

The Role of HR Management, Innovation, and Entrepreneurial Traits on the Performance of Catfish MSMEs: A Case Study of Ngawi Regency

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ARTICLE INFO

Article history:

Received Jul 25, 2025
Revised Aug 05, 2025
Accepted Aug 20, 2025

Keywords:

Entrepreneur,
Innovation,
Performance,
HR management,
MSMEs

ABSTRACT

Micro, Small, and Medium Enterprises (MSMEs) play a strategic role in the national economy, including the aquaculture subsector, such as catfish, which has great potential but whose performance has not yet been optimized. This research aims to analyze the influence of human resource management, innovation, and entrepreneurial characteristics on the performance of catfish farming MSMEs. The research was conducted in June 2025 in Ngawi Regency, East Java, involving the entire population of 55 MSME actors through the saturated sampling method. This study uses the variables of HR Management (X_1), Innovation (X_2), Entrepreneurial (X_3), and MSME Performance (Y), which are analyzed using multiple linear regression after undergoing a series of classical assumption tests. The results show that simultaneously, the three variables significantly affect the performance of MSMEs, but partially, only the innovation variable has a significant impact on the performance of catfish farming MSMEs.

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1. INTRODUCTION

Micro, small, and medium enterprises play a very important role in a country's economy. Not only do they contribute to the growth of the national economy, but they also have the capacity to employ a significant workforce. MSMEs, which number more than 64 million business units in Indonesia, serve as the backbone of the national economy, contributing more than 60% to GDP, absorbing almost 97% of the workforce, and contributing about 15.7% of total national exports (Perekonomian, 2025).

One of the MSME subsectors with promising growth prospects is aquaculture, particularly catfish farming. This subsector not only contributes to food security and nutrition for the community but also provides extensive business opportunities for local people, especially in rural areas. Catfish farming is known to have a relatively short production cycle, efficient operational costs, and stable market demand, making it a strategic choice for MSME players. In Ngawi Regency, East Java, catfish farming is among the largest compared to other types of aquaculture, both in terms of the number of farmers and production volume, indicating significant economic potential for the region. The aquaculture production of catfish is the most cultivated commodity, with a total of 2,920 tons and a production value reaching Rp 52.56 billion in 2022 (BPS, 2024).

However, the performance of MSMEs in this sector still faces various obstacles, ranging from limited managerial capacity and lack of product innovation to weak entrepreneurial characteristics of the business actors. The performance of MSMEs is not only determined by external factors such as

government policies and market conditions but is also greatly influenced by internal factors such as human resource management (HRM), innovation capabilities, and entrepreneurial characteristics.

The determinants of MSME performance have yielded varied results in previous research. Some studies, such as those conducted by (Rani, 2019), (Jing, 2025) and (Tessema et al., 2025), indicate that HR management has a significant contribution to improving business performance. However, other studies show different results, where HR management does not always have a major effect on MSME performance.

We also observe a similar trend in the innovation variable. Research by (Rosyidiana & Narsa, 2024) and (Supatminingsih et al., 2025) shows that innovation has a substantial effect on the success of MSMEs. However, several other studies have found contrasting results. The explanatory research conducted by (Ndesaulwa & Kikula, 2016) indicates that innovation does not significantly contribute to the improvement of business performance. Conversely, this study reveals that the existing evidence remains varied and inconsistent.

Additionally, the characteristics of entrepreneurs are an important variable that is often associated with MSME performance. The research was conducted by (Abraham et al., 2016), (Han et al., 2022), and (Sendawula et al., 2023) emphasizes that strong entrepreneurial characteristics can drive business performance to improve. However, there are also numerous studies that show entrepreneurial characteristics do not have any meaningful impact on business performance.

The originality of this study lies in its specific focus on examining The Impact of Human Resources management, innovation, and entrepreneurial characteristics on stage of catfish farming MSMEs in Ngawi Regency. Unlike previous research that generally examines MSMEs in general or in the industrial and trade sectors, this study highlights the aquaculture subsector, specifically catfish farming, which is a leading regional commodity but has been minimally explored academically. This research combines three internal factors into one model to see how they all affect business performance at the same time, which gives a fuller picture compared to earlier studies that usually looked at these factors one by one. This research also aims to address the inconsistencies in previous findings regarding The link between the three internal elements and the performance of MSMEs, which represent a significant research gap. So, This research tries to contribute fresh ideas to existing information about fisheries-based MSMEs and to help create practical strategies to improve the performance of MSMEs in the aquaculture sector.

2. RESEARCH METHOD

The research was conducted in June 2025 in Ngawi Regency, East Java. The population in this study includes all Micro, Small, and Medium Enterprises (MSMEs) centered around catfish farmers in the Ngawi Regency, East Java. Based on the data obtained, there are 55 MSMEs operating in that location of the study. Because the population size is relatively small, the sampling method used is saturated sampling (total sampling). Researchers use In the saturation sampling method, all individuals of the population are treated as samples. This approach is usually used when the population size is relatively small or if the researcher wants to make generalizations with a very minimal error rate (Irawan, Dedeng & Gunawan, 2025).

The variables used are HR Management (X_1), Innovation (X_2), entrepreneurial traits (X_3), and MSME Performance (Y). The respondents in this study are the owners or managers of catfish farming MSMEs in Ngawi Regency, as they are considered to have in-depth knowledge of business operations and strategies. Data collection was conducted using a 5-point Likert scale questionnaire, where the number 1 indicates "strongly disagree" and the number 5 indicates "strongly agree." The questionnaire was administered directly to the respondents to ensure a clear understanding of each question and to guarantee that the obtained data was complete and accurate. The data obtained were then processed using SPSS version 30.

This study employs multiple linear regression analysis. Multiple linear regression analysis is used to determine how much one dependent variable is influenced by two or more independent variables (Marnilin et al., 2022), specifically to determine the extent to which HR management, innovation, and entrepreneurial traits affect the performance of MSMEs. Before conducting the regression test, a series of classical assumption tests are first carried out to ensure that the regression model meets the statistical validity requirements. The normality test using the

Kolmogorov-Smirnov method is used to determine whether the residuals are regularly distributed. The multicollinearity test seeks to find substantial correlations between independent variables that can disrupt the stability of the regression model. Meanwhile, the heteroscedasticity test checks if the spread of the residuals is consistent, and the linearity test makes sure that the relationship between the independent and dependent variables is straight. Additionally, the analysis includes checking the coefficient of determination (R^2) to see how well the independent variable explains the changes in the dependent variable in the model.

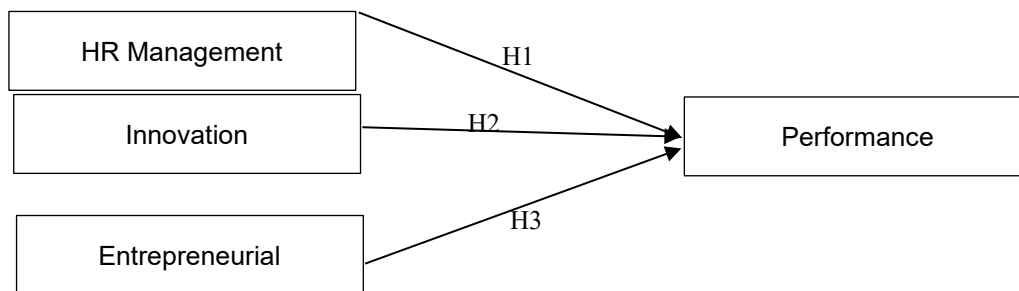


Figure 1. Research Model

3. RESULTS AND DISCUSSIONS

Classic Assumption Test

Data Normality Test

Table 1. Normality Test

One-Sample Kolmogorov-Smirnov Test			Unstandardized Residual
N			55
Normal Parameters ^{a,b}	Mean		.0000000
	Std. Deviation		3.07813164
Most Extreme Differences	Absolute		.107
	Positive		.059
	Negative		-.107
Test Statistic			.107
Asymp. Sig. (2-tailed) ^c			.173
Monte Carlo Sig. (2-tailed) ^d	Sig.		.115
	99% Confidence Lower Bound		.107
	Interval Upper Bound		.123

According to the results of the normalcy test displayed in the table above, the significance value (Sig.) for the Kolmogorov-Smirnov test is 0.173. This value is greater than a significance level of 0.05 indicates that the residual data is regularly distributed. As a result, we can conclude that the regression model's normality assumption was met, making the model suitable for further analysis.

Multicollinearity Test

Table 2. Multicollinearity Test

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	HR Management	.894	1.118
	Innovation	.864	1.157
	Entrepreneurial	.937	1.068

a. Dependent Variable: Performance

Overall, there is no severe multicollinearity in this model because there are no variables with a VIF above 10.

Heteroskedasticity Test

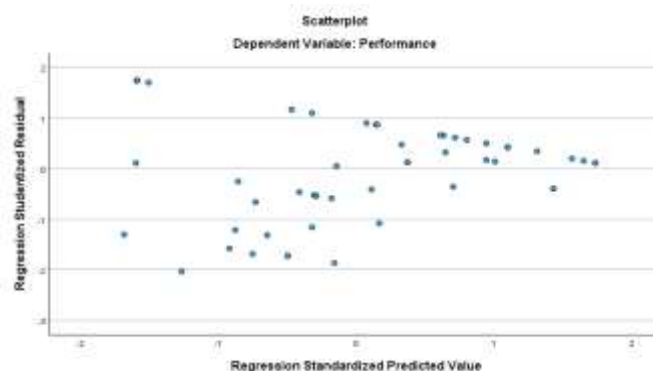


Figure 2. Heteroskedasticity Test

The absence of heteroscedasticity symptoms in the regression model can be identified by the point distribution pattern on the scatterplot. The points are randomly distributed above and below the zero line on the Y-axis, not creating a specific pattern, showing that the residual variance is constant.

Regression Test Coefficient of Determination

Table 3. Coefficient of Determination Test

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.438 ^a	.192	.144	3.16737

a. Predictors: (Constant), Entrepreneurial, HR Management, Innovation

b. Dependent Variable: Performance

Based on the regression test findings in the Model Summary table, a coefficient of determination (R Square) value of 0.192 was calculated. This means that the three independent variables in the model, HR management, innovation, and entrepreneurial qualities, account for 19.2% of the variation in the dependent variable, UMKM performance. Meanwhile, the adjusted R-squared value of 0.144 suggests that, after controlling for the number of predictors in the model, these three factors can still explain 14.4% of the variation in UMKM performance. The high adjusted R-squared value indicates that this model has great predictive potential.

Hypothesis Testing F Test

Table 4. F Test Result

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	121.192	3	40.397	4.027	.012 ^b
	Residual	511.644	51	10.032		
	Total	632.836	54			

a. Dependent Variable: Performance

b. Predictors: (Constant), Entrepreneurial, HR Management, Innovation

The ANOVA test yielded a F value of 4.027, with a significance level of 0.000 (< 0.05). This implies that the regression model is simultaneously significant, implying that the variables HR Management, Innovation, and Entrepreneurial all have a meaningful impact on the UMKM Performance variable.

As a result, the regression model chosen is appropriate for explaining the relationship between the independent factors and the dependent variable.

T Test

Table 5. T Test Result

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	T	Sig.
1	(Constant)	37.822	5.813		6.507	<.001
	HR Management	-.233	.167	-.186	-1.395	.169
	Innovation	-.476	.198	-.325	-2.401	.020
	Entrepreneurial	-.127	.189	-.087	-.672	.505

The t-test results indicate that only the innovation variable has a significant effect on MSME performance, with a t-value of -2.401 and a significance level of 0.020 (< 0.05). This suggests that changes in innovation have a statistically significant effect on improving MSME performance. Meanwhile, the HR management and entrepreneurial variables have no substantial impact on MSME success. The significance levels of 0.169 and 0.505, both greater than 0.05, demonstrate their relevance.

Discussions

The influence of innovation on performance

The t-test results show that innovation has a statistically significant effect on MSME performance, with a t-value of -2.401 and a significance level of 0.020 (< 0.05). This means that, despite the negative direction of the regression coefficient, innovation still significantly contributes to influencing the performance of MSMEs. This could imply that the type or direction of innovation being implemented needs to be reassessed to truly enhance performance. In general, these results reinforce the understanding that the ability of MSMEs to create or adopt new innovations in products, processes, marketing, or management can significantly impact competitive advantage and the performance achievements of MSME businesses. This is in line with the research conducted by, (Rosyidiana & Narsa, 2024), (Supatminingsih et al., 2025). Innovation can help MSMEs understand the factors that lead to sustainable business performance (Muangmee et al., 2021).

The influence of HR management on performance

The research findings indicate that the HR management variable does not have a positive and significant impact on the performance of catfish farmers' MSMEs in Ngawi Regency. The significance value obtained was 0.169 (> 0.05), indicating that human resource management has not yet made a significant contribution to the improvement of business performance. This is not consistent with the studies undertaken by (Jing, 2025), (Tessema et al., 2025).

This situation is due to the weak HR management systems used by MSME actors, like not having a clear organizational structure, little training or development for employees, and not understanding the importance of good HR management. Moreover, most MSMEs tend to focus more on production and marketing aspects, so workforce management has not yet become a top priority. In fact, in management theory, human resources (HR) are a strategic asset that can drive business efficiency and productivity. The practice of human resource management (HRM) carried out effectively can contribute significantly to the success an organization (VRAŇAKOVÁ & GYURÁK BABEL'OVÁ, 2025)

The influence of entrepreneurial characteristics on performance

The research results indicate that the entrepreneurial variable does not have a significant impact on the performance of MSMEs. This is evident from the high significance value of 0.505 (> 0.05), which indicates that entrepreneurial orientations such as risk-taking, innovation, and proactivity have not yet contributed meaningfully to the improvement of business performance. The results of this study are not in line with the research by (Jaya Puspita et al., 2022), (Han et al., 2022), (Sendawula et al., 2023).

One of the main causes of this condition is that most catfish MSMEs in Ngawi Regency still run their businesses primarily to meet daily living needs, rather than as true entrepreneurs who think long-term and strategically and are oriented towards business growth. Business operators often maintain a subsistence-oriented mindset, leading them to run their businesses conventionally without any drive for innovation or expansion. Entrepreneurial orientation can help MSMEs understand the factors that lead to sustainable business performance (Muangmee et al., 2021).

4. CONCLUSION

Based on the research findings, it can be concluded that only the innovation variable has a significant effect on the performance of catfish farming MSMEs in Ngawi Regency, with a coefficient of -0.476, $t = -2.401$, and $p\text{-value} = 0.020 (< 0.05)$. Interestingly, the negative coefficient indicates that the type and direction of the innovations applied tend to decrease performance, suggesting the need for a thorough evaluation of innovation strategies and their implementation. In contrast, human resource management (coefficient = -0.233; $t = -1.395$; $p = 0.169$) and entrepreneurial orientation (coefficient = -0.127; $t = -0.672$; $p = 0.505$) do not show significant effects on MSME performance, indicating the weak implementation of these aspects in practice. From a practical standpoint, these findings imply that MSME actors should direct innovation more precisely, strengthen human resource management systems, and cultivate an entrepreneurial mindset oriented toward sustainable growth.

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