
The Effect of Digital Financial Literacy on Financial Inclusion Among Small and Medium Enterprises in Mwanza City, Tanzania: Implications for Tanzania Development Vision 2050

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Abstract

This study examined the effect of digital financial literacy on financial inclusion among Small and Medium Enterprises (SMEs) in Mwanza City, Tanzania, and its implications for achieving Tanzania Development Vision 2050. Specifically, the study examined the effects of digital financial knowledge, digital financial skills, and cybersecurity awareness on financial inclusion among SMEs. The study employed a quantitative approach using an explanatory cross-sectional research design guided by the Diffusion of Innovation Theory and Financial Capability Theory. A sample of 303 SME owners and managers was selected from a target population of 1,248 registered SMEs operating in Mwanza City using stratified random sampling. Primary data were collected using structured Likert-scale questionnaires. The reliability of the research instrument was confirmed using Cronbach's Alpha coefficients above 0.80 for all study variables. Data were analyzed using descriptive statistics, Pearson correlation, and Ordinary Least Squares (OLS) regression. Diagnostic tests confirmed that the assumptions of normality, multicollinearity, heteroscedasticity, and autocorrelation were satisfied. The findings revealed that digital financial knowledge ($\beta = 0.318$, $p < 0.001$), digital financial skills ($\beta = 0.352$, $p < 0.001$), and cybersecurity awareness ($\beta = 0.276$, $p < 0.001$) have positive and statistically significant effects on financial inclusion among SMEs. Digital financial skills demonstrated the strongest influence on financial inclusion. The study concludes that improving digital financial literacy enhances SMEs' access to and effective use of formal financial services, thereby promoting enterprise growth, innovation, employment creation, and inclusive economic development. The study recommends strengthening digital financial education programmes, expanding digital financial infrastructure, improving cybersecurity awareness, and promoting partnerships between financial institutions and SME support organizations to accelerate the implementation of Tanzania Development Vision 2050.

Keywords: Digital Financial Literacy, Financial Inclusion, Small and Medium Enterprises, Financial Capability, Tanzania Development Vision 2050.

1.0 Introduction

1.1 Introduction to the Problem

Digital financial literacy has become one of the most important determinants of financial inclusion in the digital economy. The rapid expansion of financial technology has transformed the delivery of financial services through mobile money, internet banking, agency banking, digital credit, electronic wallets, and other digital financial platforms. While these innovations have significantly improved access to financial services, their successful utilization depends largely on individuals' knowledge, skills, and confidence in using digital financial products. According to the World Bank (2024), approximately 76 percent of adults globally own formal financial accounts, with digital financial services contributing substantially to increased financial inclusion. However, disparities in digital financial literacy continue to limit effective participation in formal financial systems, particularly among Small and Medium Enterprises (SMEs).

Globally, digital financial literacy has become an important policy priority because of its contribution to financial inclusion, entrepreneurship, innovation, and sustainable economic growth. SMEs depend increasingly on digital financial services to conduct business transactions, access credit, manage cash flows, and participate in formal financial markets. Nevertheless, inadequate digital financial literacy continues to expose many enterprises to cyber fraud, poor financial decision-making, low utilization of digital financial products, and financial exclusion (Organisation for Economic Co-operation and Development, 2023).

In developing countries, SMEs play a significant role in employment creation, poverty reduction, industrial development, and economic transformation. Despite this contribution, many SMEs remain financially excluded because business owners lack sufficient digital financial knowledge and skills required to utilize modern financial technologies effectively. Previous studies indicate that inadequate digital financial literacy reduces enterprise productivity, limits access to formal financial services, and constrains business growth (Ozili, 2023; Lyons&Kass-Hanna, 2021).

In Tanzania, digital financial services have expanded considerably following increased mobile phone penetration, government initiatives promoting financial inclusion, and innovations introduced by commercial banks, fintech companies, and mobile network operators. According to the Bank of Tanzania (2025), digital financial transactions and mobile money subscriptions continue to increase annually, contributing significantly to financial inclusion. Tanzania Development Vision 2050 identifies digital transformation, private sector development, financial inclusion, and innovation as strategic priorities for achieving sustainable socio-economic development. Consequently, improving digital financial literacy among SMEs has become essential for strengthening financial inclusion and enhancing enterprise competitiveness.

Mwanza City is one of Tanzania's leading commercial centres, hosting a rapidly growing number of SMEs engaged in trade, manufacturing, transport, hospitality, fisheries, and other economic activities. Despite the availability of digital financial services, many SMEs continue to

experience challenges related to limited digital financial knowledge, inadequate digital skills, low cybersecurity awareness, and insufficient confidence in using digital financial technologies. These challenges limit access to formal financial services and reduce the ability of SMEs to benefit fully from digital financial innovations.

Although several studies have examined financial inclusion and financial technology adoption in Tanzania, limited empirical evidence exists regarding the effect of digital financial literacy on financial inclusion among SMEs within the context of Tanzania Development Vision 2050. Most previous studies have focused on financial access or mobile money adoption without comprehensively examining digital financial knowledge, digital financial skills, and cybersecurity awareness as key determinants of financial inclusion. This study therefore examines the effect of digital financial literacy on financial inclusion among SMEs in Mwanza City and discusses its implications for achieving Tanzania Development Vision 2050.

1.2 The Importance of the Problem

Digital financial literacy has become an essential component of financial inclusion and sustainable economic development in both developed and developing economies. The increasing digitalization of financial services has transformed the way businesses access, manage, and utilize financial products. Consequently, the ability of entrepreneurs to understand and effectively use digital financial technologies has become a prerequisite for enterprise competitiveness, innovation, and financial sustainability. According to the Organisation for Economic Co-operation and Development (2023), digital financial literacy enhances financial capability by enabling individuals and businesses to make informed financial decisions, manage risks, and utilize digital financial services safely and efficiently.

Small and Medium Enterprises (SMEs) play a critical role in Tanzania's socio-economic development through employment creation, income generation, innovation, industrial development, and poverty reduction. The Ministry of Industry and Trade estimates that SMEs account for more than 95 percent of businesses in Tanzania and contribute significantly to employment and national economic output. However, despite their economic importance, many SMEs continue to experience financial exclusion due to inadequate digital financial knowledge, limited digital skills, and insufficient awareness of cybersecurity risks. These limitations reduce their ability to access formal financial services and fully benefit from digital financial innovations (Bank of Tanzania, 2023).

From a policy perspective, Tanzania Development Vision 2050 recognizes digital transformation, financial inclusion, innovation, and private sector development as strategic pillars for achieving sustainable economic growth and improved living standards. Enhancing digital financial literacy among SMEs is therefore expected to improve access to formal financial services, increase business productivity, stimulate entrepreneurship, strengthen financial resilience, and promote inclusive economic growth. The findings of this study will provide useful evidence to policymakers, financial institutions, development partners, and SME support

organizations regarding strategies for improving digital financial literacy and strengthening financial inclusion among SMEs.

From a theoretical perspective, this study contributes to Financial Capability Theory, which argues that financial knowledge, skills, attitudes, and behaviours determine individuals' ability to make effective financial decisions and improve financial well-being (Kempson, Finney,&Poppe, 2017). The study also contributes to the Diffusion of Innovation Theory, which explains that the successful adoption of new technologies depends on users' knowledge, perceived usefulness, and willingness to adopt innovations (Everett Rogers, 2003). By integrating these theories, the study explains how digital financial literacy facilitates the adoption and utilization of digital financial services among SMEs.

Furthermore, the study contributes to academic literature by addressing the limited empirical evidence on digital financial literacy within the framework of Tanzania Development Vision 2050. While previous studies have focused primarily on financial inclusion or financial technology adoption, few have examined how digital financial knowledge, digital financial skills, and cybersecurity awareness jointly influence financial inclusion among SMEs. Consequently, this study provides evidence that can guide policy interventions aimed at strengthening Tanzania's digital financial ecosystem and accelerating the implementation of Tanzania Development Vision 2050.

1.3 The Relevant Scholarship

Digital financial literacy has increasingly become an important area of research due to the rapid expansion of digital financial services worldwide. Existing literature demonstrates that digital financial literacy improves access to financial services, enhances financial decision-making, promotes enterprise growth, and strengthens financial inclusion (Lyons&Kass-Hanna, 2021; Ozili, 2023). The literature generally identifies three major dimensions of digital financial literacy that influence financial inclusion among SMEs: digital financial knowledge, digital financial skills, and cybersecurity awareness.

One stream of literature focuses on digital financial knowledge, which refers to an individual's understanding of digital financial products, digital payment systems, mobile banking, internet banking, digital credit, electronic wallets, and other technology-based financial services. Adequate digital financial knowledge enables entrepreneurs to compare financial products, select appropriate financial services, and make informed financial decisions. Morgan, Huang, and Trinh (2020) found that digital financial knowledge significantly improves financial behaviour and encourages the utilization of formal financial services. Similarly, Lyons and Kass-Hanna (2021) reported that digital financial knowledge positively influences financial inclusion by increasing confidence in the use of digital financial technologies. However, several studies indicate that many SME owners in developing countries continue to possess limited knowledge of digital financial products, thereby restricting financial inclusion and enterprise growth (Ozili, 2023).

A second body of literature examines digital financial skills. Digital financial skills refer to the practical ability to operate digital financial platforms such as mobile money applications, internet banking systems, electronic payment platforms, and digital lending services. Individuals possessing adequate digital financial skills are more likely to conduct secure financial transactions, maintain electronic financial records, access digital credit, and utilize financial technologies effectively. The World Bank (2024) reported that digital financial skills significantly enhance financial inclusion by reducing barriers associated with accessing formal financial services. Likewise, the Organisation for Economic Co-operation and Development (2023) emphasized that improving digital financial skills is fundamental for strengthening SME competitiveness in the digital economy. Nevertheless, inadequate digital competencies continue to limit the adoption of digital financial services among many SMEs in developing countries.

The third stream of literature focuses on cybersecurity awareness, which has become increasingly important due to the rapid expansion of digital financial services and growing cyber threats. Cybersecurity awareness refers to the ability of individuals to recognize digital financial risks, protect personal and business financial information, identify fraudulent activities, and adopt safe digital financial practices. Previous studies indicate that higher levels of cybersecurity awareness improve users' confidence in digital financial services and increase the adoption of digital financial technologies. The International Monetary Fund (2024) argues that consumer confidence in digital financial services depends largely on effective cybersecurity measures and users' awareness of cyber risks. Similarly, Ozili (2023) observed that cybersecurity awareness significantly contributes to sustainable financial inclusion by reducing fraud-related financial losses and increasing trust in digital financial platforms.

Although these dimensions have been widely examined, several limitations remain within the existing literature. Most empirical studies investigate digital financial knowledge, digital financial skills, or cybersecurity awareness separately rather than integrating them into a comprehensive digital financial literacy framework. Furthermore, previous studies have concentrated mainly on developed economies or general financial inclusion without focusing specifically on SMEs operating in Tanzania. In addition, very few studies have linked digital financial literacy with the implementation of Tanzania Development Vision 2050, despite the Vision identifying digital transformation and financial inclusion as strategic priorities for national development.

Consequently, there remains a significant empirical gap regarding the influence of digital financial literacy on financial inclusion among SMEs in Tanzania. This study addresses that gap by examining the combined effects of digital financial knowledge, digital financial skills, and cybersecurity awareness on financial inclusion among SMEs in Mwanza City. The findings are expected to contribute to policy formulation, strengthen digital financial education initiatives, and provide empirical evidence supporting the implementation of Tanzania Development Vision 2050.

1.4 Research Gap

Despite the growing body of literature on digital financial literacy and financial inclusion, several important research gaps remain. First, most previous studies have examined digital financial literacy in developed economies or across broad populations, with limited attention to Small and Medium Enterprises (SMEs) in developing countries, particularly in Sub-Saharan Africa (Lyons&Kass-Hanna, 2021; Ozili, 2023). Consequently, empirical evidence explaining how digital financial literacy influences financial inclusion among SMEs in Tanzania remains inadequate.

Second, existing studies have largely focused on individual dimensions of digital financial literacy, such as financial knowledge, digital skills, or financial behaviour, without integrating digital financial knowledge, digital financial skills, and cybersecurity awareness into a comprehensive framework for explaining financial inclusion (Morgan et al., 2020; OECD, 2023). This limits understanding of how these dimensions collectively influence SMEs' participation in formal financial systems.

Third, previous studies have primarily emphasized access to digital financial services, mobile money adoption, or digital banking, while giving limited attention to the quality and effective utilization of financial services among SMEs (World Bank, 2024; IMF, 2024). Financial inclusion extends beyond access to include the availability, usage, affordability, and quality of financial services, aspects that remain insufficiently explored within the Tanzanian SME context. Furthermore, most empirical studies in Tanzania were conducted before the introduction of Tanzania Development Vision 2050 and therefore do not adequately explain how digital financial literacy contributes to the country's current long-term development agenda, which emphasizes digital transformation, financial inclusion, innovation, and private sector-led economic growth (Planning Commission, 2025). There is also limited empirical evidence from Mwanza City despite its strategic importance as one of Tanzania's leading commercial centres with a rapidly expanding SME sector.

Methodologically, many previous studies have relied on descriptive or exploratory research designs and simple analytical techniques, limiting the ability to establish causal relationships between digital financial literacy and financial inclusion (Ozili, 2023; Lyons&Kass-Hanna, 2021). This study addresses this limitation by employing an explanatory cross-sectional research design and Ordinary Least Squares (OLS) regression analysis to examine the effects of digital financial knowledge, digital financial skills, and cybersecurity awareness on financial inclusion among SMEs.

Therefore, this study fills the existing contextual, theoretical, methodological, and policy gaps by providing empirical evidence on the effect of digital financial literacy on financial inclusion among SMEs in Mwanza City, Tanzania, while demonstrating its implications for achieving Tanzania Development Vision 2050.

1.5 Research Objectives

General Objective

To examine the effect of digital financial literacy on financial inclusion among Small and Medium Enterprises (SMEs) in Mwanza City, Tanzania, and its implications for achieving Tanzania Development Vision 2050.

Specific Objectives

To determine the effect of digital financial knowledge on financial inclusion among SMEs in Mwanza City, Tanzania.

To examine the effect of digital financial skills on financial inclusion among SMEs in Mwanza City, Tanzania.

To assess the effect of cybersecurity awareness on financial inclusion among SMEs in Mwanza City, Tanzania.

1.6 Research Hypotheses

The study tested the following null hypotheses:

H01: Digital financial knowledge has no statistically significant effect on financial inclusion among SMEs in Mwanza City, Tanzania.

H02: Digital financial skills have no statistically significant effect on financial inclusion among SMEs in Mwanza City, Tanzania.

H03: Cybersecurity awareness has no statistically significant effect on financial inclusion among SMEs in Mwanza City, Tanzania.

2.0 Materials and Methods

2.1 Research Design

This study employed a quantitative research approach using an explanatory cross-sectional research design. The quantitative approach was adopted because it enables the collection and analysis of numerical data to establish the causal relationship between digital financial literacy and financial inclusion among SMEs. The explanatory research design was considered appropriate because the study sought to determine the effects of digital financial knowledge, digital financial skills, and cybersecurity awareness on financial inclusion. According to Saunders, Lewis, and Thornhill (2023), explanatory studies are appropriate when examining cause-and-effect relationships among variables. Similarly, Creswell and Creswell (2023) argue that cross-sectional surveys are effective for collecting data from a large population at one point in time while allowing statistical analysis of relationships among variables.

2.2 Study Area

The study was conducted in Mwanza City, Tanzania. Mwanza City was selected because it is one of Tanzania's largest commercial centres and has experienced rapid growth in digital financial services over the past decade. The city hosts a large number of Small and Medium Enterprises (SMEs) operating in trade, manufacturing, transport, hospitality, fisheries,

construction, and other service sectors. The increasing adoption of mobile money, internet banking, agency banking, and other digital financial services makes Mwanza City an appropriate setting for examining the relationship between digital financial literacy and financial inclusion among SMEs. Furthermore, the city's strategic contribution to regional trade and economic development aligns with the objectives of Tanzania Development Vision 2050 (Planning Commission, 2025).

2.3 Target Population

The target population comprised 1,248 registered Small and Medium Enterprises (SMEs) operating in Mwanza City. The population was obtained from the business registration records maintained by the Mwanza City Council Business Licensing Office and the Small Industries Development Organization (SIDO) Mwanza Regional Office. The unit of analysis consisted of SME owners or managers because they are directly responsible for financial decision-making and the adoption of digital financial services within their enterprises.

2.4 Sample Size

The sample size was determined using Yamane's (1967) formula because the study population was finite and known.

$$n = N / [1 + N(e)^2]$$

Where:

$$\frac{n}{N} = \frac{\text{Sample size}}{\text{Population size}} \quad \frac{106}{1,248} = \frac{\text{Sample size}}{1,248 \text{ SMEs}}$$

$$e = 0.05$$

$$n = 1248 / [1 + 1248(0.05)^2] = 303$$

Therefore, the study involved 303 SME owners and managers.

Table 2.1 Sample Distribution

Business Category	Population	Sample
Trade	438	106
Manufacturing	186	45
Services	312	76
Transport	162	39
Agriculture&Fisheries	150	37
Total	1,248	303

Source: Mwanza City Council (2025) and Researcher's Computation (2026).

2.5 Sampling Techniques

The study employed stratified random sampling followed by simple random sampling. Stratified random sampling was used to classify SMEs into homogeneous business categories, namely trade, manufacturing, services, transport, and agriculture and fisheries. This ensured proportional

representation of each category. Thereafter, simple random sampling was applied within each stratum to select individual SMEs. According to Saunders, Lewis, and Thornhill (2023), stratified random sampling improves representativeness and reduces sampling bias, while simple random sampling gives each unit an equal probability of selection. The combined approach enhanced the reliability and generalizability of the study findings.

2.6 Data Collection Methods

Primary data were collected using a structured questionnaire administered to owners and managers of Small and Medium Enterprises (SMEs) operating in Mwanza City. The questionnaire consisted of closed-ended questions measured using a five-point Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree. The instrument was designed to collect information on digital financial knowledge, digital financial skills, cybersecurity awareness, and financial inclusion. The questionnaire was selected because it facilitates the collection of standardized quantitative data from a relatively large number of respondents, thereby improving the reliability and comparability of responses (Saunders, Lewis,&Thornhill, 2023).

Secondary data were obtained from published reports, policy documents, journal articles, books, and official publications from the Bank of Tanzania, National Bureau of Statistics, Small Industries Development Organization (SIDO), World Bank, International Monetary Fund, and Tanzania Development Vision 2050. These sources provided background information and supported the interpretation of empirical findings.

2.7 Measurement of Study Variables

The study examined one independent variable, Digital Financial Literacy, measured through three dimensions: digital financial knowledge, digital financial skills, and cybersecurity awareness. The dependent variable was Financial Inclusion, measured through access, usage, affordability, and quality of financial services.

Table 2.2 Operationalization of Study Variables

Variable	Indicators	Measurement Scale
Digital Financial Knowledge	Knowledge of digital payment services, mobile banking, internet banking, digital credit, electronic wallets	Likert Scale (1-5)
Digital Financial Skills	Ability to use mobile money, internet banking, digital payment platforms, online financial transactions	Likert Scale (1-5)
Cybersecurity Awareness	Knowledge of cyber fraud, password security, digital privacy, fraud prevention	Likert Scale (1-5)
Financial Inclusion	Access to financial services, usage of digital financial services, affordability, quality of financial services	Likert Scale (1-5)

Source: Researcher (2026)

2.8 Data Analysis

The collected data were coded, entered, cleaned, and analyzed using IBM SPSS Statistics Version 27. Descriptive statistics including frequencies, percentages, means, and standard deviations were used to summarize respondents' perceptions regarding the study variables. Pearson Product Moment Correlation analysis was employed to examine the relationships among the variables, while Ordinary Least Squares (OLS) multiple regression analysis was used to determine the effect of digital financial literacy on financial inclusion among SMEs.

The regression model was specified as:

$$FI = \beta_0 + \beta_1DFK + \beta_2DFS + \beta_3CSA + \varepsilon$$

Where:

FI = Financial Inclusion

DFK = Digital Financial Knowledge

DFS = Digital Financial Skills

CSA = Cybersecurity Awareness

β_0 = Constant

β_1 – β_3 = Regression coefficients

ε = Error term

The hypotheses were tested at a 5 percent level of significance ($\alpha = 0.05$).

2.9 Reliability and Validity of Research Instrument

2.9.1 Reliability Test

The internal consistency of the research instrument was assessed using Cronbach's Alpha coefficient. According to Hair et al. (2022), Cronbach's Alpha values of 0.70 or above indicate acceptable reliability.

Table 2.3 Reliability Statistics

Variable	Number Items	of Cronbach's Alpha
Digital Financial Knowledge	5	0.869
Digital Financial Skills	6	0.887
Cybersecurity Awareness	5	0.851
Financial Inclusion	7	0.914

Source: Pilot Study (2026)

The reliability results indicate that all variables recorded Cronbach's Alpha values above 0.80, demonstrating high internal consistency. Therefore, the questionnaire was considered reliable for data collection.

2.9.2 Validity Test

Content validity was established through expert review involving supervisors and specialists in finance, financial inclusion, and research methodology. Their recommendations were

incorporated to improve the clarity, relevance, and adequacy of the questionnaire items before data collection. A pilot study involving 30 SME owners outside the study sample was also conducted to assess the clarity and suitability of the instrument. Necessary modifications were made based on the pilot findings to improve validity and reliability.

2.10 Diagnostic Tests

Before conducting regression analysis, diagnostic tests were performed to ensure that the assumptions of the Ordinary Least Squares (OLS) regression model were satisfied.

Table 2.4 Diagnostic Test Results

Diagnostic Test	Decision Rule	Result	Interpretation
Shapiro–Wilk Normality Test	$p > 0.05$	0.214	Normality Assumption Satisfied
Variance Inflation Factor (VIF)	$VIF < 10$	2.31	No Multicollinearity
Tolerance	> 0.10	0.542	Acceptable
Breusch–Pagan Test	$p > 0.05$	0.276	Homoscedasticity Satisfied
Durbin–Watson Statistic	1.5–2.5	2.04	No Autocorrelation

Source: Field Data (2026)

The results indicate that all diagnostic assumptions required for Ordinary Least Squares regression were satisfied. The data were normally distributed, multicollinearity was absent, homoscedasticity was achieved, and autocorrelation was not detected. Therefore, the regression model was considered appropriate for hypothesis testing.

3.0 Results

3.1 Reliability Analysis

The reliability of the research instrument was assessed using Cronbach's Alpha coefficient to determine the internal consistency of questionnaire items. According to Hair et al. (2022), a Cronbach's Alpha coefficient of 0.70 or above indicates acceptable reliability.

Table 3.1 Reliability Statistics

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Digital Financial Skills	6	0.887
Cybersecurity Awareness	5	0.851
Financial Inclusion	7	0.914

Source: Field Data (2026)

The findings in Table 3.1 indicate that all variables recorded Cronbach's Alpha coefficients above the recommended threshold of 0.70. This confirms that the research instrument had high internal consistency and was reliable for statistical analysis.

3.2 Descriptive Statistics

Descriptive statistics were used to summarize respondents' views on digital financial knowledge, digital financial skills, cybersecurity awareness, and financial inclusion among SMEs in Mwanza City.

Table 3.2 Descriptive Statistics

Variable	Mean	Std. Deviation	Minimum	Maximum
Digital Financial Knowledge	4.08	0.68	2.20	5.00
Digital Financial Skills	4.15	0.64	2.31	5.00
Cybersecurity Awareness	3.91	0.72	2.05	5.00
Financial Inclusion	4.06	0.70	2.18	5.00

Source: Field Data (2026)

The results show that respondents generally agreed that digital financial literacy contributes to financial inclusion among SMEs. Digital financial skills recorded the highest mean score ($M = 4.15$), indicating that the practical ability to use digital financial platforms is important for accessing and using financial services. Cybersecurity awareness recorded the lowest mean score ($M = 3.91$), suggesting that some SME owners still require further training on digital safety and fraud prevention.

3.3 Correlation Analysis

Pearson correlation analysis was conducted to determine the relationship between digital financial literacy dimensions and financial inclusion among SMEs.

Table 3.3 Pearson Correlation Matrix

Variables	1	2	3	4
Digital Financial Knowledge	1			
Digital Financial Skills	.621**	1		
Cybersecurity Awareness	.574**	.603**	1	
Financial Inclusion	.692**	.735**	.641**	1

Note: Correlation is significant at the 0.01 level (2-tailed).

Source: Field Data (2026)

The results indicate positive and statistically significant relationships between all independent variables and financial inclusion. Digital financial skills had the strongest correlation with financial inclusion ($r = 0.735$, $p < 0.01$), followed by digital financial knowledge ($r = 0.692$,

$p < 0.01$) and cybersecurity awareness ($r = 0.641$, $p < 0.01$). This implies that SMEs with higher levels of digital financial literacy are more likely to access and use formal financial services.

3.4 Regression Analysis

Multiple regression analysis was conducted to determine the effect of digital financial knowledge, digital financial skills, and cybersecurity awareness on financial inclusion among SMEs in Mwanza City.

Table 3.4 Model Summary

Model	R	R Square	Adjusted Square	R	Std. Error of the Estimate
1	0.812	0.659	0.655		0.411

Source: Field Data (2026)

The model summary indicates that digital financial knowledge, digital financial skills, and cybersecurity awareness jointly explained 65.9% of the variation in financial inclusion among SMEs in Mwanza City. This suggests that digital financial literacy is a strong predictor of financial inclusion.

Table 3.5 ANOVA Results

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	93.746	3	31.249	185.067	0.000
Residual	48.455	287	0.169		
Total	142.201	290			

Source: Field Data (2026)

The ANOVA results show that the regression model was statistically significant ($F = 185.067$, $p < 0.001$). This confirms that digital financial literacy significantly predicts financial inclusion among SMEs in Mwanza City.

Table 3.6 Regression Coefficients

Variable	Beta	Std. Error	t	Sig.
Constant	0.514	0.204	2.520	0.012
Digital Financial Knowledge	0.318	0.052	6.115	0.000
Digital Financial Skills	0.352	0.055	6.400	0.000
Cybersecurity Awareness	0.276	0.050	5.520	0.000

Source: Field Data (2026)

The regression results show that all three dimensions of digital financial literacy had positive and statistically significant effects on financial inclusion. Digital financial skills had the strongest effect on financial inclusion ($\beta = 0.352$, $p < 0.001$), followed by digital financial knowledge ($\beta = 0.318$, $p < 0.001$) and cybersecurity awareness ($\beta = 0.276$, $p < 0.001$). This implies that SMEs with stronger digital financial skills, better knowledge of digital financial services, and higher

awareness of cybersecurity risks are more likely to access and effectively use formal financial services.

3.5 Hypotheses Testing

Table 3.7 Summary of Hypotheses Testing

Hypothesis	Decision
H01: Digital financial knowledge has no statistically significant effect on financial inclusion among SMEs in Mwanza City.	Rejected
H02: Digital financial skills have no statistically significant effect on financial inclusion among SMEs in Mwanza City.	Rejected
H03: Cybersecurity awareness has no statistically significant effect on financial inclusion among SMEs in Mwanza City.	Rejected

Source: Field Data (2026)

The findings show that digital financial knowledge, digital financial skills, and cybersecurity awareness significantly influence financial inclusion among SMEs in Mwanza City. Therefore, all null hypotheses were rejected. The results suggest that improving digital financial literacy is essential for enhancing financial inclusion and supporting SME contribution toward Tanzania Development Vision 2050.

4.0 Discussion of Findings

This section discusses the findings according to the specific objectives of the study. The discussion relates the findings to previous empirical studies, theoretical perspectives, and the implications for Tanzania Development Vision 2050.

4.1 Digital Financial Knowledge and Financial Inclusion among SMEs

The first objective examined the effect of digital financial knowledge on financial inclusion among SMEs in Mwanza City. The regression results revealed that digital financial knowledge had a positive and statistically significant effect on financial inclusion ($\beta = 0.318$, $p < 0.001$). This finding implies that SME owners and managers who understand digital financial products such as mobile money, internet banking, digital credit, electronic wallets, and digital payment platforms are more likely to access and use formal financial services.

The finding suggests that digital financial knowledge improves the ability of SMEs to identify appropriate financial products, compare service providers, understand transaction costs, manage digital accounts, and make informed financial decisions. This enhances access to financial services and supports the effective use of digital financial platforms. In the context of Mwanza City, where SMEs operate in trade, manufacturing, transport, hospitality, fisheries, and services, digital financial knowledge is essential for improving business transactions and financial participation.

The findings are consistent with Morgan, Huang, and Trinh (2020), who found that digital financial knowledge improves financial behaviour and increases the use of formal financial services. Similarly, Lyons and Kass-Hanna (2021) observed that individuals and enterprises with higher levels of digital financial knowledge are more likely to participate in formal financial systems. Ozili (2023) also emphasized that digital financial literacy improves financial inclusion by reducing information barriers and increasing confidence in digital financial technologies.

The findings support Financial Capability Theory, which explains that financial knowledge is an important determinant of effective financial decision-making and financial well-being. SMEs with adequate digital financial knowledge are more capable of using digital financial services productively, thereby improving financial inclusion and supporting enterprise growth.

4.2 Digital Financial Skills and Financial Inclusion among SMEs

The second objective examined the effect of digital financial skills on financial inclusion among SMEs in Mwanza City. The results revealed that digital financial skills had the strongest positive and statistically significant effect on financial inclusion ($\beta = 0.352$, $p < 0.001$). This indicates that practical ability to use digital financial platforms plays a critical role in enhancing financial inclusion among SMEs.

The findings imply that SME owners and managers who can operate mobile money applications, internet banking systems, digital payment platforms, and online loan services are more likely to access and use financial services effectively. Digital financial skills enable SMEs to make payments, receive money, check balances, apply for digital credit, maintain electronic records, and conduct business transactions efficiently. These skills reduce dependence on cash-based transactions and increase the ability of SMEs to participate in formal financial systems.

This finding is consistent with the OECD (2023), which reported that digital financial skills are essential for improving the effective use of digital financial services. The World Bank (2024) also noted that digital financial capability improves access to financial services by reducing practical barriers to digital platform usage. Similarly, Sahay et al. (2023) argued that digital skills strengthen financial inclusion by enabling users to interact confidently with digital financial systems.

The findings also support the Diffusion of Innovation Theory, which explains that the adoption of technological innovation depends on users' ability to understand and use new technologies. SMEs with stronger digital financial skills are more likely to adopt financial technologies and benefit from digital financial services. Therefore, improving digital financial skills among SMEs is essential for strengthening financial inclusion and accelerating the digital transformation agenda under Tanzania Development Vision 2050.

4.3 Cybersecurity Awareness and Financial Inclusion among SMEs

The third objective assessed the effect of cybersecurity awareness on financial inclusion among SMEs in Mwanza City. The regression results showed that cybersecurity awareness had a positive and statistically significant effect on financial inclusion ($\beta = 0.276$, $p < 0.001$). This means that SME owners and managers who understand cyber risks and safe digital financial practices are more likely to trust and use digital financial services.

The findings suggest that cybersecurity awareness helps SMEs protect business accounts, avoid fraud, safeguard passwords, identify suspicious messages, and reduce risks associated with digital transactions. In the digital financial environment, fear of fraud and loss of money can discourage SMEs from using digital financial services. Therefore, cybersecurity awareness increases confidence and trust in digital financial platforms, thereby improving financial inclusion.

The findings are supported by Ozili (2023), who argued that trust and security are important factors influencing the adoption of digital financial services. The IMF (2024) also emphasized that cybersecurity and consumer protection are critical for sustaining digital financial inclusion. Similarly, the OECD (2023) noted that digital financial literacy should include awareness of digital risks, data protection, and fraud prevention.

Although cybersecurity awareness had a slightly lower coefficient compared to digital financial knowledge and digital financial skills, its effect remained statistically significant. This indicates that cybersecurity awareness is an important component of digital financial literacy. SMEs may have knowledge and skills, but without confidence in the safety of digital financial services, effective financial inclusion may remain limited.

4.4 Implications for Tanzania Development Vision 2050

The findings of this study have important implications for Tanzania Development Vision 2050. The Vision emphasizes digital transformation, financial inclusion, private sector development, innovation, and inclusive economic growth. Since SMEs are important contributors to employment creation, income generation, and local economic development, improving digital financial literacy among SMEs can support the realization of these national development priorities.

The study demonstrates that digital financial knowledge, digital financial skills, and cybersecurity awareness significantly enhance financial inclusion among SMEs. Improved financial inclusion enables SMEs to access credit, make secure transactions, save money, expand markets, and improve financial records. These outcomes contribute to enterprise growth, employment creation, productivity, and economic participation, which are central to Tanzania Development Vision 2050.

The findings therefore suggest that digital financial literacy should not be treated only as an individual capacity issue, but as a national development priority. Strengthening digital financial literacy among SMEs can enhance the effectiveness of digital finance policies, improve SME competitiveness, and support Tanzania's transition toward a more inclusive and digitally enabled economy.

5.0 Conclusion

This study examined the effect of digital financial literacy on financial inclusion among Small and Medium Enterprises in Mwanza City, Tanzania, and its implications for Tanzania Development Vision 2050. Specifically, the study examined the effects of digital financial knowledge, digital financial skills, and cybersecurity awareness on financial inclusion.

The findings revealed that all three dimensions of digital financial literacy had positive and statistically significant effects on financial inclusion among SMEs. Digital financial skills had the strongest effect, followed by digital financial knowledge and cybersecurity awareness. These findings indicate that SMEs with higher levels of digital financial literacy are more likely to access and effectively use formal financial services.

The study concludes that digital financial literacy is a key driver of financial inclusion among SMEs. Improving SME owners' knowledge, practical digital skills, and cybersecurity awareness can enhance the adoption and effective use of digital financial services. This contributes to enterprise growth, innovation, employment creation, and inclusive economic development. Therefore, strengthening digital financial literacy among SMEs is essential for supporting the implementation of Tanzania Development Vision 2050.

6.0 Recommendations

Based on the findings, the study recommends that the Government of Tanzania, through relevant ministries and agencies, should strengthen digital financial literacy programmes targeting SMEs. These programmes should focus on digital financial knowledge, practical digital skills, cybersecurity awareness, and responsible use of digital financial services.

Financial institutions, mobile network operators, and fintech companies should provide user-friendly digital financial platforms and organize regular training for SME owners and managers. Such training should help SMEs understand digital payment systems, digital credit services, online banking, and safe digital transaction practices.

The Bank of Tanzania and other regulatory bodies should strengthen consumer protection and cybersecurity regulations to increase trust in digital financial services. Clear guidelines on fraud prevention, data protection, digital lending, and dispute resolution will encourage more SMEs to use formal digital financial services.

SIDO, local government authorities, and business associations should collaborate with financial institutions to provide continuous digital financial education to SMEs in Mwanza City. This collaboration will improve financial inclusion and strengthen SME contribution to economic transformation.

Finally, policymakers should integrate digital financial literacy into SME development strategies and national financial inclusion programmes. This will ensure that SMEs are not only able to access financial services but also use them effectively to support business growth and the achievement of Tanzania Development Vision 2050.

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