



The influence of human capital on market orientation and micro, small, and medium enterprises (MSMEs) performance

Ayu Sartika Pane¹, Klaasvakumok J. Kamuri², Irience R.A. Manongga³, Andrias U.T. Anabuni⁴

¹Accounting Department, Kupang State Polytechnic, Indonesia

^{2,3,4}Business Administration Department, Kupang State Polytechnic, Indonesia

ARTICLE INFO

Article history:

Received Jul 19, 2025

Revised Jul 22, 2025

Accepted Jul 29, 2025

Keywords:

Human Capital;
Market Orientation;
MSMEs Performance.

ABSTRACT

MSMEs must adapt to globalization and competition, with human resources being crucial for profitability. In Kupang City, MSME actors struggle with competitive strategies, innovation, and collaboration due to low education and skills. This study investigates the impact of human capital on market orientation and performance among 99 MSME actors, using stratified random sampling and Partial Least Squares (PLS) analysis. Results indicate that human capital significantly influences market orientation (49.5% correlation) and MSME performance (path coefficient of 0.228, t-statistic of 2.518, p-value = 0.012). Market orientation also positively affects performance (path coefficient of 0.438, t-statistic of 4.465, p-value = 0.000). The model shows good predictability (R-squared of 0.245 for market orientation and 0.343 for performance). The study concludes that enhancing human capital and adopting effective market orientation strategies are vital for MSME performance improvement, providing empirical support for the literature on these factors in developing countries like Kupang City.

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Corresponding Author:

Ayu Sartika Pane,
Accounting Department
Kupang State Polytechnic, Indonesia
Address (Adi Sucipto-Penfui), Kupang, East Nusa Tenggara, 85258, Indonesia.
Email: aspane86@gmail.com

1. INTRODUCTION

To thrive in globalization and fierce competition, micro, small, and medium enterprises (MSMEs) must adapt through strategic changes, sustainable innovation, and collaboration. Prioritizing human resource development and technology optimization is crucial for effective risk management and survival (Harahap et al., 2025). Treating knowledge as a strategic non-physical asset positions human resources as vital intangible assets for company sustainability (Rennath & Wijaya, 2024). The rapid global digital transformation compels micro, small, and medium enterprises (MSMEs) to adjust their business strategies significantly. By 2025, consumer demand for high-quality yet affordable products require's MSMEs to be highly responsive to changing dynamics (Lotte et al., 2025). Meanwhile, competitors are becoming more skilled due to better education and access to cross-border technology and information, enabling them to quickly adopt the latest innovations (Kahveci, 2025).

Quoted from kupang.antaranews.com, In 2024, Kupang City has 17,609 MSMEs, with 9,325 being micro enterprises and only 216 large enterprises. The local government supports MSME development through training initiatives in food processing and handicrafts. Functional staff assist entrepreneurs in obtaining business identification numbers to maintain product quality and improve consumer services. The Kupang City Government is dedicated to enhancing local MSME competitiveness by providing intensive training and distributing operational equipment. Despite government initiatives to strengthen MSMEs, many entrepreneurs in Kupang City struggle to survive due to a lack of competitive strategies, low innovation, and limited adaptability and collaboration skills. This is reflected in their low fighting spirit, influenced by limited education and skills. Urgently, they need to master the latest technology and tools. According to the Central Statistics Agency, of the 4,682 MSME actors in Kupang City, only 76 have a bachelor's degree, and 722 have completed secondary education, while the majority have only elementary education.

Data from the Kupang City Central Statistics Agency shows a growing trend in internet usage, reaching 97.8% in 2021, 98.7% in 2022, 99.3% in 2023, and 99.6% in 2024. However, this increase has not led to optimal use of the internet and digital technology by MSMEs for business sustainability. While resources like ideas, designs, and marketing guides are available online, many MSMEs in Kupang City have yet to adopt modern technology. Internet usage is mainly concentrated in the interior design, advertising, and product design sectors, with minimal digital media utilization in other MSME sectors. Thus, enhancing education and skills for MSME actors is crucial, as knowledge-based business transformation is vital for overcoming the challenges of digitalization (Sitepu et al., 2025).

UMKM possesses significant potential within the economy; however, its actors face a range of internal and external challenges. Internally, obstacles include low-quality human resources, limited education and skills among workers, and a weak entrepreneurial spirit, all of which impede progress. Externally, government policies are often viewed as insufficiently supportive of MSMEs, further reducing the sector's competitiveness (Nugroho & Susilo, 2025). A study by Edelia and Aslami (2022) highlights that Indonesian MSMEs struggle with internal challenges such as limited workforce skills, lack of entrepreneurial focus, low technology and managerial expertise, and restricted access to information and market orientation.

Human capital significantly influences MSME performance, as noted by Febriyani and Rita (2022), who view humans as capital that yields returns on investment. Enhancing human resource quality and quantity is seen as an investment that boosts organizational performance. Supporting this, WU and Sivalogathan (2013) found that high-performing companies are typically backed by reliable human resources, strong work motivation, and commitment to their vision and mission.

Darmawan et al (2023) assert that market orientation is vital for gaining competitive advantage and boosting profitability. Alhakimi and Mahmoud (2020) support this, noting that market-oriented companies lower failure risks and drive product innovation. Sustained product development helps maintain competitiveness and meet customer needs, thereby improving organizational performance.

In Kupang City, limited knowledge and skills among SME actors negatively affect human capital and hinder product marketing. To ensure business sustainability, training programs and knowledge enhancement for SME actors and employees are essential. This issue is closely linked to human resources and market dynamics. Jogaratnam (2018) found that human capital positively influences market orientation, a view supported by Iqbal et al (2023), who highlight its crucial role in enhancing market orientation. Human capital is essential for knowledge creation and distribution, facilitating effective market orientation implementation.

Sutanto et al (2023) highlight that human capital positively affects business performance, emphasizing the importance of managing internal resources, particularly human resources, for SME growth. Workforce competencies and knowledge foster innovation and enhance performance. Hariroh et al (2024) further support this, noting that human resources improve SME performance through individual knowledge, attitudes, and intelligence, which facilitate strategy design and implementation. Effectively utilizing employee knowledge enhances MSME performance.

Wójcik-Karpacz et al (2021) highlight market orientation as a vital factor influencing the performance of micro, small, and medium enterprises. Kharabsheh et al (2015) categorize market orientation into two types: responsive and proactive. Their research shows that responsive market orientation has a positive and significant impact on performance, whereas proactive market orientation negatively affects it. The effect of market orientation on performance arises from a company's focus on the market, enabling it to effectively meet customer needs and desires. Furthermore, by directing resources toward creating unique products in comparison to competitors, companies can significantly enhance their revenue.

From the previous discussion, a research gap is evident that encourages the author to conduct a re-examination and analysis of the influence of human capital on market orientation and MSME performance. This research is conducted with a different location and method compared to previous studies.

2. RESEARCH METHOD

This research examines MSMEs in Kupang City, addressing challenges in human resources and market information. The population consists of 17,609 MSMEs, with stratified random sampling used to ensure accurate representation. The sample consists of 99 MSMEs selected through questionnaires. The key variables identified include human capital, measured by knowledge, experience, professional skills, and cognitive abilities (Felicio et al., 2014); market orientation, assessed through market intelligence, dissemination, responsiveness, and marketing culture (Kolar, 2006); and performance, measured by sales performance and profitability (Boso et al., 2013).

Validity testing assesses how accurately an instrument measures its intended concept. Construct validity is evaluated through loading factor values, with a value exceeding 0.70 indicating validity. Reliability is tested using Cronbach's Alpha, where a value greater than 0.60 signifies adequate reliability (Hair et al., 2014). This study utilizes descriptive and inferential statistical analysis. Descriptive analysis details respondent characteristics and variable distributions, while inferential analysis examines causal relationships between independent and dependent variables. The analysis employs Partial Least Squares (PLS) using SmartPLS software version 4.1, including an inner model for latent variable relationships and an outer model. The inner model is assessed with R-square values, Stone-Geisser Q-square tests, and t-tests for structural path coefficients, where a t-statistic greater than 1.660 indicates a significant relationship in hypothesis testing (Urbach & Ahlemann, 2010).

Table 1. Inner Model Criteria

Evaluation	Criteria
Between Endogenous Latent Variables	R ² Good (0,67) R ² Moderate (0,33) R ² Weak (0,19)
Effect Size	The larger F ² is, the greater its influence.
Relevance of Prediction	Q ² is getting closer to 1, so the model can predict based on the data.

The measurement model, or outer model, is assessed through convergent validity, which evaluates reflective models based on correlations between item/component scores and construct scores. Discriminant validity is tested via cross-loadings or by comparing the square root of the Average Variance Extracted (AVE). Composite reliability is measured using internal consistency and Cronbach's alpha.

Table 2. Outer Model Criteria

Evaluation	Criteria
Convergent validity, Loading factor, Average Variance Extracted (AVE)	Outer Loading \geq 0,50
Discriminant Validity, Square Root of AVE > Correlation Between Variables	\geq 0,50
Reliability Test, Composite Reliability	\geq 0,50

Source: (Urbach & Ahlemann, 2010)

Hypothesis testing involves analyzing the loading factor using the Critical Ratio (CR) or calculated t-value, compared to the table t-value. A CR greater than the table t-value with a p-value \leq 0.05 indicates significance, while a CR less than the table t-value with a p-value \geq 0.05 indicates non-significance. The t-statistic must exceed the table t-value (± 1.660 at a 5% significance level) for significance, confirming a real influence between latent variables if results are significant. (Urbach & Ahlemann, 2010).

3. RESULTS AND DISCUSSIONS

3.1 Measurement Model Results (Outer Model)

The model evaluation stage assesses the validity and reliability of constructs, focusing on three main criteria for the outer model: convergent validity, discriminant validity, and composite reliability. The first step in evaluating instrument quality is assessing the loading factor for each question item, with a value greater than 0.70 indicating validity (Hair et al., 2014). Figure 1 shows all question items have a minimum loading factor of \geq 0.70, confirming the instrument's validity.

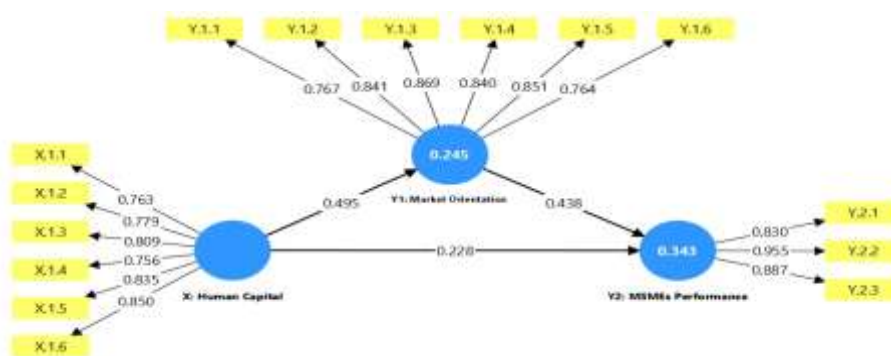


Figure 1. Outer Model

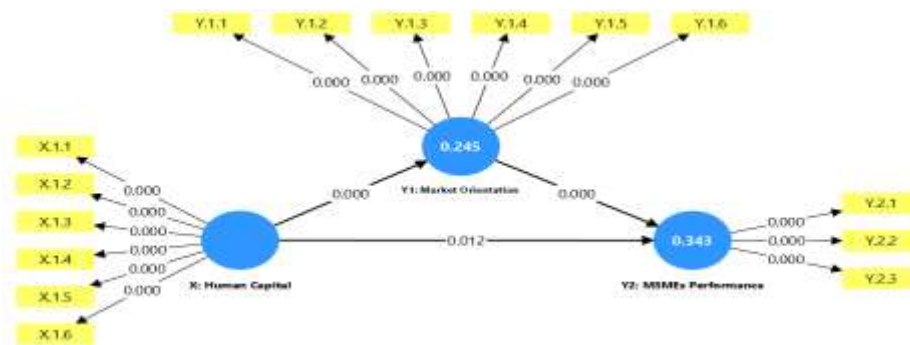


Figure 2. Structural Model with Path Coefficients

Figure 2 illustrates the structural model depicting relationships among three latent constructs: Human Capital (X), Market Orientation (Y1), and MSME Performance (Y2). Human capital significantly influences both market orientation ($p = 0.000$) and MSME performance ($p = 0.012$), while market orientation also significantly affects MSME performance ($p = 0.000$). The R^2 value of 0.245 for Y1 indicates that 24.5% of the variance in market orientation is explained by human capital, and the R^2 value of 0.343 for Y2 shows that 34.3% of the variance in MSME performance is explained by both human capital and market orientation. All indicators for the three constructs have a p-value of 0.000, confirming their validity in forming the measured constructs.

3.2 Convergent Validity

Convergent validity assesses how well each indicator relates to its corresponding latent variable. In a measurement model with reflective indicators, it is evaluated based on the correlation between item/component scores and the latent construct score calculated using the PLS method. A convergent validity value is deemed acceptable if the loading value on the measurement scale reaches or exceeds 0.50 (Urbach & Ahlemann, 2010).

Table 3. Outer Loading

Variable	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
X.1.1	0.763	0.758	0.055	13.783	0.000
X.1.2	0.779	0.776	0.049	15.992	0.000
X.1.3	0.809	0.807	0.039	20.786	0.000
X.1.4	0.756	0.753	0.055	13.745	0.000
X.1.5	0.835	0.835	0.041	20.531	0.000
X.1.6	0.850	0.850	0.024	35.430	0.000
Y.1.1	0.767	0.765	0.046	16.836	0.000
Y.1.2	0.841	0.841	0.032	26.058	0.000
Y.1.3	0.869	0.867	0.030	29.264	0.000
Y.1.4	0.840	0.839	0.029	28.989	0.000
Y.1.5	0.851	0.850	0.026	32.424	0.000
Y.1.6	0.764	0.764	0.056	13.696	0.000
Y.2.1	0.830	0.826	0.048	17.145	0.000
Y.2.2	0.955	0.954	0.012	76.923	0.000
Y.2.3	0.887	0.888	0.024	36.220	0.000

Source: Data Processed, 2025

The table indicates that each indicator for the human capital variable (X), market orientation (Y1), and MSME performance (Y2) has a loading factor value of at least 0.50, with a t-statistic exceeding 1.660 and a p-value below 0.05. Therefore, it can be concluded that all these indicators meet the criteria for validity and significance in measuring their respective constructs..

3.3 Discriminant Validity

Discriminant validity ensures that latent constructs predict variables within their block better than those in other blocks. In a measurement model with reflective indicators, it can be evaluated through cross-loading analysis with related constructs. An indicator is considered valid if its cross-loading value for the intended construct is higher than that for other constructs (Nezakati et al., 2016). A model demonstrates good discriminant validity if each indicator of a latent variable shows the highest cross-loading value for that construct compared to other latent constructs.

Table 4. Coss Loading Value

Variable	X: Human Capital	Y1: Market Orientation	Y2: MSMEs Performance
X.1.1	0.763	0.356	0.253
X.1.2	0.779	0.370	0.296
X.1.3	0.809	0.396	0.374
X.1.4	0.756	0.424	0.409
X.1.5	0.835	0.416	0.395
X.1.6	0.850	0.489	0.383
Y.1.1	0.730	0.467	0.445
Y.1.2	0.862	0.634	0.441
Y.1.3	0.845	0.469	0.421
Y.1.4	0.874	0.640	0.465
Y.1.5	0.603	0.551	0.464
Y.1.6	0.717	0.664	0.484
Y.2.1	0.728	0.420	0.380
Y.2.2	0.693	0.525	0.455
Y.2.3	0.520	0.515	0.387

Source: Data Processed, 2025

Based on the obtained cross-loading values, it can be concluded that all indicators forming each variable in this study meet the criteria for discriminant validity. This is evidenced by the outer loading value of each indicator being highest for its relevant variable and lower for other variables. Therefore, all indicators for each variable in this study are considered discriminant valid.

3.4 Composite Reliability

The measurement model evaluation using the square root of the average variance extracted (AVE) involves comparing the AVE square root value to the correlations between constructs. Good discriminant validity is achieved when the AVE square root value exceeds the correlation between those constructs. Additionally, the recommended minimum AVE value is 0.50. For the subsequent analysis of the outer model, the reliability of the latent variable constructs is measured using two parameters: composite reliability and Cronbach's alpha. A construct is considered to have adequate reliability if both the composite reliability and Cronbach's alpha values reach or exceed 0.60.(Urbach & Ahlemann, 2010).

Table 5. Goodness of Fit

Variable	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
X:	0.887	0.895	0.914	0.639
Y1:	0.904	0.905	0.926	0.677
Y2:	0.873	0.900	0.921	0.796

Source: Data Processed, 2025

Based on the table, the AVE value for each construct exceeds the minimum threshold of 0.50, indicating that the measurement model has adequate discriminant validity. Additionally, the composite reliability and Cronbach's alpha values are also above 0.60, so it can be concluded that these constructs have a good level of reliability.

3.5 Structural Model (Inner Model)

The purpose of testing the structural model (inner model) is to evaluate the relationships between variables in the model. Several measures can be used in SmartPLS 4.1 software to test this model, focusing on the predictive ability of the structural model. The R-squared value for the endogenous (dependent) variable is used as the main indicator to assess the strength of the prediction. According to Urbach and Ahlemann, (2010), an R-squared value of 0.67 indicates strong prediction, 0.33 indicates moderate prediction, and 0.19 indicates weak prediction.

Table 6. R Square Value

Variable	R-square
Y1: Market Orientation	0.245
Y2: MSMEs Performance	0.343

Source: Data Processed, 2025

The market orientation variable (Y1) has an R-squared value of 0.245, according to the table. This indicates that the human capital variable (X1) accounts for 24.5% of the variation in market orientation, with additional factors outside the purview of this study influencing the remaining variation. Regarding the MSME performance variable (Y2), the R-Square value of 0.343 shows that market orientation (Y1) and human capital (X1) account for 34.3% of the variation in MSME performance, with other variables not included in the study influencing the remaining variation..

The model's ability to produce observed values and offer precise parameter estimates is gauged by the Q-square value. The model has good predictive significance if the Q-square value is higher than zero. On the other hand, a Q-square value below zero indicates that the model's predictive power is insufficient.

Table 7. Q Square (Q²) Value

Variable	Q ² predict
Y1: Market Orientation	0.227
Y2: MSMEs Performance	0.179

Source: Data Processed, 2025

Table 7 shows that the Q² value (predictive relevance) for the Market Orientation variable is 0.227, while the MSME Performance variable is 0.179. Both values are greater than zero, indicating that this model has sufficient predictive power for both endogenous variables. A Q² score between 0.15 and 0.35 suggests a modest level of predictive relevance, indicating the model's effectiveness in explaining and projecting the variables being studied. As a result, this research paradigm is deemed appropriate for assessing the links between the constructs being evaluated.

3.6 Hypothesis Testing

In the PLS method, statistical testing of each hypothesized relationship is performed through simulation, specifically by using the bootstrapping technique on the research sample. The purpose of using bootstrapping is to address the potential problem of non-normality in data distribution. Here are the test results obtained from the PLS analysis using the bootstrapping method:

Table 8. Path Coefficient

Variable	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
X -> Y1	0.495	0.501	0.072	6.844	0.000
X -> Y2	0.228	0.232	0.091	2.518	0.012
Y1 -> Y2	0.438	0.438	0.098	4.465	0.000

Source: Data Processed, 2025

Table 8, which contains the results of the path coefficient analysis, shows that all relationships between variables in this model have a statistically significant effect. The relationship between human capital (X) and market orientation (Y1) is recorded with a coefficient of 0.495, a t-value of 6.844, and a p-value of 0.000, indicating a highly significant effect. The direct effect of human capital (X) on MSME performance (Y2) is also significant, with a coefficient of 0.228, a t-value of 2.518, and a p-value of 0.012 (< 0.05), although its strength is lower than the indirect path. Additionally, the path from market orientation (Y1) to MSME performance (Y2) shows a stronger effect with a coefficient of 0.438, a t-value of 4.465, and a p-value of 0.000, which is also statistically highly significant. Thus, all paths in this model support the hypothesis proposed in the study.

a. The Influence of Human Capital on Market Orientation

Research findings show that human capital significantly affects market orientation, with a path coefficient of 0.495, meaning a one-unit increase in human capital leads to a 49.5% increase in market orientation. MSMEs in Kupang City that leverage human capital demonstrate stronger market orientation, as educated songkok entrepreneurs effectively gather market information and respond to consumer needs, marketing their products both locally and beyond East Nusa Tenggara.

The substantial coefficient shows that human capital is a key driver of market orientation among MSMEs in Kupang City, with nearly a 50% increase in market orientation for each unit increase in human capital. While sampled songkok entrepreneurs exhibit 'good' human capital, many MSMEs in Kupang still struggle with low education and skills. The positive results may reflect the advanced nature of the sampled MSMEs compared to the general population. Thus, the impact of human capital may vary across MSME sub-sectors. Entrepreneurs' ability to market products beyond Kupang demonstrates human capital that supports broader market engagement, essential for market orientation.

The consistency of these findings with Sepahvand et al (2015), despite differing contexts (insurance vs. MSMEs), suggests a universal mechanism: human capital is crucial for organizations to respond to market dynamics. While Sepahvand et al. focused on intellectual capital in a competitive insurance market, our study highlights that MSMEs in developing countries also need strong human capital to gather and respond to market intelligence. This underscores that the ability to innovate and adapt, key to market orientation, stems from the knowledge and skills of human resources. Future research could explore moderating factors, such as access to technology or government support, that may influence how human capital impacts market orientation in various MSME contexts.

b. The Influence of Human Capital on MSME Performance

Human capital significantly influences MSME performance, as evidenced by a path coefficient of 0.228 and a t-statistic of 2.518, exceeding the t-table value of 1.660. Additionally, the p-value of 0.012 is below the significance level of 0.05. These results support the second hypothesis, concluding that human capital positively contributes to improving MSME performance. This research shows that human capital directly influences MSME performance, with a one-unit increase in human capital leading to a 22.8% increase in performance. This positive impact is supported by the strong experience and knowledge of MSME actors in Kupang City regarding production and marketing. While most business owners are high school graduates, some have university-level education. Additionally, many actively participate in training and exhibitions organized by local governments, particularly the Department of Cooperatives, Industry, Trade, and MSMEs.

The alignment with WU and Sivalogathan (2013) and Felicio et al (2014) supports the idea that human capital is a key investment in organizational

performance. Our findings in Kupang City confirm that MSMEs with better human capital can make informed decisions and implement effective strategies. However, while necessary, human capital alone may not be sufficient; its impact is influenced by factors like market orientation and the business environment. Skilled individuals may struggle to improve performance if market opportunities are not effectively pursued.

The positive influence observed stems from the proactive engagement of MSME actors in Kupang City, who have valuable production and marketing experience. Their participation in government training reflects a commitment to enhancing human capital. However, limited education and skills among many MSMEs suggest that the benefits of human capital may be more significant for those that invest in development. This raises questions about the generalizability of these findings to MSMEs with lower human capital. While the direct impact of human capital on performance (0.228) is statistically significant, it is moderate compared to market orientation's influence, indicating that knowledge and skills are most effective when applied through market-oriented strategies.

c. The Influence of Market Orientation on MSME Performance

Market orientation significantly boosts MSME performance (coefficient: 0.438, t-value: 4.465), confirming its positive impact ($p < 0.05$). These findings support the hypothesis that market-oriented strategies enhance MSME outcomes.

The study confirms market orientation directly boosts MSME performance a 1-unit increase improves performance by 43.8%. This occurs because market-focused businesses better understand and respond to customer needs and market conditions, leading to greater satisfaction and superior performance. MSME actors in Kupang City actively work to meet market needs by communicating directly with customers and gathering feedback from distributors on complaints and market dynamics. This approach helps improve product quality and align offerings with consumer preferences. Additionally, they hold regular discussions on product development and share information among team members, encouraging everyone to contribute ideas and participate in the product introduction process.

The study confirms market orientation's strong impact on MSME performance, aligning with previous research Amin et al (2016) and Beneke et al (2016). While this customer-focused approach drives competitive advantage, its effectiveness depends on entrepreneurs' human capital since adapting to market needs requires both market knowledge and skills. Future research should examine how market dynamism moderates this relationship (Wójcik-Karpacz et al., 2021). With a path coefficient of 0.438, market orientation is the strongest direct influence on MSME performance in Kupang City, emphasizing the importance of understanding and responding to market needs. Proactive behaviors, such as customer communication and information gathering, demonstrate effective market intelligence. However, disparities exist, as some MSMEs with limited digital literacy may struggle to utilize market information, affecting their market orientation and performance. This reveals varying effectiveness of market orientation across Kupang's diverse MSME landscape.

4. CONCLUSION

The hypothesis testing results indicate that: (1) Human capital positively impacts market orientation by facilitating knowledge creation and innovation, essential for meeting market needs. (2) It also significantly influences SME performance, as individuals are valuable assets whose enhancement contributes to performance improvement. (3) Market orientation positively affects SME performance, allowing market-oriented SMEs to reduce failure risks and drive new product development, which helps them compete effectively and meet customer needs.

This study's limitations include potential location/sector variations and its focus on only three variables. Future research should expand to include other factors like social capital, which plays a key role in market expansion and business performance. MSME owners in Kupang City should engage in training and exhibitions to improve their business knowledge and attract young talent to address labor shortages. They are also encouraged to explore new markets and gather market information to lessen seasonal production dependence.

ACKNOWLEDGEMENTS

We extend our deepest appreciation to all parties who provided support during the preparation of this research, especially to the MSME actors in Kupang City who willingly took the time, provided data, and openly shared their experiences. Their active involvement and support were a significant and crucial contribution to the success of this research.

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