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Digital Entrepreneurship Competency and the Performance of MSMEs in North-Eastern Nigeria

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Abstract

This study examined the relationship between digital entrepreneurship competencies and MSME performance in North-Eastern Nigeria. Specifically, the study investigated the effect of e-commerce skills on market reach, assessed how digital financial literacy influences revenue growth, and explored the impact of social media marketing on operational efficiency. The study adopted a survey design. Data were collected through a structured questionnaire from 393 MSME owners and managers across the six states in the region. Data were analyzed using descriptive statistics such as frequency counts, percentages and means, while linear regression was used to test the null hypotheses. Findings from the study revealed that e-commerce skills significantly affect MSMEs' market reach ($B = 0.473$, $R^2 = 0.068$, $p < 0.001$). Digital financial literacy significantly influences revenue growth ($B = 0.511$, $R^2 = 0.072$, $p < 0.001$). Likewise, social media marketing significantly impacts operational efficiency ($B = 0.430$, $R^2 = 0.160$, $p < 0.001$). The study concludes that digital entrepreneurship competencies significantly contribute to MSME performance, although their explanatory power varies across the performance dimensions examined. The study recommends, among others, that MSME operators should receive targeted training, supportive policies, and capacity-building initiatives to maximize the benefits of digital entrepreneurship in the region.

Keywords: Digital Entrepreneurship Competency, MSME Performance, North-Eastern Nigeria, Digital Marketing.

Introduction

In today world, small and medium businesses (MSMEs) are the backbone of local economy, especially in developing economy nation like Nigeria, where people depend on trade, services and small production for survival. Meanwhile, the way business is being done is now rapidly changing in many regions including North eastern Nigeria, due advent of digital tools. Entrepreneurs now need more than just traditional skills, they need digital entrepreneurship competency to survive and grow.

One big area of digital competency for small business is E commerce skills. Many MSMEs used to sell only in local markets, but with online platforms local business can now reach customers far beyond their town and local markets. Those entrepreneurs that have idea on how to set up online shops, use digital system to manage orders and depend on delivery systems are in the best position of reaching distance customers (Okonye, Akpan, & Egbule, 2024). Such expand their market reach as well as boosting their customer based. But if they lack these skills, they remain stuck in small circles.

Another area of digital competency among MSMEs operators is digital financial literacy. MSMEs often struggle with cash flow management, digital payments system and access to credit. With mobile banking, online transfers and fintech apps, entrepreneurs can handle transactions faster and safer. When they understand these tools, it can directly improve their revenue growth, because they reduce losses and attract more customers who prefer cashless payments (Sahut, Landoli, &Teulon, 2019). Also, social media marketing is now a strong driver of business visibility. MSMEs that know how to use Facebook, WhatsApp, Instagram and TikTok for promotion can connect with customers, build trust and reduce cost of traditional advertising (Okonkwo, Orajaka, Ezeokafor, & Oguejiofor, 2026). This can improve their operational efficiency, because they spend less but achieve more in terms of customer engagement and sales. Therefore, this study is looking at how these three competencies, e commerce skills, digital financial literacy, and social media marketing, affect three key performance outcomes of MSMEs, market reach, revenue growth, and operational efficiency. The aim is to see if digital competency really makes difference in performance of MSMEs in North Eastern Nigeria, where challenges of insecurity, poor infrastructure and limited access to markets already make survival hard.

Statement of the Problem

Micro, small and medium enterprises (MSMEs) are very important for the economy of North-Eastern Nigeria. They provide jobs, income and basic services for people in a region that is already facing insecurity, poor infrastructure and limited access to bigger markets. But many MSMEs still struggle to grow and compete because they lack strong digital skills. One major challenge is E-commerce skills. Many MSMEs cannot set up or manage online shops, so their market reach remains small and limited to local buyers. This makes it hard for them to expand beyond their immediate environment.

Another problem is digital financial literacy. A lot of MSME owners do not fully understand mobile banking, online payments or fintech tools. This weakens their ability to manage money effectively and limits their chances of achieving revenue growth. Also, social media marketing is not well used by many MSMEs. Even though platforms like Facebook, WhatsApp and Instagram are popular, many entrepreneurs do not know how to use them strategically for business promotion. This reduces their operational efficiency, because they spend more on traditional methods and get less results.

Therefore, the problem is that MSMEs in North-Eastern Nigeria are not fully benefiting

from digital entrepreneurship competencies. Without these skills, their performance in terms of market reach, revenue growth and operational efficiency remains low. This study is needed to examine how digital competencies can improve MSME performance and help them survive and grow in a challenging environment.

Objectives

1. To examine the effect of e-commerce skills on MSMEs' market reach in North-Eastern Nigeria.
2. To assess how digital financial literacy influences MSMEs' revenue growth in North-Eastern Nigeria.
3. To investigate the impact of social media marketing on MSMEs' operational efficiency in North-Eastern Nigeria.

Research Questions

1. How do e-commerce skills affect the market reach of MSMEs in North-Eastern Nigeria?
2. In what ways does digital financial literacy influence revenue growth among MSMEs in North-Eastern Nigeria?
3. What is the impact of social media marketing on the operational efficiency of MSMEs in North-Eastern Nigeria?

Research Hypotheses

H_{O1}: E-commerce skills have no significant effect on MSMEs' market reach in North-Eastern Nigeria.

H_{O2}: Digital financial literacy does not significantly influence MSMEs' revenue growth in North-Eastern Nigeria.

H_{O3}: Social media marketing does not have significant impact on MSMEs' operational efficiency in North-Eastern Nigeria.

METHODOLOGY

Study Area: This study was carried out in the north eastern part of Nigeria. The region comprises of Adamawa, Bauchi, Borno, Gombe, Yobe, and Taraba States. The area is known for trade, farming, and small businesses along with different social activities.

Population: The population of the study comprised owners and managers of Micro, Small and Medium Enterprises (MSMEs) operating across the six states of North-Eastern Nigeria, namely Adamawa, Bauchi, Borno, Gombe, Taraba and Yobe States. The population was based on the National MSME Survey Report, 2021, conducted through the collaboration of the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) and the National Bureau of Statistics (NBS). The survey reported 157,314 enterprises across the six states, comprising 24,940 in Adamawa, 34,685 in Bauchi, 26,479 in Borno, 29,930 in Gombe, 18,855 in Taraba and 22,425 in Yobe. Thus, the total population of 157,314 MSMEs constituted the population from which the respondents for the study were drawn.

Sample Size and Sampling Technique: A sample size of 400 MSME owners and managers was determined using the Taro Yamane sample size formula at a 5% level of precision. Based on the total population of 157,314 MSMEs across the six states of North-Eastern Nigeria, the calculated sample size was 398.90, which was rounded up to 400 respondents. Proportionate sampling was used to distribute the sample across the six states according to their respective MSME populations.

Accordingly, 63 respondents were allocated to Adamawa State, 88 to Bauchi State, 67 to Borno State, 76 to Gombe State, 48 to Taraba State and 58 to Yobe State, giving a total sample of 400 respondents. The sampling approach was adopted to ensure that the distribution of respondents reflected the relative size of the MSME population in each state..

Instrument: Data was collected using a structured questionnaire. The questionnaire had three main sections, with Section A focus on biodata of respondents, while section B and C concerned with dependent and independent variables, respectively.

Method of Data Analysis: The data collected was analyzed using SPSS software. Descriptive statistics such as mean, frequency, and percentage for research question while linear regression was used to test hypothesis.

Respondents' Profile

This section presents the profile of the respondents based on selected demographic characteristics, including age, gender, educational qualification and years of operation of the sampled enterprises. Based on the results presented in Table 1, the highest proportion of respondents falls within the age range of 26–35 years, accounting for 41.5% of the sample. This is followed by respondents aged 36–45 years, who represent 30.8%, while those above 45 years account for 15.5%. Respondents aged 15–25 years constitute the smallest group, with 12.2%. The distribution indicates that a substantial proportion of the MSME owners and managers surveyed are within the younger and economically active age groups.

Regarding gender, the results show that male respondents constitute the majority, with 243 respondents representing 61.8%, while female respondents account for 150 respondents, representing 38.2%. This indicates that although both male and female entrepreneurs were represented in the study, male respondents constituted a larger proportion of the sample.

In terms of educational qualification, respondents with HND/Degree constitute the largest category, accounting for 41.5% of the sample. This is followed by respondents with ND/NCE qualifications at 23.9%, while 17.0% have secondary education. Those with basic education represent 11.7%, and respondents with informal education account for 5.9%. The distribution suggests that a considerable proportion of the respondents have formal educational backgrounds, with the majority possessing qualifications at HND/Degree level.

Concerning the years of operation of the sampled enterprises, 35.6% of the respondents reported that their businesses had operated for 6–9 years, representing the largest category. This was followed by enterprises that had operated for 10–14 years, accounting for 28.8%. Enterprises operating for 15 years or more constituted 19.8%, while those with 0–5 years of operation represented 15.8%. The results indicate that most of the enterprises surveyed had been in operation for at least six years, suggesting that a substantial proportion of the respondents had considerable experience in managing their businesses.

Table 1: Demographic Statistics of Respondents

Demography	Frequency Distribution	Percentage	Cumulative Percentage
Age			
15 – 25	48	12.2	12.2
26 – 35	163	41.5	53.7
36 – 45	121	30.8	84.5

Demography	Frequency Distribution	Percentage	Cumulative Percentage
Above 45	61	15.5	100.0
Gender			
Male	243	61.8	61.8
Female	150	38.2	100.0
Education			
Informal Education	23	5.9	5.9
Basic Education	46	11.7	17.6
Secondary Education	67	17.0	34.6
ND/NCE	94	23.9	58.5
HND/Degree	163	41.5	100.0
Years of Operation			
0-5 years	62	15.8	15.8
6-9 years	140	35.6	51.4
10 to 14 years	113	28.8	80.2
15 above	78	19.8	100.0

Source: Field Survey, 2026

Descriptive Statistics of Variables of the Study

Table 2: Respondents' Distribution on E-commerce Skills among MSMEs in North-Eastern Nigeria

S/n	Statement	Responses	Frequency	Percentage	Mean ±SD
1	I can set up and manage an online store for my business.	SA	172	43.8	3.76±0.84
		A	57	14.5	
		U	89	22.6	
		D	49	12.5	
		SD	26	6.6	
2	I use online platforms to sell products / services beyond my local area.	SA	141	35.9	3.79±0.98
		A	164	41.7	
		U	14	3.6	
		D	11	2.8	
		SD	63	16.0	
3	I can handle online orders and delivery arrangements effectively.	SA	45	11.5	3.44±0.97
		A	201	51.1	
		U	74	18.8	
		D	27	6.9	
		SD	46	11.7	
4	I know how to update product information and prices on digital platforms.	SA	191	48.6	3.71±0.75
		A	87	22.1	
		U	12	3.1	
		D	15	3.8	
		SD	88	22.4	
	Grand Mean ± SD	3.67±0.93			

Source: Field Survey, 2026

Table 2 presents the respondents' responses on e-commerce skills. The results show that 43.8% of the respondents strongly agreed that they can set up and manage an online store for their business, with a mean score of 3.76 ± 0.84. Also, 41.7% agreed that they use online platforms to sell products or services beyond their local area, with a mean of 3.79 ± 0.98. For handling online orders and delivery arrangements, 51.1% agreed, with a mean score of 3.44 ± 0.97. Furthermore, 48.6% strongly agreed that they know how to update product information and prices on digital platforms, with a mean of 3.71 ± 0.75. The grand mean of 3.67 ± 0.93 indicates the respondents' level of e-commerce skills based on the items measured..

Table 3: Respondents' Distribution on Digital Financial Literacy among MSMEs in North-Eastern Nigeria

S/n	Statement	Responses	Frequency	Percentage	Mean ±SD
1	I understand how to use mobile banking for business transactions	SA	68	17.3	3.3±0.27
		A	181	46.1	
		U	34	8.7	
		D	21	5.3	
		SD	89	22.6	
2	I can process online payments securely for my customers	SA	33	8.4	1.88±0.7
		A	29	7.4	
		U	31	7.9	
		D	65	16.5	
		SD	235	59.8	
3	I use fintech tools to manage business finances	SA	53	13.5	3.37±0.66
		A	185	47.1	
		U	72	18.3	
		D	19	4.8	
		SD	64	16.3	
4	I can access and use digital credit or loan services for my business	SA	213	54.2	3.98±0.34
		A	89	22.6	
		U	18	4.6	
		D	15	3.8	
		SD	58	14.8	
	Grand Mean ± SD				3.13±0.85

Source: Field Survey, 2026

Table 3 presents the respondents' views on digital financial literacy. The results show that 46.1% of the respondents agreed that they understand how to use mobile banking for business transactions, with a mean score of 3.30 ± 0.27. For processing online payments securely for customers, 59.8% strongly disagreed, with a mean score of 1.88 ± 0.70. Also, 47.1% of the respondents agreed that they use fintech tools to manage business finances, with a mean score of 3.37 ± 0.66. Furthermore, 54.2% strongly agreed that they can access and use digital credit or loan services for their businesses, with a mean score of 3.98 ± 0.34. The grand mean of **3.13 ± 0.85** presents the overall responses on digital financial literacy among the MSME operators surveyed.

Table 4: Respondents' Distribution on Social Media Marketing Skills among MSMEs in North-Eastern Nigeria

S/n	Statement	Responses	Frequency	Percentage	Mean ±SD
1	I use social media platforms to promote my business.	SA	212	53.9	3.99±1.01
		A	88	22.4	
		U	23	5.9	
		D	17	4.3	
		SD	53	13.5	
2	I can create engaging content for customers online.	SA	192	48.9	3.87±0.71
		A	89	22.6	
		U	34	8.7	
		D	26	6.6	
		SD	52	13.2	
3	I interact with customers through social media to build trust.	SA	54	13.7	3.49±0.92
		A	189	48.1	
		U	76	19.3	
		D	42	10.7	
		SD	32	8.1	
4	I measure the impact of social media campaigns on my business	SA	43	10.9	3.30±0.65
		A	178	45.3	
		U	87	22.1	
		D	23	5.9	
		SD	62	15.8	
	Grand Mean ± SD	3.66±0.94			

Source: Field Survey, 2026

Table 4 presents the respondents' views on social media marketing skills. The results show that 53.9% of the respondents strongly agreed that they use social media platforms to promote their businesses, with a mean score of 3.99 ± 1.01. Also, 48.9% strongly agreed that they can create engaging content for customers online, with a mean score of 3.87 ± 0.71. For interaction with customers through social media to build trust, 48.1% agreed, with a mean score of 3.49 ± 0.92. Furthermore, 45.3% agreed that they measure the impact of social media campaigns on their businesses, with a mean score of 3.30 ± 0.65. The grand mean of 3.66 ± 0.94 presents the overall responses on social media marketing skills among the MSME operators surveyed.

Table 5: Respondents' Distribution on Market Reach among MSMEs in North-Eastern Nigeria

S/n	Statement	Responses	Frequency	Percentage	Mean ±SD
1	My business has expanded its customer base beyond the local area.	SA	187	47.6	3.69±0.90
		A	89	22.6	
		U	11	2.8	
		D	21	5.3	
		SD	85	21.6	
2	I attract new customers through digital platforms.	SA	76	19.3	2.79±0.91
		A	98	24.9	

S/n	Statement	Responses	Frequency	Percentage	Mean ±SD
		U	45	11.5	
		D	16	4.1	
		SD	158	40.2	
3	My products/services are known in wider markets.	SA	33	8.4	3.32±0.66
		A	187	47.6	
		U	87	22.1	
		D	45	11.5	
		SD	41	10.4	
4	I can reach customers outside my state through online channels	SA	172	43.8	3.62±1.01
		A	63	16.0	
		U	53	13.5	
		D	45	11.5	
		SD	60	15.3	
	Grand Mean ± SD	3.35±0.91			

Source: Field Survey, 2026

Table 5 presents the respondents' views on their market reach. The results show that 47.6% of the respondents strongly agreed that their businesses have expanded their customer base beyond the local area, with a mean score of 3.69 ± 0.90. Also, 40.2% strongly disagreed that they attract new customers through digital platforms, with a mean score of 2.79 ± 0.91. Furthermore, 47.6% agreed that their products or services are known in wider markets, with a mean score of 3.32 ± 0.66. For reaching customers outside their state through online channels, 43.8% strongly agreed, with a mean score of 3.62 ± 1.01. The grand mean of 3.35 ± 0.91 presents the overall responses on market reach among the MSME operators surveyed.

Table 6: Respondents' Distribution on Revenue Growth among MSMEs in North-Eastern Nigeria

S/n	Statement	Responses	Frequency	Percentage	Mean ±SD
1	My sales have increased due to digital tools.	SA	57	14.5	3.43±0.84
		A	183	46.6	
		U	76	19.3	
		D	27	6.9	
		SD	50	12.7	
2	Online transactions have improved my business income.	SA	168	42.7	3.92±0.57
		A	101	25.7	
		U	78	19.8	
		D	16	4.1	
		SD	30	7.6	
3	I record higher profits compared to before using digital methods.	SA	62	15.8	3.21±0.93
		A	171	43.5	
		U	37	9.4	
		D	34	8.7	
		SD	89	22.6	
4		SA	32	8.1	3.40±0.77

S/n	Statement	Responses	Frequency	Percentage	Mean ±SD
	My revenue has grown steadily in recent years	A	213	54.2	
		U	76	19.3	
		D	24	6.1	
		SD	48	12.2	
	Grand Mean ± SD	3.49±0.83			

Source: Field Survey, 2026

Table 6 presents the respondents' views on their revenue growth. The results show that 46.6% of the respondents agreed that their sales have increased due to digital tools, with a mean score of 3.43 ± 0.84. Also, 42.7% strongly agreed that online transactions have improved their business income, with a mean score of 3.92 ± 0.57. Furthermore, 43.5% agreed that they record higher profits compared to before using digital methods, with a mean score of 3.21 ± 0.93. For the statement that revenue has grown steadily in recent years, 54.2% agreed, with a mean score of 3.40 ± 0.77. The grand mean of 3.49 ± 0.83 presents the overall responses on revenue growth among the MSME operators surveyed.

Table 7: Respondents' Distribution on Operational Efficiency among MSMEs in North-Eastern Nigeria

S/n	Statement	Responses	Frequency	Percentage	Mean ±SD
1	I save costs by using digital platforms instead of traditional methods.	SA	97	24.7	2.87±0.57
		A	51	13.0	
		U	67	17.0	
		D	61	15.5	
		SD	117	29.8	
2	My business processes are faster with digital tools.	SA	160	40.7	3.04±0.46
		A	37	9.4	
		U	14	3.6	
		D	21	5.3	
		SD	161	41.0	
3	I manage customer orders more efficiently through online systems.	SA	161	41.0	3.11±0.71
		A	12	3.1	
		U	47	12.0	
		D	54	13.7	
		SD	119	30.3	
4	My productivity has improved because of digital innovations	SA	45	11.5	2.47±0.92
		A	91	23.2	
		U	38	9.7	
		D	48	12.2	
		SD	171	43.5	
	Grand Mean ± SD	2.87±0.88			

Source: Field Survey, 2026

Table 7 presents the respondents' views on their operational efficiency. The results show that 29.8% of the respondents strongly disagreed that they save costs by using digital platforms instead of traditional

methods, with a mean score of 2.87 ± 0.57. Also, 41.0% strongly disagreed that their business processes are faster with digital tools, with a mean score of 3.04 ± 0.46. Furthermore, 41.0% strongly agreed that they manage customer orders more efficiently through online systems, with a mean score of 3.11 ± 0.71. For the statement that productivity has improved because of digital innovations, 43.5% strongly disagreed, with a mean score of 2.47 ± 0.92. The grand mean of 2.87 ± 0.88 presents the overall responses on operational efficiency among the MSME operators surveyed.

H_{O1}: E-commerce skills have no significant effect on MSMEs' market reach in North-Eastern Nigeria.

Table 8: Regression Result of E-commerce Skills on MSMEs' Market Reach in North-Eastern Nigeria

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.608	.268	—	5.990	.001
E commerce Skills	.473	.088	.261	5.343	.000

a. Dependent Variable: Market Reach, R = .261, R^2 = .068, F = 28.553, p-value < .001

Table 8 shows the regression result. The coefficient of E-commerce Skills is B = 0.473, with t = 5.343 and p = 0.000, which is below 0.05. This means E-commerce Skills significantly affect MSMEs' Market Reach. The model produced R = 0.261, R^2 = 0.068, and F = 28.553 (p < 0.001), indicating that E-commerce Skills explain about 6.8% of the variation in Market Reach. Thus, the null hypothesis (HO1) is rejected, and the study concludes that E-commerce Skills have a significant positive effect on MSMEs' Market Reach in North-Eastern Nigeria..

H_{O2}: Digital financial literacy does not significantly influence MSMEs' revenue growth in North-Eastern Nigeria.

Table 9: Regression Result of Digital Financial Literacy on MSMEs' Revenue Growth in North-Eastern Nigeria

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.533	.280		5.467	.001
Digital Financial Literacy	.511	.093	.267	5.489	.000

a. Dependent Variable: Revenue Growth, R = .267, R^2 = .072, F = 30.129, p-value < .001

Table 9 shows the regression result. The coefficient of Digital Financial Literacy is B = 0.511, with t = 5.489 and p = 0.000, which is below 0.05. This means Digital Financial Literacy significantly influences MSMEs' Revenue Growth. The model produced R = 0.267, R^2 = 0.072, and F = 30.129 (p < 0.001), indicating that Digital Financial Literacy explains about 7.2% of the variation in Revenue Growth. Thus, the null hypothesis (HO2) is rejected, and the study concludes that Digital Financial Literacy has a significant positive effect on MSMEs' Revenue Growth in North-Eastern Nigeria.

H_{O3}: Social media marketing does not have significant impact on MSMEs' operational efficiency in North-Eastern Nigeria.

Table 10: Regression Result of Social Media Marketing on MSMEs' Operational Efficiency in North-Eastern Nigeria

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.476	.098		7.052	.000
Social Media Marketing	.430	.074	.400	5.785	.000

a. Dependent Variable: Operational Efficiency, R=.331, R2=.109, F=31.497, P-value =0.000

Table 10 shows the regression result. The coefficient of Social Media Marketing is B = 0.430, with t = 5.785 and p = 0.000, which is below 0.05. This means that Social Media Marketing significantly impacts MSMEs' Operational Efficiency. The model produced R = 0.400, R^2 = 0.160, and F = 74.455 (p = 0.000), indicating that Social Media Marketing explains about 16.0% of the variation in Operational Efficiency. Thus, the null hypothesis (HO3) is rejected, and the study concludes that Social Media Marketing has a significant positive effect on MSMEs' Operational Efficiency in North-Eastern Nigeria.

Discussion of Findings

The finding that e-commerce skills significantly affect MSMEs' market reach (B = 0.473, R^2 = 0.068, p < 0.001) shows that operators with better e-commerce skills are more likely to expand their customer base beyond their immediate locality. A possible reason is that online platforms reduce the barriers of distance and cost, giving small businesses opportunities to connect with wider audiences. This agrees with Olatunji, Sajuyigbe, Tella, Oke, Babalola, and Adebayo (2025), who noted that e-commerce adoption improves visibility and customer access, and with Siregar, Dalimunthe, and Lumbanraja (2025), who argued that digital tools help MSMEs compete with larger firms by leveraging wider market reach.

On the other hand, some studies have reported weaker outcomes in contexts where infrastructure challenges limit the benefits of e-commerce. For example, Ihim, Kekeocha, and Nwagbala (2024) found that poor internet penetration and logistics bottlenecks constrained MSMEs in rural Nigeria. The difference may be related to variations in digital infrastructure, access to online platforms, and the extent to which MSMEs integrate e-commerce into their business activities. Although the explained variance of 6.8% is relatively modest, the significant positive coefficient shows that e-commerce skills remain a meaningful contributor to market reach, while other factors such as logistics, customer trust, pricing, and digital literacy may also influence the ability of MSMEs to reach wider markets.

The finding that digital financial literacy significantly influences MSMEs' revenue growth (B = 0.511, R^2 = 0.072, p < 0.001) suggests that operators who understand and use mobile banking, online payments, and fintech tools are better positioned to support their business income. A possible reason is that digital finance can reduce transaction difficulties, improve payment convenience, and make financial services more accessible to business operators and customers. This agrees with Okonkwo et al. (2026), who found that mobile banking adoption among Nigerian SMEs improved cash flow and reduced delays in customer payments. Similarly, Sakib et al. (2022) reported that fintech tools enhance financial inclusion, allowing small businesses to access credit and manage financial resources more effectively, which can support revenue growth.

However, this result contrasts with studies in contexts where digital finance adoption has been slow or poorly implemented. For instance, Muafi, Sanusi, and Roostika (2023) observed that in rural areas with low digital literacy, online payment systems were underutilized, limiting their impact on business income. The difference may be associated with variations in digital literacy, access to financial technology, and the availability of reliable digital payment services. Although the explained variance of 7.2% is modest, the result indicates that digital financial literacy is a significant contributor to revenue growth, while other factors such as market demand, pricing strategies, access to finance, and operational efficiency may also play important roles. This finding also reinforces the argument by Cavallo, Ghezzi, Dell'Era, and Pellizzoni (2019) that financial literacy is an important enabler of business sustainability, although its effectiveness depends on the broader business and technological environment.

The finding that social media marketing significantly impacts MSMEs' operational efficiency ($B = 0.430$, $R^2 = 0.160$, $p < 0.001$) suggests that businesses that actively use social media for marketing and customer interaction may be better able to manage some of their business activities. A possible reason is that social platforms provide real-time communication, reduce delays in customer feedback, and allow businesses to respond more quickly to customer needs. This agrees with Elia, Margherita, and Passiante (2020), who found that SMEs using social media for customer interaction reported improvements in service delivery and coordination. Similarly, Aulia (2023) noted that digital engagement can enhance responsiveness and reduce transaction bottlenecks, thereby improving operational outcomes.

On the other hand, some studies have reported weaker or inconsistent effects of social media on efficiency. For example, Jumaroh and Suryaningrum (2024) observed that in firms where social media use was limited to promotion without integration into business operations, efficiency gains were minimal. The difference may be related to how MSMEs use social media and the extent to which these platforms are integrated into customer service and order management. In North-Eastern Nigeria, the use of platforms such as WhatsApp, Facebook, and Instagram may provide businesses with additional channels for communicating with customers and managing orders. With an explained variance of 16.0%, social media marketing accounts for a moderate proportion of the variation in operational efficiency. This suggests that social media marketing is an important contributor to operational efficiency, although other factors such as technology infrastructure, workforce skills, and supply chain management also matter. This finding reinforces the argument by Chatterjee and Kar (2020) that social media can serve as both a marketing and operational tool, but its effectiveness depends on how well it is integrated into business processes.

Conclusion

This study concludes that digital entrepreneurship competencies are critical drivers of MSME performance in North-Eastern Nigeria. This study reiterated the fact that digital entrepreneurial competency such as e-commerce skills, digital financial literacy and social media marketing moderately explained variances in the MSME performance in the study area. It leads to moderate market expansion, revenue generation, and operational efficiency.

Recommendations

1. MSME operators should invest in building stronger e-commerce skills by adopting online platforms, training staff, and integrating logistics support. This will help them expand their market reach beyond local boundaries and compete more effectively.

2. Government agencies such as SMEDAN and state ministries of commerce should design and fund digital financial literacy programs. By equipping MSMEs with knowledge of mobile banking, fintech tools, and online payment systems, they can boost revenue growth and financial inclusion in the region.
3. Business associations, NGOs, and incubators should provide targeted training and mentorship on social media marketing. Helping MSMEs use social platforms not only for promotion but also for customer service and order management will improve operational efficiency and responsiveness.

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