THE EFFECT OF HUMAN RESOURCES (HR) QUALITY, E-COMMERCE ROLE, AND CAPITAL ACCESS ON MSME PERFORMANCE

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Abstract

This research delves into the Effect of HR Quality, E-commerce Role, and Capital Access on MSME Performance in Surakarta City. Employing a quantitative methodology, the research surveyed 97 MSME respondents selected through the Lemeshow formula, utilizing both accidental and simple random sampling techniques. Data were gathered through online questionnaires via Google Form and analyzed using SPSS version 25 through multiple linear regression. The results reveal that while the quality of human resources and the role of e-commerce do not significantly influence MSME performance, access to capital has a positive and substantial effect. These findings highlight the necessity for a stronger emphasis on financial accessibility to enhance MSME performance in Surakarta, such as offering affordable loans or flexible funding options. Although improving human resource quality and leveraging e-commerce remain vital, they must be underpinned by appropriate structural and financial mechanisms. Policymakers are encouraged to prioritize financial support systems, while MSMEs should enhance their digital marketing strategies and ensure robust technological infrastructures to facilitate effective e-commerce integration.

Keywords: *Entrepreneurial Performance, Digital Business Integration, Financial Accessibility, MSMEs*

INTRODUCTION

Indonesia boasts significant economic potential, prominently demonstrated by the flourishing Micro, Small, and Medium Enterprises (MSMEs) sector. MSMEs are essential in driving the economic advancement of a country (Kakilo et al., 2022). The swift rise in both traditional and modern MSMEs significantly contributes to the Indonesian economy (Rosnidah et al., 2022). In 2018, statistics from the Ministry of Cooperatives and Small and Medium Enterprises (KUKM) revealed that there were 64.2 million MSMEs in Indonesia, making up nearly 100% of all businesses and contributing over 60% to the country's GDP, with large businesses only making up 38.9% (Sasongko & Nainggolan, 2020). In Surakarta City, the MSME sector continues to thrive, comprising over 13,000 units as of 2023, which together employ more than 16,000 individuals, thus playing a crucial role in job creation and bolstering the regional economy.

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Despite the growth of MSMEs in Surakarta, they encounter several challenges, including limitations in product standardization, production capacity, and financial record management. Key factors undermining the competitiveness of these enterprises include inadequate financial literacy, access to financing, technological advancements, and the quality of human resources. Enhancing the competitiveness and quality of MSMEs is essential for fostering regional economic growth, particularly by improving overall business performance.

The success of Micro, Small, and Medium Enterprises (MSMEs) is greatly impacted by a combination of internal and external factors, which can be analyzed using a variety of quantitative and qualitative methods. Internally, the performance of MSMEs is influenced by various factors, with the quality of HR and the utilization of e-commerce being among the most significant (Hasibuan, 2016). Externally, access to capital plays a crucial role. The quality of human resources is critical for MSME success, as limited skills and knowledge often hinder business growth (Khairani et al., 2022). E-commerce, in contrast, is vital for market expansion and streamlining transactions; however, MSMEs still encounter challenges in embracing digital technologies (Hamida et al., 2023). Additionally, the ability to secure financing is essential for allowing MSMEs to grow and innovate, which are crucial aspects for enhancing business performance (Mahardika, 2020).

While existing research indicates a connection between HR quality and MSME performance, results are inconsistent. Studies by Kakilo et al. (2022); Sukamantari & Putu (2022); Wuryandini et al. (2024) reveal varying outcomes, highlighting a notable absence in research literature on how the quality of human resources affects the performance of small and medium-sized enterprises. Furthermore, although numerous studies endorse the positive influence of e-commerce on MSMEs (Hendriawan, 2024; Sahrul & Nuringsih, 2023), its effect is not uniformly established, necessitating further investigation to clarify the factors governing e-commerce effectiveness. Similarly, while access to capital appears to affect MSME performance, additional research is required to identify other elements that may influence the efficacy of capital access (Hamida et al., 2023; Wismanjaya & Werastuti, 2022).

This research aims to fill in the missing information from previous studies by investigating how the quality of human resources, integration of e-commerce, and availability of capital collectively influence the success of micro, small, and medium enterprises (MSMEs) in Surakarta City. This research seeks to offer a deep insight into the key elements that contribute to the success of MSMEs in the area, with the goal of influencing policy recommendations that can boost the growth of these enterprises. Furthermore, the study

intends to bridge existing literature gaps and contribute to the formulation of strategies that support the sustainable growth of MSMEs across Indonesia.

LITERATURE REVIEW

Attribution Theory

Attribution Theory presents a cognitive framework through which individuals seek to understand the reasons behind their own behaviors and those of others (Samsuar, 2019). This process enables a deeper comprehension of the motivations behind attitudes and actions, significantly influencing our responses in social settings (Utami, 2023). A key component of attribution theory is the locus of control (Guest et al., 2021), which assesses whether individuals believe that outcomes are determined by internal factors stemming from within themselves or external factors related to their environment or circumstances (Rachmawati et al., 2023).

Quality of Human Resources

Quality of Human Resources pertains to the capacity of individuals to generate competitive and comparative added value, fostering innovation through intelligence, creativity, and intuition rather than merely relying on physical labor or natural resources such as land, water, and strength (Siswanti, 2020). When the quality of human resources is low, it can lead to diminished performance, adversely affecting both business growth and sustainability. Numerous empirical studies, including those by Kakilo et al. (2022); Sukamantari & Putu (2022); Wuryandini et al. (2024), have explored the relationship between HR quality and MSME performance. Drawing on relevant theories and previous research findings, the following hypothesis has been formulated:

H_{a1}: Human resource quality affects MSME performance

E-commerce Roles

E-commerce is an integral component of electronic business systems, encompassing a wide array of business activities. Beyond simply facilitating online transactions, e-commerce involves collaboration with business partners, delivering customer service, disseminating recruitment information, and addressing various other business functions. It relies on a robust digital infrastructure that includes internet networks (World Wide Web), databases, electronic mail (email), and traditional technology support such as logistics systems and payment methods. The internet facilitates diverse activities within e-commerce, including promotion, marketing, customer relations, sales transactions, payments, and product delivery. Research conducted by Sahrul & Nuringsih (2023) and Hendriawan (2024) indicates

that e-commerce positively impacts the performance of MSMEs. Therefore, we propose the following hypothesis:

H_{a2}: The role of e-commerce affects MSME performance

Access to Capital

Access to capital is fundamental in fostering economic growth, particularly within the MSME sector. Capital is essential for the production process and provides the groundwork that allows MSME operators to sustain and expand their businesses. Simplifying access to financing is crucial, as it can motivate businesses to enhance their performance. Capital can manifest as cash, known as financial capital, or in the form of goods or tools utilized in production (Mahardika, 2020). Empirical studies by Wismanjaya & Werastuti (2022) and Hamida et al. (2023) demonstrate that the availability of capital access significantly influences the performance of MSMEs. Consequently, the following hypothesis is proposed:

H_{a3}: Access to capital affects MSME performance

RESEARCH METHOD

This research employs a quantitative methodology, utilizing primary data gathered through online questionnaires distributed via Google Forms. The study's target population consists of all MSME operators in the Surakarta City area. The Lemeshow formula was used to determine the sample size, leading to a total of 97 participants representing different MSMEs.

The research encompasses two categories of variables: independent and dependent. The independent variables include human resource quality, e-commerce utilization, and access to capital, while the dependent variable, which is the focal point of this study, is the performance of MSMEs. Data collected from the questionnaires were systematically tabulated and analyzed using SPSS software version 25.

Prior to beginning the primary assessment, the data was subjected to tests to confirm the accuracy and dependability of the tools used. Subsequently, classical assumption testing was performed, assessing normality, multicollinearity, autocorrelation, and heteroscedasticity. The impact of each independent variable on the dependent variable was assessed by conducting hypothesis testing using multiple linear regression, which included partial tests (t-test) and the coefficient of determination (R^2).

RESULTS AND DISCUSSION

Description of Respondents Based on Age

Table 1. Age Description

Age	Frequency	Percentage
< 18 years old	0	0%
18 - 25 years old	40	41,24%
> 25 years old	57	58,76%
Total	97	100%

Source: Primary data processed (2025)

In accordance with the information provided in Table 1, which shows the age distribution of respondents, the majority of respondents in this study came from the age group above 25 years, as many as 57 people or 58.76% of the total 97 respondents. This age group dominates the research sample, which indicates that most of the individuals involved in the research have longer work experience or involvement in the issue or phenomenon being studied. A more mature age is generally assumed to have a level of maturity, broader understanding, and more experience in fields relevant to the research topic. Therefore, respondents in this group can provide more in-depth and reflective insights into the research questions, which can certainly contribute to the validity and credibility of the data obtained.

On the other hand, the 18-25 age group, totaling 40 people or 41.24%, also contributed significantly to the research sample. Although the number is smaller than the >25 years age group, the presence of young respondents in this study provides an important perspective. The younger generation often has a fresher and more dynamic outlook on current issues, and tends to be more open to change and technology. Therefore, they can provide different perspectives, which enrich the analysis and understanding of the research topic.

Overall, the age composition of the respondents in this study reflects a diversity of perspectives, with a predominance of more mature age groups. This increases the depth and variety of data obtained, providing a broader and more representative picture of the phenomenon under study.

Sales Turnover Description

Table 2. Description of sales turnover

Sales Turnover	Frequency	Percentage
< Rp 3.000.000	1	1,03%
Rp 3.000.000 - Rp 5.000.000	47	48,45%
> Rp 5.000.000	49	50,51%
Total	97	100%

Source: Primary data processed (2025)

The data reveals that a significant majority of respondents (49 individuals, or 50.51% of the total 97) report monthly sales exceeding Rp5,000,000. In contrast, 47 respondents, accounting for 48.45%, achieve a monthly turnover between Rp3,000,000 and Rp5,000,000, while only 1 respondent (1.03%) falls below the Rp3,000,000 mark. This nearly even distribution between medium and high turnover groups leans slightly towards those with higher turnover.

The prevalence of respondents with sales exceeding Rp5,000,000 suggests that most businesses involved in this study are operating at a relatively stable and growing level of performance. This trend may indicate the effectiveness of their business strategies and management practices in areas such as financial oversight, marketing, and production. Furthermore, the substantial presence of respondents in the high turnover category reflects a robust local economic potential and an empowering environment for the businesses being analyzed.

Moreover, the segment with turnovers between Rp3,000,000 and Rp5,000,000 represents a vibrant business community with promising growth prospects, as their income levels can adequately meet basic operational needs while enabling reinvestment. Conversely, the scarcity of respondents reporting turnover below Rp3,000,000 likely results from a focus on businesses that are already established and thriving, rather than those in their infancy or operating on a very small, micro-scale.

From an analytical perspective, this turnover distribution indicates that the respondents predominantly represent middle- to upper-middle-income businesses, which may shape their perspectives, needs, and strategies. This context is crucial for drawing accurate conclusions, as the findings may reflect the characteristics of established businesses more than those of smaller or startup enterprises. Thus, future discussions should address whether the strategies, policies, or interventions explored can be effectively applied across various business sizes or if they are more pertinent for those with relatively high turnover.

Validity Test

The purpose of the validation test is to guarantee that the survey utilized in this research accurately assesses the desired variables. The validity test was carried out for three independent variables: Quality of Human Resources (X1), Role of E-commerce (X2), and Access to Capital (X3), as well as the dependent variable MSME Performance (Y). Each indicator score was tested using the Analyze-Correlate-Bivariate method in SPSS version 25.

Table 3. Validity Test Results

Variable	Questionnaire	r-value	sig	r-table	status
Quality of Human Resources (X1)	X1.1	0.440	0	0.199	Valid
	X1.2	0.356	0	0.199	Valid
	X1.3	0.453	0	0.199	Valid
	X1.4	0.586	0	0.199	Valid
	X1.5	0.334	0	0.199	Valid
	X1.6	0.570	0	0.199	Valid
	X1.7	0.373	0	0.199	Valid
	X1.8	0.519	0	0.199	Valid
	X1.9	0.549	0	0.199	Valid
	X1.10	0.559	0	0.199	Valid
Role of E-commerce (X2)	X2.1	0.484	0	0.199	Valid
	X2.2	0.522	0	0.199	Valid
	X2.3	0.474	0	0.199	Valid
	X2.4	0.399	0	0.199	Valid
	X2.5	0.393	0	0.199	Valid
	X2.6	0.602	0	0.199	Valid
	X2.7	0.411	0	0.199	Valid
	X2.8	0.524	0	0.199	Valid
	X2.9	0.454	0	0.199	Valid
	X2.10	0.550	0	0.199	Valid
Access to Capital (X3)	X3.1	0.532	0	0.199	Valid
	X3.2	0.448	0	0.199	Valid
	X3.3	0.574	0	0.199	Valid
	X3.4	0.537	0	0.199	Valid
	X3.5	0.583	0	0.199	Valid
	X3.6	0.607	0	0.199	Valid
	X3.7	0.52	0	0.199	Valid
	X3.8	0.533	0	0.199	Valid
	X3.9	0.677	0	0.199	Valid
MSME Performance (Y)	Y1	0.750	0	0.199	Valid
	Y2	0.808	0	0.199	Valid
	Y3	0.762	0	0.199	Valid

Source: Primary data processed (2025)

Based on the validity test analysis results, it is possible to infer that the questionnaire statements are valid as the calculated r value exceeds the r table value of 0.199.

Reliability Test

The reliability test aims to assess the degree to which the instrument, specifically the questionnaire, yields consistent and stable results across different conditions. Cronbach's Alpha to assess the validity of the instrument, establishing a minimum threshold of 0.6 for reliability used in this research. The findings from the reliability test reveal that all variables—Quality of Human Resources (0.617), Role of E-commerce (0.632), Access to Capital (0.722),

and MSME Performance (0.665)—exceed the minimum threshold of Cronbach's Alpha. This shows that the items addressing each variable have a high level of reliability when considered together.

Table 4. Reliability Test Results

Variable	Cronbach's Alpha	Reliability Standard	Description
Quality of Human Resources (X1)	0,617	0,6	Reliable
Role of E-commerce (X2)	0,632	0,6	Reliable
Access to Capital (X3)	0,722	0,6	Reliable
MSME Performance (Y)	0,665	0,6	Reliable

Source: Primary data processed (2025)

Theoretically, Alpha values ranging from 0.6 to 0.7 are deemed satisfactory, particularly in studies exploring new ideas or in social settings where respondents have diverse characteristics. However, the Access to Capital value of 0.722 indicates that this variable has the highest reliability compared to other variables, which may be due to the relatively uniform understanding among respondents about capital as an important factor in supporting MSME performance. In contrast, values slightly above 0.6 on the HR Quality and Role of E-commerce variables indicate the need for caution in item preparation, in order to improve the reliability of these instruments in the future.

Classical Assumption Test

The classic assumption test is essential for evaluating whether a regression model meets the critical criteria for reliable analysis. This involves conducting tests to check for normality, assess multicollinearity, examine autocorrelation, and evaluate heteroscedasticity.

Normality Test

The purpose of the normality test is to check if the residual distribution in the regression model closely follows the normal distribution, as this is a key criterion in traditional linear regression analysis.

Table 5. Normality Test Results

One-Sample Kolmogorov-Smirnov Test	
Unstadardized Residual	
Asymp.Sig. (2-tailed)	0.082

Source: Primary data processed (2025)

The Kolmogorov-Smirnov test results indicate that the Asymp. Sig. (2-tailed) value is 0.082, exceeding the critical value of 0.05. This suggests that there is no significant departure from normal distribution. The normality assumption for the regression model in this study has been satisfied, making it appropriate for additional statistical analysis.

Multicollinearity Test

Multicollinearity is when the independent variables in a regression model are strongly related to each other, causing difficulty in accurately estimating regression coefficients.

Table 6. Multicollinearity Test Results

Variable	Tolerance	VIF	Description
Quality of Human Resources (X1)	0,847	1,181	No multicollinearity
Role of E-commerce (X2)	0,863	1,158	No multicollinearity
Access to Capital (X3)	0,940	1,064	No multicollinearity

Source: Primary data processed (2025)

In this study, all variables have tolerance values greater than 0.10 and VIF values less than 10, indicating the lack of multicollinearity issues. This implies that each independent variable brings distinct information to the regression model and is not repetitive. This condition is important as it ensures that the regression results will be stable and unbiased due to the high inter-variable relationship.

Autocorrelation Test

The purpose of conducting an autocorrelation test is to determine if there is a relationship between the errors in one observation and those in subsequent observations. Although the autocorrelation test is commonly used in time-series data, this test is still performed to ensure that there is no systematic residual pattern in the model.

Table 7. Autocorrelation Test Results

Runs Test	Conclusion
0,358	No Autocorrelation

Source: Primary data processed (2025)

Based on the Runs Test results, the Asymp. Sig. of 0.358 is greater than 0.05, indicating that the residuals spread randomly and have no particular pattern, so there is no autocorrelation. This strengthens the validity of the regression model used in this study.

Heteroscedasticity Test

The heteroscedasticity test helps in identifying if there are differences in residual variances across different predictor values in the regression model. Heteroscedasticity that occurs can cause the regression estimation results to be inefficient, so that statistical conclusions can be misleading. The research conducted a test for heteroscedasticity by analyzing the significance of each independent variable. If the significance value exceeds 0.05, it suggests the absence of heteroscedasticity.

Table 8. Heteroscedasticity Test Results

Variable	Sig	Heteroscedasticity Standard	Description
Quality of Human Resources (X1)	0,543	0,5	No Heteroscedasticity
Role of E-commerce (X2)	0,869	0,5	No Heteroscedasticity
Access to Capital (X3)	0,274	0,5	No Heteroscedasticity

Source: Primary data processed (2025)

Referring to table 8, all variables-Human Resources Quality (Sig = 0.543), Role of E-commerce (Sig = 0.869), and Access to Capital (Sig = 0.274)-have significance values above 0.05. The presence of systematic changes in the residuals' variance with the independent variables' values is not seen in the regression model, or in other words, there are no symptoms of heteroscedasticity. Therefore, the regression model used in this research has met the requirements of homogeneity of variance and can be relied upon for use in statistical estimation and inference.

Substantially, the absence of heteroscedasticity indicates that respondents give fairly consistent answers without any particular pattern that disturbs the stability of the residual data. This implies that the level of randomness of respondents' answers is even across the measurement spectrum, so there is no systematic bias in the data that leads to non-uniform residual variances.

Multiple Linear Regression Analysis

The impact of various factors on the main outcome was examined through multiple linear regression analysis. The regression equation derived from the analysis is as follows:

MSME Performance = 1.811 + 0.012 (HR Quality) + (-0.019 E-commerce Role) + 0.297 (Capital Access) + e

Table 9. Multiple Linear Regression Analysis Results

Variable	Unstandardized		Standardized Coefficients
	B	Std.Error	Beta
(Constant)	1,811	2,639	
Quality of Human Resources (X1)	0,012	0,051	0,021
Role of E-commerce (X2)	-0,019	0,047	-0,036
Access to Capital (X3)	0,297	0,041	0,615

Source: Primary data processed (2025)

Table 9 shows that each independent variable partially influences the performance of MSMEs. The regression equation offers the following insights:

1) The constant value (α) of 1.811 suggests that if the variables concerning human resource quality, the role of e-commerce, and access to capital are held at zero, the performance of MSMEs is projected to increase by 1.811.

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2) The regression coefficient for human resource quality stands at 0.012, indicating that an enhancement in human resource quality will result in improved MSME performance. Conversely, a decline in quality will lead to decreased performance.

3) The negative regression coefficient of -0.019 suggests that a higher involvement in e-commerce leads to improved outcomes for MSMEs. Conversely, a reduction in this role is associated with diminished performance.

4) The regression coefficient for access to capital is 0.297, signifying that improved access to capital correlates with enhanced MSME performance. Conversely, limited access can adversely affect performance.

F-Test

The F-test checks if independent variables collectively affect the dependent variable. If the significance value is less than 0.05 and the F-score is higher than the critical F-value, it shows a combined impact on the dependent variable.

Table 10. Simultaneous Test Results (F)

ANOVA			
Model	**F**	**Sig**	**Description**
1	18,804	0,000	Influential

Source: Primary data processed (2025)

The F-value obtained from the data is 18.804, indicating that it is greater than the F-table value. In the F test, if the significance value of F is less than 0.05, then Ha is accepted. Therefore, it can be inferred that the performance of MSMEs is significantly influenced by the quality of human resources, the impact of e-commerce, and availability of capital.

Determination Coefficient Test

The purpose of the coefficient of determination is to quantify the impact that factors such as the quality of human resources, involvement in e-commerce, and access to capital have on the success of MSMEs. The outcomes of the coefficient of determination analysis are outlined below:

Table 11. Determination Coefficient Test Results

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	0,614	0,378	0,357	1,235

Source: Primary data processed (2025)

Table 11 summarizes the model output, indicating a correlation coefficient of 0.614. This suggests a connection between human resource quality, the impact of e-commerce, and

capital access on MSME performance, as the R value approaches 1. The coefficient of determination result of 0.357 signifies that human resource quality, e-commerce impact, and capital access affect MSME performance by 35.7%, with the remaining 64.3% influenced by variables not included in the study.

T-Test

The objective of the t-test is to assess the influence of individual factors such as human resource quality, e-commerce role, and capital access on the performance of MSMEs. Below is a table displaying the outcomes of the t-test analysis.

Table 12. Partial Test Results (t)

Variable	T-value	T-table	Sig.	Description
Quality of Human Resources (X1)	0,239	1,661	0,812	Ha_1 Rejected
Role of E-commerce (X2)	-0,411	1,661	0,682	Ha_2 Rejected
Access to Capital (X3)	7,290	1,661	0,000	Ha_3 Accepted

Source: Primary data processed (2025)

Based on the table above, it can be concluded that:

1) The t-value for the human resource quality variable stands at 0.239, which is less than 1.661, and the significance value is 0.812, exceeding 0.05. Therefore, we reject Ha1, indicating that human resource quality does not influence the performance of MSMEs in Surakarta City.

2) The t-value for the e-commerce role variable is -0.411, also falling below 1.661, with a significance value of 0.682, which is greater than 0.05. Consequently, Ha2 is rejected, signifying that the role of e-commerce does not impact the performance of MSMEs in Surakarta City.

3) The t-value for the capital access variable is 7.290, surpassing 1.661, and the significance value is 0.000, which is less than 0.05. Thus, we accept Ha3, confirming that access to capital significantly affects the performance of MSMEs in Surakarta City.

Discussion

The Influence of Human Resource Quality (X1) on the MSMEs Performance

The findings of this research suggest that the effectiveness of human resources (HR) has no notable impact on the success of MSMEs in Surakarta. This finding reflects that, while HR is an important component in business operations, it has not become a primary determinant in driving the performance improvement of small and medium enterprises. This is likely due to the suboptimal competence of individuals within organizations, weak HR

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training and development systems, and limited managerial strategies that maximize HR potential.

As per Human Capital theory proposed by Becker (1994), education, skills, and work experience are the main assets that can enhance work productivity and organizational effectiveness. However, such potential will not significantly contribute to performance unless it is supported by effective HR management systems, an adaptive organizational culture, and ongoing training and development policies.

These findings align with the study conducted by Wuryandini et al. (2024), which found that the quality of HR does not directly influence MSMEs performance, especially in small businesses that focus more on production and sales aspects. Conversely, these results contradict those of Kakilo et al. (2022), which showed that the quality of HR positively and significantly influences MSMEs performance through increases in productivity, innovation, and operational efficiency. These differences indicate that the influence of HR on performance is contextual, heavily dependent on the internal conditions of MSMEs, the level of technology adoption, and the support of institutional systems accompanying business processes.

Hence, even though HR quality does not show a direct impact in this study, it does not negate the important role of HR in MSMEs development. Instead, these findings emphasize the need for a strategic and systematic approach to HR management, including strengthening technical and managerial training, fostering a productive work culture, and integrating digital systems to improve efficiency and competitiveness sustainably.

The Influence of Role of E-Commerce (X2) on MSMEs Performance

This research on MSMEs in Surakarta shows that e-commerce does not play a crucial role in enhancing their performance as expected. The results reveal that small businesses are encountering challenges in integrating digital technologies like e-commerce due to existing structural and technical barriers. One of the main reasons is the lack of continuous support and training to enhance entrepreneurs' understanding and skills to optimally utilize e-commerce. The current scenario aligns with the Technology Acceptance Model (TAM) created by Davis, in which the acceptance of technology is impacted by how easy it is to use and how useful it is perceived to be. In this context, the low perceived usefulness of e-commerce among MSMEs is due to limitations in human resources, such as insufficient staff capable of managing digital platforms and low digital literacy among micro and small entrepreneurs.

Additionally, although e-commerce offers significant potential for market expansion and transaction efficiency, its application requires readiness in managerial aspects, infrastructure, and institutional support. Rogers' Theory of Diffusion of Innovation also explains that technology adoption does not only depend on the availability of innovations but also on user characteristics and their social context. In the case of MSMEs in Surakarta, the adoption of e-commerce has not reached the integration and consistency phases in operational activities, so its impact on business performance has not been felt substantially. External factors, such as limited access to stable internet, inadequate capital for developing digital systems, and low awareness of the importance of branding and online marketing, further weaken the effectiveness of e-commerce.

These findings align with those of Prasetyo & Farida (2022), which also conclude that e-commerce has yet to contribute significantly to MSMEs performance, indicating that the challenges of digitalization implementation are prevalent across various regions. However, these findings contradict those of Hendriawan (2024), which found a positive impact of e-commerce on MSMEs, possibly due to differing regional contexts, technology readiness, and characteristics of business actors. This difference highlights the importance of a more contextual approach in developing MSMEs digitalization strategies, where interventions tailored to local needs and capabilities become the key to success.

The Influence of Access to Capital (X3) on MSMEs Performance

The findings suggest that the availability of funding greatly impacts the performance of MSMEs, highlighting the essential role of capital in fostering the growth and longevity of small businesses. Easier and broader access to capital allows MSMEs to obtain funds necessary for expanding their businesses, purchasing raw materials, or investing in new technology. With this accessibility, MSMEs can increase production capacity and develop more innovative products or services, which in turn can open greater market opportunities. The income generated from this ability to innovate contributes to increased business profit, which is a primary indicator of MSMEs performance. Thus, better financial performance directly reflects the positive impact of access to capital.

The relationship between capital and MSMEs performance aligns with economic theories emphasizing the importance of access to financial resources in creating competitiveness and business sustainability. In the realm of microeconomics, the concept of capital accumulation asserts that a company's prosperity is greatly determined by how effectively it can control and obtain capital. Adequate capital enables MSMEs to face

competitive market challenges and respond to dynamic demand changes. The resource-based view (RBV) theory also pertains to this concept, emphasizing the significance of a company's owned resources, particularly capital, as factors influencing long-term competitiveness.

However, this study's findings contradict those of Wibawa et al. (2021), which indicate that capital does not significantly influence MSMEs performance. This discrepancy may be attributed to different research contexts, such as the types of businesses studied, market conditions, or variations in how MSMEs access capital. For instance, in smaller MSMEs or those in areas with limited access to formal financial institutions, the impact of capital may be weaker due to challenges in obtaining affordable or timely funding. Conversely, this study shows that ease of access to capital whether through bank loans, microfinance institutions, or even private investments can provide significant boosts to SME performance in terms of both income and profit.

In the end, this study reinforces the importance of policies that support broader access to capital for MSMEs. Policies such as reducing loan interest rates, providing incentives for investments in the MSMEs sector, or enhancing financing programs for this sector can play a crucial role in improving the competitiveness and sustainability of MSMEs in the global market.

CONCLUSION

The study findings suggest that the performance of MSMEs in Surakarta City is not significantly affected by the quality of human resources (HR) and the role of e-commerce, despite their importance in managing MSMEs. The quality of human resources is not proven to contribute directly to improved performance, indicating that other factors such as access to capital or effective marketing strategies are more pressing. The situation is analogous in the realm of online business, where simply participating in e-commerce may not be sufficient to improve the performance of small and medium enterprises unless accompanied by a well-suited digital strategy and sufficient infrastructure. However, access to capital is proven to have a significant influence, as easy access to funds allows MSMEs to increase production capacity, product innovation and financial performance. Overall, both individually and simultaneously, the quality of human resources, the role of e-commerce, and access to capital affect MSME performance, which confirms the importance of a holistic approach to MSME development through a combination of improving the quality of human resources, utilizing digital technology, and easy access to financial resources.

This research is limited by the reliance on self-reported information gathered through surveys, which may introduce bias from participants. Limitations in ensuring the seriousness and honesty of respondents can affect the quality of the data obtained. In addition, the limited references to previous research make the analysis in this study less in-depth and potentially lead to weaknesses in the results obtained. This research is limited to examining only three variables, overlooking other potential factors like financial literacy and entrepreneurial traits that could impact the performance of MSMEs.

Future research could benefit from incorporating a wider array of data collection techniques, such as conducting face-to-face interviews or observing subjects in their natural environment, in order to enhance the precision and credibility of gathered data. Future researchers are also advised to expand the literature review to include more international references and relevant research results, so as to enrich the understanding of the factors affecting MSME performance. Finally, for future research, adding more variables like financial literacy, marketing strategies, and entrepreneurial traits is advised to offer a more holistic view of the elements that could impact the performance of MSMEs.

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