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DIGITAL TECHNOLOGY ADOPTION AND PERFORMANCE OF MICRO, SMALL AND MEDIUM ENTERPRISES (MSMES) IN JAINGO METROPOLIS

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Abstract

The rapid diffusion of digital technologies has transformed the global business landscape, yet Micro, Small, and Medium Enterprises (MSMEs) in emerging urban economies like Jalingo often struggle to fully leverage these tools for competitive advantage. This study investigated the effect of digital technology adoption on the performance of MSMEs in Jalingo Metropolis. The research disaggregated digital adoption into three distinct dimensions: Digital Marketing Adoption, Digital Financial Adoption, and Digital Operational Adoption. The study adopted a survey research design. Data were collected via structured questionnaires distributed to 303 owners and managers of registered MSMEs using proportional sampling technique, with 285 valid responses retrieved for analysis. Multiple regression analysis was employed to test the hypotheses. The findings revealed that Digital Marketing Adoption and Digital Financial Adoption have a positive and statistically significant effect on MSME performance, driving improvements in customer acquisition and liquidity management. Conversely, Digital Operational Adoption showed a positive but statistically insignificant effect, indicating that the use of internal process automation is still in a nascent stage and has not yet translated into substantial efficiency gains. The study concludes that while market-facing digital tools are currently driving success in Jalingo, internal operational capabilities are lagging. Based on the significant effect of Digital Marketing Adoption, it is recommended that MSME owners receive training in social media analytics and targeted digital advertising to maximize customer reach. Similarly, based on the significant effect of Digital Financial Adoption, training in digital transaction reconciliation and mobile banking security is recommended to enhance liquidity management.

Keywords: Digital Technology Operations, Digital Marketing Adoption, Digital Financial Adoption, Digital HRM Adoption, MSME Performance

1. INTRODUCTION

Digital transformation has become a critical driver of global economic growth, particularly for Micro, Small and Medium Enterprises (MSMEs) (Hariyanti & Kristanti, 2024). Micro Small and Medium Enterprises play a significant role in job creation, strengthening competitiveness, promoting entrepreneurship, supporting exports, and ensuring a more equitable distribution of income in society (Ajuwon et al., 2017; Hermawati et al., 2025; Judijanto et al., 2023; Lestari et al., 2024). As a result, their performance is widely regarded as a key indicator of economic sustainability and development.

Performance remains a vital tool for measuring the extent to which an organization achieves its objectives, identifies areas requiring improvement, and evaluates the efficiency of strategies, processes, and resource utilization (Lestari et al., 2024). In this regard, the adoption of digital technology provides MSMEs with a strategic platform to enhance value creation, expand markets, increase income, reduce operational costs, and accelerate growth ambitions for competitive advantage (Chibueze et al., 2025; Hariyanti & Kristanti, 2024; Hermawati et al., 2025; Lestari et al., 2024). Digital technologies such as social media applications, artificial intelligence, big data analytics, Internet of Things (IoT), and blockchain solutions have been shown to significantly enhance SMEs' economic and social value, ultimately improving their overall performance (Vrontis et al., 2022).

The rapid advancement of digital technologies has fundamentally reshaped the global entrepreneurial landscape, influencing business models, regional development, and firm competitiveness (Vrontis et al., 2022). The COVID-19 pandemic further accelerated this transformation, severely disrupting MSME operations and productivity worldwide (Gao et al., 2023). Evidence from the pandemic period indicates that MSMEs that adopted e-commerce platforms for online sales, procurement, marketing, and supply chain integration performed better than those that relied solely on traditional business models (Gao et al., 2023). This underscores the growing importance of digital technology adoption for MSME survival and resilience.

In the era of the digital economy, business operations increasingly depend on digital technologies, and firms that fail to adapt face a high risk of stagnation or collapse (Ueasangkomsate & Bunthungsub, 2025). Organizations that are unable to accept, deploy, and utilize digital solutions in a timely and coordinated manner may struggle to remain competitive or even survive in highly dynamic markets (Nikou et al., 2022). Consequently, digital transformation has become a strategic imperative for MSMEs seeking long-term sustainability.

Nigeria's economy depends heavily on small and medium-sized enterprises, which are widely recognized as the engine of economic growth and a cornerstone of private sector development (Ebitu et al., 2016). Micro Small and Medium Enterprises serve as feeders into broader value chains by supplying intermediate goods and services to larger firms while also acting as platforms for innovation, skills development, and entrepreneurship in both rural and urban economies (Chibueze et al., 2025). The increasing adoption of digital banking technologies such as mobile platforms, fintech innovations, and electronic payment systems has further enabled MSMEs to expand their customer base, improve liquidity management, and build formal credit histories previously inaccessible through conventional channels (Chibueze et al., 2025).

Despite the growing relevance of digital technology adoption for MSMEs, empirical evidence on its direct performance outcomes remains limited within the context of emerging local business environments such as Jalingo. This study therefore investigates the relationship between digital technology adoption and MSMEs' performance in Jalingo.

1.1 Statement of the Problem

Micro, Small and Medium Enterprises (MSMEs) are expected to drive economic growth through employment generation, entrepreneurship development, innovation, and income distribution (Ajuwon et al., 2017; Chibueze et al., 2025). In the digital economy, MSMEs are also expected to leverage digital technologies to improve operational efficiency, expand market reach, strengthen customer engagement, and enhance overall business performance (Hariyanti & Kristanti, 2024; Lestari et al., 2024; Vrontis et al., 2022). Ideally, digital technology adoption should improve the competitiveness, resilience, and sustainability of MSMEs.

However, despite their significant contribution to the Nigerian economy, many MSMEs continue to face persistent performance challenges, including low productivity, limited market access, high operational costs, and weak competitiveness (Awoyemi & Makanju, 2020; Chibueze et al., 2025; Ebitu et al., 2016; Mohammed et al., 2022). Although digital technologies offer opportunities to address these challenges, their adoption among MSMEs in Nigeria, particularly in smaller cities such as Jalingo, remains relatively low and uneven due to infrastructural, financial, and technological constraints. Furthermore, while previous studies have examined digital technology adoption and MSME performance (Gao et al., 2023; Judijanto et al., 2023; Wulandari et al., 2020), limited empirical attention has been given to how specific dimensions of digital technology adoption marketing, financial, and HRM technologies influence MSME performance within sub-national economies in Nigeria.

If this gap remains unaddressed, MSMEs may continue to experience low growth, weak competitiveness, and limited capacity to respond to emerging market opportunities. The lack of context-specific evidence may also hinder policymakers and development agencies in designing effective digitalization interventions. Consequently, there is a need to investigate the effect of digital technology adoption on the performance of MSMEs in Jalingo.

1.2 Objectives of the Study

The main objective of this study is to examine the effect of digital technology adoption on the performance of MSMEs in Jalingo. The specific objectives are as follows:

i. Examine the effect of Digital Marketing Adoption on the performance of MSMEs in Jalingo.

ii. Determine the effect of Digital Financial Adoption on the performance of MSMEs in Jalingo.

iii. Evaluate the impact of Digital HRM Adoption on the performance of MSMEs in Jalingo.

1.4 Research Hypotheses

H01: Digital Marketing Adoption has no significant effect on the performance of MSMEs in Jalingo.

H02: Digital Financial Adoption has no significant effect on the performance of MSMEs in Jalingo

H03: Digital HRM Adoption has no significant effect on the performance of MSMEs in Jalingo.

2. LITERATURE REVIEW

2.1 Conceptual Review

2.1.1 Digital Technology Adoption

Digital technology adoption has emerged as a fundamental driver of structural change in the global economy, radically altering how organizations create, deliver, and capture value. In a broad sense, digital technology refers to the convergence of electronic data, computing power, and connectivity to facilitate information exchange and process automation. Hariyanti and Kristanti (2024) describe it as the integration of tools such as mobile computing, cloud services, and big data analytics into business frameworks. Rather than viewing technology as a mere support function, contemporary scholars argue that digital adoption is a strategic imperative that enables firms to transcend traditional operational boundaries (Vrontis et al., 2022). By embedding these technologies into their DNA, organizations can enhance their agility, responsiveness, and overall competitiveness in an increasingly volatile market environment.

For Micro, Small, and Medium Enterprises (MSMEs), particularly in developing economies, the stakes of digital adoption are even higher. Gao et al. (2023) posit that digital tools act as critical survival mechanisms during external shocks, such as economic downturns or global pandemics, by allowing firms to maintain operations when physical channels are disrupted. Unlike large corporations that may adopt complex, integrated Enterprise Resource Planning (ERP) systems, MSMEs typically adopt digital technologies in a modular fashion, selecting specific tools that address immediate pain points such as payment processing or customer engagement (Chibueze et al., 2025). This selective adoption allows smaller firms to overcome resource constraints and "leapfrog" infrastructural deficits common in regions like Nigeria, thereby accessing broader value chains and new market segments.

However, conceptualizing digital technology adoption as a single, monolithic variable often obscures the specific mechanisms through which it influences performance. Vrontis et al. (2022) and Zhou et al. (2024) suggest that adoption is a multidimensional construct, as the impact of adopting a marketing tool (like social media) may differ significantly from the impact of adopting an operational tool (like inventory software). Consequently, a granular approach is necessary to understand how different types of digital capabilities contribute to firm success. To capture this complexity within the context of Jalingo's local economy, this study disaggregates digital technology adoption into three distinct dimensions: Digital Marketing Adoption, Digital Financial Adoption, and Digital Operational Adoption.

Digital Marketing Adoption

Digital Marketing Adoption is defined as the strategic use of digital channels to promote products, engage customers, and facilitate transactions. This dimension encompasses the utilization of social media platforms (e.g., Facebook, WhatsApp Business, Instagram), e-commerce marketplaces, and digital advertising tools. Gao et al. (2023) emphasize that for MSMEs, digital marketing is often the primary entry point into the digital economy, enabling them to expand their market reach beyond their immediate geographic vicinity without significant capital investment. By leveraging these platforms, firms can improve customer engagement, gather real-time feedback, and personalize their service offerings, which are critical drivers of revenue growth in competitive markets (Judijanto et al., 2023).

Digital Financial Adoption

Digital Financial Adoption refers to the integration of financial technology (FinTech) solutions into business operations to streamline transactions and improve liquidity management. Key indicators of this dimension include the use of Point of Sale (POS) terminals, mobile banking applications, and electronic transfer systems. Chibueze et al. (2025) argue that digital financial tools are transformative for Nigerian MSMEs, as they not only reduce the risks associated with cash handling but

also generate digital transaction footprints that facilitate access to formal credit. In an economy increasingly driven by cashless policies, the ability to accept and process digital payments is a direct determinant of a firm's operational continuity and sales volume.

Digital HRM Adoption

Digital HRM Adoption refers to the integration of digital technologies into human resource management functions within MSMEs. This includes the use of digital tools for employee recruitment (online job portals, social media hiring), digital attendance tracking systems, performance management software, e-learning platforms for employee training, and digital payroll management systems. For MSMEs in Jalingo, adopting digital HRM practices can reduce administrative burdens, improve employee accountability, and enhance workforce productivity—even with limited staff strength. Unlike large corporations that use complex HRIS (Human Resource Information Systems), MSMEs typically adopt modular, low-cost digital HR solutions such as WhatsApp for staff communication, Google Forms for leave requests, and mobile apps for attendance tracking (Nikou et al., 2022).

2.1.2 MSMEs Performance

Firm performance is a multifaceted construct that represents the extent to which an organization achieves its strategic and economic objectives relative to its competitors. In the context of MSMEs, accurately measuring performance is fraught with challenges due to the frequent absence of audited financial statements and the informal nature of many business activities. Guo and Xu (2021) note that traditional financial metrics such as Return on Assets (ROA) or Return on Investment (ROI) may not fully capture the success of small firms, which often prioritize cash flow stability and survival over maximizing shareholder value. Consequently, researchers frequently rely on subjective measures where owners self-assess their performance across various indicators, a method that has been proven to correlate strongly with objective financial data (Rokhayati, 2015).

To provide a comprehensive assessment, this study adopts an Operational Performance framework. Operational performance focuses on the non-financial capabilities that drive long-term sustainability, such as service delivery speed, product quality, cost efficiency, and customer satisfaction. Peng et al. (2011) and Obeidat et al. (2017) argue that these operational metrics are leading indicators of future financial health; for instance, improved delivery reliability and customer satisfaction directly lead to repeat sales and revenue growth. By focusing on these operational outcomes, the study can isolate the direct effects of digital technology adoption on the day-to-day efficiency and market responsiveness of MSMEs in Jalingo.

2.2 Theoretical Review

This study is anchored on the Resource-Based View (RBV) theory. Originating from the seminal works of Penrose (1959) and formalized by Barney (1991), the RBV provides a comprehensive framework for understanding how firms achieve sustainable competitive advantage and superior performance. The central premise of RBV is that firms are bundles of resources and capabilities that differ across organizations. For a firm to achieve superior performance, its resources must be Valuable, Rare, Inimitable, and Non-substitutable (VRIN).

Based on this, digital technologies serve as valuable strategic resources that enable firms to improve efficiency and create value. When MSMEs adopt digital tools such as e-commerce platforms, mobile payments, and operational software they acquire resources that allow them to lower transaction costs, expand market reach, and improve service delivery speed.

RBV posits that these technological resources enhance performance by enabling the firm to execute strategies that improve efficiency and effectiveness better than competitors. Empirical evidence supports this theoretical assertion; for instance, Alkausar et al. (2025) and Kaewkumpol et al. (2025) found that MSMEs that successfully leverage digital resources gain a distinct competitive advantage, resulting in improved operational and financial outcomes. Specifically, the adoption of digital marketing and financial tools provides MSMEs with the informational and operational capabilities needed to respond to market demands, thereby satisfying the RBV criteria for value creation.

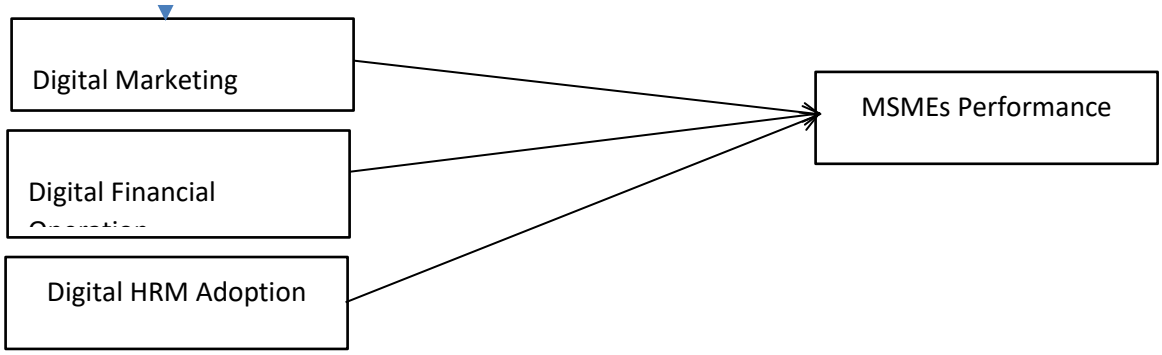

Figure 1. Conceptual Framework

2.3 Empirical Review

Gao et al. (2023) investigated the impact of e-commerce and digital marketing adoption on the financial and sustainability performance of MSMEs during the COVID-19 pandemic. The study utilized a quantitative research design, collecting data from small business owners who shifted to online platforms. Statistical analysis was performed to test the relationship between digital adoption and firm resilience. The findings revealed that MSMEs that adopted e-commerce platforms for online sales and procurement significantly outperformed those that relied solely on traditional business models. This research supports the first dimension of this study regarding digital marketing adoption, demonstrating that utilizing digital channels for customer engagement directly correlates with superior business survival and performance.

Chibueze et al. (2025) examined the relationship between digital banking technologies and MSME performance in Nigeria. The researchers employed a survey-based approach, targeting small business operators utilizing fintech solutions. Data analysis was conducted to assess the impact of mobile platforms and electronic payments on business growth. The study found that the adoption of digital banking systems enabled MSMEs to expand their customer base, improve liquidity management, and build formal credit histories that were previously inaccessible. This supports the second dimension of this study regarding digital financial adoption, confirming that the integration of fintech tools enhances operational efficiency and financial stability.

Judijanto et al. (2023) explored the impact of digital technology implementation on the productivity of MSMEs in Jakarta, specifically focusing on business process automation. The study adopted a quantitative method, analyzing the effects of digitalization on business growth. The results indicated that the automation of internal business processes led to significant improvements in productivity and operational speed. This aligns with the third dimension of the present study regarding digital operational adoption, providing empirical evidence that streamlining internal processes through technology reduces inefficiencies and drives organizational growth.

Nikou et al. (2022) investigated the influence of workplace literacy skills on the adoption of digital technology. The study employed a structural equation modeling approach to analyze how employee competencies affect technology usage. The research determined that digital literacy skills embedded in human capital are critical enablers that allow employees to rapidly adopt and effectively utilize digital technologies to improve organizational performance. This supports the moderating variable of this study, underscoring that the successful deployment of digital tools is conditioned by the quality of human capital available within the firm.

3.0 RESEARCH METHODOLOGY

3.1 Research Design

This study employed a descriptive survey research design. This approach was deemed appropriate as it facilitates the systematic collection of data to describe the existing conditions, practices, and perceptions regarding digital technology adoption and its impact on MSME performance. It allows for the analysis without manipulating variables, providing a detailed snapshot of the current state of digital tool usage (in marketing, financial, and operational domains) and its perceived relationship with business outcomes such as efficiency and customer satisfaction.

3.2 Population of the Study

The study population comprised owners and managers of registered Micro, Small, and Medium Enterprises (MSMEs) operating within key sectors Trade & Commerce, Services, Manufacturing & Processing, and Agribusiness & Agro-allied in Jalingo Metropolis. The selection criteria were formal registration with the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) and active operational status.

Data obtained from the SMEDAN Jalingo office indicated a total population of 1,250 registered MSMEs across the selected sectors. The sectoral distribution is presented in Table 1.

Given the size of the population, a sampling procedure was adopted. The sample size was determined using the Taro Yamane formula.

Taro Yamane formula was considered more appropriate for this study because the population size was known and finite. The formula provides a simple, reliable, and widely accepted method for determining sample size while controlling for sampling error. It is particularly suitable for survey research involving relatively homogeneous populations where a specified level of precision is required.

The sample size gotten is 303, to ensure statistical representativeness and adequate coverage across all sectors, sample distribution can be seen below.

Table 1: Population and sample size distribution

Business sector	Population	Sample size calculation	Sample size
Trade & Commerce (Retail/Wholesale)	450	(450*1250)*303	109
Services (Hospitality, IT, Logistics)	380	(380*1250)*303	92
Manufacturing & Processing	220	(220*1250)*303	53
Agribusiness & Agro-allied	200	(200*1250)*303	49
Total	**1,250**		303

Source: Researcher.

3.3 Data Collection Instrument and Procedure

Primary data were collected using a structured questionnaire designed in two sections:

- **Section A:** Captured demographic and business profile information (e.g., years in operation, business sector, staff strength).
- **Section B:** Contained items designed to measure the core variables: Digital Marketing Adoption (DMA), Digital Financial Adoption (DFA), Digital Operational Adoption (DOA), Human Capital (HC), and MSME Performance (MP). Responses in this section were recorded on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

3.4 Validity and Reliability of the Instrument

To ensure content validity, the questionnaire was reviewed by experts in Business Administration to verify that all constructs were adequately and accurately captured. A pilot study was conducted with 20 MSME owners/managers in Mutum Biyu, Taraba State a location with similar economic characteristics to Jalingo to assess the instrument's clarity and practicality.

Reliability was established through an internal consistency test using Cronbach's Alpha coefficient, with 0.70 set as the benchmark. The results, detailed in Table 2, confirm that all constructs and the overall instrument demonstrated good to high reliability.

Table 2: Reliability Test Results

Variable	**Number of Items**	**Cronbach's Alpha**	**Interpretation**
Digital Marketing Adoption (DMA)	5	0.83	Highly Reliable
Digital Financial Adoption (DFA)	5	0.79	Reliable
Digital HRM Adoption (DOA)	5	0.81	Highly Reliable
MSME Performance (MP)	6	0.88	Highly Reliable
Overall Instrument	26	0.84	Highly Reliable

Source:SPSS Output.

3.5 Method of Data Analysis

Data analysis was conducted using quantitative methods with the aid of SPSS (Version 25). Descriptive statistics (frequencies, means, and standard deviations) were used to summarize the demographic profiles of respondents and the key study variables. To test the research hypotheses and examine the relationships between variables, multiple regression analysis was employed.

4. DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Data Presentation and Analysis

This section presents the findings from the field survey. It details the response rate, describes the demographic profile of the respondents, and presents descriptive and inferential statistical analyses to address the study's objectives and test its hypotheses.

4.1.1 Questionnaire Response Rate

A total of 303 questionnaires were administered to owners and managers of registered MSMEs in Jalingo Metropolis. The distribution and retrieval outcome are presented in Table 3.

Table 3: Questionnaire Administration and Response Rate

Questionnaire Status	Frequency	Percentage (%)
Returned and Valid	285	94.1%
Returned Invalid/Incomplete	10	3.3%
Not Returned	8	2.6%
Total Distributed	**303**	**100.0%**

As shown in Table 3, 285 questionnaires were properly completed and deemed valid for analysis, yielding a very high response rate of 94.1%. This exceptional rate enhances the reliability of the data and the statistical power of the subsequent analyses.

4.1.2 Demographic and Business Profile of Respondents

The demographic characteristics and business profiles of the participating MSMEs are summarized in Table 4. This profile provides essential context for interpreting the study's core findings.

Table 4: Demographic and Business Characteristics of Respondents (N=285)

Variable	Category	Frequency	Percentage (%)
Business Sector	Trade/Commerce	120	42.1%
	Services (Hospitality, IT, etc.)	95	33.3%
	Manufacturing/Processing	40	14.0%
	Agribusiness	30	10.5%
Total		**285**	**100%**
Years of Operation	1–5 Years	110	38.6%
	6–10 Years	105	36.8%
	Above 10 Years	70	24.6%
Total		**285**	**100%**
Staff Strength	1–9 Employees (Micro)	180	63.2%
	10–49 Employees (Small)	85	29.8%
	50+ Employees (Medium)	20	7.0%
Total		**285**	**100.0%**

Source: Field Survey, 2026

The sample is dominated by businesses in the Trade/Commerce (42.1%) and Services (33.3%) sectors, reflecting the commercial structure of Jalingo Metropolis. A majority of the enterprises (75.4%) have been in operation for 10 years or less, indicating a vibrant, developing MSME landscape. Consistent with national definitions, Micro-enterprises (1-9 employees) constitute the largest segment (63.2%), highlighting the resource-constrained environment typical of the study context.

4.1.3 Descriptive Analysis of Key Variables

Descriptive statistics (Mean and Standard Deviation) were computed for the core research variables. A mean score of 3.0 and above on the 5-point Likert scale indicates a moderate to high level of agreement or adoption. The results are presented in Table 5.

Table 5: Descriptive Statistics for Research Variables

Variable	N	Mean	Std. Deviation	Interpretation
Digital Marketing Adoption (DMA)	285	4.12	0.85	High Adoption
Digital Financial Adoption (DFA)	285	3.95	0.91	High Adoption
Digital HRM Adoption (DHRMA)	285	2.89	1.12	Moderate Adoption
MSMEs Performance (MP)	285	4.05	0.88	High Performance

Source: SPSS Output, 2026

The results reveal a clear hierarchy in digital technology adoption among Jalingo MSMEs. Digital Marketing Adoption (Mean=4.12) and Digital Financial Adoption (Mean=3.95) are both at high levels. This suggests widespread use of social media platforms (e.g., WhatsApp, Facebook) for customer engagement and the integration of fintech solutions like POS terminals and mobile banking for transactions, aligning with national digital finance trends (Chibueze et al., 2025). In contrast, Digital HRM Adoption (Mean=2.89) is only at a moderate level, indicating that internal process digitalization such as using software for inventory, accounting, and supply chain management is less prevalent. Despite this uneven adoption pattern, respondents reported a high level of perceived MSME Performance (Mean=4.05).

4.1.4 Regression Analysis and Test of Hypotheses

A multiple linear regression analysis was conducted to test the hypothesized effects of the three digital adoption dimensions on MSME performance. The model summary and coefficients are presented in Tables 6 and 7, respectively.

Table 6: Regression Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	0.782	0.612	0.608	0.412

Predictors: (Constant), DMA, DFA, DOA. Dependent Variable: MP

The model summary reveals a strong correlation (R = 0.782) between the three digital adoption dimensions and MSME performance. The R^2 value of 0.612 indicates that approximately 61.2% of the variance in MSME performance is explained by Digital Marketing Adoption, Digital Financial Adoption, and Digital HRM Adoption collectively.

Table 7: ANOVA for Regression Model

Model	Sum of Squares	df	Mean Square	F	p-value
Regression	74.286	3	24.762	145.67	0.000

Residual	47.714	281	0.170
Total	122.000	284	

Predictors: (Constant), Digital Marketing Adoption (DMA), Digital Financial Adoption (DFA), Digital HRM Adoption (DOA)
Dependent Variable: MSMEs Performance (MP)

The ANOVA results show an F-statistic of 145.67 with a p-value of 0.000, which is statistically significant at the 0.05 level. This confirms that the regression model as a whole provides a good fit for the data, indicating that the combined independent variables significantly predict MSME performance.

Results

A multiple linear regression was conducted to predict MSME Performance from three dimensions of digital technology operations: Digital Marketing Adoption, Digital Financial Adoption, and Digital HRM Adoption. The regression model was statistically significant and explained approximately 61.2% of the variance in MSME Performance (Adjusted $R^2 = .608$).

As shown in Table 4.6, Digital Marketing Adoption had a positive and statistically significant effect on MSME Performance ($\beta = .385$, $B = .415$, $t = 5.210$, $p < .001$). Similarly, Digital Financial Adoption demonstrated a positive and statistically significant effect ($\beta = .295$, $B = .320$, $t = 4.100$, $p < .001$). In contrast, Digital HRM Adoption showed a positive but statistically non-significant effect ($\beta = .095$, $B = .115$, $t = 1.850$, $p = .065$).

Based on these results, the null hypotheses for Digital Marketing Adoption (H_{01}) and Digital Financial Adoption (H_{02}) were rejected, while the null hypothesis for Digital HRM Adoption (H_{03}) was not rejected. These findings indicate that while market-facing and transaction-enabling digital tools drive MSME performance in Jalingo, internal digital HRM practices have not yet matured sufficiently to yield measurable performance gains ($p > .05$).

4.2 Discussion of Findings

The first objective examined the effect of Digital Marketing Adoption on MSME performance. The results showed that digital marketing adoption has a positive and statistically significant effect on MSME performance ($\beta = .385$, $p < .001$). This finding suggests that MSMEs that utilize digital marketing tools such as social media platforms, online advertising, and digital customer engagement channels are more likely to experience improved business performance. The finding supports the Resource-Based View (RBV), which posits that valuable technological resources enhance organizational competitiveness and performance. By leveraging digital marketing technologies, MSMEs are able to expand market reach, improve customer interaction, and increase sales opportunities. This result is consistent with Gao et al. (2023), who found that MSMEs adopting e-commerce and digital marketing platforms achieved superior financial and sustainability performance compared to firms relying on traditional business models.

The second objective sought to determine the effect of Digital Financial Adoption on MSME performance. The findings indicated that digital financial adoption exerts a positive and statistically significant effect on MSME performance ($\beta = .295$, $p < .001$). This implies that the adoption of digital financial technologies such as mobile banking, electronic payment systems, and fintech solutions enhances business efficiency and overall performance. From the RBV perspective, digital financial technologies represent valuable organizational resources that improve financial management, reduce transaction costs, and facilitate access to broader markets. The finding corroborates the study of Chibueze et al. (2025), which reported that digital banking technologies enabled MSMEs to improve liquidity management, expand their customer base, and strengthen financial stability.

The third objective evaluated the impact of Digital HRM Adoption on MSME performance. Although the results revealed a positive relationship between digital HRM adoption and MSME performance, the effect was statistically insignificant ($\beta = .095$, $p = .065$). This suggests that while digital HRM practices may contribute to performance improvement, their influence is not yet sufficiently strong among MSMEs in Jalingo. A possible explanation is that many MSMEs operate with relatively small workforces and informal human resource structures, thereby limiting the extent to which digital HRM systems can generate measurable performance gains. This finding partially contradicts the Resource-Based View, which considers technological capabilities as strategic resources capable of enhancing organizational outcomes. The result may indicate that the benefits of digital HRM technologies depend on the

availability of complementary resources such as digital skills, employee competence, and organizational readiness. Nevertheless, the finding aligns with Nikou et al. (2022), who emphasized that the effectiveness of digital technologies is largely dependent on the quality of human capital and employees' ability to utilize such technologies effectively.

Overall, the study demonstrates that digital marketing adoption and digital financial adoption are significant drivers of MSME performance in Jalingo, while digital HRM adoption has yet to exert a significant influence. The findings underscore the importance of investing in customer-oriented and financial digital technologies as strategic resources capable of improving MSME competitiveness and performance.

5.1 Conclusion and Recommendations

This study investigated the effect of digital technology adoption on the performance of Micro, Small, and Medium Enterprises (MSMEs) in Jalingo Metropolis across three dimensions: Digital Marketing Adoption, Digital Financial Adoption, and Digital HRM Adoption. The study concludes that digital marketing adoption is the strongest predictor of MSME performance, as social media and e-commerce enable firms to expand market reach and drive sales growth. Digital financial adoption also demonstrates a significant positive influence by streamlining transactions and improving liquidity through electronic payment systems such as POS terminals and mobile banking. However, digital HRM adoption shows a positive but statistically non-significant effect, indicating that the use of digital tools for human resource functions including e-recruitment, digital attendance tracking, and e-payroll remains at an early stage among Jalingo MSMEs due to the prevalence of micro-enterprises with informal employment structures. The study therefore concludes that while market-facing and transaction-enabling digital tools are currently driving MSME success in Jalingo, internal human resource digitalization has not yet matured sufficiently to translate into measurable performance gains.

Based on the findings, MSME owners and managers in Jalingo should prioritize the adoption of digital marketing technologies, such as social media platforms and e-commerce applications, to enhance market reach and business performance. They should also embrace digital financial technologies, including mobile banking and electronic payment systems, to improve financial management and operational efficiency. Government agencies and business support organizations should provide training, digital infrastructure, and financial support to encourage technology adoption among MSMEs. In addition, MSMEs should invest in employee digital skills to maximize the benefits of digital HRM practices. Finally, policymakers should implement initiatives that promote digital inclusion and technological accessibility for small businesses in emerging local economies.

Contribution to knowledge

This study contributes to knowledge by providing empirical evidence on the effect of digital technology adoption on MSME performance within the context of Jalingo, an area that has received limited scholarly attention. Specifically, the study extends existing literature by examining the distinct effects of digital marketing adoption, digital financial adoption, and digital HRM adoption on MSME performance. The findings reveal that digital marketing and digital financial adoption significantly enhance MSME performance, while digital HRM adoption has a positive but insignificant effect. These findings enrich the Resource-Based View (RBV) literature by demonstrating the varying performance outcomes of different digital technology resources among MSMEs in emerging local economies.

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