Enhancing MSME Business Resilience in the Digital Era: Evidence from Banyumas, Indonesia

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Abstract. This study investigates the effects of digital capability, adaptive capability, and entrepreneurial orientation on business resilience among micro, small, and medium enterprises in Banyumas Regency, Indonesia, while also examining the moderating role of environmental dynamism specifically in the relationship between digital capability and business resilience. Employing a quantitative explanatory approach with a cross-sectional design, this study collected data from 398 MSME owners or managers selected through purposive sampling. The data were analysed using Partial Least Squares Structural Equation Modeling. The findings indicate that digital capability, adaptive capability, and entrepreneurial orientation positively and significantly influence business resilience. Among these determinants, adaptive capability emerges as the strongest predictor, underscoring the critical importance of strategic flexibility and responsiveness in sustaining business continuity. Entrepreneurial orientation also contributes substantially, suggesting that innovativeness, proactiveness, and risk-taking behaviour reinforce organisational resilience. Furthermore, environmental dynamism has a positive and significant direct effect on business resilience, although its moderating effect on the relationship between digital capability and business resilience is not significant. These findings highlight the central role of integrated internal capabilities in strengthening MSME resilience in dynamic business environments.

Keywords: business resilience; digital capability; adaptive capability; entrepreneurial orientation; environmental dynamism; MSMEs

1 Introduction

Digital transformation has fundamentally changed the way MSMEs create value, reach customers, manage operations, and sustain their business continuity. (Veiga et al., 2024) position digital transformation as a strategic change that affects the business logic of small

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enterprises, rather than merely a change in working tools. In line with this, Manalu & Adzimatinur (2024) show that the demands of the digital era encourage MSMEs to develop more adaptive capabilities in order to respond to increasingly complex market pressures. Li et al. (2023) also emphasise that technological change requires the integration of internal resources and business strategy so that small enterprises do not fall behind in competition. In the Indonesian context, (Budiarto et al., 2024) demonstrate that digital transformation in MSMEs is associated with the ability of firms to expand market reach and renew business models, while Purwanti et al. (2022) stress that the rapid changes in the business environment make internal capabilities increasingly decisive. Therefore, digital transformation can no longer be understood merely as technology adoption, but rather as a strategic process that demands organisational learning, the ability to sense change, and rapid responses to market dynamics. This argument is reinforced by Prakasa et al. (2022), who argue that sensing, learning, and responding capabilities constitute essential foundations for small enterprises to survive in a rapidly changing era.

These developments make business resilience an increasingly important concept in MSME studies. Nassuna et al. (2023) view resilience not merely as the ability to survive in the face of shocks, but as the capacity of a business to absorb disruptions and continue functioning effectively. Ramaditya et al. (2023) extend this understanding by emphasising that resilience also includes the ability to recover and resume growth after business pressures occur. Supari & Anton (2022) further show that, in the context of small enterprises, business resilience is closely related to managerial capacity in maintaining business continuity amid environmental change. Thus, resilience in the digital era should not be interpreted merely as passive endurance, but rather as an active capability to adapt, restore operations, and continue to grow. Budiarto et al. (2024) and Rahman et al. (2024) likewise emphasise that such resilience emerges from internal capabilities that enable MSMEs to sustain performance more consistently. Therefore, discussions of MSMEs in the digital era should be directed towards how internal capabilities shape business resilience, rather than merely how far firms adopt digital technology.

Among these various internal capabilities, digital capability occupies a particularly important position, although the concept is still evolving and has not yet become fully established. Veiga et al. (2024) suggest that digital capability should be understood as a firm's ability to utilise technology strategically in order to create value. Budiarto et al. (2024) highlight that the use of digital technology will have a tangible impact when it is connected to renewed ways of working and business orientation. Li et al. (2023) regard digital capability as a strategic resource that must be combined with other resources in order to generate advantage. However, Purwanti et al. (2022) warn that the effectiveness of digital capability is strongly influenced by the business environment. At the same time, Prakasa et al. (2022) show that, over the past five years, studies on digital capability in MSMEs have more often focused on outcomes such as adoption and performance, such that its relationship with resilience has not yet been fully established. This indicates that there is strong academic space to position digital capability as a principal explanatory factor of business resilience, particularly within a more integrative model.

In addition to digital capability, adaptive capability and entrepreneurial orientation also play important roles in explaining MSME resilience. Prakasa et al. (2022) conceptualise adaptive capability as a firm's ability to sense change, seize opportunities, and adjust its resource configuration when the environment shifts. Halim et al. (2023) show that small enterprises with stronger adaptive capability tend to respond more effectively to external pressures. Yaskun et al. (2023) specifically emphasise that entrepreneurial orientation, characterised by innovativeness, proactiveness, and risk-taking, is a factor that strengthens business resilience under conditions of uncertainty. Rahman et al. (2024) add that

entrepreneurial orientation not only strengthens performance but also helps small enterprises to renew themselves continuously. Sutikno et al. (2022) further provide the basis that, if digital capability, adaptive capability, and entrepreneurial orientation are viewed as complementary internal resources, the three can form a more comprehensive framework for explaining business resilience. This is where the capability-based view becomes relevant, because resilience appears to be more appropriately explained by the combination of several capabilities rather than by a single factor.

The relationship between internal capabilities and resilience also cannot be separated from environmental dynamism. Purwanti et al. (2022) show that a rapidly changing environment, whether in terms of technology, customers, or competitive intensity, can alter the strength of the relationship between digital capability and business outcomes. This finding is reinforced by Kustiningsih et al. (2022), who explain that environmental dynamism is not merely an external background condition, but a contingency factor that may strengthen or weaken the effectiveness of digital orientation and dynamic capabilities. In this study, the moderating role of environmental dynamism is specified for the relationship between digital capability and business resilience, because digital capability is the capability most directly exposed to technological turbulence, platform change, and shifting digital customer behaviour. Adaptive capability and entrepreneurial orientation are therefore examined as direct internal capabilities, while environmental dynamism is also tested as a direct contextual predictor of resilience.

Theoretically, the explanation of these relationships is strongly grounded in the Resource-Based View and the Dynamic Capabilities Perspective. Sutikno et al. (2022) position internal resources and capabilities as important determinants of competitive advantage and sustainable business performance. Li et al (2023) also emphasise that valuable resources must be orchestrated appropriately in order to produce sustainable impacts. Nagariya et al. (2023) and Rahman et al. (2024) reinforce this view by showing that the orchestration of internal resources is crucial in determining the ability of small enterprises to preserve value and cope with market pressures. However, RBV alone is insufficient to explain very rapid change. In this regard, Prakasa et al. (2022) stress the importance of sensing, seizing, and reconfiguring capabilities, which constitute the core of the Dynamic Capabilities Perspective. Veiga et al. (2024), Manalu & Adzimatinur (2024), as well as Budiarto et al. (2024) also show that in the digital era, small enterprises are not merely required to possess resources, but must also be able to renew and reconfigure those resources dynamically. Therefore, the integration of RBV and DCV becomes highly relevant for explaining how digital capability, adaptive capability, and entrepreneurial orientation interact with environmental dynamism in shaping MSME business resilience.

In the Indonesian context, this argument gains even stronger empirical support. Prakasa et al. (2022) show that knowledge absorption capacity and innovation can help MSMEs improve performance in changing environments. Sutikno et al. (2022) emphasise the importance of managing internal resources and organisational learning in explaining the pathway towards business performance. Li et al. (2023) and Budiarto et al. (2024) demonstrate that digitalisation can support strategic renewal and business differentiation when connected with other internal capabilities. Kumar et al. (2022) and Purwanti et al. (2022) add that the influence of digitalisation does not operate independently, but interacts with organisational and environmental factors. Supari & Anton (2022) show that business resilience is also related to the ability of MSMEs to maintain continuity under conditions of pressure. Veiga et al. (2024) and Widjajanti & Sugiyanto (2024) demonstrate that digital capability can expand market reach and encourage business model innovation when accompanied by the appropriate strategic orientation. Meanwhile, Kaushik & Dangwal (2023), together with Yaskun et al. (2023), emphasise that entrepreneurial orientation and

market orientation remain important determinants of post-crisis business performance and resilience. Thus, studies in Indonesia and comparable contexts suggest that MSME resilience is more realistically understood as the result of the interaction between digital capability, adaptive capability, entrepreneurial orientation, and the strategic management of internal resources.

Table 1. Comparative Research Gap and Positioning of the Present Study

Literature stream	Representative studies	Main emphasis	Remaining gap addressed in this study
Digital transformation and digital capability	Veiga et al. (2024); Budiarto et al. (2024); Manalu & Adzimatinur (2024)	Digital technology adoption, business model renewal, and digital transformation outcomes.	Limited explanation of how digital capability contributes to business resilience when combined with adaptive and entrepreneurial capabilities.
Dynamic and adaptive capabilities	Prakasa et al. (2022); Purwanti et al. (2022); Halim et al. (2023)	Sensing, learning, responding, and adapting to environmental change.	Adaptive capability is often discussed separately from digital capability and entrepreneurial orientation in explaining MSME resilience.
Entrepreneurial orientation and MSME performance	Yaskun et al. (2023); Kaushik & Dangwal (2023); Rahman et al. (2024)	Innovativeness, proactiveness, risk-taking, market orientation, and performance.	The role of entrepreneurial orientation as a complementary resilience-building capability remains insufficiently integrated with digital and adaptive capabilities.
Environmental dynamism as contingency	Purwanti et al. (2022); Kustiningsih et al. (2022)	Environmental turbulence as a condition affecting the effectiveness of digital orientation and capabilities.	The moderating role of environmental dynamism in the digital capability-resilience link in regional Indonesian MSMEs remains underexplored.
Present study	This study	Integrated capability-based model of MSME business resilience in Banyumas Regency.	Tests digital capability, adaptive capability, entrepreneurial orientation, and environmental dynamism in one model, with environmental dynamism specified as a moderator of digital capability.

The urgency of this study becomes even stronger when situated in the context of Banyumas Regency. The official data portal of the Banyumas Regency Government provides a dataset on the number of MSMEs by type and district for 2024. Based on the author's processing of the official data file from the portal, the number of MSMEs in Banyumas in 2024 reached 91,323 units and was overwhelmingly dominated by micro-enterprises. At the same time, the Banyumas Regency Statistics Office reported that the Open Unemployment Rate in August 2024 was 6.18 per cent. The Banyumas Regency Government Performance Report for 2024 also recorded a poverty rate of 11.95 per cent and a Human Development Index of 74.52. The combination of a large MSME base, the dominance of micro-enterprises that are relatively more vulnerable, and these socio-economic pressures indicates that MSME business resilience in Banyumas is not merely a conceptual issue, but a real problem that is relevant academically, practically, and from a policy perspective.

Based on the overall discussion above, the research gap in this study is not merely the absence of studies on digitalisation or MSME performance, but the limited integration of three complementary internal capabilities, digital capability, adaptive capability, and entrepreneurial orientation within a single resilience model in a regional MSME context. Previous studies have tended to emphasise digital transformation, organisational learning, dynamic capabilities, entrepreneurial orientation, or market orientation separately. Table 1 presents a comparative mapping that more explicitly demonstrates how the present study differs from prior work and why an integrated capability-based model is needed.

Building on this gap, this study aims to analyse the effects of digital capability, adaptive capability, and entrepreneurial orientation on business resilience among MSMEs in Banyumas Regency, and to examine environmental dynamism as a direct contextual factor and as a moderator of the relationship between digital capability and business resilience. Theoretically, this study extends the application of the Resource-Based View and the Dynamic Capabilities Perspective to MSME business resilience by showing how multiple internal capabilities are orchestrated under dynamic environmental conditions. Practically, the findings are expected to guide MSME actors and local policymakers in designing capability-building programmes that go beyond basic digitalisation and strengthen adaptive, entrepreneurial, and resilience-oriented capacities.

2 Methods

2.1 Design

This study employs a quantitative approach with an explanatory design to examine the causal relationships among digital capability, adaptive capability, entrepreneurial orientation, environmental dynamism, and business resilience in MSMEs in Banyumas Regency. The quantitative approach was chosen because this study is intended to test hypotheses derived from theory, while the explanatory design is used to explain the effects among variables within the research model. In addition, this study adopts a cross-sectional design, meaning that data were collected at a single point in time in order to capture the empirical condition of respondents during the study period. Such a design is appropriate when researchers seek to analyse relationships among variables within a single observation period without repeated measurement (Creswell & Creswell, 2018; Wang & Cheng, 2020).

From a theoretical perspective, this study is grounded in the Resource-Based View and the Dynamic Capabilities Perspective. These two perspectives are employed to explain that the business resilience of MSMEs is determined not only by the ownership of resources, but also by the ability of firms to utilise, adapt, and reconfigure those resources when facing environmental change. On that basis, the research design is directed towards testing the direct effects of digital capability, adaptive capability, entrepreneurial orientation, and environmental dynamism on business resilience, as well as the moderating effect of environmental dynamism on the relationship between digital capability and business resilience.

2.2 Participant, Population, and Sample

The population of this study comprises all MSMEs in Banyumas Regency. According to Data dan Informasi Kabupaten Banyumas 2025, the number of MSMEs in Banyumas Regency in 2024 was recorded at 91,323 units, consisting of 91,251 micro enterprises, 22 small enterprises, and 50 medium enterprises. These data indicate that the MSME structure in

Banyumas is overwhelmingly dominated by micro enterprises, making research on business resilience highly relevant in the regional context.

The participants in this study are business owners, managers, or business operators who understand the operational conditions, business strategies, and use of digital technology in their enterprises. The unit of analysis is the business, while the unit of observation is the individual representing the business. The sampling technique employed is purposive sampling, namely the selection of respondents based on specific criteria aligned with the objectives of the study. The sample criteria in this study are as follows: the business is still actively operating at the time the study is conducted, has been operating for at least two years, has utilised digital technology in its business activities, and the respondent possesses adequate knowledge of business management. The use of purposive sampling in quantitative research is appropriate when the researcher requires respondents who genuinely match the characteristics of the study (Sugiyono, 2022).

The minimum sample size was determined using the Slovin formula:

$$n = \frac{N}{1 + Ne^2}$$

where N = 91,323 and e = 0.05. Based on this calculation, the required sample size was approximately 398 respondents. The use of a 5% margin of error was selected to achieve an adequate level of precision for the survey. However, the Slovin formula is only a general sample size estimation technique and does not account for the complexity of a PLS-SEM model, including the number of latent constructs, indicators, structural paths, or interaction effects. Therefore, sample adequacy was also considered in relation to the requirements of PLS-SEM estimation and hypothesis testing, in which a larger sample improves the stability of parameter estimates and the reliability of the structural model evaluation (Hair et al., 2022).

2.3 Instrument and Data Collection

This study uses primary data obtained through the distribution of structured questionnaires to respondents. The questionnaire was designed in the form of closed-ended statements using a five-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree. The Likert scale was employed because it is one of the most common and widely used psychometric instruments in social research for systematically measuring respondents' perceptions, attitudes, and evaluations.

The research instrument was developed based on the constructs used in the research model. Business resilience was measured through the firm's ability to survive, adapt, recover, and maintain business continuity. Digital capability was measured through the firm's ability to utilise digital technology for marketing, customer communication, transactions, and the management of business activities. Adaptive capability was measured through the firm's ability to adjust strategies, respond to market changes, and act flexibly when facing environmental dynamics. Entrepreneurial orientation was measured through the dimensions of innovativeness, proactiveness, and risk-taking. Meanwhile, environmental dynamism was measured through respondents' perceptions of the speed of market change, technological development, competitive intensity, and the level of uncertainty in the business environment. Before being used in the main survey, the questionnaire was subjected to a limited pilot test to ensure the clarity of language, the comprehensibility of the items, and the suitability of the context to the characteristics of MSMEs in Banyumas. The pilot test indicated that the questionnaire items were generally understandable to respondents, although several wording adjustments were made to improve clarity and contextual relevance. The final version of the questionnaire was then used in the main survey. Data collection was conducted both online

and offline. Online data collection was carried out through a digital form, while offline data collection was undertaken by directly approaching MSME actors at business locations, MSME centres, business communities, or MSME assistance activities. The combination of these two techniques was chosen in order to broaden the reach of respondents and increase the questionnaire response rate.

2.4 Data Analysis

The data were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM). This method was selected because the study aims to test a predictive model, involves several latent constructs, and includes a moderating effect. Hair et al. (2019) explain that PLS-SEM is appropriate when research is oriented towards prediction, theory development, and the analysis of relatively complex models. Hair et al. (2022) also emphasise that PLS-SEM is relevant when a study focuses on explaining the variance of endogenous constructs and testing structural relationships among latent variables.

The analysis was conducted in three stages: assessment of common method bias, evaluation of the measurement model, and evaluation of the structural model. Common method bias was assessed because the data were collected using a self-reported questionnaire from the same respondents at a single point in time. The assessment was conducted using Harman's single-factor test and the full collinearity VIF procedure. The Harman's single-factor test showed that the first unrotated factor explained 36.742% of the total variance, which is below the recommended 50% threshold. In addition, the full collinearity VIF values ranged from 1.218 to 1.842, which are below the commonly recommended threshold of 3.3. These results indicate that common method bias was unlikely to seriously threaten the validity of the findings. At the measurement model evaluation stage, tests were carried out for convergent validity, discriminant validity, and construct reliability. Convergent validity was evaluated through outer loadings and average variance extracted (AVE). The recommended outer loading values are generally above 0.70, while an adequate AVE value is above 0.50. Construct reliability was evaluated through Cronbach's alpha and composite reliability, with benchmark values above 0.70.

Discriminant validity in this study was tested using the heterotrait-monotrait ratio (HTMT). Henseler et al. (2015) show that HTMT is a more sensitive criterion for detecting discriminant validity problems compared with certain traditional approaches. In practice, HTMT values below 0.85 or 0.90 may be used as evidence that discriminant validity has been achieved, depending on the conceptual proximity among the constructs being tested. Therefore, this study uses HTMT as one of the primary bases for evaluating the discriminant validity of the constructs.

At the structural model evaluation stage, the tests focused on path coefficients, t-statistics, p-values, R-square, and effect size. Hair et al. (2022) emphasise that structural model testing in PLS-SEM is intended to evaluate the strength and significance of relationships among constructs, while also examining the extent of variance in endogenous constructs that can be explained by exogenous constructs. Hypothesis testing was carried out through the bootstrapping procedure, as this procedure is commonly used in PLS-SEM to obtain the statistical significance of path coefficients. Moderation testing was conducted by constructing the theoretically specified interaction term between digital capability and environmental dynamism and then testing its significance with respect to business resilience. The moderation analysis was limited to this interaction because the study theoretically positions environmental dynamism as a contingency condition for the digital capability-resilience relationship rather than for all internal capability relationships.

3 Results and Discussion

3.1 Results

3.1.1 Respondent profile

Based on 398 respondents, the majority of business units were in the micro-enterprise category, comprising 368 businesses or 92.5%, followed by small enterprises with 22 businesses or 5.5%, and medium enterprises with 8 businesses or 2.0%. In terms of business sector, most respondents came from the food and beverage sector at 25.4%, followed by the service sector at 18.6%, and retail at 16.3%. With regard to the main digital channels used, the largest proportion of respondents relied on a combination of several digital channels at 41.7%, followed by WhatsApp at 22.9%, marketplaces at 18.8%, and social media at 16.6%. The average age of the businesses was 6.85 years, while the average duration of digital technology use in business activities was 4.05 years. This profile indicates that the research sample was dominated by micro-MSMEs that had relatively sufficient business experience and had begun to utilise digital media in their business activities.

From the descriptive statistics of the constructs, business resilience had the highest mean value, with a mean of 3.649 and a standard deviation of 1.055, followed by entrepreneurial orientation with a mean of 3.473, digital capability with a mean of 3.431, adaptive capability with a mean of 3.374, and environmental dynamism with a mean of 3.183. These findings indicate that respondents tended to perceive their business resilience as relatively strong, although they continued to operate in a dynamic business environment.

3.1.2 Measurement model evaluation

The evaluation of the measurement model was conducted by testing outer loadings, Cronbach's alpha, composite reliability, average variance extracted (AVE), and the heterotrait-monotrait ratio (HTMT). The test results indicate that all indicators had outer loadings above 0.70; therefore, all items were retained in the model.

Table 2. Measurement Model Evaluation Results

Construct	Outer Loading Range	Cronbach's Alpha	Composite Reliability	AVE
Digital Capability	0.906–0.918	0.931	0.951	0.830
Adaptive Capability	0.922–0.943	0.947	0.962	0.864
Entrepreneurial Orientation	0.920–0.930	0.943	0.959	0.855
Environmental Dynamism	0.897–0.915	0.926	0.947	0.818
Business Resilience	0.915–0.926	0.941	0.957	0.849

Table 2 shows that all constructs had Cronbach's alpha values above 0.70, composite reliability values above 0.70, and AVE values above 0.50. Accordingly, all constructs satisfied the criteria for internal reliability and convergent validity. The highest AVE value was found for adaptive capability at 0.864, indicating that this construct was highly effective in explaining the variance of its reflective indicators. Overall, the quality of the measurement model can be regarded as very good.

Discriminant validity also produced adequate results. The highest HTMT value was found in the relationship between adaptive capability and business resilience at 0.618, followed by the relationship between entrepreneurial orientation and business resilience at 0.604, and between digital capability and business resilience at 0.545. All HTMT values were below the threshold of 0.85 as well as 0.90, so it can be concluded that each construct demonstrated adequate empirical distinctiveness and did not suffer from serious conceptual overlap. Therefore, the measurement model was considered suitable for proceeding to the evaluation of the structural model.

3.1.3 Common method bias assessment

Before evaluating the structural model, common method bias was assessed because the study used self-reported cross-sectional questionnaire data. Harman's single-factor test showed that the first unrotated factor explained 36.742% of the total variance, which is below the recommended 50% threshold. In addition, the full collinearity VIF values ranged from 1.218 to 1.842, below the commonly recommended threshold of 3.3. These results indicate that common method bias was unlikely to be a serious threat to the interpretation of the structural relationships.

3.1.4 Structural model evaluation and hypothesis testing

After the measurement model and common method bias assessment were deemed satisfactory, the next stage was the evaluation of the structural model. The results of the analysis show that the R^2 value for business resilience was 0.488. This means that 48.8% of the variance in business resilience can be explained by digital capability, adaptive capability, entrepreneurial orientation, environmental dynamism, and the interaction between digital capability and environmental dynamism. This value indicates that the explanatory power of the model falls within the moderate category, suggesting that the proposed model has reasonably good explanatory power for the main endogenous construct. The results of hypothesis testing are presented in Table 3.

Table 3. Structural Model and Hypothesis Testing Results

Relationships among variables	β	Boot SE	t-value	p-value	Decision
Digital Capability → Business Resilience	0.178	0.045	3.929	0.000	Supported
Adaptive Capability → Business Resilience	0.334	0.042	7.976	0.000	Supported
Entrepreneurial Orientation → Business Resilience	0.290	0.046	6.322	0.000	Supported
Environmental Dynamism → Business Resilience	0.112	0.038	2.945	0.003	Significant
Digital Capability × Environmental Dynamism → Business Resilience	-0.045	0.033	1.363	0.173	Not supported

The table shows that digital capability has a positive and significant effect on business resilience, with a coefficient of β = 0.178. This means that the better MSMEs are able to utilise digital technology, the higher their business resilience will be. Furthermore, adaptive capability has the strongest positive and significant effect, with a coefficient of β = 0.334,

indicating that it is the dominant predictor in this model. Entrepreneurial orientation was also found to have a positive and significant effect on business resilience, with a coefficient of $\beta = 0.290$. Thus, the three main hypotheses in this model received empirical support from the empirical data.

In addition to these three main effects, environmental dynamism also has a direct positive and significant effect on business resilience, with a coefficient of $\beta = 0.112$ and $p = 0.003$. This result indicates that a dynamic business environment does not always weaken firms; in certain contexts, it may instead encourage MSME actors to become more resilient. However, a different result emerged in the moderation test. The interaction between digital capability and environmental dynamism had a coefficient of $\beta = -0.045$ with $p = 0.173$, indicating that it was not significant. Therefore, the hypothesis stating that environmental dynamism strengthens the effect of digital capability on business resilience was not supported.

The magnitude of the effect of each predictor was also analysed through effect size, or f^2. The results show that adaptive capability had an f^2 value of 0.147, which is at the threshold of a medium effect. Entrepreneurial orientation had an f^2 value of 0.109, indicating a small-to-medium effect. Meanwhile, digital capability had an f^2 value of 0.041 and environmental dynamism had an f^2 value of 0.023, both of which fall into the small effect category. The moderation interaction effect had an f^2 value of only 0.004, suggesting that its additional contribution to the explanatory power of the model was almost negligible.

3.2 Discussion

The findings of this study indicate that MSME business resilience is primarily explained by the strength of internal capabilities. The finding that digital capability has a positive and significant effect on business resilience suggests that the utilisation of digital technology is no longer merely an operational tool, but has become a strategic resource for business resilience. Theoretically, this result is consistent with Hokmabadi et al. (2024), who emphasise that digital transformation and the development of organisational capabilities help small enterprises to anticipate, adapt to, and respond to dynamic environmental challenges. This result is also in line with Nurhayati & Astono (2024), who show that dynamic capabilities and digital transformation have a positive effect on business resilience among Indonesian MSMEs. Accordingly, this study reinforces the view that digital capability serves as an important foundation of business resilience, particularly when MSMEs must maintain business continuity amid rapid market changes.

Nevertheless, the magnitude of the digital capability coefficient in this model is smaller than that of adaptive capability and entrepreneurial orientation. This indicates that digital capability alone is not sufficient to generate strong business resilience. In practice, new technology will have a greater impact when it is accompanied by the organisational ability to learn, modify strategy, and adapt the business model. This explanation is consistent with Hokmabadi et al. (2024) synthesis, which emphasises that successful digital transformation in small enterprises requires a holistic approach that connects digital initiatives with business objectives and organisational capabilities. Similarly, Kahveci et al. (2025) also emphasise that flexibility, adaptability, and upskilling are essential conditions for SMEs to fully benefit from opportunities in the digital environment. Therefore, this finding shows that digital capability is an important element, but it does not operate in isolation in building resilience.

The strongest finding of this study is the effect of adaptive capability on business resilience. The values of $\beta = 0.334$ and $f^2 = 0.147$ indicate that the ability to adjust strategy, respond to market changes, and act flexibly is the most dominant predictor in the model. This finding is highly plausible in the MSME context, because small enterprises operate with limited resources while facing rapid change, so the ability to adapt is often more decisive

than the size of the business itself. This finding is consistent with Suryani & Dwiputra (2025), who found that organisational adaptability was the strongest predictor of business resilience among SMEs in the food and beverage sector in Indonesia. This finding is also supported by Kahveci et al. (2025), who emphasise that adaptability and flexibility are crucial for SMEs to take advantage of digital opportunities effectively. Thus, this study strengthens the argument that MSME resilience is fundamentally the result of the capacity to change, rather than merely the capacity to survive.

This finding can also be interpreted more deeply from the perspective of Dynamic Capabilities. Adaptive capability is a manifestation of the processes of sensing, seizing, and reconfiguring, namely the ability to recognise change, capture opportunities, and rearrange resources. In the Indonesian context, Siahaan & Tan (2022) show that entrepreneurial orientation has a significant effect on the adaptive capability of Indonesian MSMEs. This finding confirms that adaptive capability does not emerge by chance, but is shaped by entrepreneurial character and the organisation's ability to learn. Therefore, the findings of this study demonstrate that when MSMEs in Banyumas possess high adaptive capability, they are better able to maintain business continuity, restore operations, and sustain their business under rapidly changing conditions.

The positive effect of entrepreneurial orientation on business resilience is also an important finding. The value of $\beta = 0.290$ indicates that innovativeness, proactiveness, and risk-taking contribute strongly to business resilience. This result is consistent with Shore et al. (2024), who found that entrepreneurial orientation had a significant effect on entrepreneurial resilience among SMEs in France. That study explicitly shows that entrepreneurial orientation can act as both a higher-order and lower-order dynamic capability in building resilience. The findings of this study are also consistent with other studies showing that entrepreneurial orientation positively affects economic and organisational outcomes, particularly because entrepreneurially oriented firms tend to be more responsive, flexible, and dynamic than more passive businesses. Thus, this finding confirms that MSME business resilience is not only the result of technical and adaptive capabilities, but also of the strategic courage to innovate and act proactively.

When compared with digital capability, the stronger effect of entrepreneurial orientation indicates that MSME business resilience is shaped not only by digital tools and systems, but also by the behavioural orientation of those who manage the business. This is important because many MSMEs adopt digital technology only at a basic level, yet not all of them possess the proactive tendency to use that technology strategically. Therefore, entrepreneurial orientation may be seen as the link between technological potential and the courage to act. In other words, innovative and proactive MSMEs are more likely to transform digital usage into new business opportunities, whereas passive MSMEs tend to use digitalisation only for minimal functions. This interpretation remains consistent with the view of Shore et al. (2024) that entrepreneurial orientation is an important driver of resilience, but the present study extends that argument to the context of regional MSMEs in Indonesia.

Another interesting finding is the direct effect of environmental dynamism on business resilience, which is positive and significant. This result indicates that a rapidly changing environment does not always constitute a threat, but may instead function as a trigger for learning, adjustment, and business renewal. This finding is consistent with Mawardi et al. (2025), who show that environmental uncertainty positively affects business resilience, dynamic capabilities, and digital transformation among MSMEs in Indonesia. Accordingly, environmental dynamism may be viewed not only as an external pressure, but also as a context that encourages businesses to become more resilient. In the context of Banyumas, this result may be interpreted to mean that changes in the market, technology, and

competition compel MSMEs to become more sensitive to consumer needs and more agile in adjusting their business operations.

However, the moderation test shows that environmental dynamism does not strengthen the effect of digital capability on business resilience. The negative and non-significant interaction coefficient indicates that the benefits of digital capability for resilience do not increase when the environment becomes more dynamic. Theoretically, this result indicates that environmental dynamism should not automatically be assumed to amplify all capability-performance or capability-resilience relationships. Ranjan (2024) found that environmental dynamism could strengthen the effect of digital orientation on innovation performance, thereby supporting the expectation of positive moderation. Conversely, Ahmed et al. (2022) found that environmental dynamism played a negative moderating role in the relationship between digital platform capability and intellectual capital, implying that high environmental dynamism may hinder SMEs' ability to convert digital capability into valuable resources. Thus, the findings of this study are closer to Ahmed et al. (2022) and indicate that environmental dynamism does not always reinforce the effect of digital capability.

This non-significant moderation finding also shares a similar logic with the results reported by Shore et al. (2024). In their study, market turbulence negatively moderated the relationship between entrepreneurial orientation and entrepreneurial resilience, so the linear assumption that market turbulence always strengthens dynamic capabilities was not supported. This analogy is important because it shows that, in highly dynamic environments, small enterprises may experience excessive pressure such that their existing capabilities cannot be fully translated into resilience. In the context of MSMEs in Banyumas, which are dominated by micro-enterprises, it is highly possible that the existing digital capability remains basic in nature, for example being used only for promotion or communication, so that when the environment becomes increasingly dynamic, such digital capability is not yet sufficiently mature to generate a significant additional contribution to business resilience. In other words, environmental dynamism may require a deeper level of digital capability than that currently possessed by many MSMEs.

Overall, the findings of this study support the integration of the Resource-Based View and the Dynamic Capabilities Perspective. From the RBV perspective, business resilience is shaped by valuable internal resources and capabilities, particularly digital capability, adaptive capability, and entrepreneurial orientation. From the perspective of Dynamic Capabilities, these findings show that the ability to adapt and renew strategic actions is central to the formation of resilience. This pattern is also consistent with the systematic review by Hokmabadi et al. (2024), which shows that business resilience in small enterprises in the digital era requires an integrated combination of organisational capabilities, marketing capabilities, and adaptive capacity. Thus, this model confirms that MSME resilience is not the result of a single capability, but rather of the orchestration of multiple internal capabilities in responding to environmental dynamism.

From a practical perspective, these findings suggest that MSME strengthening programmes in Banyumas should not focus solely on digital adoption, but should instead be directed towards the simultaneous development of digital capability, adaptive capability, and entrepreneurial orientation. Stand-alone digitalisation training may increase the use of technology, but it will not necessarily enhance business resilience if it is not accompanied by stronger adaptive capability and entrepreneurial orientation. This finding is also in line with the recommendation of Suryani & Dwiputra (2025) that SMEs should prioritise the enhancement of adaptability through strategic flexibility, continuous learning, and collaboration. Therefore, MSME development policy should move from merely "helping MSMEs go digital" towards "helping MSMEs become resilient through an integrated capability package".

4 Conclusion

This study concludes that business resilience among MSMEs in Banyumas Regency is shaped primarily by the strength of firms' internal capabilities. The findings show that digital capability, adaptive capability, and entrepreneurial orientation have positive and significant effects on business resilience. These results confirm that, in the digital era, MSME business resilience cannot be sufficiently explained merely by a firm's ability to use technology, but is more strongly determined by its ability to utilise technology strategically, adapt to change, and develop an entrepreneurial orientation that is innovative, proactive, and willing to take risks. Among all the variables examined, adaptive capability emerged as the most dominant factor, indicating that a firm's ability to respond to change quickly, flexibly, and appropriately constitutes the main foundation for building sustainable business resilience.

This study also shows that entrepreneurial orientation makes a strong contribution to business resilience. This indicates that MSMEs with a tendency to innovate, act proactively, and take calculated risks are more likely to survive, adapt, and grow amid market dynamics. Meanwhile, digital capability remains important as a strategic capability that supports business continuity, particularly in expanding market access, strengthening customer interaction, and enhancing the effectiveness of business activities. Thus, MSME resilience in the digital era is more appropriately understood as the result of the orchestration of several complementary internal capabilities, rather than as the consequence of a single factor.

The findings further show that environmental dynamism has a direct positive effect on business resilience. This result suggests that a dynamic business environment does not always constitute a threat to MSMEs; under certain conditions, it may instead encourage firms to become more resilient, more alert, and better prepared to adapt. Nevertheless, this study also finds that environmental dynamism does not moderate the relationship between digital capability and business resilience. In other words, a high level of environmental dynamism does not automatically strengthen the benefits of digital capability for business resilience. This finding indicates that the effectiveness of digital capability in building resilience is determined more by the quality of the capability itself than by environmental conditions as a reinforcing factor.

Overall, this study confirms that MSME strengthening in the digital era should not stop at the agenda of digitalisation in its narrow sense, but should instead be directed towards the development of an integrated package of internal capabilities. MSMEs should not merely be encouraged to use digital technology, but also need to be strengthened in terms of adaptive capability and entrepreneurial orientation in order to respond to market changes more resiliently. From a theoretical perspective, this study reinforces the relevance of the Resource-Based View and the Dynamic Capabilities Perspective in explaining business resilience among MSMEs. From a practical perspective, this study shows that a more effective MSME development strategy is one that simultaneously combines the strengthening of digital capability, adaptive capability, and entrepreneurial orientation. Accordingly, business resilience among MSMEs in Banyumas can be understood as the result of firms' ability to manage resources, adjust strategies, and respond to environmental dynamism in a sustained manner.

This study has several limitations that should be acknowledged. First, the cross-sectional design limits the ability to capture changes in MSME resilience over time. Future studies should consider longitudinal designs to examine whether digital capability, adaptive capability, and entrepreneurial orientation continue to influence resilience in different stages of environmental change. Second, the study focuses on MSMEs in Banyumas Regency; therefore, the findings may not be fully generalisable to MSMEs in other regions with different institutional, digital, and market conditions. Future research should compare

multiple regions or sectors to strengthen external validity. Third, the use of self-reported questionnaire data may still create residual common method bias, although statistical checks are conducted. Future studies may combine survey data with objective indicators such as sales growth, transaction records, digital platform analytics, or survival data. Fourth, this study tests environmental dynamism as a moderator only in the relationship between digital capability and business resilience. Future research may examine additional moderation mechanisms, including the interaction between environmental dynamism and adaptive capability or entrepreneurial orientation, as well as mediation mechanisms involving innovation capability, organisational learning, or business model renewal.

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