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THE MEDIATING ROLE OF RISK MANAGEMENT ON TECHNOLOGICAL UNDERSTANDING, FINANCIAL LITERACY, AND SME PERFORMANCE IN MEDAN

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Abstract

This study examines the impact of technological understanding and financial literacy on Small and Medium Enterprise (SME) performance, with risk management practices as a mediating variable among SMEs in Medan. An explanatory sequential mixed-methods approach combining quantitative and qualitative methods was employed. The population comprised culinary SMEs registered with the Medan City Department of Cooperatives, SMEs, Industry, and Trade. Data were collected via questionnaires and in-depth interviews. Quantitative analysis used Structural Equation Modeling-Partial Least Square (SEM-PLS), while qualitative data utilized a thematic approach to strengthen quantitative results. The findings show that technological understanding and financial literacy both positively affect SME performance and risk management practices. Additionally, risk management practices positively influence SME performance and successfully mediate the effects of technological understanding and financial literacy on performance. These results indicate that SMEs' capability to comprehend technology and manage finances enhances business performance more effectively when supported by sound risk management. Ultimately, integrating technological understanding, financial literacy, and risk management serves as a strategic driver to boost SME competitiveness, resilience, and sustainability.

Keywords: Financial Literacy, Risk Management, SME Performance, Technological Understanding

INTRODUCTION

Small and Medium Enterprises (SMEs) play a highly vital role in the economic development of a country. The performance of this sector is a focal point due to its significant contribution to job creation, economic growth, innovation, and environmental sustainability (Garg & Agarwal, 2017; D. Singh, Khamba, & Nanda, 2015; Tambunan, 2014). In the ASEAN region, SMEs account for more than 90% of total business units and serve as the main pillar of the national economy (Rumijati & Rahman Hakim, 2023). SMEs are also a driving force for innovation as they can quickly adapt to technological changes and market needs (M. P. Singh, 2019). Good performance enables SMEs to build competitive advantages amidst challenging economic situations (Sasono, Farida, & Soesanto, 2023).

In the era of globalization and technological advancement, the implementation of technological innovation is key to improving SME performance (D. Singh, 2019). Technology integration has proven to play a central role in driving the expansion and sustainability of SMEs through the strengthening of digital competencies, financial literacy, and adequate technological infrastructure (Harnida et al., 2024). In addition to technology, financial literacy also plays a critical role in enhancing business performance. Financial literacy significantly affects financial decision-making, helping business owners effectively utilize various funding options and supporting business sustainability (Indrawati, Troena, & Yuniarinto, 2024). With adequate literacy, SME owners are capable of preparing financial reports and managing cash flows efficiently, which is a necessity to ensure growth (Susan, 2020).

Although technological understanding and financial literacy contribute significantly to performance improvement, the positive impact of both factors is often mediated by the implementation of effective risk management practices. Risk management practices serve as a crucial intermediary that helps identify, evaluate, and control potential business threats, thereby strengthening organizational resilience in the face of uncertainty (Kulathunga, Ye, Sharma, & Weerathunga, 2020; Suryani, Diswandi, & Afwani, 2024). Several studies have shown that risk management practices partially or fully mediate the relationship between technological and financial literacy

and business performance (Shahzad et al., 2022). Therefore, the integration of technological understanding, financial literacy, and risk management practices becomes a strategic factor in enhancing the competitiveness of modern SMEs (Mustapha et al., 2023). Medan City is a major economic hub in North Sumatra, where the SME sector plays a central role and contributes up to 80% to the local economy. However, based on the results of a pre-survey of 30 culinary SMEs in Medan City, various problems and gaps were identified. The majority of SMEs experienced stagnant sales (83.33%) and had not routinely measured customer satisfaction. Although SMEs demonstrated good technology adoption for basic operations (73.33%), its utilization for innovation and optimal development still needs improvement. Furthermore, even though the majority of business owners had separated their personal and business accounts, proactive initiatives to improve financial literacy remained low (43.33%). There was also a significant gap in risk management practices; awareness of potential business threats (53.33%) was not accompanied by concrete mitigation actions, such as the provision of emergency funds (only 36.67%). This condition places SMEs in a vulnerable position against unexpected financial shocks. Based on the phenomenon gap between theory and practice in the field, this study aims to empirically examine and analyze the influence of technological understanding and financial literacy on SME performance, placing risk management practices as an intervening variable in culinary sector SMEs in Medan City.

LITERATURE REVIEW

This study is grounded in two prominent theoretical frameworks: the Resource-Based View (RBV) and the Knowledge-Based View (KBV). The RBV posits that organizations achieve a sustainable competitive advantage by utilizing internal resources that are valuable, rare, inimitable, and non-substitutable (Barney, 1991; Wernerfelt, 1984). In the context of Small and Medium Enterprises (SMEs), technological understanding, financial literacy, and risk management practices are categorized as crucial intangible resources for business stability and sustainability (Robert M Grant, 1991; Teece, Pisano, & Shuen, 1997). Building upon this, the KBV emphasizes that knowledge is the most strategic resource an organization possesses (R. M. Grant, 1996). Technological and financial knowledge in SMEs often exist as tacit knowledge, which must be effectively integrated and applied to formulate strategic decisions, drive innovation, and manage uncertainties (Cohen & Levinthal, 1990; Nonaka & Takeuchi, 1995).

Technological understanding encompasses an SME's awareness, knowledge, skills, and internal readiness to utilize digital tools effectively (Yuwono, Suroso, & Novandari, 2024). Previous studies emphasize that adopting Information and Communication Technology (ICT) positively influences marketing performance and creates distinctive competencies that determine business success (Qamari, Ngetich, & Antarini, 2022; Yuwono, Novandari, Suroso, & Setyanto, 2025). Furthermore, technological assimilation and effective knowledge management drive business model innovation, allowing SMEs to maximize productivity and adaptability in a dynamic market (de Mattos, Pellegrini, Hagelaar, & Dolfsma, 2024; Wolor, Madli, Rababah, Mukhibad, & Hoo, 2024).

Similarly, financial literacy is identified as an essential skill set required to manage finances, budget accurately, and make sound economic decisions to improve financial well-being (Lusardi & Mitchell, 2014). Research indicates that financial literacy positively impacts SME performance by improving financial decision-making, cash flow management, and access to external funding (Appiah & Agblewornu, 2024; Lentner, Tóth, Kása, & Nagy, 2025). Effective financial knowledge management fosters innovation and adaptive financial strategies, contributing directly to long-term business sustainability and resilience (Meldona, Soetjipto, Utaberta, Wardoyo, & Hermawan, 2023; Jianmu Ye & Kulathunga, 2019).

Despite the direct benefits of technological and financial literacy, recent literature highlights the critical role of risk management practices as an intervening mechanism. Risk management is a systematic process of identifying, assessing, and controlling potential threats, functioning as a strategic capability that enhances an SME's operational resilience (Krewski, Turner, & Tyshenko, 2011; Ntare, Shau, & Ojwang, 2022). Studies reveal that technological integration and financial education significantly improve enterprise risk management (ERM) practices by breaking down information silos and promoting better risk control (Gao, Rojasavachai, Rouxelin, & Yang, 2025; Rodriguez & Edwards, 2015). Consequently, ERM successfully mediates the effects of techno-financial literacy on business performance, ensuring that resource investments yield positive and sustainable outcomes (Ciocoiu, Radu, Colesca, & Prioteasa, 2025; J Ye & Kulathunga, 2019). While existing literature extensively covers these variables independently or in different regional contexts, there remains a notable gap regarding their simultaneous integration within emerging local markets. Specifically, there is a discrepancy between the high theoretical awareness of risks and the actual implementation of concrete mitigation strategies (such as emergency fund allocation) among local business owners. This study addresses this gap by proposing a comprehensive conceptual model that evaluates how

technological understanding and financial literacy synergistically drive SME performance through the mediating role of risk management practices, particularly focusing on culinary SMEs in Medan City

METHOD

This study employed an explanatory sequential mixed methods approach (Quan-Qual Sequential Design). This design begins with quantitative model testing to examine the hypotheses, followed by a qualitative phase to deeply explore and explain the quantitative findings, providing a comprehensive context behind the statistical results. The target population consisted of 1,075 culinary Small and Medium Enterprises (SMEs) registered with the Department of Cooperatives, SMEs, Industry, and Trade of Medan City. For the quantitative phase, a sample of 292 SME owners was determined using Slovin's formula with a 5% margin of error. The respondents were selected using a proportionate stratified random sampling technique distributed across 21 sub-districts in Medan City to ensure proportional representation. For the qualitative phase, 15 informants were selected using purposive sampling. These informants were chosen based on variations in their quantitative scores regarding SME performance, technological understanding, financial literacy, and risk management practices to obtain diverse perspectives and reach data saturation.

Quantitative data were collected primarily through structured questionnaires utilizing a 5-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The questionnaires measured the four main variables and were distributed through online forms and printed copies to maximize reach. Following the quantitative data collection, qualitative data were gathered through in-depth interviews—conducted both face-to-face and via online communication—to capture detailed narratives and underlying reasons related to the variables. Quantitative data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with the SmartPLS 3.0 software. The PLS-SEM analysis included evaluating the outer model (assessing convergent validity, discriminant validity, and reliability using Cronbach's alpha and composite reliability) and the inner model (assessing R-square, F-square, predictive relevance Q-square, and hypothesis testing via t-statistics and p-values). Qualitative data were transcribed and analyzed thematically using NVivo software. The qualitative analysis involved open, axial, and selective coding, followed by data visualization and interpretation to validate, explain, and enrich the quantitative results

RESULTS AND DISCUSSION

This section presents the results of the quantitative data analysis using SmartPLS 3.0 and the qualitative data analysis using NVivo, followed by a comprehensive discussion of the findings

Quantitative Results: Measurement and Structural Models

The quantitative analysis was based on 286 valid questionnaire responses from culinary SME owners in Medan City. The measurement model (outer model) evaluation confirmed that the data met all validity and reliability criteria

Table 1 Measurement Model Evaluation Results

Variabel	Indicator	Outer Loading	Cronbach's Alpha	Composite Reliability	AVE
Technological Understanding	X1.1	0.815	0.958	0.964	0.688
	X1.2	0.859			
	X1.3	0.790			
	X1.4	0.894			
	X1.5	0.865			
	X1.6	0.788			
	X1.7	0.858			
	X1.8	0.893			
	X1.9	0.803			
	X1.10	0.846			
	X1.11	0.799			
	X1.12	0.730			
Financial Literacy	X2.1	0.823	0.976	0.979	0.795
	X2.2	0.831			
	X2.3	0.894			
	X2.4	0.902			
	X2.5	0.881			
	X2.6	0.928			
	X2.7	0.920			
	X2.8	0.884			
	X2.9	0.926			
	X2.10	0.922			
	X2.11	0.898			
	X2.12	0.880			
SME Performance	Y1	0.836	0.963	0.967	0.713
	Y2	0.890			
	Y3	0.842			
	Y4	0.861			
	Y5	0.884			
	Y6	0.863			
	Y7	0.826			
	Y8	0.835			
	Y9	0.864			
	Y10	0.841			
	Y11	0.826			
	Y12	0.753			
Risk Management	Z1	0.787	0.967	0.971	0.703
	Z2	0.800			
	Z3	0.805			
	Z4	0.849			
	Z5	0.847			

Variabel	Indicator	Outer Loading	Cronbach's Alpha	Composite Reliability	AVE
	Z6	0.844			
	Z7	0.888			
	Z8	0.888			
	Z9	0.871			
	Z10	0.882			
	Z11	0.840			
	Z12	0.878			
	Z13	0.775			
	Z14	0.768			

Source: Smart PLS (2026)

Convergent validity was satisfied as all standardized loading factors were above 0.5, and the Average Variance Extracted (AVE) values for all variables—SME Performance (0.713), Financial Literacy (0.795), Technological Understanding (0.688), and Risk Management Practices (0.703)—exceeded the 0.5 threshold. Construct reliability was established since both the Composite Reliability and Cronbach's Alpha values for all variables were greater than 0.6.

Table 2 Heretroit-Monotrait Ratio

	SME Performance	Financial Literacy	Technological Understanding	
SME Performance				
Financial Literacy	0.548			
Technological Understanding	0.734	0.391		
Risk Management	0.566	0.588		0.393

Source: Smart PLS (2026)

Furthermore, discriminant validity was confirmed as the cross-loading values of indicators on their respective constructs were higher than on other constructs, the Heterotrait-Monotrait Ratio (HTMT) values were below 0.90

Table 3 Fornell-Larcker

	SME Performance	Financial Literacy	Technological Understanding	Risk Management
SME Performance	0.844			
Financial Literacy	0.534	0.891		
Technological Understanding	0.710	0.382	0.830	
Risk Management	0.552	0.580	0.382	0.838

Source: Smart PLS (2026)

Table 3 above shows that the discriminant validity value, or Fornell-Larcker Criterion, for each variable has a higher correlation with its own variable than with the other variables. The same applies to the indicators for each variable. This indicates that the placement of indicators for each variable is appropriate.

Table 4 Predictive Relevance and Model Fit

	R Square	Q Square
SME Performance	0.619	0.430
Risk Management	0.366	0.252
Goodness of Fit	**0.597**	

Source: Smart PLS (2026)

The structural model (inner model) evaluation demonstrated a large Goodness of Fit (GoF) value of 0.597, indicating that the model fits the empirical data very well. The R-Square value for SME Performance was 0.619, meaning that 61.9% of the variance in SME performance is explained by technological understanding, financial literacy, and risk management practices. The R-Square for Risk Management Practices was 0.366. The predictive relevance (Q-Square) values were greater than zero (0.430 for SME Performance and 0.252 for Risk Management), confirming the model's strong predictive capability.

Table 5 Hypothesis Testing

Hypotesis	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Technological Understanding -> SME Performance	0.548	0.547	0.066	8.257	**0.000**
Financial Literacy -> SME Performance	0.191	0.191	0.055	3.469	**0.001**
Risk Management -> SME Performance	0.231	0.231	0.046	5.044	**0.000**
Technological Understanding -> Risk Management	0.188	0.191	0.047	3.964	**0.000**
Financial Literacy -> Risk Management	0.508	0.506	0.066	7.727	**0.000**
Technological Understanding -> Risk Management -> SME Performance	0.044	0.044	0.013	3.363	**0.001**
Financial Literacy -> Risk Management -> SME Performance	0.118	0.118	0.033	3.540	**0.000**

Source: Smart PLS (2026)

The hypothesis testing revealed that all direct and indirect paths in the conceptual model are significant:

Technological understanding positively and significantly affects SME performance (p = 0.000). Financial literacy positively and significantly affects SME performance (p = 0.001). Risk management practices positively and significantly affect SME performance (p = 0.000). Technological understanding positively and significantly affects risk management practices (p = 0.000). Financial literacy positively and significantly affects risk management practices (p = 0.000). Risk management practices significantly mediate the effect of technological understanding on SME performance (p = 0.001). Risk management practices significantly mediate the effect of financial literacy on SME performance (p = 0.000).

Qualitative Findings

The qualitative phase, which involved in-depth interviews with 15 informants and thematic analysis using NVivo, supported and enriched the quantitative findings. The integration of these results validates the relevance of the Resource-Based View (RBV) and Knowledge-Based View (KBV) theories Technological understanding acts as a strategic knowledge asset (KBV) that creates a competitive advantage (RBV). Qualitative data indicated that SMEs adapting to digital technology—such as utilizing social media for promotion, operating digital sales platforms, and using smartphones as operational hubs—successfully expanded their market reach and improved transaction efficiency. This technological integration directly transformed into robust financial performance, particularly for the dominant productive-age group (25-44 years) managing snack businesses, allowing them to consistently reach high revenue tiers. Similarly, financial literacy serves as intellectual capital that stabilizes cash flow. The qualitative findings revealed that financial literacy is not merely theoretical but is practically implemented through disciplined financial behaviors. These behaviors include separating personal and business funds, calculating precise profit margins, and maintaining regular budgeting. This capability safeguards the stability of working capital, empowering

SMEs to remain resilient amidst tight market competition. Most importantly, the results highlight risk management as a crucial organizational capability that mediates the relationship between knowledge assets and business performance. Technology facilitates better information flow, acting as an early warning system against operational risks (such as fraud or human error) through digital point-of-sale systems and real-time tracking. Concurrently, financial literacy enables owners to prepare emergency funds, evaluate cost structures, and avoid consumptive debt. Ultimately, risk management acts as a vital bridge, ensuring that investments in technological adoption and financial knowledge are effectively transformed into actionable, preventive strategies that protect assets and drive sustainable SME performance

Discussion

The findings of this study validate the premises of the Resource-Based View (RBV) and Knowledge-Based View (KBV) by demonstrating that technological understanding significantly enhances SME performance. From the RBV and KBV perspectives, technological understanding is not merely an operational tool but a strategic knowledge asset that creates a sustainable competitive advantage (Holsapple & Wu, 2010; Liang & You, 2009). Qualitative data reveal that productive-age business owners (25–44 years), particularly in the snack sector, highly utilize smartphones, social media, and digital sales platforms to expand their market reach efficiently. This technological integration directly transforms into robust financial performance, allowing these SMEs to consistently reach high revenue tiers exceeding Rp 25 million per month.

Similarly, financial literacy serves as crucial intellectual capital that positively impacts SME performance. The study reveals that financial knowledge is practically implemented through disciplined financial behaviors, such as separating personal and business funds, calculating precise profit margins, and maintaining regular budgeting. Interestingly, cross-tabulation data indicates a gender dynamic in governance; male entrepreneurs tend to centralize financial control, while female entrepreneurs show a higher ratio of collaborative financial management and delegation. This collaborative practice applies the principle of segregation of duties to minimize operational risks. These disciplined behaviors safeguard working capital stability, enabling SMEs to remain resilient amidst tight market competition. Risk management practices also exert a significant positive direct effect on SME performance. In line with the RBV, risk management acts as a strategic organizational capability that evolves with business maturity. The data shows that older businesses (operating for more than 6 years) tend to delegate daily operational tasks to specialized employees to prevent managerial burnout and maintain quality control.

Furthermore, SMEs demonstrate high adaptability in their risk management by modifying strategies when sales decline, adjusting prices or menus in response to rising material costs, and maintaining equipment regularly to secure the production process. The most critical finding of this study is the significant mediating role of risk management practices in the relationships between technological understanding, financial literacy, and SME performance. Without effective risk management, technological adoption could become a wasted investment. However, qualitative findings indicate that SMEs utilize digital platforms not only for marketing but also as early warning systems and analytical tools to monitor real-time transactions, adjust inventory, and prevent dead-stock (operational risks), thereby protecting their profit margins. Concurrently, financial literacy enables owners to proactively prepare emergency funds, evaluate cost structures, and avoid consumptive debt. Ultimately, risk management acts as a vital bridge, transforming investments in technological adoption and financial knowledge into actionable, preventive strategies that secure assets and drive sustainable business growth (Kulathunga et al., 2020)

CONCLUSION

This study successfully addresses the research objectives by demonstrating that technological understanding and financial literacy significantly and positively affect the performance of culinary SMEs in Medan City. The findings reveal that digital adoption and financial knowledge are not merely supporting tools but critical strategic assets that directly enhance market reach, operational efficiency, and financial stability. Furthermore, risk management practices play a vital role, not only by directly improving business performance but also by significantly mediating the impact of technological understanding and financial literacy. Risk management acts as the essential mechanism that transforms technological and financial capabilities into actionable, preventive strategies, allowing SMEs to navigate uncertainties and sustain long-term growth. In terms of practical implementation and future development, SME owners are highly encouraged to actively integrate digital tools—such as digital marketing and financial recording applications—while strictly maintaining disciplined financial behaviors, including the allocation of emergency funds and the separation of personal and business finances. On a policy level, local governments and relevant institutions should utilize these findings to design comprehensive empowerment programs focusing on

digital transformation, targeted financial literacy training, and risk management mentorship to bolster the resilience and competitiveness of local SMEs. Despite its significant contributions, this study acknowledges certain limitations. The cross-sectional research design restricts the ability to observe behavioral changes and business performance trends over a longer period. Additionally, the reliance on self-reported questionnaires may introduce subjectivity bias from the respondents. Therefore, future research is recommended to employ longitudinal approaches to capture dynamic changes over time and to incorporate business governance as an additional variable to provide a more holistic understanding of the determinants of SME performance.

REFERENCES

Gerson, RF (2004). Measuring Customer Satisfaction. Jakarta: PPM.

Appiah, T., & Agblewornu, V. V. (2024). Financial Literacy, Financial Access, and Small Business Performance in Secondi-Takoradi Metropolis of Ghana: The Mediating Effect of Financial Capability. *African Journal of Business and Economic Research*, *19*(2), 299–321. Retrieved from https://www.scopus.com/inward/record.uri?eid=2-s2.0-85201226010&doi=10.31920%2F1750-4562%2F2024%2Fv19n2a13&partnerID=40&md5=a1e83f65d833d80bc92f0471206e3a44

Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal Of Management*, *17*(1), 99–120.

Ciocoiu, C. N., Radu, C., Colesca, S. E., & Prioteasa, A. (2025). Exploring the link between risk management and performance of MSMEs: A bibliometric review. *Journal of Economic Surveys*, *39*(4), 1523–1552. Retrieved from https://www.scopus.com/inward/record.uri?eid=2-s2.0-85205482635&doi=10.1111%2Fjoes.12664&partnerID=40&md5=312b5b72fdd184a67a9af12bdd9baa06

Cohen, W. M., & Levinthal, D. A. (1990). Absorptive Capacity: A New Perspective on Learning and Innovation. *Administrative Science Quarterly*, *35*(1), 128–152. Retrieved from https://www.jstor.org/stable/2393553?origin=crossref

Gao, Y., Rojasavachai, R., Rouxelin, F., & Yang, L. (2025). Financial Illiteracy as a Systemic Risk: Implications for Household Resilience and Portfolio Vulnerability. *Journal of Portfolio Management*, *51*(7), 216–229. Retrieved from https://www.scopus.com/inward/record.uri?eid=2-s2.0-105004456469&doi=10.3905%2Fjpm.2025.1.702&partnerID=40&md5=64457573f2015286a04d737e7a981630

Garg, S., & Agarwal, P. (2017). Micro, small and medium enterprises in India: A review of growth and challenges in the present scenario. *International Journal of Applied Business and Economic Research*, *15*(4), 579–590. Retrieved from https://www.scopus.com/inward/record.uri?eid=2-s2.0-85016232815&partnerID=40&md5=5101bea4e6538736c11b7a8c2a7e3602

Grant, Robert M. (1991). The Resource-Based Theory of Competitive Advantage: Implications for Strategy Formulation. *California Management Review*, *33*(3), 114–135. SAGE Publications Inc. Retrieved from https://doi.org/10.2307/41166664

Grant, R. M. (1996). Toward a knowledge-based theory of the firm. *Strategic Management Journal*, *17*(S2), 109–122. John Wiley & Sons, Ltd. Retrieved from https://doi.org/10.1002/smj.4250171110

Harnida, M., Vasudevan, A., Mardah, S., Fajriyati, I., Mayvita, P. A., Hunitie, M. F. A., & Mohammad, S. I. S. (2024). Micro, Small, and Medium-Sized Enterprises (MSMEs) Sustainability: The Strategic Role of Digitalization, Financial Literacy, and Technological Infrastructure. *Journal of Ecohumanism*, *3*(6), 1248–1260. Retrieved from https://ecohumanism.co.uk/joe/ecohumanism/article/view/4097

Holsapple, C. W., & Wu, J. (2010). Resource-based perspective on information technology, knowledge management, and firm performance. *Enterprise Information Systems: Concepts, Methodologies, Tools and Applications* (Vol. 2–3, pp. 1099–1112). Retrieved from https://www.scopus.com/inward/record.uri?eid=2-s2.0-105014235297&doi=10.4018%2F978-1-60566-659-4.ch016&partnerID=40&md5=5d0051e8b4f6023091e59baa8f35a689

Indrawati, A. D., Troena, E. A., & Yuniarinto, A. (2024). Utilizing innovation and collective organizational engagement into SMEs' sustainable competitive advantage. *Uncertain Supply Chain Management*, *12*(3), 1589–1602. Retrieved from https://www.scopus.com/inward/record.uri?eid=2-s2.0-85191320524&doi=10.5267%2Fj.uscm.2024.3.021&partnerID=40&md5=299f90e42b64214dc0ea67473977388d

Krewski, D., Turner, M. C., & Tyshenko, M. G. (2011). Risk Management in Environmental Health Decision. *Encyclopedia of Environmental Health* (pp. 541–549). Elsevier. Retrieved from https://linkinghub.elsevier.com/retrieve/pii/B9780444639516006215

Kulathunga, K. M. M. C. B., Ye, J., Sharma, S., & Weerathunga, P. R. (2020). How does technological and financial literacy influence SME performance: Mediating role of ERM practices. *Information (Switzerland)*, *11*(6). Retrieved from https://www.scopus.com/inward/record.uri?eid=2-s2.0-85087439913&doi=10.3390%2FINFO11060297&partnerID=40&md5=f506b80f5dd6320453f33031def6106f

Lentner, C., Tóth, R., Kása, R., & Nagy, V. (2025). The impact of financial culture ON THE financing of SMEs in Hungary. *Investment Management and Financial Innovations*, *22*(2), 112–126. Retrieved from https://www.scopus.com/inward/record.uri?eid=2-s2.0-105002832816&doi=10.21511%2Fimfi.22%282%29.2025.10&partnerID=40&md5=743cbb15a6d4f0586f9ec1eac86a828a

Liang, T.-P., & You, J.-J. (2009). Resource-based view in information systems research: A meta-analysis. *PACIS 2009 - 13th Pacific Asia Conference on Information Systems: IT Services in a Global Environment*. Retrieved from https://www.scopus.com/inward/record.uri?eid=2-s2.0-85069300033&partnerID=40&md5=2c36a6631ae176c665292416a4c6faaf

Lusardi, A., & Mitchell, O. S. (2014). The Economic Importance Of Financial Literacy: Theory And Evidence. *Journal of economic literature*, *52*(1), 5–44.

de Mattos, C. S., Pellegrini, G., Hagelaar, G., & Dolfsma, W. (2024). Systematic literature review on technological transformation in SMEs: a transformation encompassing technology assimilation and business model innovation. *Management Review Quarterly*, *74*(2), 1057–1095. Retrieved from https://link.springer.com/10.1007/s11301-023-00327-7

Meldona, M., Soetjipto, B. E., Utaberta, N., Wardoyo, C., & Hermawan, A. (2023). Innovation capability and risk attitude mediate the effects of knowledge management and financial literacy on MSME performance. *Journal of Social Economics Research*, *10*(4), 194–214. Retrieved from https://www.scopus.com/inward/record.uri?eid=2-s2.0-85183342379&doi=10.18488%2F35.v10i4.3555&partnerID=40&md5=9084bf9a63e76eed48d7c4fb3869f17c

Mustapha, B., Olaleye, B. R., Yetunde, O. B., Olanike, O. O., Akindele, G., Abdurrashid, I., Adedokun, J. O., et al. (2023). Risk Management Practice and Organizational Performance: The Mediating Role of Business Model Innovation. *Journal of Law and Sustainable Development*, *11*(4). Retrieved from https://ojs.journalsdg.org/jlss/article/view/892

Nonaka, I., & Takeuchi, H. (1995). *The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation*. New York: Oxford University Press.

Ntare, P. C., Shau, I. R., & Ojwang, E. (2022). Effects Of Enterprise Risk Management Practices On Performance Of Small And Medium Scale Enterprises. A Case Of Dar Es Salaam City, Tanzania. *African Journal of Applied Research*, *8*(1), 182–199. Retrieved from https://www.scopus.com/inward/record.uri?eid=2-s2.0-85180170673&doi=10.26437%2Fajar.03.2022.13&partnerID=40&md5=a95b05c7e26ffb80b381a16d438324e6

Qamari, I. N., Ngetich, B. K., & Antarini, U. S. (2022). How information technology and sales skills improve business performance mediated by supply chain partnerships. *International Journal of Information and Management Sciences*, *33*(3), 229–244. Retrieved from https://www.scopus.com/inward/record.uri?eid=2-s2.0-85160007743&doi=10.6186%2FIJIMS.202209_33%283%29.0004&partnerID=40&md5=db20202ea594121e9d98484d67c15acb

Rodriguez, E., & Edwards, J. S. (2015). Knowledge management in support of enterprise risk management. *Transportation Systems and Engineering: Concepts, Methodologies, Tools, and Applications* (Vol. 1–3, pp. 108–127). Retrieved from https://www.scopus.com/inward/record.uri?eid=2-s2.0-84958871709&doi=10.4018%2F978-1-4666-8473-7.ch005&partnerID=40&md5=26e9cafa55667448114a1901d1e2f70b

Rumijati, A., & Rahman Hakim, A. (2023). Innovative work behavior and self-efficacy: Does entrepreneurial leadership impact MSME business performance? *Problems and Perspectives in Management*, *21*(4), 304–315. Retrieved from https://www.businessperspectives.org/index.php/journals/problems-and-perspectives-in-management/issue-442/innovative-work-behavior-and-self-efficacy-does-entrepreneurial-leadership-impact-msme-business-performance

Sasono, E., Farida, N., & Soesanto, H. (2023). The Role Of Knowledge Creation In Mediating The Effect Of Network

Capability On Performance Of Micro, Small, And Medium Enterprises. *International Journal of Business and Society*, *24*(3), 1197–1212. Retrieved from https://publisher.unimas.my/ojs/index.php/IJBS/article/view/6417

Shahzad, A., Zulfiqar, B., Ali, M., Haq, A. ul, Sajjad, M., & Raza, A. (2022). Mediating role of formalization of RM methods among the perceived business risk and organization performance. *Cogent Business & Management*, *9*(1). Retrieved from https://www.tandfonline.com/doi/full/10.1080/23311975.2021.2024116

Singh, D. (2019). Implementation of technology innovation in MSMEs in India. *Journal of Science and Technology Policy Management*, *10*(3), 769–792. Retrieved from http://www.emerald.com/jstpm/article/10/3/769-792/248057

Singh, D., Khamba, J. S., & Nanda, T. (2015). Analysis of Major Problems Faced by Small Firms in North India. *International Journal of Engineering Research in Africa*, *15*, 150–160. Retrieved from https://www.scientific.net/JERA.15.150

Singh, M. P. (2019). A study of sustainability reporting disclosures for manufacturing MSMEs: Evidence from India. *International Journal of Entrepreneurship and Small Business*, *38*(4), 395–414. Retrieved from https://api.elsevier.com/content/abstract/scopus_id/85077326273

Suryani, E., Diswandi, D., & Afwani, R. (2024). Techno-finance Literacy and Company Performance: Mediating Role of Risk Management Practices based on Structural Equation Modeling. *Journal of International Commerce, Economics and Policy*. Retrieved from https://www.scopus.com/inward/record.uri?eid=2-s2.0-85206558623&doi=10.1142%2FS1793993324500169&partnerID=40&md5=638bcda08571e4043ce2cc6244438d48

Susan, M. (2020). Financial literacy and growth of micro, small, and medium enterprises in west java, indonesia. *International Symposia in Economic Theory and Econometrics* (Vol. 27, pp. 39–48). Retrieved from https://www.scopus.com/inward/record.uri?eid=2-s2.0-85089554998&doi=10.1108%2FS1571-038620200000027004&partnerID=40&md5=75cca39b2afe4aeb2754727afe52f4b4

Tambunan, T. T. H. (2014). *The readiness of MSMEs in facing ASEAN Economic Community 2015*. *The Readiness of MSMEs in Facing ASEAN Economic Community 2015*. Retrieved from https://www.scopus.com/inward/record.uri?eid=2-s2.0-84952655660&partnerID=40&md5=45cda28b31e7fd8d9106782ee400790f

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, *18*(7), 509–533. John Wiley & Sons, Ltd. Retrieved from https://doi.org/10.1002/(SICI)1097-0266(199708)18:7%3C509::AID-SMJ882%3E3.0.CO

Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, *5*(2), 171–180. John Wiley & Sons, Ltd. Retrieved from https://doi.org/10.1002/smj.4250050207

Wolor, C. W., Madli, F., Rababah, M. A., Mukhibad, H., & Hoo, W. C. (2024). Examining the Impact of Knowledge Management Use and Innovation on Business Performance of MSMEs in the Digital Age. Case Study MSMEs in Indonesia. *Journal of Sustainability Research*, *6*(4), 1–18. Retrieved from https://sustainability.hapres.com/htmls/JSR_1667_Detail.html

Ye, J, & Kulathunga, K. M. M. C. B. (2019). How does financial literacy promote sustainability in SMEs? A developing country perspective. *Sustainability (Switzerland)*, *11*(10), 1–21. Retrieved from https://doi.org/10.3390/su11102990

Ye, Jianmu, & Kulathunga, K. (2019). How Does Financial Literacy Promote Sustainability in SMEs? A Developing Country Perspective. *Sustainability*.

Yuwono, T., Novandari, W., Suroso, A., & Setyanto, R. P. (2025). The importance of ICT adoption on MSMEs performance: the mediating role of distinctive competencies. *Journal of Enterprising Communities: People and Places in the Global Economy*, *19*(3), 610–630. Retrieved from http://www.emerald.com/jec/article/19/3/610-630/1263864

Yuwono, T., Suroso, A., & Novandari, W. (2024). Information and communication technology in SMEs: a systematic literature review. *Journal of Innovation and Entrepreneurship*, *13*(1), 31. Retrieved from https://innovation-entrepreneurship.springeropen.com/articles/10.1186/s13731-024-00392-6