the overall economic situation. This dependency can create uncertainty and fluctuations in MSME revenue.

Financial literacy refers to a person's ability to understand and apply financial information to make effective decisions. In the context of MSMEs, financial proficiency is expected to strengthen the link between the use of accounting applications, internal perspectives, external perspectives, and marketplaces with financial performance. Many MSMEs in developing countries have a low level of understanding of financial matters. This condition limits their ability to use financial information generated by accounting applications and apply views from both internal and external perspectives. According to a study conducted by Lusardi and Mitchell [60] the lack of understanding of financial matters is one of the main obstacles in making effective financial decisions. Financial information generated by accounting tools is often complex and difficult to understand by MSME owners who do not have a financial background. Study conducted by Huston [61] shows that despite the availability of financial technology, the ability to understand and use such information is still a challenge for many small and medium enterprises. The internal perspective emphasizes the importance of internal capabilities in achieving competitive advantage. However, limited financial literacy may limit managerial ability to develop and implement strategies based on internal resources. Research conducted by Teece [62] showed that low dynamic capabilities can hinder the positive impact of financial literacy on financial performance. The external perspective emphasizes more on adjusting to market conditions and the external environment. Although an understanding of finance can help in identifying market trends and making better decisions, market uncertainty and fluctuations often make financial literacy less effective as an intermediary. According to Miller and Friesen [58] companies operating in unstable

environments may find that strategies based on financial literacy do not always achieve the expected financial performance.

4. Conclusion

Our research provides insight into the impact of accounting digitization, internal and external perspectives, marketplace and financial literacy on the financial performance of MSMEs in 3T areas. The results show that MSMEs in 3T areas have various limitations both internal and external resources, so the adoption of information technology and the development of management strategies must be carried out massively starting from training to facility support. MSME players do not understand.

This study has limitations in the number of samples that are limited to one 3T area in Bitung City and most of the MSME samples in this study have not participated in training for both financial management and business development, so that further research can use samples of MSMEs in 3T areas that have participated in training in both financial management and business development.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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References

- [1] V. A. Srimulyani, Y. B. Hermanto, S. Rustiyarningsih, and L. A. S. Waloyo, "Internal factors of entrepreneurial and business performance of small and medium enterprises (SMEs) in East Java, Indonesia," *Heliyon*, vol. 9, no. 11, p. e21637, 2023. <https://doi.org/10.1016/j.heliyon.2023.e21637>
- [2] E. M. Abu-Taieh *et al.*, "Continued intention to use of M-Banking in Jordan by integrating UTAUT, TPB, TAM and service quality with ML," *Journal of Open Innovation: Technology, Market, and Complexity*, vol. 8, no. 3, p. 120, 2022. <https://doi.org/10.3390/joitmc8030120>
- [3] S. Adomako and M. Ahsan, "Entrepreneurial passion and SMEs' performance: Moderating effects of financial resource availability and resource flexibility," *Journal of Business Research*, vol. 144, pp. 122-135, 2022. <https://doi.org/10.1016/j.jbusres.2022.02.002>
- [4] P. N.-D. Nguyen, K. N. Mai, and T.-H. Le, "Strategic perspectives, creativity, and financial performance in Vietnamese SMEs," *Heliyon*, vol. 9, no. 9, p. e20354, 2023. <https://doi.org/10.1016/j.heliyon.2023.e20354>
- [5] H. Lu, J.-E. Shin, and M. Zhang, "Financial reporting and disclosure practices in China," *Journal of Accounting and Economics*, vol. 76, no. 1, p. 101598, 2023. <https://doi.org/10.1016/j.jacceco.2023.101598>
- [6] P. Jha and S. K. Mittal, "The nexus between financing pattern, firm-specific factors, and financial performance: Panel evidence of listed SMEs in India," *IIMB Management Review*, vol. 36, no. 1, pp. 71-82, 2024. <https://doi.org/10.1016/j.iimb.2024.02.001>
- [7] M. Lusiana, M. H. C. Haat, J. Saputra, M. Y. Yusliza, Z. Muhammad, and A. T. Bon, "A review of green accounting, corporate social responsibility disclosure, financial performance and firm value literature," in *In Proceedings of the International Conference on Industrial Engineering and Operations Management* (pp. 5622-5640). 2021.
- [8] M. Suto, H. Takehara, M. Suto, and H. Takehara, "Corporate social performance and corporate financial performance," *Corporate Social Responsibility and Corporate Finance in Japan*, vol. 17, pp. 53-85, 2018. https://doi.org/10.1007/978-981-10-8986-2_4
- [9] O. Jayeola *et al.*, "Government financial support and financial performance of SMEs: A dual sequential mediator approach," *Heliyon*, vol. 8, no. 11, 2022. <https://doi.org/10.1016/j.heliyon.2022.e11351>
- [10] Ministry of Cooperatives and MSMEs, "Data on MSME players in Indonesia ministry of cooperatives and SMEs of the republic of Indonesia [Internet]," Retrieved: <https://kemenkopukm.go.id/data-umkm/?O0txO7cuvfLZPSIs63ODfq06kofx8LdaypR6klGJHCpK7A4vuq%0Ahttps://kemenkopukm.go.id/read/target-pemerintah-30-juta-umkm-masuk-ekosistem-digital-pada-tahun-2024>, 2019.

- [11] F. Menne, B. Surya, M. Yusuf, S. Suriani, M. Ruslan, and I. Iskandar, "Optimizing the financial performance of smes based on sharia economy: Perspective of economic business sustainability and open innovation," *Journal of Open Innovation: Technology, Market, and Complexity*, vol. 8, no. 1, p. 18, 2022. <https://doi.org/10.3390/joitmc8010018>
- [12] S. A. Al-Shami, R. Damayanti, H. Adil, and F. Farhi, "Financial and digital financial literacy through social media use towards financial inclusion among batik small enterprises in Indonesia," *Heliyon*, vol. 10, no. 15, p. e34902, 2024. <https://doi.org/10.1016/j.heliyon.2024.e34902>
- [13] A. B. Raya *et al.*, "Challenges, open innovation, and engagement theory at craft smes: Evidence from Indonesian batik," *Journal of Open Innovation: Technology, Market, and Complexity*, vol. 7, no. 2, p. 121, 2021. <https://doi.org/10.3390/joitmc7020121>
- [14] J. Soehandoko, "Bank Indonesia reveals 4 problems and challenges of Indonesian MSMEs," Retrieved: <https://ekonomi.bisnis.com/read/20230829/9/1689447/bank-indonesia-ungkap-4-masalah-dan-tantangan-umkm-indonesia>, 2023.
- [15] M. Chelli and D. Himick, "Constructing housing literacy through financial literacy," *Critical Perspectives on Accounting*, vol. 100, p. 102760, 2024. <https://doi.org/10.1016/j.cpa.2024.102760>
- [16] C. Mazzoli, R. Ferretti, and U. Filotto, "Financial literacy and financial advice seeking: Does product specificity matter?," *The Quarterly Review of Economics and Finance*, vol. 95, pp. 98-110, 2024. <https://doi.org/10.1016/j.qref.2024.03.012>
- [17] S. Sundarasan, U. Rajagopalan, M. Kanapathy, and K. Kamaludin, "Women's financial literacy: A bibliometric study on current research and future directions," *Heliyon*, vol. 9, no. 12, p. e21379, 2023. <https://doi.org/10.1016/j.heliyon.2023.e21379>
- [18] M. S. Khan, I. Azad, S. Moosa, and M. Y. Javed, "Do we really need financial literacy to access the behavioral dynamics of generation Z? A case of Oman," *Heliyon*, vol. 10, no. 13, p. e32739, 2024. <https://doi.org/10.1016/j.heliyon.2024.e32739>
- [19] A. Rahmawati, S. H. Wahyuningsih, and A. Garad, "The effect of financial literacy, training and locus of control on creative economic business performance," *Social Sciences & Humanities Open*, vol. 8, no. 1, p. 100721, 2023. <https://doi.org/10.1016/j.ssaho.2023.100721>
- [20] B. Hutahayan, "The relationships between market orientation, learning orientation, financial literacy, on the knowledge competence, innovation, and performance of small and medium textile industries in Java and Bali," *Asia Pacific Management Review*, vol. 26, no. 1, pp. 39-46, 2021. <https://doi.org/10.1016/j.apmr.2020.07.001>
- [21] A. Priyono, A. Moin, and V. N. A. O. Putri, "Identifying digital transformation paths in the business model of SMEs during the COVID-19 pandemic," *Journal of Open Innovation: Technology, Market, and Complexity*, vol. 6, no. 4, p. 104, 2020. <https://doi.org/10.3390/joitmc6040104>
- [22] X. Gao, "Unlocking the path to digital financial accounting: A study on Chinese SMEs and startups," *Global Finance Journal*, vol. 61, p. 100970, 2024.
- [23] J. Tingey-Holyoak, J. Pisaniello, P. Buss, and W. Mayer, "The importance of accounting-integrated information systems for realising productivity and sustainability in the agricultural sector," *International Journal of Accounting Information Systems*, vol. 41, p. 100512, 2021. <https://doi.org/10.1016/j.accinf.2021.100512>
- [24] G. A. Savvakis, D. Kenourgios, and P. Trakadas, "Digitalization as a driver of European SMEs' financial performance during COVID-19," *Finance Research Letters*, vol. 67, p. 105848, 2024.
- [25] M. F. Arroyabe, C. F. Arranz, J. C. F. de Arroyabe, and I. Fernandez, "Digitalization and cybersecurity in SMEs: A bibliometric analysis," *Procedia Computer Science*, vol. 237, pp. 80-87, 2024. <https://doi.org/10.1016/j.procs.2024.05.082>
- [26] I. Adiputra and M. Wati, "The effectiveness of using the lamikro application in the financial management of micro, small and medium enterprises (MSMEs) in Buleleng district," *JIMAT (Journal of Accounting Science) Undiksha*, vol. 12, no. 3, pp. 704-716, 2021.
- [27] Y. Nurjanah and K. Dewi, "Pengaruh financial technology terhadap pendapatan UKM di Bogor," *Jurnal Ilmiah Akuntansi Kesatuan*, vol. 11, no. 1, pp. 147-156, 2023.
- [28] G. M. B. Carvalho do Prado, E. Catapan, C. M. d. S. Zanuzzi, F. Matos, and P. M. Selig, "Exploring the key success factors: A case study of a digital marketplace platform for Brazilian small farmers," *Procedia Comput Sci*, 2024. <https://doi.org/10.1016/j.procs.2024.01.016>
- [29] M. Y. Afandi, "Analyzing the impact of digital transformation in Islamic philanthropy using utaut model," *Afkaruna: Indonesian Interdisciplinary Journal of Islamic Studies*, vol. 19, no. 2, pp. 317-337, 2023.
- [30] N. Chatzistamoulou and E. Tyllianakis, "Commitment of European SMEs to resource efficiency actions to achieve sustainability transition. A feasible reality or an elusive goal?," *Journal of Environmental Management*, vol. 321, p. 115937, 2022. <https://doi.org/10.1016/j.jenvman.2022.115937>
- [31] A. Alam, A. M. Du, M. Rahman, H. Yazdifar, and K. Abbasi, "SMEs respond to climate change: Evidence from developing countries," *Technological Forecasting and Social Change*, vol. 185, p. 122087, 2022. <https://doi.org/10.1016/j.techfore.2022.122087>

- [32] Covariance structure analysis of health-related indicators in elderly people living at home, "Covariance structure analysis of health-related indicators in elderly people living at home, focusing on subjective health title," *Journal Science and Arts ITS*, vol. 6, no. 1, pp. 51-66, 2017.
- [33] W. D. Anjaningrum, N. Azizah, and N. Suryadi, "Spurring SMEs' performance through business intelligence, organizational and network learning, customer value anticipation, and innovation-Empirical evidence of the creative economy sector in East Java, Indonesia," *Heliyon*, vol. 10, no. 7, p. e27998, 2024. <https://doi.org/10.1016/j.heliyon.2024.e27998>
- [34] S. Saeed, S. Yousafzai, A. Paladino, and L. M. De Luca, "Inside-out and outside-in orientations: A meta-analysis of orientation's effects on innovation and firm performance," *Industrial Marketing Management*, vol. 47, pp. 121-133, 2015.
- [35] S. D. Hunt and S. Madhavaram, "Adaptive marketing capabilities, dynamic capabilities, and renewal competences: The "outside vs. inside" and "static vs. dynamic" controversies in strategy," *Industrial Marketing Management*, vol. 89, pp. 129-139, 2020.
- [36] W. Jayawickramarathna, R. Mulye, K. Rahman, and T. Fry, "Consumer resource integration in the subsistence marketplace: A comparative study of urban and rural consumers," *Journal of Consumer Affairs*, vol. 55, no. 2, pp. 715-733, 2021.
- [37] M. Gorton, E. Marek-Andrzejewska, G. Pang, W. Andrzejewski, and Y. Lin, "Users' processing of online marketplace listings for high and low involvement goods," *Electronic Commerce Research and Applications*, vol. 65, p. 101382, 2024. <https://doi.org/10.1016/j.elerap.2024.101382>
- [38] F. Davis, "The technology acceptance model," *Inter-Organizational Information Systems and Business Management*, pp. 1-36, 1989.
- [39] M. Beranová and J. Polák, "Changes in the view of a company's financial position and performance in the application of IFRS in the Czech republic," *Acta Academica Karviniensia*, vol. 14, no. 1, pp. 16-23, 2014. <https://doi.org/10.25142/aak.2014.002>
- [40] L. Hertati, O. Saffkaur, D. Yanti, I. Fery, and P. Azwardi, "The role of accounting information system affiliation in reliability financial reporting," *Ilomata International Journal of Tax and Accounting*, vol. 2, no. 1, pp. 97-112, 2021.
- [41] J. Barney, "Firm resources and sustained competitive advantage," *Journal of Management*, vol. 17, no. 1, pp. 99-120, 1991. <https://doi.org/10.1177/014920639101700108>
- [42] J. Mu, Y. Bao, T. Sekhon, J. Qi, and E. Love, "Outside-in marketing capability and firm performance," *Industrial Marketing Management*, vol. 75, pp. 37-54, 2018.
- [43] J. Liu, S. Sheng, C. Shu, and M. Zhao, "R&D, networking expenses, and firm performance: An integration of the inside-out and outside-in perspectives," *Industrial Marketing Management*, vol. 92, pp. 111-121, 2021.
- [44] I. Puspitasari, F. Rusydi, N. Nuzulita, and C.-S. Hsiao, "Investigating the role of utilitarian and hedonic goals in characterizing customer loyalty in E-marketplaces," *Heliyon*, vol. 9, no. 8, p. e19193, 2023. <https://doi.org/10.1016/j.heliyon.2023.e19193>
- [45] A. Shahriar Ferdous, H. Salilul Akareem, M. Viswanathan, L. Hollebeek, and A. Ringer, "Boosting app-based mobile financial services engagement in B2B subsistence marketplaces: The roles of marketing strategy and app design," *Industrial Marketing Management*, vol. 119, pp. 147-161, 2024. <https://doi.org/10.1016/j.indmarman.2024.04.014>
- [46] D. Aristei, M. Gallo, and V. Vannoni, "Preferences for ethical intermediaries and sustainable investment decisions in micro-firms: The role of financial literacy and digital financial capability," *Research in International Business and Finance*, vol. 71, p. 102483, 2024. <https://doi.org/10.1016/j.ribaf.2024.102483>
- [47] J. Li, H. Wang, and W. Soh, "Digital transformation, financial literacy and rural household entrepreneurship," *Finance Research Letters*, vol. 62, p. 105171, 2024.
- [48] D. Menon and K. Shilpa, "'Chatting with ChatGPT': Analyzing the factors influencing users' intention to use the open AI's ChatGPT using the UTAUT model," *Heliyon*, vol. 9, no. 11, 2023. <https://doi.org/10.1016/j.heliyon.2023.e20962>
- [49] R. A. Abdalla, "Examining awareness, social influence, and perceived enjoyment in the TAM framework as determinants of ChatGPT. Personalization as a moderator," *Journal of Open Innovation: Technology, Market, and Complexity*, vol. 10, no. 3, p. 100327, 2024. <https://doi.org/10.1016/j.joitmc.2024.100327>
- [50] T. Tusyanah, A. Wahyudin, and M. Khafid, "Analyzing factors affecting the behavioral intention to use e-wallet with the UTAUT model with experience as moderating variable," *Journal of Economic Education*, vol. 10, no. 1, pp. 113-123, 2021.
- [51] R. Meyer, "Mapping the mind of the strategist: a quantitative methodology for measuring the strategic beliefs of executives," 9058921417, Retrieved: <https://hdl.handle.net/1765/10182>, 2007.
- [52] J. A. Cano, A. A. Londoño-Pineda, E. A. Campo, and S. A. Fernández, "Sustainable business models of e-marketplaces: An analysis from the consumer perspective," *Journal of Open Innovation: Technology, Market, and Complexity*, vol. 9, no. 3, p. 100121, 2023. <https://doi.org/10.1016/j.joitmc.2023.100121>
- [53] E. M. Rogers, A. Singhal, and M. M. Quinlan, "Diffusion of innovations an integrated approach to communication theory and research," Routledge, 2014, pp. 432-448.
- [54] H. Li, L. Bing Lu, and S. Yang, "Servitization level, digital transformation, and enterprise performance of sporting goods manufacturing enterprises in China," *Heliyon*, vol. 10, no. 13, p. e33520, 2024. <https://doi.org/10.1016/j.heliyon.2024.e33520>

- [55] M. Dejardin, M. L. Raposo, J. J. Ferreira, C. I. Fernandes, P. M. Veiga, and L. Farinha, "The impact of dynamic capabilities on SME performance during COVID-19," *Review of Managerial Science*, vol. 17, no. 5, pp. 1703-1729, 2023. <https://doi.org/10.1007/s11846-022-00569-x>
- [56] J. Wiklund and D. Shepherd, "Knowledge-based resources, entrepreneurial orientation, and the performance of small and medium-sized businesses," *Strategic Management Journal*, vol. 24, no. 13, pp. 1307-1314, 2003.
- [57] A. Ginsberg and N. Venkatraman, "Contingency perspectives of organizational strategy: A critical review of the empirical research," *Academy of Management Review*, vol. 10, no. 3, pp. 421-434, 1985. <https://doi.org/10.2307/258125>
- [58] D. Miller and P. H. Friesen, "Strategy-making and environment: The third link," *Strategic Management Journal*, vol. 4, no. 3, pp. 221-235, 1983.
- [59] G. S. Day and R. Wensley, "Assessing advantage: A framework for diagnosing competitive superiority," *Journal of Marketing*, vol. 52, no. 2, pp. 1-20, 1988.
- [60] A. Lusardi and O. S. Mitchell, "The economic importance of financial literacy: Theory and evidence," *American Economic Journal: Journal of Economic Literature*, vol. 52, no. 1, pp. 5-44, 2014. <https://doi.org/10.1257/jel.52.1.5>
- [61] S. J. Huston, "Measuring financial literacy," *Journal of Consumer Affairs*, vol. 44, no. 2, pp. 296-316, 2010. <https://doi.org/10.1111/j.1745-6606.2010.01170.x>
- [62] D. A. Teece, "Dynamic capabilities-based entrepreneurial theory of the multinational enterprise eclectic paradigm a framew synth comp theor int bus from different discip or perspectives," pp. 224-273, 2016.