

THE ROLE OF INNOVATION IN MEDIATING THE EFFECT OF HUMAN CAPITAL AND LEADERSHIP STYLE ON MSME PERFORMANCE

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Article History	ABSTRACT
<b>Received:</b> May 15, 2026	<b>Purpose:</b> This study aims to examine the influence of human capital and leadership style on MSME performance with innovation as a mediating variable among MSMEs in East Nusa Tenggara, Indonesia. <b>Method:</b> This study employs a quantitative approach with an explanatory research design. The sample consists of 175 MSME owners selected using purposive sampling techniques. Data were collected through a structured questionnaire based on a five-point Likert scale. Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM), supported by validity, reliability, and hypothesis testing <b>Findings:</b> The results indicate that human capital and leadership style have positive and significant effects on innovation and MSME performance. Innovation also positively affects MSME performance and significantly mediates the relationship between human capital, leadership style, and MSME performance. Among the examined variables, leadership style shows the strongest influence on innovation, while innovation plays an important role in improving organizational performance <b>Novelty:</b> This study contributes to the literature by integrating human capital, leadership style, innovation, and MSME performance into a single empirical framework in the context of MSMEs in East Nusa Tenggara. The study also highlights the strategic role of innovation as a mediating mechanism that strengthens the influence of organizational resources and leadership on business performance
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INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) play a strategic role in national economic development because they contribute significantly to employment creation, income generation, and regional economic growth. In Indonesia, MSMEs are considered the backbone of the economy due to their resilience during economic crises and their ability to absorb a large workforce. However, rapid technological development, market globalization, and increasingly intense business competition require MSMEs to continuously improve their competitiveness in order to survive and grow in dynamic business environments.

MSME performance is one of the key indicators of business sustainability and organizational success. Business performance reflects the ability of MSMEs to achieve organizational goals, improve productivity, increase profitability, and expand market reach. Nevertheless, many MSMEs still face various challenges, including limited human resource capabilities, weak managerial skills, lack of innovation, and low adaptability to market changes. These conditions often hinder MSMEs from achieving optimal performance and maintaining long-term competitiveness.

One important factor that may influence MSME performance is human capital. Human capital refers to the knowledge, skills, experience, competencies, and abilities possessed by individuals that can create economic value for organizations (Becker, 1993). In MSMEs, human capital becomes highly important because business activities are often heavily dependent on the owner's managerial ability and employees' competencies. Entrepreneurs with strong human capital tend to be more

capable of identifying business opportunities, solving organizational problems, adapting to environmental changes, and managing resources effectively.

In addition to human capital, leadership style is also considered an important determinant of organizational performance. Leadership style refers to the behavioral patterns used by leaders to influence, direct, and motivate organizational members in achieving organizational objectives (Robbins & Judge, 2017). Within MSMEs, business owners commonly act as central decision-makers who determine organizational direction, work culture, and strategic policies. Effective leadership can encourage employee motivation, strengthen teamwork, improve communication, and create a productive organizational environment. Conversely, ineffective leadership may reduce organizational effectiveness and hinder business development.

In today's highly competitive business environment, innovation has become a critical factor in sustaining organizational performance and competitiveness. Innovation refers to the ability of organizations to create or implement new ideas, products, services, processes, or business methods that provide added value (OECD, 2018). MSMEs that continuously innovate are generally more adaptive to changing customer preferences and market dynamics. Innovation not only improves operational efficiency but also enables organizations to differentiate themselves from competitors.

Human capital and leadership style are closely related to organizational innovation. Individuals with high levels of knowledge, competence, and experience are more likely to generate creative ideas and implement innovative solutions. Similarly, leadership styles that support creativity, openness, and employee participation may foster innovative behavior within organizations. Therefore, innovation may serve as an important mediating mechanism linking human capital and leadership style to MSME performance.

Previous studies have shown that human capital positively affects organizational performance and business sustainability (Crook et al., 2011). Research has also demonstrated that leadership style significantly influences organizational effectiveness, employee productivity, and innovation capability (Nguyen et al., 2021). Furthermore, innovation has been widely recognized as an important driver of MSME performance and competitive advantage (Ferreira et al., 2020).

Despite these findings, previous studies still show inconsistent results regarding the relationships among human capital, leadership style, innovation, and MSME performance. Some studies found direct relationships, while others indicated that these relationships become stronger when mediated by innovation. In addition, most previous studies focused on large organizations or multinational companies, whereas studies examining innovation as a mediating variable in MSMEs remain relatively limited, particularly in developing countries.

Based on the above explanation, this study aims to analyze the effect of human capital and leadership style on MSME performance with innovation as a mediating variable. This study is expected to contribute theoretically to the development of human resource management and entrepreneurship literature and practically provide insights for MSME owners in improving business performance through human capital development, effective leadership, and innovation enhancement.

## **THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT**

### **Human Capital**

Human capital refers to the collection of knowledge, skills, competencies, experience, and abilities possessed by individuals that can improve organizational productivity and performance (Becker, 1993). Human capital is considered one of the most important intangible assets because it contributes significantly to organizational competitiveness and long-term sustainability.

In the context of MSMEs, human capital plays a crucial role because business success is often highly dependent on the capabilities of business owners and employees. Entrepreneurs with strong human capital are more likely to identify market opportunities, manage resources effectively, and respond to environmental changes efficiently.

This study measures human capital through indicators such as education level, business knowledge, managerial capability, work experience, and technical skills.

### **Leadership Style**

Leadership style refers to the behavior and approach used by leaders to influence organizational members in achieving organizational goals (Robbins & Judge, 2017). Leadership style is an important factor in shaping organizational culture, motivating employees, and improving organizational effectiveness.

In MSMEs, leadership is generally centralized in the business owner, who plays a dominant role in decision-making and strategic planning. Leaders who encourage communication, participation, and employee empowerment tend to create a more productive and innovative work environment.

Leadership style in this study is measured using indicators including communication ability, motivational support, decision-making capability, role modeling, and relationship-building ability.

### **Innovation**

Innovation refers to the process of creating and implementing new ideas, products, services, processes, or organizational methods that generate added value for organizations (OECD, 2018). Innovation is considered essential for MSMEs because it enables businesses to adapt to changing market conditions and maintain competitiveness.

Innovation may include product innovation, process innovation, marketing innovation, and service innovation. MSMEs with high innovation capability are generally more flexible and responsive to customer needs and environmental changes.

This study measures innovation using indicators such as product development, process improvement, creativity, service enhancement, and adaptability to market changes.

### **MSME Performance**

MSME performance refers to the extent to which a business achieves its organizational objectives, including profitability, productivity, sales growth, customer satisfaction, and market expansion. Organizational performance is an important indicator of business effectiveness and sustainability.

MSME performance is influenced by various internal and external factors, including human capital, leadership, and innovation capability.

## **HYPOTHESES DEVELOPMENT**

### **The Effect of Human Capital on MSME Performance**

Human capital enables MSME owners and employees to improve managerial effectiveness, productivity, and decision-making quality, thereby enhancing business performance.

H1: Human capital has a positive and significant effect on MSME performance.

### **The Effect of Leadership Style on MSME Performance**

Effective leadership style can improve employee motivation, teamwork, organizational coordination, and overall business effectiveness, which positively influences MSME performance.

H2: Leadership style has a positive and significant effect on MSME performance.

### **The Effect of Human Capital on Innovation**

Individuals with higher levels of knowledge, competence, and experience are more likely to generate innovative ideas and develop creative business solutions.

H3: Human capital has a positive and significant effect on innovation.

### **The Effect of Leadership Style on Innovation**

Leadership styles that encourage openness, creativity, and employee participation are more likely to foster organizational innovation.

H4: Leadership style has a positive and significant effect on innovation.

**The Effect of Innovation on MSME Performance**

Innovation helps MSMEs improve competitiveness, operational efficiency, and customer satisfaction, thereby enhancing organizational performance.

H5: Innovation has a positive and significant effect on MSME performance.

**The Mediating Role of Innovation**

Innovation may act as a mechanism through which human capital and leadership style improve MSME performance.

H6: Innovation mediates the effect of human capital on MSME performance.

H7: Innovation mediates the effect of leadership style on MSME performance

**RESEARCH METHODOLOGY**

This study employs a quantitative approach with an explanatory research design. A quantitative approach was chosen because this study emphasizes theory testing through the measurement of variables using numerical data and statistical analysis procedures (Creswell, 2014). Explanatory research aims to explain causal relationships between independent variables, namely Human Capital and Leadership Style, and the dependent variable, MSME Performance, with Innovation serving as a mediating variable. In other words, this study not only seeks to determine whether relationships among variables exist, but also aims to explain the mechanism through which these relationships occur.

The population in this study consists of all Micro, Small, and Medium Enterprises (MSMEs) operating in Ende Regency, East Nusa Tenggara (NTT) Province, Indonesia. Based on data from the Department of Cooperatives and MSMEs of Ende Regency (2024), there are approximately 1,180 micro and small business units spread across several districts, including Ende Tengah, Ende Timur, Ndona, Ende Selatan, and Wolowaru. This study uses 28 indicators; therefore, the recommended sample size ranges from 140 to 280 respondents. Considering population accessibility and respondent availability, this study involved 175 MSME owners.

**RESULTS AND DISCUSSION**

Measurement Model Evaluation, also known as the Outer Model in PLS-SEM, is an important stage used to assess whether the indicators or questionnaire items are able to measure the intended latent constructs accurately. This process aims to ensure the validity and reliability of the research instrument.

The evaluation generally includes convergent validity, discriminant validity, and reliability testing. Convergent validity is assessed through loading factor and Average Variance Extracted (AVE) values, where indicators are considered valid if the loading factor exceeds 0.70 and AVE is above 0.50. Discriminant validity is used to confirm that each construct is distinct from other constructs in the model. Reliability is evaluated using Cronbach’s Alpha and Composite Reliability, with values above 0.70 indicating good reliability.

Therefore, measurement model evaluation is essential before conducting structural model analysis because the quality of the structural model depends on the validity and reliability of the measurement instruments used in the study.

**Table 1.** Outer Loading

<b>Instrument</b>	<b>Leadership Style (X2)</b>	<b>Human Capital (X1)</b>	<b>Inovation (Z)</b>	<b>Performance (Y)</b>	<b>Ket.</b>
<b>X2.1.1</b>	0.799				Valid
<b>X2.1.2</b>	0.793				Valid
<b>X2.2.1</b>	0.830				Valid
<b>X2.2.2</b>	0.781				Valid
<b>X2.3.1</b>	0.792				Valid

Instrument	Leadership Style (X2)	Human Capital (X1)	Inovation (Z)	Performance (Y)	Ket.
X2.3.2	0.838				Valid
X2.4.1	0.776				Valid
X2.4.2	0.762				Valid
X1.1.1		0.767			Valid
X1.1.2		0.798			Valid
X1.2.1		0.813			Valid
X1.2.2		0.797			Valid
X1.3.1		0.828			Valid
X1.3.2		0.798			Valid
Z.1.1.1			0.792		Valid
Z.1.2.1			0.802		Valid
Z.1.2.2			0.770		Valid
Z.1.3.1			0.781		Valid
Z.1.3.2			0.829		Valid
Z1.1.2			0.778		Valid
Y.1.1.1				0.831	Valid
Y1.1.2				0.746	Valid

Based on the outer loading test results, all indicators used to measure leadership style (X2), human capital (X1), innovation (Z), and performance (Y) showed values above 0.70. Specifically, leadership style indicators ranged from 0.762–0.838, human capital from 0.767–0.828, innovation from 0.770–0.829, and performance from 0.746–0.838. These findings indicate that each indicator has a strong relationship with its respective construct. All indicators in this study met the criteria for convergent validity and were therefore considered valid and reliable in representing the measured variables. Since all indicators exceeded the minimum validity threshold, the research instruments were deemed appropriate for further structural model analysis. These results confirm that the research model is capable of accurately representing aspects related to human capital, leadership behavior, innovation capability, and MSME performance.

**Table 2.** Cronbach's Alpha and Composite Reliability

Variabel	Cronbach's alpha	Composite reliability (rho_a)
Leadership Style	0.918	0.924
Human Capital	0.888	0.892
Inovation	0.881	0.883
Performance	0.919	0.919

Based on the construct reliability testing results, all research variables, including leadership style, human capital, innovation, and performance, were found to be reliable as they achieved Cronbach’s Alpha and Composite Reliability values above the recommended threshold of 0.70. These findings indicate that each construct demonstrates strong internal consistency, meaning that the indicators used in this study are capable of measuring the variables consistently and dependably.

Specifically, the leadership style variable recorded the highest Composite Reliability value at 0.924, followed by performance with a value of 0.919. Meanwhile, the human capital and innovation variables also showed excellent reliability, with Composite Reliability values of 0.892 and 0.883, respectively. Since all reliability criteria were fulfilled, the research instruments can be considered accurate and consistent for use in further analysis to explain the phenomena examined in this study

**Table 3.** Average Variance Extracted (AVE)

Variabel	Average variance extracted (AVE)
Leadership Style	0.635
Human Capital	0.641
Inovation	0.628
Performance	0.638

Based on the convergent validity test results presented in the table, all variables in this study obtained Average Variance Extracted (AVE) values above 0.50. This indicates that each construct satisfies the criteria for convergent validity. According to Hair et al. (2019), an AVE value of 0.50 or higher suggests that more than 50% of the variance in the indicators can be explained by the corresponding latent construct. The leadership style variable (X2) achieved an AVE value of 0.635, indicating that its indicators were able to explain 63.5% of the variance in the leadership style construct.

**Tabel 7.** Coefficient Determinant (R<sup>2</sup>)

Variabel	R-square	R-square adjusted
Inovation (Z)	0.490	0.484
Performance (Y)	0.485	0.476

Based on the coefficient of determination (R<sup>2</sup>) results presented in Table 5.16, the endogenous construct Innovation (Z) obtained an R-square value of 0.490 and an adjusted R-square value of 0.484. These results indicate that Human Capital (X1) and Leadership Style (X2) are able to explain 49.0% of the variance in the Innovation (Z) variable, while the remaining 51.0% is influenced by other factors outside the scope of this research model

**Tabel 9.** Pengujian Hipotesis

No	Pengaruh	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T statistics ( O/STDEV )	P values	Ket.
1	Human capital > Innovation	0.440	0.444	0.045	9.720	0.000	Accepted
2	Human capital > Performance	0.306	0.308	0.058	5.287	0.000	Accepted
3	Leadership Style > Innovation	0.509	0.508	0.051	9.923	0.000	Accepted
4	Leadership Style > Performance	0.317	0.317	0.075	4.194	0.000	Accepted

**Discussion**

The results of this study indicate that human capital, leadership style, and innovation play important roles in improving organizational performance. Human capital was found to have a positive and significant effect on both innovation and performance, suggesting that employees with strong knowledge, skills, experience, and creativity are more capable of generating innovative ideas and achieving higher work performance. This finding supports Human Capital Theory proposed by Becker (1993), which emphasizes that investment in education, training, and employee competencies contributes significantly to organizational productivity and competitiveness. Individuals with high-quality human capital are generally more adaptive to environmental changes and more effective in solving organizational problems.

The study also found that leadership style has a positive and significant influence on innovation and performance. Effective leadership encourages employees to be more motivated, creative, and actively involved in organizational activities. Leaders who provide inspiration, intellectual stimulation, and support for new ideas are able to create a work environment that promotes innovation and productivity. These findings are consistent with Transformational Leadership Theory developed by Bass and Avolio (1994), which explains that transformational leaders are capable of improving employee performance through motivation, vision, and innovation support. In organizational contexts, leadership not only functions as a mechanism for directing employees but also as a driving force for organizational change and innovation.

Furthermore, innovation was proven to have a positive and significant effect on organizational performance. Organizations that continuously develop new products, services, and business processes tend to achieve better performance and stronger competitiveness. This result is in line with Rogers' (2003) Diffusion of Innovation Theory, which states that innovation is an important factor in organizational development and business sustainability. Innovation enables organizations to respond effectively to changing customer needs, technological developments, and competitive market conditions.

The findings also reveal that innovation acts as a significant mediating variable in the relationships between human capital, leadership style, and organizational performance. This indicates that the effects of human capital and leadership style on performance are strengthened through innovation capability. Human capital provides the knowledge and competencies needed to generate innovative ideas, while effective leadership creates an organizational climate that supports creativity and change. As a result, innovation becomes a strategic mechanism that transforms organizational resources and leadership capabilities into improved performance outcomes.

Overall, this study highlights the importance of integrating human capital development, effective leadership, and innovation strategies in order to improve organizational performance. Organizations that invest in employee competencies, implement supportive leadership practices, and encourage innovation are more likely to achieve sustainable competitive advantages and long-term business success

## **CONCLUSION AND RECOMMENDATIONS**

This study concludes that human capital and leadership style have positive and significant effects on organizational performance, both directly and indirectly through innovation as a mediating variable. Human capital contributes to improving organizational performance by enhancing employees' knowledge, skills, competencies, and adaptability, which also strengthen the organization's ability to generate innovation. Likewise, leadership style plays an important role in motivating employees, encouraging creativity, and creating a supportive organizational environment that promotes innovation and performance improvement.

The findings also confirm that innovation significantly influences organizational performance and acts as an important mechanism linking human capital and leadership style to performance outcomes. Organizations with stronger innovation capabilities are more capable of adapting to market changes, improving operational effectiveness, and maintaining competitive advantage. Therefore, innovation serves not only as an organizational outcome but also as a strategic process that transforms organizational resources into higher performance.

Theoretically, this study contributes to the development of human resource management and organizational behavior literature by providing empirical evidence regarding the mediating role of innovation in the relationship between human capital, leadership style, and organizational performance. Practically, the findings suggest that organizations, particularly MSMEs, should focus on improving employee competencies, implementing effective leadership practices, and fostering a culture of innovation to achieve sustainable business performance.

This study has several limitations. First, the research was limited to MSMEs in one regency area, which may reduce the generalizability of the findings. Second, the study only examined human capital, leadership style, innovation, and performance, while other factors that may influence

organizational performance were not included. Therefore, future studies are recommended to include additional variables such as organizational culture, digital capability, employee engagement, or market orientation and to expand the research scope to different sectors and regions

### **DECLARATION OF ARTIFICIAL INTELLIGENCE USAGE**

The authors declare that artificial intelligence (AI) tools were used in a limited capacity to assist in language refinement, grammar checking, and improving the clarity of the manuscript. All intellectual contributions, including research design, data collection, analysis, and interpretation, were conducted solely by the authors. The authors take full responsibility for the content and integrity of this manuscript

### **CONFLICT OF INTEREST**

The authors declare that there is no conflict of interest regarding the publication of this paper. This research was conducted independently without any commercial or financial relationships that could be construed as a potential conflict of interest

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