Navigating Uncertainty: The Role of Human Resource Management in Strengthening SMEs Competitiveness

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Abstract

This study investigates the pivotal role of human resource management (HRM) and strategic agility (SA) in enhancing the competitiveness of small and medium-sized enterprises (SMEs) amidst an era of heightened uncertainty. Employing a quantitative research design, data were collected from SMEs in the food and beverage sector in East Java, Indonesia — a region known for its dynamic entrepreneurial ecosystem. The findings reveal that effective HRM practices have a positive and significant impact on SA, which, in turn, serves as a key driver of SME competitiveness. Furthermore, SA functions as a mediating factor in the relationship between HRM and competitiveness, highlighting the critical interplay between internal capabilities and market responsiveness. Notably, environmental turbulence (ET) acts as a moderating variable, amplifying the effect of SA on competitiveness, underscoring the necessity for SMEs to continuously adapt and innovate in response to external market disruptions. This study offers an evidence-based approach for strengthening SME competitiveness through enhanced human capital and strategic agility. The results indicate that strategies including adaptive training, cross-functional collaboration, responsiveness, and continuous innovation can significantly improve SMEs sustainability. These objectives are closely aligned with the initiatives that have been taken by the Indonesian Employers' Association (APINDO).

Keywords: SMEs Competitiveness; Human Resource Management; Strategic Agility; Environmental Turbulence

INTRODUCTION

Small and Medium Enterprises (SMEs) are small-scale businesses categorised by revenue and employees. SME businesses in Indonesia contribute to Indonesia's Gross Domestic Product (GDP) by 61 per cent. In addition, Indonesian SMEs currently account for almost all businesses in the country and account for almost 97 per cent of employment (Coordinating Ministry for Economic Affairs of the Republic of Indonesia, 2024).

The number of SMEs in Indonesia is higher than developed countries such as Singapore, Malaysia, Thailand, Vietnam, and other countries. Amidst the large contribution of SMEs to the economy in Indonesia, it is unfortunate that SMEs are less integrated into global supply and value chains (Coordinating Ministry for Economic Affairs of the Republic of Indonesia, 2024). Moreover, Henryanto et al (2025) highlighted the important role of SMEs in reducing poverty and unemployment, but pointed out their limited impact on economic growth due to structural challenges.

Small and medium enterprises (SMEs) in East Java play a vital role in the regional economic structure, but they have not fully developed their potential to be internationally competitive in order to improve the economy in Indonesia. In 2020, their contribution reached 57.25 per cent and in 2021 it rose to 57.71 per cent (Kominfo, 2021). SMEs are not only the backbone of the local economy but also play a role in creating jobs, distributing

income, and encouraging the growth of local industries. SMEs are Small and Medium Enterprises in the form of a group of trading businesses managed by a business entity or individual that focuses on a productive economy in accordance with the criteria in Law No. 20 of 2008 which can support the movement of economic development in Indonesia (Munthe et al., 2023). However, SMEs in East Java, especially the food and *beverage* sector, are faced with various obstacles.

Research on employee performance has shown a significant relationship with the theoretical framework of the *resource-based view* (Barney et al., 2001; Barney, 2019; Abid et al., 2023). The enterprise resource-based view is one of six theoretical models discussed in the strategic human resource management literature, which emphasises the importance of understanding the strategic determinants of HR practices (Wright & McMahan, 1992). This view suggests that organisational resources, including human resource management, play a critical role in achieving sustainable competitive advantage (Mahoney & Pandian, 1992; Games & Roliza., 2019).

Various studies have explored various aspects related to employee performance within this theoretical framework. For example, the mediating role of employee commitment and strategic leaders has been recognised in the implementation of strategic HRM practices (Tawfig & Kamarudi, 2022). In addition, perceived organisational support has been linked to employee performance through intrinsic motivation as a mediator (Li et al., 2022). Furthermore, high-performance HR practices and leader-member exchange have been shown to influence employee engagement and creativity, further impacting performance outcomes (He et al., 2021).

Strategic agility (SA) is a critical capability for small and medium-sized enterprises (SMEs) to improve their competitiveness and performance, especially in dynamic and turbulent environments (Anggraini & Sudhartio, 2019). It enables SMEs to sense change, make timely decisions, and adapt through appropriate actions, ultimately affecting their organisational performance (Palanisamy et al., 2022). The capacity of SMEs to continuously adjust and adapt their strategic direction is critical to creating value and improving performance (Ogunleye et al., 2021).

SA is a company's ability to face challenges in anticipating and adapting to continuous and often unpredictable change. (Reed, 2020). Companies must be agile, flexible, and responsive in order to efficiently navigate turbulence in order to compete, organisations operating in turbulent environments must constantly pay attention to business conditions externally, recognise emerging trends, and change their strategies immediately (Arifiani et al., 2021; Ali & Anwar, 2021). Effective turbulence management requires a proactive risk management approach, strategic predictability, and the ability to innovate quickly. (Zhang et al., 2023).

Flexible businesses not only survive but also find opportunities amidst chaos, positioning themselves to thrive in the face of uncertainty. Therefore, understanding and effectively managing turbulence is critical for businesses that want to maintain resilience and long-term growth in a rapidly changing business environment. (Chatterjee et al., 2023; Luo et al., 2024).

A company is considered competitive when it is able to outperform its competitors in the market in terms of market share and growth, both in the short and long term. (Farida & Setiawan, 2022). A resilient firm establishes its presence in the industry by exceeding consumer expectations through the utilisation of its competencies, assets and strategic benefits. Its components include product innovation, operational efficiency, quality management, marketing strategies, and adaptability to changing market conditions. (Ali & Anwar, 2021).

Competitive companies encourage a culture of innovation, invest in research and

development, monitor industry trends, and regularly evaluate and adjust business operational plans (Teece, 2020). Arici & Gok (2023) explained that the cornerstones of a competitive organisation are strong relationships with critical stakeholders, the capacity to deliver value to customers, and adaptability in the face of change. Li et al. (2020) said that a competitively successful business is characterised by its ability to take advantage of opportunities and threats that arise today and in the future.

Human resource management (HRM) refers to the strategic methodology used in the management of an organisation's human resource management with the aim of facilitating the achievement of its goals and objectives. (Sharma et al., 2023; Mantje et al., 2023). Components covered in this aspect include recruitment and selection, development and training, performance management, compensation and benefits, employee relations, and organisational growth (Mizrak, 2023; Sharma et al., 2023).

The goal of strategic human resource management is to effectively meet the needs of employees in a fair and impartial manner, while optimising employees' capacity to contribute to the organisation (Mizrak, 2023). In addition to encouraging diversity, equality, and inclusion within the organisational environment, HRM includes establishing policies and procedures that are aligned with the framework. In conclusion, the importance of human resource management management lies in its ability to influence organisational culture, performance, and sustainability through employee motivation with the company's strategic goals (Arici & Gok, 2023; Sharma et al., 2023; Mantje et al., 2023).

METHOD

Population, and Sample

The primary data used is based on the population of SMEs in East Java, which is defined as having a complete set of individuals with certain characteristics or traits and a sample is defined as a subset of the population. Defining the characteristics of a population can range from demographic, clinical, and temporal. This research focuses on the population that is currently SME business people. The population used in this study is all SMEs engaged in *food and beverage* in East Java, which totalled 240 thousand in 2020 (BPS East Java, 2020). In this calculation, the total respondents determined were 161 respondents, known (N) 240,143 thousand. The sample was taken using purposive sampling which was randomly selected from F&B SMEs in East Java. Respondent criteria:

- 1. Domiciled in East Java
- 2. Own business in food and beverage
- 3. Have an income above IDR 2 Billion per year (Based on Law no 20 of 2008)

Data Collection Technique

This research uses a deductive approach and uses survey as a research method. conducted is quantitative research where data collected from questionnaires will be statistically analysed through inferential statistics, utilising regression analysis. Descriptive quantitative research serves as a foundational element in mixed methods research, providing statistical data that can be enriched through qualitative insights. Matović & Ovesni (2021) stated that while quantitative methods can provide an overview of trends and patterns, qualitative methods can dig deeper into the context and meaning behind these numbers.

Quantitative explanatory research aims to clarify the relationship between variables and often uses statistical techniques to test hypotheses and explain phenomena (Matović & Ovesni, 2021). This type of research usually involves collecting numerical data, which is then analysed using statistical methods to draw conclusions about the relationship between independent and dependent variables. Researchers have argued that this approach is essential for generating empirical evidence that can inform theory and practice (Matović & Ovesni,

Variables and Operational Definitions

Variables	Indicators	Source
SMEs Competitiveness	 Product Price Place Promotion 	(Prasada et al., 2021)
Human Resource Management (HRM)	 Special attention to relevant expertise when hiring staff Special attention to learning and development capabilities when recruiting staff The company evaluates candidates according to ability Offer to deepen and broaden their expertise Offer training with the latest knowledge Opportunities to develop competence Employee competency development needs are discussed regularly Share knowledge of criteria in performance appraisal New knowledge creation of work performance assessment criteria Applying science-derived criteria for work performance appraisal Rewarding employees who share knowledge Rewarding employees for creating new knowledge Rewarding employees for applying knowledge 	(Le, 2024)
Strategic Agility (SA)	 Competitive change innovation Innovation New Market Price change Threat of new entrants Adjustment to market needs Use of new technology Supplier replacement 	(Tallon & Pinsonneault, 2011)
Environmental Turbulence (ET)	 Rapid change in technology Technology Breakthroughs Environmental complexity Changes in marketing activities New product launch 	(Pavlou & Sawy, 2010)

Data Analysis Technique

Kiyabo & Isaga (2019) provide references on the application of quantitative research in the context of strategic entrepreneurship and competitive advantage in SMEs. In this study, it discusses how quantitative methods can be used to measure constructs such as competitive advantage and performance, thus contributing to a better understanding of the factors that influence SME success (Kiyabo & Isaga, 2019). This is in line with the principles of quantitative explanatory research, which seeks to measure relationships and provide explanations based on empirical data (Taherdoost, 2016).

Data is gathered numerically through structured survey methods to quantify and analyze phenomena; computerized statistical analysis reduces potential researcher bias (Cooper & Schindler, 2019). The research is quantitative in nature. In order to gain a better understanding of population trends as a whole, researchers in the social sciences frequently employ surveys, which involve the systematic collection of data from a representative sample of people (Check & Schutt, 2012). By utilizing structured instruments, like questionnaires with numerically rated items, to consistently collect and measure data across participants, this approach bolsters the quantitative strategies in this study (Bryman, 2012). A five-point Likert scale was utilized to assess the degree to which respondents agreed or disagreed with each statement. Scores ranging from 1 indicated strong disagreement to 5 strong agreement.

The data analysis technique in this study is that the data collected is then analysed using the *Partial Least Square* (PLS) method using SmartPLS. SmartPLS is used to calculate

the Square Equation Modeling (SEM-PLS) model. The SEM-PLS model used in this study is a *soft modelling* approach which means that the data is assumed to be on a certain scale and does not have a minimum number, (Monecke & Leisch., 2012; Hair et al, 2019).

Research Framework

The food and beverage industry are a field of choice that many SMEs are interested in as a business. In this case, SMEs must also be able to have the ability to adapt when changes in the environment occur unexpectedly in order to survive in the midst of increasingly competitive competition. The influence of human resources on competitiveness in SMEs engaged in food and beverages is important to be further researched in food and beverage SMEs in East Java.

The research model uses SA variable as mediating variable and ET as moderating variables in this study, where it can be seen that all variables have a relationship and influence on each other. Therefore, based on the explanation previously described, this research was raised. Figure 1. shows the research model:

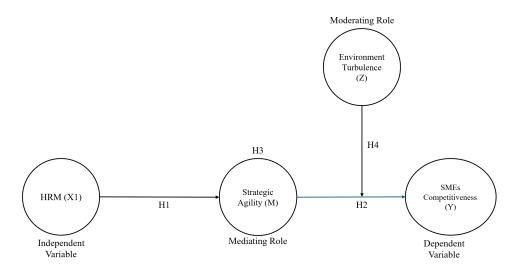


Figure 1. Research framework

RESULTS AND DISCUSSION

The number of respondents in this study was 161 respondents of SME business owners engaged in the food and beverage industry in the East Java Region. There are 104 respondents are male, and 57 respondents are female. The respondents' profiles in this study include 12 respondents who graduated from high school, 88 respondents who graduated from S1, 54 respondents who graduated from S2 and 7 respondents who graduated from S3. Regarding the origin of the respondents are as follows: 11 respondents live in Batu, Gresik, and Sidoarjo, 7 respondents live in Jombang, 8 respondents live in Kediri, 12 respondents live in Lamongan, 13 respondents live in Malang, 22 respondents live in Mojokerto, 9 respondents live in Pasuruan, and 57 respondents live in Surabaya.

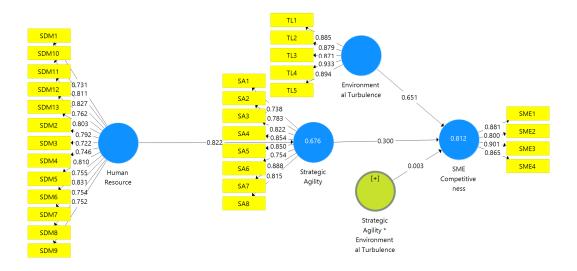


Figure 2. Analysis Results

Validity Test Table 1. Validity Test

	Environmental Turbulence	HR M	SMEs Competitiveness	Strategi c Agility	Strategic Agility * Environmental Turbulence
SA1	0.652	0.679	0.650	0.738	-0.012
SA2	0.613	0.707	0.618	0.783	0.053
SA3	0.609	0.758	0.654	0.822	-0.151
SA4	0.598	0.646	0.635	0.854	-0.228
SA5	0.599	0.652	0.611	0.850	-0.209
SA6	0.501	0.580	0.553	0.754	-0.090
SA7	0.719	0.700	0.756	0.888	-0.179
SA8	0.665	0.614	0.693	0.815	-0.186
HR1	0.561	0.731	0.555	0.556	0.087
SDM1 0	0.639	0.811	0.686	0.671	0.047

HR11	0.656	0.827	0.705	0.675	0.009
SDM1 2	0.627	0.762	0.652	0.652	0.150
HR13	0.686	0.803	0.699	0.690	-0.004
HR2	0.540	0.792	0.657	0.654	0.024
HR3	0.482	0.722	0.515	0.527	-0.027
HR4	0.549	0.746	0.539	0.538	0.071
SDM5	0.553	0.810	0.575	0.632	-0.040
SDM6	0.535	0.755	0.598	0.702	-0.049
SDM7	0.622	0.831	0.730	0.727	-0.100
SDM8	0.546	0.754	0.590	0.589	-0.051
SDM9	0.612	0.752	0.611	0.638	-0.021
SME1	0.758	0.716	0.881	0.717	-0.031
SME2	0.666	0.594	0.800	0.614	-0.048
SME3	0.788	0.753	0.901	0.695	-0.168
SME4	0.814	0.715	0.865	0.719	-0.172
SA * ET	-0.126	0.007	-0.125	-0.154	1.000
TL1	0.885	0.660	0.757	0.644	-0.050
TL2	0.879	0.674	0.793	0.699	-0.154
TL3	0.871	0.682	0.757	0.685	-0.148
TL4	0.933	0.724	0.834	0.717	-0.091
TL5	0.894	0.628	0.783	0.664	-0.121

Discriminant validity can be assessed if the cross loading value of each variable represented exceeds 0.7 as stated by Hair et al. (2017). It can be seen that all cross loading indicator values are more than 0.7, so it can be concluded that the variables are valid.

Table 2. Average Variance Extract Test

	Average Variance Extracted (AVE)
Environmental Turbulence	0.796
HRM	0.604
SMEs Competitiveness	0.744
Strategic Agility	0.663

Convergent validity refers to the degree of similarity between the indicators of a concept and the variables used in a study. Based on the findings of Hair et al. (2017), validity can be assessed when the *Average Variance Extracted* (AVE) value is equal to or more than 0.5. Based on the data above, it can be seen that the AVE value is more than 0.5 so that the data has fulfilled the *Average Variance Extracted* (AVE) test.

Discriminant Validity Test Table 3. Fornell-Lacker Test

	Environmental Turbulence	Human Resource	SME Competitiveness	Strategic Agility
Environmental Turbulence	0.892			
HRM	0.755	0.878		
SMEs Competitiveness	0.880	0.808	0.863	
Strategic Agility	0.765	0.822	0.797	0.815

The Fornell-Larcker test results show that the root AVE value of each variable is greater than its correlation value with other factors, which indicates that all variables are valid for use in the study. Therefore, the discriminant validity analysis has been fulfilled.

Reliability Test Table 4. Reliability Test

	Cronbach's Alpha	Composite Reliability
Environmental Turbulence	0.936	0.951
HRM	0.945	0.952
SMEs Competitiveness	0.885	0.921
Strategic Agility	0.927	0.940

In the reliability test, the *Cronbach Alpha* and *Composite Reliability* tests have a total dependability value that exceeds 0.7. The composite material reliability test can be improved by using *Cronbach's alpha*, a statistical technique that provides reliable results when the *Cronbach alpha* value exceeds 0.7. Based on the table above, it can be seen that *Cronbach Alpha* and *Composite Reliability* already have a value of more than 0.7, so it can be concluded that the data is reliable.

Hypothesis Test Table 5. Hypothesis Test

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
HRM -> Strategic Agility	0.822	0.827	0.023	36.354	0.000
Strategic Agility -> SMEs Competitiveness	0.300	0.295	0.072	4.184	0.000

Based on the direct test results, the research findings are as follows:

- 1. HRM has a positive and significant effect on SA because the significance value is smaller than 0.05 and the t-statistic value is greater than 1.96.
- 2. SA has a positive and significant effect on SMEs Competitiveness because the significance value is smaller than 0.05 and the t-statistic value is greater than 1.96.

Mediation and Moderation Test Table 6. Mediation and Moderation Test

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Strategic Agility (SA) can mediate the effect of HRM on SMEs Competitiveness	0.003	0.005	0.030	3.109	0.017
Environment Turbulence (ET) as moderation strengthens the effect of Strategic Agility on SMEs Competitiveness	0.651	0.657	0.063	10.413	0.000

Based on the results of the mediation test, the research findings are as follows:

- 1. SA can mediate the effect of HRM on SMEs Competitiveness because the significance value is smaller than 0.05 and the t-statistic value is greater than 1.96.
- 2. ET is a moderating variable that strengthens the relationship between Strategic Agility and SMEs Competitiveness significantly because the significance value is smaller than 0.05 and the t-statistic value is greater than 1.96.

Human Resource Management (HRM) has a positive and significant effect on Strategic Agility (SA)

In testing the first hypothesis (H1), it was found that HRM has a positive and significant effect on SA. This shows that an increase in HRM will also increase the company's SA. This shows that the first hypothesis in this study H1: HRM has a significant effect on SA, is accepted. HR contributes to SA by fostering a collaborative and innovative work atmosphere (Toan, 2023). HR policies that facilitate open communication channels and empower individuals to express their opinions can foster two important components of SA: creativity and experimentation. HRM engagement can facilitate cross-functional collaboration and teamwork, enabling companies to utilise collective intelligence and respond quickly to emerging opportunities or threats. (Arici & Gok, 2023).

Strategic Agility (SA) has a positive and significant effect on SMEs Competitiveness

Based on the results of the analysis on hypothesis testing, it is found that SA has a positive and significant effect on SME Competitiveness. This shows that

an increase in SA will also increase SMEs Competitiveness. This shows that the second hypothesis in this study, H2: SA has a significant effect on SMEs Competitiveness, is accepted. Small and medium-sized enterprises (SMEs) have the ability to build strong and resilient supply chains and partnerships by using SA (Reed, 2020).

The potential impact of supply chain disruptions on a company's competitiveness in today's interconnected global economy is significant. Agile small and medium-sized enterprises (SMEs) have an advantage in anticipating and mitigating supply chain risks by being flexible in their sourcing strategies, identifying alternative sources of supply, or building partnerships to gain access to new resources and markets. (Chan & Muthuveloo, 2021).

SA is beneficial to SMEs as it enables them to sustain their business in the long term by fuelling growth through a process of experimentation and learning from mistakes (Alqarni et al., 2023; Dwikat et al., 2023). Agile small and medium-sized enterprises excel at actively listening to others, introspecting on their own performance (both positive and negative), and quickly implementing necessary adjustments.

SMEs rely on an iterative process of acquiring knowledge and adjusting their strategies to be relevant and competitive in a dynamic marketplace. SMEs can improve their competitiveness by adopting strategic agility, which facilitates rapid decision-making, fosters innovation, strengthens supply chains, and supports adaptive learning (Zastempowski & Cyfert., 2023).

Strategic Agility (SA) is able to mediate the relationship between Human Resource Management (HRM) on SMEs Competitiveness

The third hypothesis test (H3) found that SA is able to mediate the relationship of HRM to SMEs Competitiveness. This finding shows that an increase in SA will increase the relationship between HRM and SMEs competitiveness. The results of this research indicate that the third hypothesis (H3): SA mediates the relationship of HRM to SME Competitiveness, is accepted.

The SA and competitiveness of SMEs are significantly influenced by HRM initiatives that promote leadership and organisational culture (Charles & Benson Ochieng, 2023). Teams are more agile and open to taking risks when their leaders demonstrate decisiveness and trust. Organisational agility in responding to market changes is enhanced by HR initiatives that encourage cross-functional collaboration, effective communication, and teamwork, thereby driving innovation (Algarni et al., 2023; Biswas, 2023).

Environmental Turbulence (ET) is able to moderate the Effect of Strategic Agility (SA) on SME Competitiveness

Based on the results of the analysis on hypothesis testing, it is found that ET is able to moderate the effect of SA on SMEs competitiveness. This shows that ET strengthens the relationship between strategic agility and SMEs competitiveness. Therefore, the fourth hypothesis is accepted in this study.

Organisations that exhibit high levels of agility show a proactive approach in dealing with uncertainty, viewing change not as a threat but as an opportunity for improvement (Chan & Muthuveloo, 2021). The ability to react quickly to changing market dynamics can be achieved by implementing flexible strategies, empowered teams, and adaptive systems (Adomako et al., 2022; Arici & Gok, 2023).

CONCLUSION AND IMPLICATIONS

Based on the analysis conducted, the conclusion in this study is that human resource management (HRM) has a positive and significant effect on strategic agility (SA) in food and beverage SMEs in East Java so that H1 is accepted. Another finding is that SA has a positive and significant effect on competitiveness, so H2 is accepted.

Furthermore, there are findings that SA mediates HRM on SMEs competitiveness, therefore H3 is accepted. An interesting finding is that environmental turbulence (ET) strengthens the influence of the SA relationship on competitiveness in SMEs in line with H4 accepted. The higher the level of ET, the stronger the influence of HRM on SMEs competitiveness.

This research provides an evidence-based approach to strengthening SMEs competitiveness through HRM and SA, as well as the study suggests several implications. Adaptive training, cross-functional collaboration, market responsiveness, and structured innovation can significantly improve the sustainability of SMEs, according to the study's findings. These strategies are aligned with initiatives already undertaken by the Indonesian Employers' Association (APINDO).

First, APINDO's engagement with educational institutions to create customized SME curricula supports the need to institutionalize adaptive skill training. Monthly workshops on emerging technology ensure that SMEs are proactive in responding to disruptive breakthroughs. Appointing cross-functional teams to collaborate supports APINDO's goal of digitalizing SMEs and encourages ecosystem-based contributions. SMEs advancing into the digital sphere require internal coherence and agility, which can be developed by cross-disciplinary teams.

In response to ET, this research study suggests market monitoring systems that warn enterprises to regulatory changes and new competitors. APINDO's huge events, like the UMKM Expo Fair 2024, spread intelligence. These platforms raise awareness while empowering SMEs with skills and insights for adaptive strategy purposes.

Finally, in line with this study's finding that SA mediates the relationship between HRM and SME Competitiveness, APINDO's strategy of facilitating regular brainstorming sessions that enhance creativity should be intensified. APINDO assists SMEs explore potential markets and co-develop innovative solutions through interactive expos and digital platforms.

The Prabowo-Gibran Government can adopt a comprehensive SME empowerment strategy by combining research-backed strategies with APINDO's platforms. With President Prabowo's mandate, a national coordinating body led by Vice President Gibran Rakabuming Raka can institutionalize these synergies and lead a groundbreaking SME competitiveness movement for the greatest possible impact.

Researchers should consider using longitudinal designs in order to comprehend the complete impact of HRM and SA throughout the long term. To further our understanding of how SMEs handle different levels of uncertainty, we can look at how internal enablers like digital platform capability, absorptive capacity, and customer knowledge management capability affect agility and competitive performance.

LIMITATIONS AND FUTURE RESEARCH

We acknowledge the constraints of employing a cross-sectional research design in this investigation. To better capture long-term causal relationships, future researchers should consider using longitudinal and mixed-method approaches. Our current study only offers a snapshot of HRM and SA dynamics.

By examining the impact of internal enablers like digital platform capability, absorptive capacity, and customer knowledge management capability, researchers can better understand how SMEs turn agility into competitive advantage in response to uncertainty.

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Throughout history, when storms hit the economy, it was the SMEs that stood firm. From the 1998 Asian Financial Crisis to today's uncertainties, Indonesian SMEs have been the real defenders of national stability. This research is dedicated to their unwavering contribution — the true economic warriors of our time.

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