



(RESEARCH ARTICLE)



## The influence of digital products on the performance of microfinance institutions in Cameroon

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### Abstract

**Purpose:** This study was carried out to investigate the influence of digital products on the performance of microfinance institutions in Cameroon. Four digital products of microfinance institutions were involved in the analysis. These are digital payments, digital savings, digital credits and digital insurance. The performance of microfinance institutions included the financial performance and the social performance of the institutions. Specifically, the study investigated how digital payments, digital savings, digital credits and digital insurance influence the performance of microfinance institutions in Cameroon.

**Materials and Methods:** The study adopted the survey research design and used primary data collected from 201 microfinance institutions in Cameroon through the administration of questionnaires. Data was analyzed using both descriptive and inferential statistics with the help of SPSS Version 20, STATA Version 14 and AMOS Version 23.

**Findings:** The results of the study revealed that digital payments, digital savings and digital credits have significant positive influence on the performance of microfinance institutions in Cameroon while digital insurance has a negative influence on the performance of microfinance institutions in Cameroon, though this negative influence was found to be insignificant.

**Conclusion and Recommendations:** The study concludes that digital products significantly influence the performance of microfinance institutions in Cameroon. To the microfinance institutions operating in Cameroon, the study recommends that more investment should be made on digital payments, digital savings and digital credits in order to improve the performance of the institutions.

**Keywords:** Digital Products; Digital Payments; Digital Credit; Performance; Microfinance Institutions

## 1. Introduction

### 1.1. Background

Microfinance institutions play a vital role in the economic development of many developing countries. They offer loans and technical assistance to individuals and business men, especially those excluded by the regulated commercial banks. They provide a variety of financial services to their customers, including micro loans, savings and other deposit products, remittances and transfer payment services, as well as other financial products and services to low - income earners (Abebe & Kegne, 2023; Osamah et al. 2022). In the recent decades, the microfinance industry has been growing rapidly. This rapid growth has attracted the recognition of international actors, donor organizations and governments and has necessitated increasing inflows of investment from diverse stakeholders on the premise that the microfinance

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institutions have an institutional foundation that fosters local economic development, create jobs and empowers women (Wondirad, 2020).

Since their emergence in 1976 with the establishment of the Grameen Bank by Muhammad Yunus, microfinance institutions have been striving to meet their performance objective. The performance of microfinance institutions is a multi - dimensional construct that consist of four elements; customer focus performance which includes customer satisfaction and product performance, financial and market performance which includes profitability and market positioning, human resource performance which includes employee satisfaction, and organizational effectiveness which includes production and supply chain effectiveness. The performance of microfinance institutions can therefore be seen in terms of financial performance measures such revenue increase, cost minimization, market share increase and improvement in the competitive advantage of the institutions, as well as non - financial performance which includes social performance (Mwawasaa and Ali, 2020).

In the current microfinance market, financial based performance measures alone will not be adequate to provide important information to the institutions since financial performance indicators tell only part of the performance story in microfinance. Though microfinance institutions according to the institutionalists have to improve their financial performance by reducing operational cost and recovering costs from revenue in order to remain sustainable (Fadikpe, 2022), microfinance institutions should not only focus on financial sustainability but should be able to meet their social mission. The social performance of microfinance institutions is the impact of the institutions in providing financial services to the low - income people. This is measured in terms of time duration taken to serve the customers (length of outreach), the average outstanding loans granted by the microfinance institutions (depth of outreach) and the number of active borrowers (breadth of outreach).

Recognizing that innovation remains a key imperative for enterprises to attain their performance objective, microfinance institutions have continued to mobilize resources to enhance the level of innovation. The extent of innovation in the financial service sector is higher than in other sectors of the economy because the sector is built on components of change such as high technology, high competition and unstable customers' preferences. Microfinance institutions in Cameroon have continued to invest huge resources in digital financial innovations, though the investment is still low as Cameroon is 20<sup>th</sup> out of 27 economies in Sub Saharan Africa, 31<sup>st</sup> among 34 low - income group economies and 123<sup>rd</sup> among 132 economies that featured in the Global Innovation Index of 2021. The performance of microfinance institutions in Cameroon therefore arouses the curiosity of many researchers as many of such institutions do not sustain their performance (Youngang & Kengni, 2022). Notwithstanding, the institutions have been making efforts to enhance their performance, one of such efforts is the investment in digital products.

## **1.2. Statement of the Problem**

Improving the performance of microfinance institutions in Cameroon is crucial for the development of the financial sector. The performance of microfinance institutions in Cameroon is not constant as witnessed by low and fluctuating levels of profitability over the years. The non - performing loans of the sector has been increasing as noticed by the 15.1% increase in the non - performing loans from 104.9 billion FCFA in 2020 to 120.7 billion FCFA in 2021 (IMF Report, 2022). Many institutions are unable to sustain their performance, leading to their collapse. Between 2020 and 2021, thirteen microfinance institutions collapsed in Cameroon (IMF Report, 2022).

The performance problem of microfinance institutions in Cameroon is compounded by the fact that these institutions operate in the same environment where they compete with commercial banks. This has led to low and inconsistent performance of the institutions as revealed by the return on assets of the institutions that is below the threshold of 5%. In 2020, the return on assets for category one microfinance institutions in Cameroon was -0.56%, that for category two was 1.11% and that for category three was 0.26%. Despite the slight increase in 2021, the values were till judged to be very low as they were -0.5% for category one, 1.92% for category two and 1.45% for category three.

Given the low and fluctuating performance of microfinance institutions in Cameroon, measures have been put in place to enhance the performance of the institutions such as the effective governance of the institutions, the partnership relationship between microfinance institutions and commercial banks which permitted the microfinance institutions to benefit from the resources of the commercial banks as well as some microfinance institutions up scaling their services to enable them compete with commercial banks. Despite all these measures, the performance problem of the microfinance institutions still exists. It is therefore essential to adopt new instruments that could boost the performance of the institutions.

## 2. Objectives of Study

The main objective of this study is to investigate the influence of digital products on the performance of microfinance institutions in Cameroon. To achieve this main objective, the following specific objectives are addressed in the work. They include:

- To examine the influence of digital payments on the performance of microfinance institutions in Cameroon.
- To investigate the extent to which digital savings influence the performance of microfinance institutions in Cameroon.
- To analyze the influence of digital credits on the performance of microfinance institutions in Cameroon.
- To examine the influence of digital insurance on the performance of microfinance institutions in Cameroon.

### 2.1. Research Hypotheses

In order to achieve the objectives of this study, the following hypotheses have been formulated to be tested on observed data. They are:

- H1: Digital payments significantly influence the performance of microfinance institutions in Cameroon.
- H1: Digital savings significantly influence the performance of microfinance institutions in Cameroon.
- H1: Digital credits significantly influence the performance of microfinance institutions in Cameroon.
- H1: Digital insurance significantly influence the performance of microfinance institutions in Cameroon.

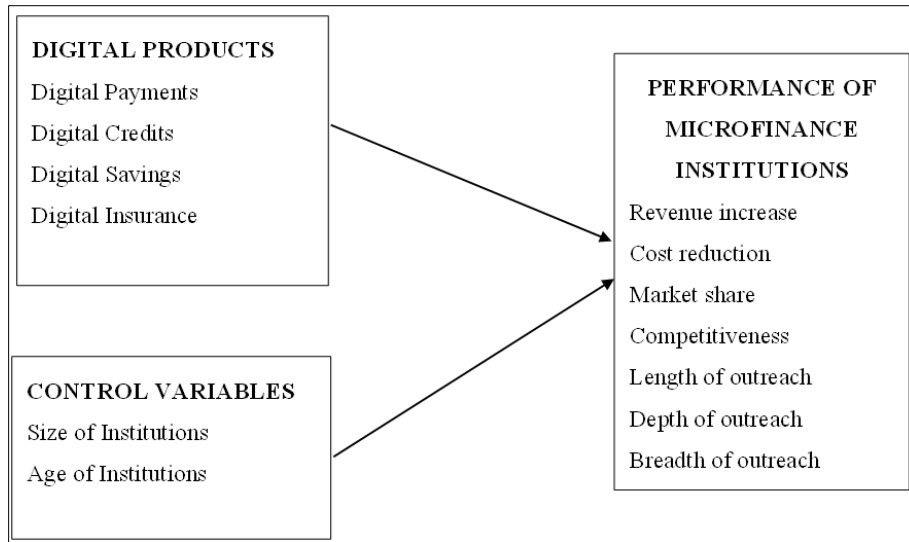
### 2.2. Conceptual Framework

The three main concepts of this study are digital products, performance and microfinance institutions. Digital products involve the use of technology to enhance the characteristics of an existing product or to develop a new product which satisfy to a higher extent the needs of the consumers of financial institutions (Yosifor & Dimitrova, 2015; Mwawasaa and Ali, 2020). Digital products are often driven by consumers demand for better products to enhance their satisfaction. They involve all the changes that will improve design, materials, feel, look, capacities, functionality and the overall user experience of a product. Within the context of this study, four digital products or microfinance institutions were examined. These are digital payments, digital credits, digital savings and digital insurance.

Digital payments are payments made through digital or online modes with no exchange of physical currency involve, where the payer and the payee both use digital modes to send and receive money. Such payments, otherwise called electronic payments involve the transfer of value from one payment account to another using a digital device such as a mobile phone or computer. Digital credits are loans offered by microfinance institutions that are applied for, disbursed and managed through digital channels, in which lenders use digitalized data to inform credit decisions and build intelligence customer engagement.

Digital saving is a banking product that gives customers of microfinance institutions the possibility to deposit money into their accounts using a digital platform. The customers do not need to go to the institution for their transactions as such transactions can be done using mobile phones and other digital devices. Digital insurance involves the use of technology first engagement model to sell and manage insurance products. It involves online tools and platforms that use technology to provide efficient and personalized micro insurance services to their customers. Digital products are aimed at enhancing performance.

The performance of microfinance institutions is viewed as a measure of how well the institution can use its assets to generate revenue (financial performance) and the effective translation of the mission of the institution into practice in line with acceptable social norms defined by the institution (social performance) of the institution. These institutions are those that are focused on providing financial services to low - income earners, especially those excluded by the regulated commercial banks. The conceptual framework of this study can therefore be presented below.



**Figure 1** Conceptual Framework

### **2.3. Review of Previous Studies on Digital Products and Performance of Microfinance Institutions**

Previous empirical literature on the influence of digital products on the performance of microfinance institutions can be summarized on the Table 1 below.

**Table 1** Summary Literature on Digital Products and Performance of Microfinance Institutions

Author	Year	Objective	Variables	Estimation Technique	Results
Tenyiyim E.	2024	To investigate the effect of product, process and institutional innovation on the performance of microfinance institutions in Buea Sub Division, South West Region, Cameroon.	New products, differentiated products, technological newness in products as product innovation variables and profitability, return on investment, return on assets and return on equity as performance variables	Fixed effect regression.	Product innovation, process innovation and institutional innovation contributed in increasing the performance of microfinance institutions in Buea.
Asimiyu et al.	2024	To investigate the effect of electronic payment channels on the performance of microfinance institutions in the South West Region of Nigeria.	Automated teller machines, point of sale terminals and mobile banking as product innovation variables and return on asset and return on equity as performance variables.	Fixed effect regression.	Automated teller machines and point of sale terminals had positive and significant effect on performance. Mobile banking had a positive but insignificant effect on performance.
Mbegu et al.	2023	To assess the influence of innovation on the financial performance of SACCOs in Tanzania.	New products and improvement in products as product innovation variables and return on assets, return on equity and profit margin as performance variables.	Structural equation modelling.	Innovation and performance have a marginally positive relationship.
Nadupoi et al.,	2023	To assess the effects of product innovation on the growth of microfinance in Narok Town.	New product development, customer preferred products and competitive products as product innovation variables and profit as performance variable.	Linear regression.	Product innovations had a significantly positive relationship with growth and performance.
Nwachofi and Kinyua	2022	To assess product innovation as a predictor of organisational performance	Product diversification, quality improvement and technical specification as product innovation variables and market share, profitability, efficiency and customer satisfaction as performance variables.	Regression	Product innovation has a significant positive effect on performance.
Maware, C	2022	To investigate the effect of digitalisation on the financial	Automated Teller Machines (ATMs), Electronic wallets, mobile	Panel Regression	Electronic wallets and mobile banking significantly increase

		performance of microfinance institutions in Kenya.	banking and internet banking as digitalisation variables and return on asset (ROA) as financial performance variable.		financial performance while automated teller machines and internet banking significantly decrease the financial performance of the institutions.
Kalume and Makau	2020	To establish the effect of financial product innovation on the performance of SACCO	Mobile banking, internet banking and agency banking as product innovation variables while	Content analysis	Mobile banking, internet banking and agency banking all contributed in increasing the financial performance of SACCOs
Kimotho and Muturi	2019	To investigate the effect of innovation on the financial performance of microfinance institutions in Kenya.	New deposit accounts, credit cards and debit cards as product innovation variables and revenue increase, cost reduction, ROA, ROE and non - performing loans as performance variables	Multiple regression model	Product innovation and process innovation had a positive effect on performance.

*Source:* Computed by author (2024)

### 3. Material and methods

#### 3.1. Research Design

The survey research design is adopted for this study to assess the influence of digital products on the performance of microfinance institutions in Cameroon. The rationale for choosing this research design is based on the fact that the research design is able to provide the researcher with the opportunity of collecting primary data through the administration of questionnaire. This research design is pertinent for this study because the researcher used primary data which was collected from microfinance institutions in Cameroon through the administration of questionnaire. Specifically, the causal survey research design was used since the researcher intended to determine the nature of relationship between digital products and the performance of microfinance institutions in Cameroon.

#### 3.2. Area of Study

This study covered microfinance institutions operating in Cameroon. Cameroon is a member of the Central Africa Economic and Monetary Community (CEMAC) which comprise of Cameroon, Central African Republic, Chad, Congo, Gabon and Equatorial Guinea. Cameroon is the largest and most diversified economy within CEMAC, consisting of 44% of the total Gross Domestic Product of the region (IMF country survey, 2021). The financial sector of Cameroon is made up of credit institutions including banks and microfinance institutions under the supervision of the Banking Commission for Central African States (COBAC), insurance companies regulated by the Inter African Conference on Insurance (CIMA), and social security institutions under the supervision of the Inter African Social Security Conference (CIPRES). Cameroon's financial system is the largest in CEMAC, with 61% of the financial institutions operating within the zone located in Cameroon. Despite the different types of financial institutions, this study is limited to the microfinance institutions operating in Cameroon.

#### 3.3. Study Population and Sampling Procedure

The population of this study is based on the 2023 statistics of microfinance institutions that are operating in Cameroon. As at the 31<sup>st</sup> of December 2023, there were 411 microfinance institutions operating in Cameroon out of which there were 343 category 1, 66 category 2 and 2 category 3 institutions. The simple random sampling technique was employed to select the institutions involved in the investigation. The number of microfinance institutions included in this study was determined using the Yamane's formula as follows

$$n = \frac{N}{1 + Ne^2}$$

Where

n = Sample size

N = Total Population

e = Error tolerance (0.05)

The number of microfinance institution included in the study were therefore calculated as follows

$$n = \frac{N}{1 + Ne^2}$$

$$n = \frac{411}{[1 + 411(0.05)^2]}$$

$$n = \frac{411}{2.0275}$$

$$n = 203$$

#### 3.4. Data Collection and analysis

This study made use of primary data collected through the administration of questionnaires. Questionnaires were administered to more than the 203 institutions that constitute the sample size. Before the administration of the questionnaires, a pilot test was done involving some randomly selected microfinance institutions in Cameroon with the objective of testing the validity and reliability of the questionnaire as the main instrument of data collection. The data

collected was cleaned and then coded for the purpose of data analysis. Since the questionnaire was based on a standard likert scale of five points, the coding was done such that strongly agree = 5, agree = 4, neutral = 3, disagree = 2 and strongly disagree = 1.

3.4.1. Operationalization of Variables

**Table 2** Operationalization of Research Variables

Variable	Meaning	Description	Measurement
<b>Dependent Variable</b>			
PM	Performance of Microfinance	A measure of how much an institution is able to create profits or revenue and meet its social goals.	Financial Performance Social Performance
<b>Independent Variables</b>			
DP	Digital Payments	The act of making payments through the digital transfer of money from one bank account to another	Number of digital payments, value of digital payments, amount invested in digital payment technology
DS	Digital Savings	Act of saving money without the physical intervention of a bank staff	Number of digital savings accounts, value of digital savings
DC	Digital Credits	The process of offering loans that are applied for, disbursed and managed through digital channels	Number of digital credits granted, value of digital credits, amount invested in digital credit technology
DI	Digital Insurance	Act of providing insurance products using online platforms	Number of transactions, value of transactions
<b>Control Variables</b>			
AGE	Age of Microfinance Institutions	The number of years that the institution has existed	Below 5 years = 1, 6 - 10 years = 2, 11 - 15 years = 3, 16 - 20 years = 4, Above 20 years = 5
SIZE	Size of Financial Institution	Total asset of the financial institution	Below 50 MF = 1, 51 - 100 MF = 2, 101 - 200 MF = 3, 201 - 400 MF = 4, Above 400 MF = 5

Source: Computed by Author (2024)

3.4.2. Model Specification

To determine the influence of digital products on the performance of microfinance institutions in Cameroon, the following model was used.

$$PM_i = \beta_0 + \beta_1 DP_i + \beta_2 DS_i + \beta_3 DC_i + \beta_4 DI_i + \beta_5 AGE_i + \beta_6 SIZE_i + \mu_i \dots \dots \dots (1)$$

Where

- PM<sub>i</sub> = Performance of Microfinance Institutions at period i
- DP<sub>i</sub> = Digital Payments of Microfinance Institutions at period i
- DS<sub>i</sub> = Digital Savings of Microfinance Institutions at period i
- DC<sub>i</sub> = Digital Credits of Microfinance Institutions at period i
- DI<sub>i</sub> = Digital Insurance of Microfinance Institutions at period i
- AGE<sub>i</sub> = Age of Microfinance Institutions at period i
- SIZE<sub>i</sub> = SIZE of Microfinance Institutions at period i
- μ<sub>i</sub> = Error term

β<sub>1</sub>, β<sub>2</sub>, β<sub>3</sub>, β<sub>4</sub>, β<sub>5</sub>, and β<sub>6</sub> = Parameters for estimation



### 3.5. Estimation Techniques

In order to establish the influence of digital products on the performance of microfinance institutions in Cameroon, this study adopted the structural equation modelling technique. This is a statistical technique that combines regression and factor analysis. The choice of this technique is based on its ability to model measurement errors and unexplained variances, its ability to simultaneously test variables and is good for analysis with multiple dependent variables. Given that the performance of microfinance institution in Cameroon includes both the financial performance and the social performance of the institutions, and considering that different questions are required to build an index to capture the constructs of digital products, structural equation modelling was best for this study.

The multivariate factor analysis and principal component analysis techniques were used to construct indices for the variables that were used in this study to measure the different constructs of digital financial innovations and performance of microfinance institutions in Cameroon. In the process, factor loadings were extracted to show the strength of the relationships and correlation between the variables and the underlying factors. Higher factor loadings, usually 0.7 or more indicate that the factors strongly influence the variables and the variables are good for factor analysis.

The parameters of the specified models were estimated using the maximum likelihood (ML) technique. The choice of the maximum likelihood as the main estimation technique is based on the fact that it provides a consistent but flexible approach which makes its suitable for a variety of applications, especially in cases where the assumptions of other models are violated. The maximum likelihood will estimate the parameters of the models so those parameters maximize the likelihood that the assumed models produce the data we can observed in the real world. The robustness of the SEM results obtained through the Maximum Likelihood estimation technique were tested based on the Ordinary Least Squares (OLS) estimation techniques. The choice of this estimation technique rests on the premise that the errors in the data set are uncorrelated. The Ordinary Least Square (OLS) was used as the estimation technique because it will produce the best linear unbiased estimates of the parameters of the models.

Considering the necessity for the data set to be used for inferential statistics to meet certain prescribed conditions, diagnostic tests was done on the data to ascertain that the data meet the assumptions of the analysis in order to avoid spurious regression which will lead to unreliable results. The data was tested for sampling adequacy, multivariate normality, multicollinearity and heteroscedasticity before proceeding with the regression analysis. Cronbach alpha, standard error test and the probability test were employed to test the reliability and to validate the results.

## 4. Results

### 4.1. Descriptive Results

**Table 3** Descriptive Statistics for Digital Products and Performance

Variable	Obs	Mean	Std. Dev.	Min	Max
pm	201	1.469	0.312	0	2
dp	201	1.984	0.467	0.081	2.913
ndc	201	0.661	0.195	0	1
ndi	201	0.573	0.204	0	1
ndsp	201	0.75	0.158	0	1
age 6 10	201	0.119	0.325	0	1
age 11 15	201	0.09	0.286	0	1
age 16 20	201	0.169	0.376	0	1
age 20	201	0.502	0.501	0	1
ta 51 100	201	0.025	0.156	0	1
ta 101 200	201	0.075	0.263	0	1
ta 201 400	201	0.129	0.336	0	1
ta a 400	201	0.731	0.444	0	1

*Source:* Computed by Author using STATA Version 14

244 questionnaires were administered during data collection and 201 were returned, given a response rate of 82.38% which was considered adequate following the recommendations of Mugenda and Mugenda (2003) that a response rate of 50% or more is adequate for a study. The descriptive statistics are presented on the table above.

The result in Table 3 above presents the descriptive statistics for digital products and performance of microfinance institutions in Cameroon. The total observations in the sample were 201. The result indicates that performance of microfinance has a mean of 1.469 and a standard deviation of 0.312. Also, digital payment has a mean of 1.984 and a standard deviation 0.467. The value of the variable performance of microfinance and digital product was obtained using a summated score of normalized formative constructs. All the formative constructs digital credit (DC), digital insurance (DI), digital savings and payment (DSP), social and financial performance were normalized between 0 and 1 to get rid of negative values, which poses some interpretations difficulties. All the control variables in the model were normalized between 0 and 1. The objective of the normalization was to ease interpretation challenges usually pose by negativity of the variables.

**4.2. Inferential Results**

*4.2.1. KMO and Bartlett's Test*

The Kaiser – Meyer – Olkin (KMO) test of sampling adequacy and the Bartlett's test of sphericity were computed to determine whether the data for digital products and performance were suitable for structural equation modelling. The results are presented on Table 4 below.

**Table 4** KMO and Bartlett's Test for Digital Products and Performance

<b>Kaiser-Meyer-Olkin Measure of Sampling Adequacy.</b>		<b>0.861</b>
Bartlett's Test of Sphericity	Approx. Chi-Square	2991.617
	df	171
	Sig.	0.000

*Source:* Computed by Author using SPSS Version 20

The results show the KMO and Bartlett's test were significant since the KMO value of 0.861 is more than the minimum cut off point of 0.5 and the p – value of the Bartlett's test (0.000) is less than 0.5. The results indicate that the sample is adequate for factor analysis.

*4.2.2. Scree Plot*

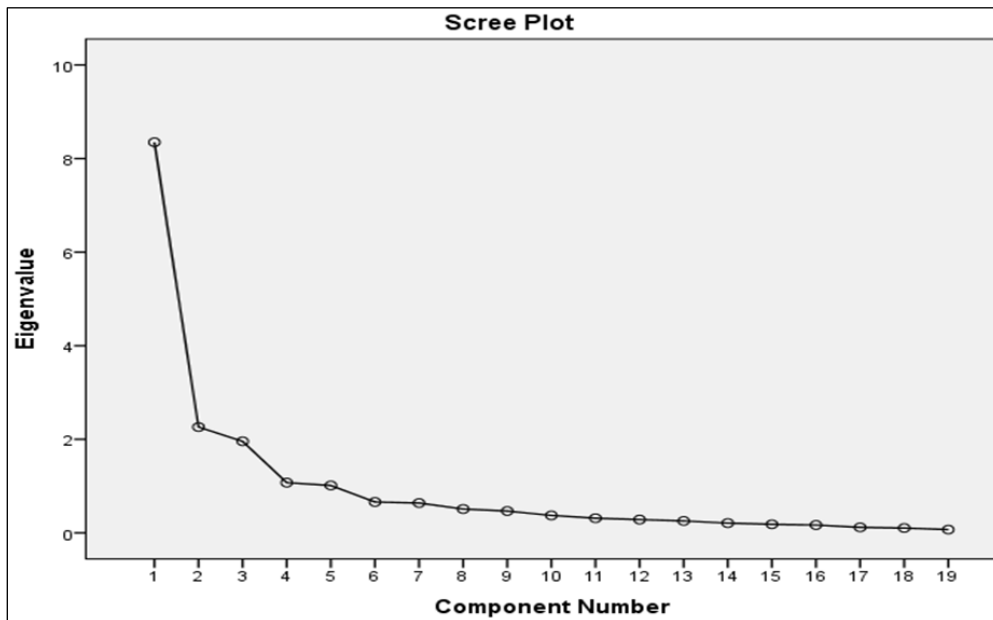


Figure 2 Scree Plot

Scree plot test shown in Figure 2 indicates that five factors were appropriate when considering the changes in eigenvalues. The 19 question items for digital products and performance of microfinance institutions were loaded under five components.

4.2.3. Structural Mimic Model

The relationship between the constructs of digital products and performance of microfinance institutions in Cameroon can be presented on Figure 3 below.

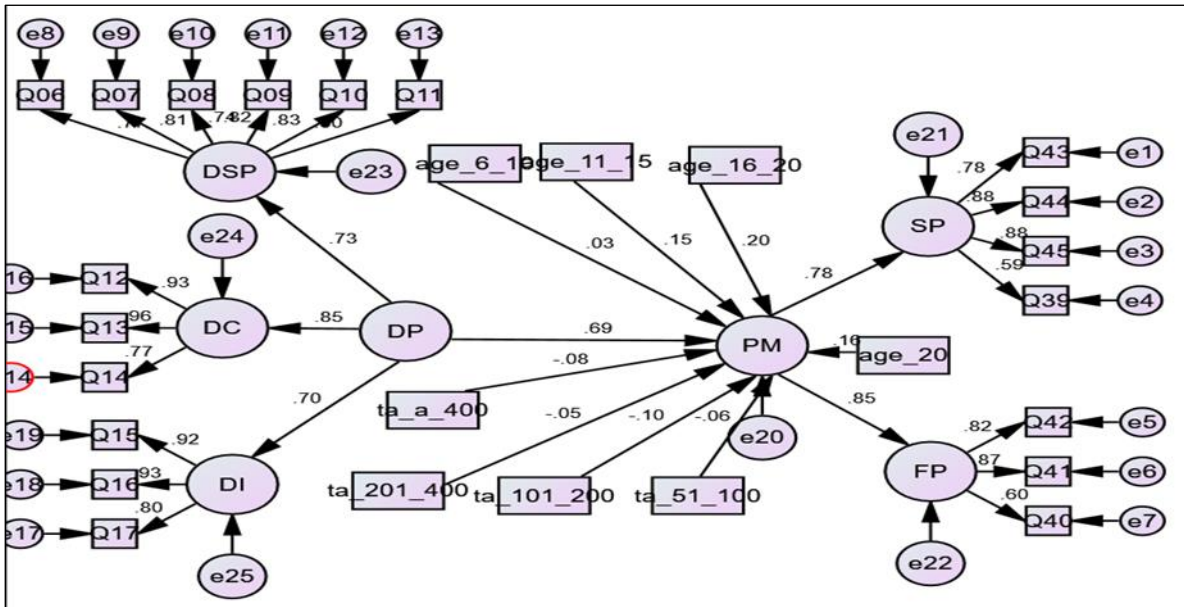


Figure 3 Structural Mimic Model of Digital Products and Performance

The result presented in Figure 3 shows the relationship between the inner models constructs as well as the relationships between the observed variables, or indicators and constructs. The circle represents the construct while the rectangle represents the observed or manifest variables used in the construction of the model. The model indicated that digital product (DP) is an exogenous latent construct while performance of microfinance (PM) is an endogenous latent construct. The exogenous construct digital product was captured using three formative constructs digital credit (DC), digital insurance (DI) and digital savings and payment (DSP). On the other hand, the endogenous construct performance of microfinance (PM) was captured using two formative constructs social performance (SP) and financial performance (FP).

The used of construct can be justified on the basis of the fact that digital products and performance of microfinance institutions are multifaceted. This suggests that the use of a single observed variable on the questionnaire may not be appropriate to proxy for these concepts. The question items used as manifest of the constructs are valid and reliable as indicated in the result.

4.3. Pairwise Correlation of Digital Products and Performance of MFIs

The data was further subjected to correlation analysis in order to tract the level of association between the variables. Specifically, the pairwise correlation was used. This was done on the premise that positive values indicate positive correlation while negative values indicate negative correlation. Values closer to 1 indicate strong correlation while values closer to 0 indicate weak correlation. A value of 0 indicates that there is no correlation between the variables while a value of 1 indicates that there is perfect correlation between the variables.

**Table 5** Pairwise correlations for Digital Products and Performance

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) pm	1.000												
(2) dp	0.543*	1.000											
	(0.000)												
(3) ndc	0.515*	0.885*	1.000										
	(0.000)	(0.000)											
(4) ndi	0.354*	0.838*	0.607*	1.000									
	(0.000)	(0.000)	(0.000)										
(5) ndsp	0.511*	0.779*	0.596*	0.438*	1.000								
	(0.000)	(0.000)	(0.000)	(0.000)									
(6) age_6_10	-0.075	-0.015	0.028	-0.032	-0.038	1.000							
	(0.289)	(0.831)	(0.688)	(0.647)	(0.593)								
(7) age_11_15	0.140*	0.170*	0.112	0.165*	0.152*	-0.115	1.000						
	(0.048)	(0.016)	(0.113)	(0.020)	(0.031)	(0.103)							
(8) age_16_20	0.022	-0.126	-0.113	-0.086	-0.122	-0.166*	-0.142*	1.000					
	(0.752)	(0.074)	(0.109)	(0.222)	(0.085)	(0.018)	(0.045)						
(9) age_20	0.020	0.016	0.019	0.028	-0.012	-0.370*	-0.315*	-0.453*	1.000				
	(0.774)	(0.822)	(0.793)	(0.689)	(0.862)	(0.000)	(0.000)	(0.000)					
(10) ta_51_100	-0.035	0.015	-0.065	0.021	0.097	0.040	-0.050	-0.072	-0.097	1.000			
	(0.626)	(0.834)	(0.361)	(0.766)	(0.172)	(0.576)	(0.480)	(0.309)	(0.172)				
(11) ta_101_200	-0.118	-0.122	-0.025	-0.164*	-0.120	0.071	-0.089	-0.027	-0.096	-0.045	1.000		
	(0.096)	(0.084)	(0.728)	(0.020)	(0.090)	(0.319)	(0.209)	(0.702)	(0.175)	(0.523)			
(12) ta_201_400	0.044	0.002	-0.010	0.073	-0.077	-0.142*	0.035	0.301*	-0.209*	-0.062	-0.109	1.000	
	(0.531)	(0.980)	(0.892)	(0.301)	(0.276)	(0.044)	(0.623)	(0.000)	(0.003)	(0.385)	(0.122)		
(13) ta_a_400	0.080	0.119	0.105	0.084	0.112	0.015	0.072	-0.176*	0.317*	-0.264*	-0.469*	-0.636*	1.000
	(0.261)	(0.093)	(0.137)	(0.233)	(0.113)	(0.827)	(0.309)	(0.013)	(0.000)	(0.000)	(0.000)	(0.000)	

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Source: Computed by Author using STATA Version 14

Table 5 reveals a significant positive relationship between the constructs of digital product. There was no reason to suspect the model for the problem of multicollinearity as all the correlation coefficients were well below 0.6 which is considered as moderate.

**4.4. Regression Results**

The regression results for digital products and performance of microfinance institutions in Cameroon are presented on Table 6 below.

**Table 6** Regression Results of Digital Products and Performance

	<b>ML</b>	<b>(OLS)</b>	<b>(OLS)</b>
<b>VARIABLES</b>	<b>pm</b>	<b>pm</b>	<b>pm</b>
ndc	--	0.522***	--
		(0.137)	
ndi	--	-0.00508	--
		(0.117)	
ndsp	--	0.642***	--
		(0.168)	
age_6_10	0.057	0.0482	0.0300
	(0.108)	(0.0756)	(0.0784)
age_11_15	0.288**	0.153*	0.130*
	(0.124)	(0.0797)	(0.0778)
age_16_20	0.289**	0.159**	0.142*
	(0.096)	(0.0741)	(0.0754)
age_20	0.170	0.112*	0.0895
	(0.071)	(0.0612)	(0.0643)
ta_51_100	-0.199	-0.0520	-0.0620
	(0.226)	(0.118)	(0.127)
ta_101_200	-0.195	-0.0786	-0.0659
	(0.134)	(0.118)	(0.129)
ta_201_400	-0.077	0.00956	-0.0210
	(0.105)	(0.112)	(0.120)
ta_a_400	-0.099	-0.0397	-0.0409
	(0.079)	(0.0990)	(0.110)
dp	0.967***	--	0.363***
	(0.156)		(0.0557)
Constant		0.577***	0.703***
		(0.153)	(0.148)
Observations	201	201	201
R-squared	0.362	0.362	0.318

Robust standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1; **Source:** Computed by Author using AMOS version 23 and STATA Version

The results revealed that digital product has a significant positive influence on the performance of microfinance institutions in Cameroon using maximum likelihood estimation technique of structural equation model and the ordinary least square estimation technique. The result in column two also shows that digital credit and digital payment and savings have a significant positive influence on the performance of microfinance institutions in Cameroon. Digital insurance was found not significant but instead has a negative influence on the performance of microfinance institutions in Cameroon. The control variable age has a positive influence on the performance of microfinance institutions in Cameroon. However, the significant age was between 11 to 15 years and 16 to 20 years.

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## 5. Discussion of Results

The results show that digital credit has a significant positive influence on the performance of microfinance institutions in Cameroon. Based on this result, a 1 unit increase in digital credits of microfinance institutions in Cameroon will increase the performance of institutions by 0.522 unit. This is because innovation will cause the microfinance institutions in Cameroon to grant more loans using their digital platforms, giving customers the opportunity to apply for loans from the comfort of their homes. This result is consistent with the findings of Mbegu et al. (2023) who asserted that innovation positively influences the performance of financial institutions operating in Kenya as well as the findings of Asimiyu et al. (2024) who empirically confirmed that digital credits positively affect the financial performance of microfinance institutions in Kenya.

Moreover, the findings reveal that digital payment and savings positively influence the performance of microfinance institutions in Cameroon. Going by this result, a 1 unit increase in the digital payment and credit of microfinance institutions will improve the performance of the microfinance institutions by 0.642 units. This positive and significant influence is caused by the fact that innovation will increase the payments and savings of the institutions which will contribute in enhancing their performance. This result is in agreement with the findings of Sakanko and David (2019) who investigated the effect of electronic payment on financial performance of Microfinance institutions in Niger and noted that electronic payments significantly influence performance.

Concerning the influence of digital insurance on the performance of microfinance institutions in Cameroon, the findings reveal that digital insurance has a negative and insignificant influence on the performance of the institutions. Based on the findings, a 1 unit increase in digital insurance will decrease the performance of microfinance institutions in Cameroon by 0.00508 unit. Microfinance institutions should therefore not invest valuable financial resources on the digital insurance technology as it does not contribute in enhancing the performance of the institutions.

The regression results of digital products and performance of microfinance institutions in Cameroon reveal that digital products have a significant and positive influence on the performance of microfinance institutions in Cameroon. This means that increasing the digital products of the institutions will improve the performance of the institutions. The positive significant influence of digital products on the performance of microfinance institutions in Cameroon permitted us to answer the first research question of the study which is what is the influence of digital products on the performance of microfinance institutions in Cameroon? The influence was found to be positive and significant. This result also to accept the first alternate objective of this study which state that digital products significantly influence the performance of microfinance institutions in Cameroon.

The implication of the significant positive influence of digital products on performance of microfinance institutions in Cameroon is that an increase in the digital products of the institutions 1 unit will improve the performance of the institutions by 0.967 unit. It is therefore necessary for microfinance institutions in Cameroon to take necessary measure to improve on their digital products in order to enhance their performance. Knowing that digital payments, digital savings and digital credits significantly influence performance, microfinance institutions in Cameroon should invest in these digital products. This significant positive influence of digital products on performance is in agreement with the findings of Olawale et al., (2023), Singh et al., (2023), Ntirenganya et al., (2022), Nwachofi and Kinyua (2022), and Nadupoi et al., (2022) who all attested that digital products enhance the performance of microfinance institutions.

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## 6. Conclusion

This study was carried out to investigate the influence of digital products on the performance of microfinance institutions in Cameroon. The regression results of digital products and performance of microfinance institutions reveal that digital products significantly influence the performance of microfinance institutions in Cameroon. Digital payments, digital credits and digital savings have positive and significant influence on the performance of microfinance institutions in Cameroon while digital insurance has negative and insignificant influence on the performance of microfinance

institutions in Cameroon. Given that three constructs of digital products (digital payments, digital credits and digital savings) were found to significantly influence the performance of the institutions, the study concludes that digital products significantly influence the performance of microfinance institutions in Cameroon.

### *Recommendations*

In view of the findings of this study, the following recommendations are made. Firstly, from the significant positive influence of digital products on the performance of microfinance institutions in Cameroon, the study recommends that microfinance institutions operating in Cameroon should focus on continuously innovating their existing products and coming up with new and improved products in an attempt to enhance their performance given that digital products will positively influence their performance. Knowing that digital products have a negative influence on performance, microfinance institutions in Cameroon should not invest financial resources in digital insurance technology. These institutions should make adequate investment in digital payments, digital savings and digital credit technology as such investment will contribute positively in enhancing the performance of the microfinance institutions.

### *Suggestions for Further Studies*

This study does not incorporate all the constructs of digital products in its empirical analysis. The study is limited to digital payments, digital savings, digital credits and digital insurance. To researchers who will be investigating the influence of digital products on the performance of microfinance institutions, this study suggests that more variables of digital products should be included in analysis. The study also suggests incorporating more control variables such as the legal status of the institutions in further empirical analysis.

Furthermore, the study used survey research design and primary data collected through the administration of questionnaires in its empirical analysis. A different research design could be used which will permit researchers interest in this field to collect and use secondary data. Moreso, the study used structural equations modelling technique to establish the relationship between digital financial innovations and the performance of microfinance institutions in Cameroon. The study suggest that a different analytical technique should be used in empirical analysis.

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## **Compliance with ethical standards**

### *Disclosure of conflict of interest*

No conflict of interest to be disclosed.

### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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