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Developing MSMEs' competitive advantage through enterprise risk management and dynamic capabilities in Surabaya and Lampung

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Abstract
Micro, Small, and Medium Enterprises (MSMEs) in Indonesia play a vital role in the economy, accounting for almost 99% of business units and contributing significantly to Gross Domestic Product (GDP) and employment. Amidst rapid market dynamics, especially after the COVID-19 pandemic, MSMEs face the challenge of managing risks and increasing dynamic capabilities to maintain competitive advantage. This study examines the effect of implementing Enterprise Risk Management (ERM) to increase the dynamic capabilities and competitive advantage of MSMEs in Surabaya and Lampung, Indonesia. The research methodology used a qualitative approach with in-depth interviews with the MSME owners. Data were analyzed using a three-level coding model to understand how ERM implementation affects MSME business strategies and decisions facing market threats and opportunities. The results of this study indicate that ERM implementation positively affects MSMEs' dynamic capabilities.

Keywords:
Enterprise risk management; Dynamic capabilities; Competitive advantage; MSMEs; Qualitative.

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1. Introduction

Micro-, small-, and medium-sized enterprises (MSMEs) are vital to the Indonesian economy. MSMEs contribute almost 99% of business units in Indonesia and significantly contribute to the Gross Domestic Product (GDP) and national workforce absorption (Saputra et al., 2024; Tamunosiki-Amadi et al., 2019). Rapid changes and increasingly intense competition encourage business actors to focus on daily operations and to develop dynamic capabilities to anticipate and respond to market changes. This approach is fundamental because dynamic capabilities allow MSMEs to analyze technological and market changes and adjust resources to create significant value (Kuuluvainen, 2012; Papadoulis, 2006; Teece, 2018). In the cities of Surabaya and the Lampung region, the existence of MSMEs reflects the strength of the local economy and the innovation potential that can drive regional economic growth.

Globalization and increasingly rapid market dynamics require MSMEs to adapt to changes in the business environment. The impact of the COVID-19 pandemic, for example, has created major challenges that have forced MSMEs to innovate business models in response to external disruptions (Kraus et al., 2020). This innovative strategy is an important step in maintaining business continuity amid global economic uncertainty (Jabeen et al., 2023). Amid these changing conditions, effective risk management is an important foundation for maintaining the continuity of MSME operations. Failure to identify and manage risks hinders business growth and can have

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serious negative effects. Therefore, comprehensive Enterprise Risk Management (ERM) adoption is needed to increase awareness of potential threats and opportunities, while equipping business actors with a responsive response mechanism to market dynamics (Syrová & Špička, 2023). For MSMEs to maintain their superiority, implementing effective risk management is an important foundation for maintaining the continuity of MSME operations (Al-Nimer et al., 2021; Yang et al., 2018). Failure to identify and manage risks hinders business growth and can have serious negative impacts, thereby threatening business stability (Sharma et al., 2022). Therefore, implementing ERM comprehensively is necessary to increase awareness of potential threats and opportunities, and to provide business actors with responsive response mechanisms to market dynamics (Horvey & Ankamah, 2020; Horvey & Odei-Mensah, 2023).

Amid increasingly uncertain market dynamics, MSME business actors in Surabaya and Lampung face the challenge of being alert to every change in the business environment. These changes can be significant, requiring them to, if necessary, overhaul or even replace the business model that has been running so far so that the business continues to run and generate profits (Cunningham, 2011). This condition emphasizes that although every change holds opportunities, it also carries risks that can threaten operational stability if not anticipated properly.

Although ERM is recognized as an essential tool for managing uncertainty, MSMEs often face serious obstacles in their implementation. Limited resources, bureaucratic hurdles, and strict budget constraints lead to the inconsistent application of ERM practices, thereby reducing its potential benefits. This situation is further compounded by a lack of specialized knowledge and comprehensive risk management training, which makes it challenging for MSMEs to effectively identify, assess, and manage risks (Akkaya & Qaisar, 2021; Cunningham, 2011; Gruber-Muecke & Hofer, 2015).

Although the synergy between risk management and dynamic capabilities (sensing, seizing, and reconfiguring) offers a promising framework for navigating market dynamics, many MSMEs in Surabaya and Lampung have not yet been able to optimally integrate these aspects (Beasley et al., 2017; Capano et al., 2020; Fraser & Simkins, 2010). Barriers, such as bureaucratic inertia, limited capital, and inadequate supporting infrastructure, impede the effective implementation of ERM (Côrte-Real et al., 2017; Malik et al., 2020; Roberts & Grover, 2012). Consequently, MSMEs are not fully capable of leveraging innovative opportunities or proactively anticipating risks, undermining the overall effectiveness of their business strategies (Agustina & Baroroh, 2016; Glowka et al., 2021).

This study aimed to determine whether the effective implementation of ERM by MSME owners in Surabaya and Lampung can facilitate the development of dynamic capabilities to maintain and improve competitive advantage. By integrating the ERM approach, which includes identification, assessment, and risk management, this study examines the strategic role of business actors in implementing the concepts of sensing, seizing, and reconfiguring, in response to market dynamics and changes in the business environment. Based on this background, the objectives of this study were formulated through the following research question (RQ): How does implementing ERM improve the dynamic capabilities and competitive advantages of MSMEs in Surabaya and Lampung?

Through this approach, it is expected that MSMEs will not only be able to anticipate and manage emerging risks, but also take advantage of innovative opportunities to survive and thrive amidst increasingly tight competition. This research is expected to provide significant academic contributions by enriching the literature on risk management and business strategy and practically as a guide for business actors in designing and implementing more effective risk management strategies.

2. Enterprise risk management (ERM)

ERM is a systematic approach designed to comprehensively identify, evaluate, and manage risks in order to achieve organizational goals. This approach gained global attention when the Committee of Sponsoring Organizations of the Treadway Commission (COSO) released the ERM Framework in 2004, which was widely adopted as the basis for ERM implementation in 2005 (Beasley et al., 2023). In 2009, the International Organization for Standardization (ISO) published ISO 31000, which presents general principles and guidelines on risk management that can be applied across industries (Aven, 2011). The global financial crisis of 2007–2008 further emphasized the need for robust risk management implementation by various regulatory agencies, such as the United States. The Securities and Exchange Commission (SEC) and Basel Committee on Banking Supervision began to encourage the integration of ERM into corporate governance and financial regulation (Mikes, 2009).

As the complexity of the business environment increases, organizations are beginning to integrate ERM into their strategic planning processes to gain a competitive advantage and improve decision-making (Fraser & Simkins, 2010). To assess the maturity of ERM implementation in an organization, maturity models have been developed to help companies measure and identify areas for improvement in their risk management practices (Viscelli et al., 2016). Establishing a risk-aware organizational culture influenced by leadership and corporate governance structures is critical for integrating ERM into corporate culture (Frigo & Anderson, 2011). Some ERM frameworks now accommodate environmental and social risks given their importance to long-term sustainability and stakeholder trust (Eccles et al., 2014).

In addition, ERM supports strategic planning by integrating risk considerations into the strategy formulation process, enabling organizations to anticipate and mitigate the impact of strategic risks more effectively (Brustbauer, 2016). Farrell and Gallagher's research also shows that implementing a comprehensive ERM framework can source competitive differentiation, increasing an organization's agility and responsiveness to uncertainty (Farrell & Gallagher, 2015).

3. Dynamic capabilities

The rationale behind the impact of ERM on dynamic capabilities can be explained through the dynamic capabilities view theory, which emphasizes the importance of an organization’s ability to detect opportunities and threats, optimally utilize resources, and flexibly adjust strategies. Through sensing (detecting opportunities and threats), seizing (capitalizing on opportunities), and reconfiguring (adjusting capabilities), ERM serves as a strategic mechanism that supports innovation and knowledge transfer. This approach enables companies to adapt to market dynamics and contributes to the development of a robust competitive advantage (COSO, 2004; Mishra et al., 2019; Nair et al., 2014a; Yakob et al., 2019).

Dynamic capabilities refer to a firm's ability to integrate, build, and reconfigure its internal and external competencies to address rapidly changing environments (Teece, 2018). In the context of MSMEs, dynamic capabilities are crucial, because they enable adaptation to market shifts, technological advances, and changing customer needs (Nyachanchu et al., 2017; Permana & Ellitan, 2020). The concept of dynamic capabilities is rooted in the idea of innovation proposed by Schumpeter (1934), who emphasized that competitive advantage can be achieved through innovation and creative recombination of resources. This approach was later developed through the concept of 'configuration competence' proposed by Henderson and Cockburn (1994) and 'combinative capabilities' by Kogut and Zander (1992), which was later refined by Teece et al. (1997) and Teece (2007) to emphasize the role of dynamic capabilities in creating competitive advantage in an uncertain business environment.

From the Resource-Based View (RBV) perspective, dynamic capabilities extend an organization's ability to optimize and renew internal resources to achieve a competitive advantage(Barney, 1991). This RBV approach highlights that companies not only rely on a static combination of resources, but must also be able to renew and revitalize these resources to remain relevant in the face of market dynamics (Akenroye et al., 2020; Sousa & Rocha, 2019). Further research shows that dynamic capabilities include four main dimensions: the ability to detect change (sensing), learn from experience (learning), integrate internal and external resources (integrating), and synergistically coordinate organizational elements (coordinating) (Ettlie & Pavlou, 2006; Matarazzo et al., 2021; Mikalef & Pateli, 2017; Teece, 2020). In addition, this dynamic capability mechanism enables SMEs to compete with large companies despite resource constraints, through rapid and effective strategic adaptation (Eisenhardt, 1989; Teece, 2018).

4. Research method

The research method used in this study was a case study approach. This approach was chosen because it provides an in-depth and contextual understanding of how implementing effective risk management can support the dynamic capabilities of MSMEs in Lampung and Surabaya. This study explores how business owners are aware of changes in the business environment, manage risks, and sense, seize, and reconfigure resources to maintain competitive advantage. This approach allows researchers to holistically explore the risk management practices implemented, including readiness to switch business models if market conditions are required, thus providing a comprehensive picture of strategic adaptation when facing market dynamics.

This qualitative study adopted a naturalistic approach, with data collected through in-depth interviews. Three key informants were selected, comprising two MSME owners operating in Lampung and Surabaya who have implemented risk management practices to anticipate market changes and maintain the competitiveness of their businesses. The first informant was Mr. Suryono, an MSME owner in Surabaya, who plays a central role in strategic decision making and implementing risk management to deal with market dynamics. The second informant was Mr. Noto, an MSME owner in Lampung, who demonstrated readiness to change business models in response to local market challenges. The criteria and roles of each participant are listed in Table 1.

Table 1: Informant criteria

Informant	Position/Role	Core Business	Role Description
Informant 1: Mr. Suryono	MSME Owner in Surabaya	Car Wash, Retail, Groceries, Restaurant	Responsible for strategic decision-making, implementing risk management policies, and dynamically adapting to market changes.
Informant 2: Mr. Noto	MSME Owner in Lampung	Retail, Groceries, Restaurant	Demonstrate readiness to change or shift business models in response to market dynamics and deeply understand local risks.

The interviews were conducted individually over a two-month period from November to December 2024. The informants were invited to participate through prior coordination and a briefing session was held to clearly explain the purpose, scope, and process of the study. Although no formal consent forms were signed, verbal consent was obtained before the interviews began. The data obtained from the interviews were analyzed through three stages of coding: initial coding to categorize information based on main themes, axial coding to identify relationships between categories, and selective coding to determine central themes that

describe the role of risk management in supporting dynamic capabilities. This analytical approach is expected to provide a deep understanding of how MSMEs proactively sense, seize, and reconfigure resources in response to market changes and risks, and how this strategy contributes to maintaining competitive advantage in the digital and globalization era.

4.1 Analysis

Qualitative data from the interviews were analyzed using a stepwise coding method to identify key themes and patterns that illustrate how ERM supports these dynamic processes. Examples of the interview questions are as follows:

- How do you identify and assess risks that could disrupt business operations?
- To what extent does risk management affect a business's ability to respond to market and business environment changes?
- Can you explain how sensing, seizing, and reconfiguring are applied to anticipate the market dynamics?
- Has your business changed its model in response to emerging risks? If so, how do you make these decisions?
- What factors are the main considerations in determining risk-mitigation strategies so that the business continues to run and grow?

4.2 Coding process

The researcher applied a three-stage coding system to analyze the interview data from the informants. This approach was used to identify patterns in the implementation of ERM and dynamic capabilities to maintain a competitive advantage when facing market dynamics. The coding approach provides a deeper empirical understanding and enriches the theory on the role of risk management in supporting business sustainability and flexibility in the MSME sector.

In the first stage, open coding and interview data were analyzed to identify relevant comments and statements related to risk management practices, responses to changes in the business environment, and strategies used to maintain and improve competitiveness. Each key concept, such as risk identification, strategic decision-making, and business flexibility, was coded separately to understand informants' mindsets in running their businesses.

In the second stage, axial coding groups the codes into specific categories and explores the relationships between categories. At this stage, concepts such as sensing (awareness of market changes), seizing (exploitation of business opportunities), and reconfiguring (adjustment and restructuring of the business) are associated with ERM implementation. In addition, an analysis is conducted to determine the extent to which risk management supports business flexibility, including the readiness of business actors to switch to new business models, if necessary, to avoid losses or capture more profitable opportunities.

In the final stage, selective coding, the categories that have been developed, is synthesized into main themes that explain how ERM contributes to the dynamic capability process for MSMEs. The results of the analysis show that effective risk management helps MSMEs identify threats and opportunities, and design more flexible adaptation strategies.

4.3 Data validity

Data validity and reliability criteria were strictly applied to ensure the accuracy and reliability of the study findings. Criteria for data validity and reliability were rigorously applied to ensure the accuracy and credibility of the findings. Internal validity was established through data

triangulation, which involved three main sources: (1) in-depth interviews with participants, (2) direct observation of business processes, and (3) analysis of relevant business documents. The observation process focused on daily operations within the business owner, and was conducted over a four-week period. During this period, the researcher observed workflows, interactions, and decision-making patterns related to risk management and operational control. The business documents analyzed in this study include standard operating procedures (SOPs), financial statements, procurement records, and inventory reports. These documents were reviewed to complement the findings from the interviews and observations, helping to provide a comprehensive understanding of the company's risk management practices and dynamic capabilities.

The reliability of the research was maintained through consistent data collection and analysis procedures, including the application of triangulation techniques and verification processes for the findings, as shown in Figure 1. Each interview was recorded and carefully transcribed to ensure that no information was missed, and the analysis was carried out systematically using a three-stage coding technique. This method can minimize the risk of error and bias in data interpretation to make research results more replicable in a wider context.

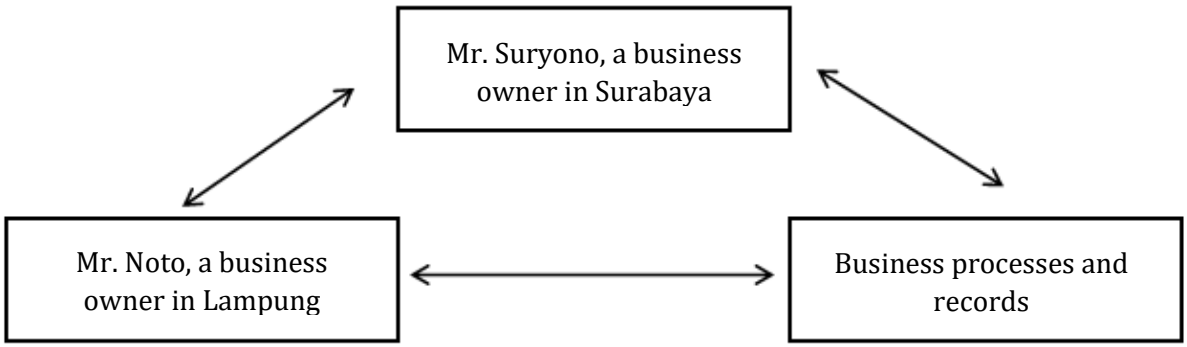

Figure 1: Data triangulation

5. Findings

This study reveals that implementing risk management in MSME business activities is crucial for maintaining business continuity amid uncertain market dynamics. Business actors in Surabaya and Lampung show that risk management includes identifying potential threats, assessing and prioritizing based on resource limitations, and implementing mitigation strategies accompanied by continuous monitoring. This process aligns with the concept of dynamic capabilities, including the stages of sensing, seizing, and reconfiguring, which help MSMEs remain adaptive and maintain competitive advantage.

5.1 Sensing: risk identification

Risk identification is an important foundation for building business resilience because by knowing potential threats early on, business owners can prepare anticipatory steps to deal with unwanted changes (Munongo & Pooe, 2024). This process includes monitoring market trends, technological development, and increasingly competitive competition dynamics. In the context of risk management as a dynamic capability, companies with this capability can respond to environmental changes more quickly and effectively, thereby mitigating the crisis's negative impacts and increasing their competitiveness (Nair et al., 2014b).

In the risk-identification phase, business actors actively observe internal and external environmental conditions to detect potential risks that can disrupt operations. This is evidence

from the following interview data that illustrate the importance of risk identification for MSMEs, who must always be ready to face innovation and competition from competitors that continue to grow.

Informant 1 explained that risk monitoring was performed to ensure a competitive advantage. The risks that a company monitors relate to technological trends. According to him *"We routinely monitor market and technology trends and identify potential risks that could threaten our competitive advantage. That way, we can immediately take anticipatory steps to ensure our business remains relevant and competitive."*

Informant 2 reported that his company monitors changes in consumer preferences and desires. This information indicates that the company views such changes as risky and significantly influences performance. This information also indicates that customer satisfaction and loyalty could be the main success factors; therefore, the company prioritizes monitoring related risks. Informant 2 furnished: *"The risk identification process is an important initial step in understanding market dynamics. We always try to capture changes in customer desires as early as possible to respond quickly and adjust products and services according to changing consumer needs."*

Thus, both perspectives show that the risk-identification phase functions as a proactive effort to avoid potential losses and as a strategic basis for building adaptive capabilities. This approach allows MSMEs to proactively take advantage of innovation opportunities and make necessary adjustments to maintain a competitive advantage in a changing business environment. Based on the technological advancements made by the first and second informants, these initiatives are among the strategies employed by MSME entrepreneurs to manage the identified risks. For example, given that people currently rarely carry cash as a means of payment, the second informant innovated by adopting technology in payment methods, such as using the Quick Response Code Indonesian Standard (QRIS). The store also uses an Electronic Data Capture (EDC) machine to facilitate cashless payments. Similarly, the first informant consistently embraced technology when providing services to customers. Because customers demand fast and efficient vehicle cleaning, the first informant invested in a high-quality car wash machine that allows customers to remain in their vehicles during the cleaning process while ensuring that the quality of the wash is maintained.

5.2 Seizing: risk assessment and prioritization

Once the risks have been identified, the next stage is risk assessment and prioritization. At this stage, MSME business owners evaluate each risk detected, considering the potential impact and probability of occurrence. Considering their limited resources, this evaluation process is very important, so MSMEs must be selective in determining which risks must be responded to immediately. This process includes an in-depth analysis to assess whether the risks faced can significantly disrupt operations and how big the chances of the risk occurring are (Eisenhardt & Martin, 2000; Romanosky & Petrun Sayers, 2024).In the context of risk management, the ability of MSMEs to manage risk can be considered a dynamic capability that allows for a faster response to changes in the business environment (Garba et al., 2022; Verbano & Venturini, 2013). In addition, research shows that effective risk management can help companies deal with uncertainty and build supply chain resilience through proactive decision making and innovation (Franco & Esteves, 2020; Sturm et al., 2023). Thus, a well-planned risk-assessment strategy can increase the competitiveness of MSMEs in a dynamic and uncertain business environment (Amah & Eshegheri, 2017; Modibbo, 2015).

Mr. Suryono, an MSME owner in Surabaya, said,' *When facing technological developments and competition risks, I always reassess our resources. I must decide whether to imitate competitors' technological investments or choose a more unique innovation, even though it means higher costs.*

This decision is highly dependent on an in-depth analysis of the impact of risk and potential long-term benefits."

This statement emphasizes that risk evaluation focuses on avoiding losses and is a basis for making strategic decisions in optimizing competitive advantages. To evaluate risks, Mr. Suryono used monthly revenue data to perform trend analyses. If any anomalies are detected, he proceeds with further examinations, such as monitoring the number of daily customer visits and conducting interviews with selected customers, to gain deeper insight into the underlying issues.

On the other hand, Mr. Noto, an MSME owner in Lampung, emphasized the importance of understanding changes in consumer desires in the risk assessment process. This approach shows that Mr. Noto's risk assessment is not only related to internal aspects but must also consider market dynamics and changing customer preferences. He stated, *"I always consider whether our business is still relevant or should be developed through new product variants. If the market shows a significant change trend, I will also look for other business opportunities to anticipate a decline in the main business."*

Based on field findings, the researcher concludes that strategic decision-making among MSME actors should be grounded in a comprehensive analysis and consider the reality of available resources. In this context, risk assessment plays a crucial role in enabling MSME owners to identify and prioritize risks that have both high impact and high probability. By adopting this approach, the allocation of limited resources can be more effectively directed toward targeted and appropriate mitigation efforts. Furthermore, the researcher observes that business owners need to pay particular attention to operational risks when exploring strategic alternatives. These may include investing in innovative technologies, developing new product variants, or diversifying business lines. However, all such initiatives should be aligned with each enterprise's unique capabilities and potential, which must first be evaluated through thorough internal assessment.

After identifying the risks, the next step is assessment and prioritization. At this stage, MSME business owners analyze each risk by considering the potential impact and likelihood of occurrence. Given their limited resources, they must carefully determine risks that require immediate action. This evaluation involves a detailed examination of whether the risks can significantly disrupt operations and the probability of their occurrence (Eustace & Martins, 2014; Ismail Hajiali et al., 2021; Zott et al., 2011). Moreover, effective risk management is viewed as a dynamic capability that enables MSMEs to respond swiftly to environmental change(Baden-Fuller & Teece, 2020; Ogar & Ude, 2020). Research further suggests that these dynamic capabilities help companies adapt during both crisis and recovery periods (Nair et al., 2014b).

In addition, research indicates that effective risk management implementation can improve supply chain resilience and competitiveness of MSMEs through a more proactive approach to decision-making and innovation (Franco & Haase, 2013; Sturm et al., 2023). Planned risk management allows MSMEs to be more flexible in dealing with external disruptions, such as global financial crises, pandemics, or regulatory changes, which can disrupt their business continuity (Bandaly et al., 2013; Permatasari, 2020). This is in line with research that finds that organizations with strong dynamic capabilities can respond faster to changes in the business environment, increase operational resilience, and capitalize on opportunities during the economic recovery phase (Nair et al., 2014b). Thus, a well-planned risk-assessment strategy can improve the competitiveness of MSMEs in a dynamic and uncertain business environment (Adam & Suleiman, 2018).

Mr. Suryono, an MSME owner in Surabaya, said,' *We not only set mitigation strategies but also routinely monitor every step we take. Suppose there is an indication that the implemented strategy is not optimal. In that case, we immediately make adjustments, for example, by increasing investment in new technology or overhauling operational methods to stay ahead."*

Mr. Noto, an MSME owner in Lampung, said, " *In our business, regular monitoring is very important. We continue to observe the market response to existing products so that if there is a change in consumer trends or preferences, we can quickly adapt, for example, by developing new product variants or looking for alternative business opportunities."*

Risk mitigation cannot be separated from a strong and continuous monitoring system because both are essentially two sides of the same coin. Without effective monitoring, mitigation efforts may not be implemented as intended and may fail to respond to real-time changes or challenges in the field. Therefore, every mitigation strategy should be supported by a robust monitoring mechanism capable of detecting the early signs of deviation, inefficiency, or failure in execution. This allows timely and appropriate corrective actions to be taken, preventing risks from escalating into more serious problems. This approach is particularly crucial for MSMEs operating in highly dynamic and uncertain environments.

This risk mitigation and monitoring approach is integral to the implementation of dynamic capabilities in MSMEs. By implementing appropriate mitigation measures, MSMEs can reduce the impact of risks and create opportunities for innovation and growth. Continuous monitoring ensures that every action is taken by market developments, so that MSMEs can make strategic adjustments quickly and appropriately. This process supports a dynamic cycle that allows businesses to survive and thrive despite uncertain circumstances.

5.3 Reconfiguring: strategy adjustment

The results of the discussions and interviews with MSME owners in Surabaya and Lampung show that implementing risk management requires a series of systematic stages to be effectively integrated into the decision-making process. These stages start with risk analysis, which includes identification, evaluation, and prioritization, followed by strategic decisions based on the analysis results. Furthermore, MSMEs must implement ongoing mitigation and adaptation actions, including monitoring and adjustment strategies. Table 2 summarizes the process into three main coding levels to facilitate understanding.

Table 2: ERM concept from interview results

Third Order Coding	Second Order Coding	First Order Coding
Risk Analysis	Risk Identification	Market condition scanning Technological development monitoring Competitive landscape assessment, Consumer preference shifts
	Risk Evaluation	Impact and probability assessment
	Priority Determination	Risk prioritization based on resource constraints
Strategic Decision Making	Strategic Decisions	Competitor trend alignment vs. unique innovation Product variant or business diversification evaluation
Mitigation and Adaptation Actions	Risk Mitigation	Risk impact reduction strategies
	Risk Monitoring	Ongoing evaluation of mitigation effectiveness; Market condition tracking
	Strategic Adjustment	Adaptive strategy realignment, Feedback-based adjustments

Three major stages of MSME risk management were highlighted based on qualitative data. First, Risk analysis involves identifying potential threats that may arise from market conditions, technological development, or changes in consumer preferences. This process also includes evaluating the impact and likelihood of risks, and determining the priority of actions,

considering the resource constraints that MSMEs often face (Aamir et al., 2021; Jurksiene & Pundziene, 2016).

Strategic decision making emphasizes the importance of choosing the right action after the risks have been mapped. Business owners need to weigh whether to follow competitors' trends or create new, unique innovations, even if they are more expensive (Li et al., 2021; Li et al., 2022). These decisions include developing new products, diversifying businesses, or investing in certain technologies.

Mitigation and adaptation actions reflect the implementation of strategies to reduce the impact of risks, while monitoring their effectiveness. At this stage, MSMEs implement various initiatives, from product diversification to business model changes, and periodically review their relevance by monitoring market conditions (Medina-Serrano et al., 2021; Romanosky & Petrun Sayers, 2023). If necessary, adjustments were made to ensure that the business remained competitive. Thus, these three stages complement each other in creating a comprehensive and sustainable risk-management approach for MSMEs.

5.4 **Dynamic capabilities in MSMEs: empirical findings and practical applications**

Recent empirical studies have provided concrete evidence of dynamic capabilities at work in MSMEs, particularly in regions such as Surabaya and Lampung. For instance, research Anggadwita et al. (2023) illustrates that MSMEs in Surabaya regularly engage in systematic market scanning, allowing them to identify emerging consumer trends and competitive activities. This proactive sensing has enabled firms to respond quickly to market changes by adapting their business strategies.

Similarly, evidence from Lampung indicates that MSMEs are not only identifying shifts in technology and consumer behavior, but also actively reconfiguring their resources to address these challenges. Case studies reveal instances in which MSMEs have introduced rapid product innovations and modified operational processes to stay competitive in volatile markets (Bivona & Cruz, 2021).

Further, additional research (Clauss, 2017; Yousif & Mohamed, 2022) confirms that the ability to sense market opportunities is closely linked to improved business resilience and sustainable growth. These studies demonstrate that dynamic capabilities—through sensing, seizing, and reconfiguring—are not abstract concepts, but are operationalized effectively within MSMEs, ultimately contributing to their adaptive success in dynamic market environments. Thus, although this study focuses on MSMEs in Surabaya and Lampung, the findings can be used as a reference for MSMEs in other areas that face similar challenges in dealing with market changes and maintaining competitive advantage.

This sensing process involves both passive observation and proactive efforts to gather information. Mr. Suryono, an MSME owner in Surabaya, stated, "*We continuously monitor competitor developments, especially in technology, and assess their relevance to our business model*."

Similarly, Mr. Noto, an MSME owner in Lampung, highlighted the need to understand consumers: "*I frequently discuss with customers to track evolving trends. Their preferences change rapidly, so we must adapt to stay competitive*."

Based on field observations and in-depth interviews, the researcher found that the sensing process, or the ability to recognize external environmental dynamics, is a critical component in building the dynamic capabilities of MSME actors. This process should not be conducted sporadically or based solely on intuition; instead, it should be executed systematically and continuously. Sensing involves actively observing the market and mapping the emerging risks and opportunities. This includes analyzing industry trends, consumer behavior, regulatory

developments, macroeconomic shifts, and other potential external disruptions. The more comprehensive the data and insights gathered by MSMEs, the more precise and effective the strategies formulated in subsequent stages, such as seizing and transforming.

From the researcher's perspective, this underscores that an MSME's ability to respond to environmental changes is largely determined by the extent to which it can build a structured monitoring and analytical system. Therefore, the sensing process is not merely a tool for detecting change but also serves as a crucial foundation for enhancing business resilience and sustaining competitiveness amidst market uncertainty.

After the sensing process identifies opportunities and threats in the business environment, the next step in the dynamic capabilities is seizing. At this stage, MSMEs must make strategic decisions to take advantage of opportunities that have been identified and allocate resources optimally (Cepeda & Vera, 2007; Harun et al., 2023). Success in seizing depends on the ability of business actors to execute strategies that best suit the internal and external conditions of the company, as expressed in the study on the influence of dynamic capabilities on business model innovation (Ellström et al., 2022; Seo et al., 2020).

Mr. Suryono, who has been sensing technological trends and customer behavior, now faces a dilemma: should he invest in new technology like his competitors or find another approach that better suits the character of his business*?* He said, *"I see competitors starting to use automation in production. I can invest there, but that requires much capital. Alternatively, I can improve the uniqueness of my product to make it more valuable in the eyes of customers."*

Meanwhile, Mr. Noto is more focused on developing new products based on previously identified customer needs. This decision involves product innovation and includes the calculation of costs, risks, and long-term profit potential. *"After talking to customers, I realized they want product variants with more environmentally friendly raw materials. I have to decide immediately whether I will develop this new product or stick with the old one,"* he said.

Based on field findings and analysis, the researcher concludes that the seizing process is a critical stage focused on strategic decision making and how MSMEs effectively allocate their limited resources. After going through the sensing phase, when opportunities and threats are identified, MSMEs must be able to formulate and implement the most profitable and suitable strategy for their business conditions. This strategy may involve product innovation, business diversification, and operational efficiency improvement.

However, it is important to emphasize that such strategic decisions cannot be made arbitrarily. They must be grounded in a thorough analysis of market conditions, competitive landscapes, and readiness for internal resources. In this context, the speed at which MSMEs make the right decisions is a key determinant of their ability to gain a competitive advantage. MSMEs that respond swiftly and appropriately to market dynamics are more likely to survive and thrive in an increasingly competitive environment.

After MSMEs successfully identify opportunities (sensing) and make strategic decisions (seizing), the next stage in dynamic capabilities is reconfiguring (Shahzad et al., 2020). This stage includes adjusting and restructuring resources, processes, and strategies to remain relevant to market changes and to ensure sustainable competitiveness (Dejardin et al., 2023). Reconfiguring is important for maintaining a competitive advantage by adapting the business to a changing environment (Song et al., 2022).

Mr. Suryono realized that, after implementing a new strategy in his business, he had to make some changes so that the strategy would run optimally. He emphasized the importance of training employees to operate new equipment and adapt to a more efficient production process. *"We have started to adopt more modern production technology, but we also have to adjust the employee work system so that they can follow this development,"* he said.

Mr. Noto, on the other hand, saw the need for a change in his supply chain. *"After launching a new product with competitive raw materials, we had to find more consistent suppliers in quality and price. This meant a change in business relationships with some old suppliers,"* he explained. His reconfiguring process was limited to production and included collaboration with business partners to better suit his business's strategic needs.

Based on the research findings, reconfiguring is not merely about adjusting internal processes but also entails deeper transformations within the company's culture and overall business model. The researchers observed that the ability of MSMEs to continuously evaluate and adapt their strategies plays a crucial role in ensuring their survival and growth in a competitive market environment. Several MSMEs were found to have made strategic decisions but encountered difficulties in long-term implementation due to a lack of alignment between their strategies and supporting systems. For instance, when an MSME decides to enter the digital market, the shift must be accompanied by changes in the distribution system, marketing approach, and customer service structure. Without these supporting adjustments, strategic initiatives are likely to fall short of their intended outcome.

In facing the increasingly complex dynamics of business competition, MSMEs need the capabilities to help them adapt quickly and effectively. One approach that can be used is dynamic capabilities, which enable MSMEs to recognize opportunities and threats, make strategic decisions, and make necessary adjustments to maintain competitiveness. To understand how MSMEs apply dynamic capabilities in running their businesses, Table 3 describes the various activities carried out in each stage of dynamic capabilities.

Table 3: Dynamic capabilities concept from interview results

Third Order Coding	Second Order Coding	First Order Coding
Sensing	Business Environment Observation	Competitor monitoring Market trend identification
	Proactive Information Search	Industry report analysis Customer engagement
	Opportunity and Threat Analysis	Innovation assessment Risk analysis, MSME relevance
Seizing	Strategy Selection	Tech investment; Product uniqueness
	Product Development and Innovation	New product variants
	Resource Allocation	Budget adjustment Diversification feasibility
	Execution and Implementation	Production launch Business model pivot
Reconfiguring	Organizational Adjustment	Employee training (tech)
	Supply Chain Optimization	Supplier realignment
	Business Model Restructuring	Model adaptation Distribution/marketing overhaul
	Evaluation and Adaptation	Periodic strategy review, Effectiveness evaluation

Table 3 shows that applying dynamic capabilities to MSMEs involves various activities that support business competitiveness (Teece, 2007). Dynamic capabilities consist of three main aspects: sensing, seizing, and reconfiguring, each of which plays an important role in maintaining business flexibility and adaptability amid changes in the business environment (Teece, 2018).

At the sensing stage, MSMEs must recognize opportunities and threats in the market by monitoring competitor developments, industry trends, and changes in consumer behavior (Ettlie & Pavlou, 2006; Han & Zhang, 2020; Wang & Zhang, 2018). This process is carried out through various methods, such as direct discussions with customers, analyzing industry reports and applicable regulations, and reviewing the data collected to identify potential innovations or business risks (Teece, 2007). With a deep understanding of market conditions, MSMEs can determine the appropriate strategic steps to maintain the sustainability of their businesses (Eisenhardt & Martin, 2000).

After identifying opportunities and threats, the next stage is seizing, which is the process of making decisions and implementing strategies based on the information collected (Núñez-López et al., 2014; Teece, 2020). MSMEs must evaluate whether they will invest in new technologies or focus on increasing their product uniqueness. At this stage, product development and innovation become crucial aspects that must be adjusted to meet customer needs. In addition, allocating resources effectively in the form of budget and business diversification is very important to ensure that decisions can be implemented optimally. Once the strategy is set, MSMEs begin to run innovation-based production and adjust their business models accordingly to the chosen strategy.

The final stage in dynamic capabilities is reconfiguring, which involves various forms of adjustment to keep the business competitive over the long term. MSMEs must ensure that their organizations adapt to changes, including employee training in new technologies. Additionally, optimizing the supply chain by finding suppliers that are more aligned with business needs can improve operational efficiency (Ellström et al., 2022). Restructuring the business model is also needed to adjust strategies to market dynamics, such as changing distribution and marketing systems, to be more effective. Periodic evaluation of the effectiveness of the strategies that have been implemented is an important step to ensure that MSMEs continue to grow and remain competitive amid increasingly fierce competition. (Rahaman et al., 2021).

By effectively implementing dynamic capabilities, MSMEs can be more responsive to market changes and have the flexibility to adjust business strategies. Rapid adaptation, continuous innovation, and proper resource management will help MSMEs survive and thrive in dynamic business ecosystems. Thus, ERM implementation is closely related to the dynamic capabilities. ERM not only acts as a defense mechanism in identifying and managing risks, but also as a strategic foundation for increasing a business's adaptive capabilities.

By integrating risk identification, evaluation, and prioritization processes, MSMEs can gather critical information that underlies sensing capabilities —detecting environmental changes, market trends, and technological and competitive dynamics. This information is then used in the seizing stage to make strategic decisions such as new product development or business diversification, which optimizes the use of limited resources. Furthermore, through the reconfiguring process, MSMEs make internal adjustments, such as employee training, operational system improvements, and supply chain restructuring, to ensure that risk mitigation strategies are always relevant to dynamic market conditions. Thus, ERM becomes a driver for dynamic capabilities as it helps MSMEs anticipate and reduce potential losses and take advantage of innovation opportunities that can sustainably increase competitive advantage. These relationships are depicted in Figure 2.

Figure 2: Relationship between ERM and dynamic capabilities

6. Discussion

The results of the study answered the research questions posed by showing that the systematic implementation of ERM plays a strategic role in enhancing the dynamic capabilities of MSMEs and strengthening their competitive advantage amidst market dynamics. The risk identification process, including monitoring market conditions, technological developments, and changes in consumer preferences, allows MSMEs to detect potential threats early. Thus, the sensing aspect of dynamic capabilities is realized by collecting critical information that underlies strategic steps to anticipate and reduce the impact of risks (Munongo & Pooe, 2022; Nair et al., 2014b).

Furthermore, risk evaluation and prioritization based on impact analysis and the probability of risk occurrence are the bases for adaptive strategic decision-making. As conveyed by Mr. Suryono and Mr. Noto, MSMEs in Surabaya and Lampung emphasize the importance of appropriately allocating limited resources by adopting new technology, product innovation, or business diversification. This approach reflects the ability to seize dynamic capabilities, in which mitigation strategies prevent losses and capture innovation opportunities to increase competitiveness (Eisenhardt & Martin, 2000; Romanosky & Petrun Sayers, 2023).

Finally, integrating ERM with continuous monitoring and strategic adjustment (reconfiguring) allows MSMEs to consistently adapt to changes in the business environment. Regular monitoring and evaluation of the effectiveness of mitigation strategies help MSMEs make operational adjustments—from employee training to supply chain restructuring—that ensure that the strategies taken remain relevant and competitive. Thus, ERM not only acts as a defense mechanism, but also as a strategic foundation that drives continuous innovation and adaptation, thereby increasing the competitive advantage of MSMEs in Surabaya and Lampung (Teece, 2007, 2018).

7. Conclusion and recommendation

Based on the research findings, the implementation of ERM in MSMEs in Surabaya and Lampung has been proven to significantly increase dynamic capabilities. Identifying, evaluating, and determining risk priorities allows business actors to detect potential threats early and take adaptive anticipatory steps. Thus, ERM not only functions as a protection mechanism against risk, but also as a strategic foundation that supports innovation and a rapid response to changes in the business environment (Munongo & Pooe, 2022; Nair et al., 2014b). The integration between risk mitigation and monitoring processes supports the ability of MSMEs to carry out the seizing and reconfiguring stages of dynamic capabilities. MSMEs implementing in-depth risk evaluation and selective resource allocation, such as that carried out by business actors in Surabaya and Lampung, can optimize product innovation, business diversification, and technology investment. The reconfiguring process through operational adjustments and employee training further emphasizes the role of ERM in increasing competitiveness, despite facing uncertain market dynamics (Teece, 2007, 2018).

Based on the research results, it is recommended that MSMEs continue to develop a proactive risk management system by increasing their sensing capabilities and monitoring market trends, technological developments, and competitive dynamics. Furthermore, MSMEs need to strengthen the risk evaluation and prioritization processes to optimally allocate limited resources in mitigation and innovation strategies. In addition, internal training for employees and cooperation with business consultants or supporting institutions are highly recommended to ensure that ERM implementation is effective and sustainable, so that MSMEs' competitive advantage can continue to be maintained in the face of changes in the business environment.

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