DIGITALIZATION AND FINANCIAL PERFORMANCE OF SMES IN NIGERIA: LESSONS FROM A PILOT SURVEY

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Abstract

This paper reflects on the key lessons learned from a pilot survey carried out to investigate how the financial performance of SMEs is affected as a result of the digitalization of SMEs in Nigeria. It reflects critically upon the entire process from the initial planning through survey preparation, administration of the data collection, and analysis of the collected data. Using a stratified sampling technique, 48 SMEs participated in the pilot survey in March 2025, which yielded 96 responses, i.e., two responses per SME. Data collection was made easier by a designed questionnaire that covered the demographic information of the respondents, firm-level characteristics, and the established scales to operationalize both the digitalization and financial performance of SMEs. The study positively reflects upon using Open Data Kits (ODK), a tool designed by the researchers to obtain real-time data that ensured dependability and validation. This pilot study offers relevant information for improving the primary survey design through iteration, data-gathering techniques, and methodological decisions. This study adds to the debate on how digitalization affects the financial performance of SMEs, Nigeria's economic transformation, and SME growth.

Key words: digitalization, financial Performance, SMEs, pilot survey

JEL Codes: C81, C38, B41

Introduction

The impact of digital technologies on enterprises around the world remains a critical topic of discussion among researchers and practitioners. A defining feature of the modern socioeconomic environment is the continuous global shift toward digital transformation, which is characterized by the quick adoption of digital technology across various industries (Gyau, Li, & Appiah, 2025). Besides, this transformation in businesses and economies has been sped up even more with the disruption brought about by COVID-19 (Dvouletý et al., 2021). With no intention of going back to less digitalized practices, firms and economies have been forced to

embrace digitalization at an unprecedented rate (Audretsch & Belitski, 2024; Ali & Ebaidalla, 2023).

However, one of the biggest issues facing businesses today is incorporating digital technology into their operations. Bouncken & Schmitt (2022) and Dörr et al. (2023) argue that the consequences of businesses and economies going digital include increased uncertainty, the need for strategy adjustments, and technologically driven value creation. This paper discusses the outcome of the pilot study and also argues the need for businesses to harness their IT strategy with their business strategy, for top managers to make deliberate efforts to drive the gains of integrating digital technology into the operations of their businesses and how it impacts the Financial performance of SMEs. Thus, it is critical that we first confirm what we are measuring and how accurate our measurements are for the context of the studied country, Nigeria.

1 Pilot survey research design

In the initial phase of the research, the principal author benefited from the World Bank Group's Institute for Economic Development's experience on quantitative survey design. To guarantee the significance of gathering high-quality data, ethical considerations for Data Protection and Privacy in line with the General Data Protection Regulation (GDPR), and inclusion and exclusion criteria for the SMEs, the field data collection began with a successful three-day training (March 12–15, 2025) with the team of five (5) enumerators, one (1) field coordinator and the principle investigator (PI) physically present. This was thoroughly carried out because the quality of quantitative data is as good as the quality of the research itself. The enumerators were eventually deployed to Benue State, Nigeria's different local government areas: Markurdi, Gboko, and Otukpo. Using a well-structured questionnaire, the data were collected from 96 respondents selected from 48 SMEs. The pilot data was collected March 17–20, 2025. Originally, the survey was supposed to be conducted in Zones A, B, and C of the State; however, security concerns within the region necessitated a slight change. As security-conscious researchers, it was a top priority, and eventually, zone A was excluded from the survey after discussion within the research team.

Later, the PI and his supervisor carefully discussed the challenges and successes of the pilot survey and the need for possible review. Consequently, the research team agreed to move forward with the existing version of the questionnaire, as no conflicts of interest were identified, since Makurdi, Gboko, and Otukpo are considered the three main commercial hubs within the State, thus fitting the context for the investigation. Nonetheless, some minor challenges were

noted, particularly the reluctance of top management in some SMEs to disclose financial information and registration details due to concerns that these could be used for taxation purposes, potentially affecting their business revenues. However, they were clearly reinstated that the survey was conducted strictly for academic purposes.

Furthermore, one unique experience in this pilot study was the use of Open Data Kits (ODK) for data collection. According to Sagwa et al. (2024), the ODK is a useful and efficient tool for quantitative data collection, monitoring, and assessment. To confirm the statement above, there was no problem with eliminating any response collected because the ODK tool ensured that all data collected were complete and valid. The data was collected in real-time, showing the GPS location of the SMEs, and other relevant features. A stratified sampling technique was employed during the pilot data collection to find SMEs and then purposive sampling was used to identify two respondents per SME from the following occupations in SME: owners, top managers, executives, IT managers, finance officers, and technology officers who are responsible for setting strategic directions for the SMEs.

2 The questionnaire structure, main items and constructs

The questionnaire was created with the help of existing scales and constructs, and it was revised and improved in interaction with research team members and several other scholars to mitigate errors, typos, and ensure a clear understanding for the respondents. In addition, 21 individuals from the local context contributed to the survey revision and calibration. Prior to the data collection process in the ODK app, an introductory letter was created to support the data collection activities in Benue State. In this section, the main items and constructs are introduced.

2.1 Dependent Variable (Financial Performance): The financial performance was adopted from Eggers et al. (2017) and Eller et al.(2020). This was a subjective measure; however, a subjective measure of financial performance is tolerable in research (Lumpkin and Dess, 2001). Additionally, we obtained objective financial data from the SMEs by asking for their financial performance figures in the last fiscal year, such as profit/loss, and revenue from digitalization, among others.

2.2 Independent and Moderation Variable(s): Firm age, firm size, and industry classification were employed as control variables. Digitalization was employed as a moderating variable, adopted from different sources, like Eller et al. (2020). Additional digitalization-related

variables were adopted and modified from several studies among which include: *top management support (TMS)* Zhou & Zheng, (2023); *Digital Literacy and Skills (DLS)* Eller et al. (2020); *Digital Business Strategy (DBS)*; Eller et al.(2020); *Competitive Pressure (CP)* Ghobakhloo & Ching. (2019); Measurements on *perceived benefits(PB);* Ghobakhloo, et al. (2011); measurements on *barriers to digitalization(BD)* Al Omari, et al., (2023); measurement on *perceived organizational resources(POR)* Kurnia et al. (2015).

3 Pilot survey results

In Table 1, we provide insights into individual and firm-level Characteristics of the pilot survey respondents. We see a higher proportion of male respondents (61.46%) than females (38.54%). Furthermore, the age distribution reveals that most respondents fall between the age brackets of 20 and 30 (41.66%). 37.50% are between 31 and 40 years old. Data also show that over half (55.21%) of the respondents have a bachelor's degree or its equivalent, 23.96 % completed a short-cycle tertiary education, with only a smaller fraction having obtained advanced qualifications. 4.17% have a doctorate and master's degree, respectively. This implies a higher level of education among the respondents, which points towards a solid basis for employing digital strategies in the SME's operations. Moving forward, most respondents were the CEOs in the SMEs (28.13%) and the finance/accounting managers (33.33%). In addition, 4.17% represent the operations managers, 5.21% are the IT managers, and 14.58% are the general managers.

From the firm-level perspective, the pilot data reveal almost an even firm-level customer base, between B2C models (47.92%) and those that serve both B2C and B2B customers (47.92%), with only a small percentage of SMEs (4.16%) that operate only in the B2B segment. Looking at the firm size, the result shows that small businesses (10-49 employees) make up about 31.25% of the sample, while medium-sized businesses (50-249 employees) make up the majority of the surveyed SMEs (68.75%). From the literature review, it can be said that Medium-Sized enterprises are better positioned to invest and gain profit from digital technology because they often have greater financial resources. Furthermore, most SMEs are relatively young, with 58.33% established in less than 10 years. Younger firms tend to be more flexible, innovative, and open to change, like quickly adopting technologies. The geographical distribution across the three major cities in Benue State, Nigeria: Gboko (41.67%), Makurdi (37.50%) and Otukpo (20.83%). The spread shows a regional spread and captures different infrastructural and digital connectivity levels.

Tab. 1: Sample characteristics

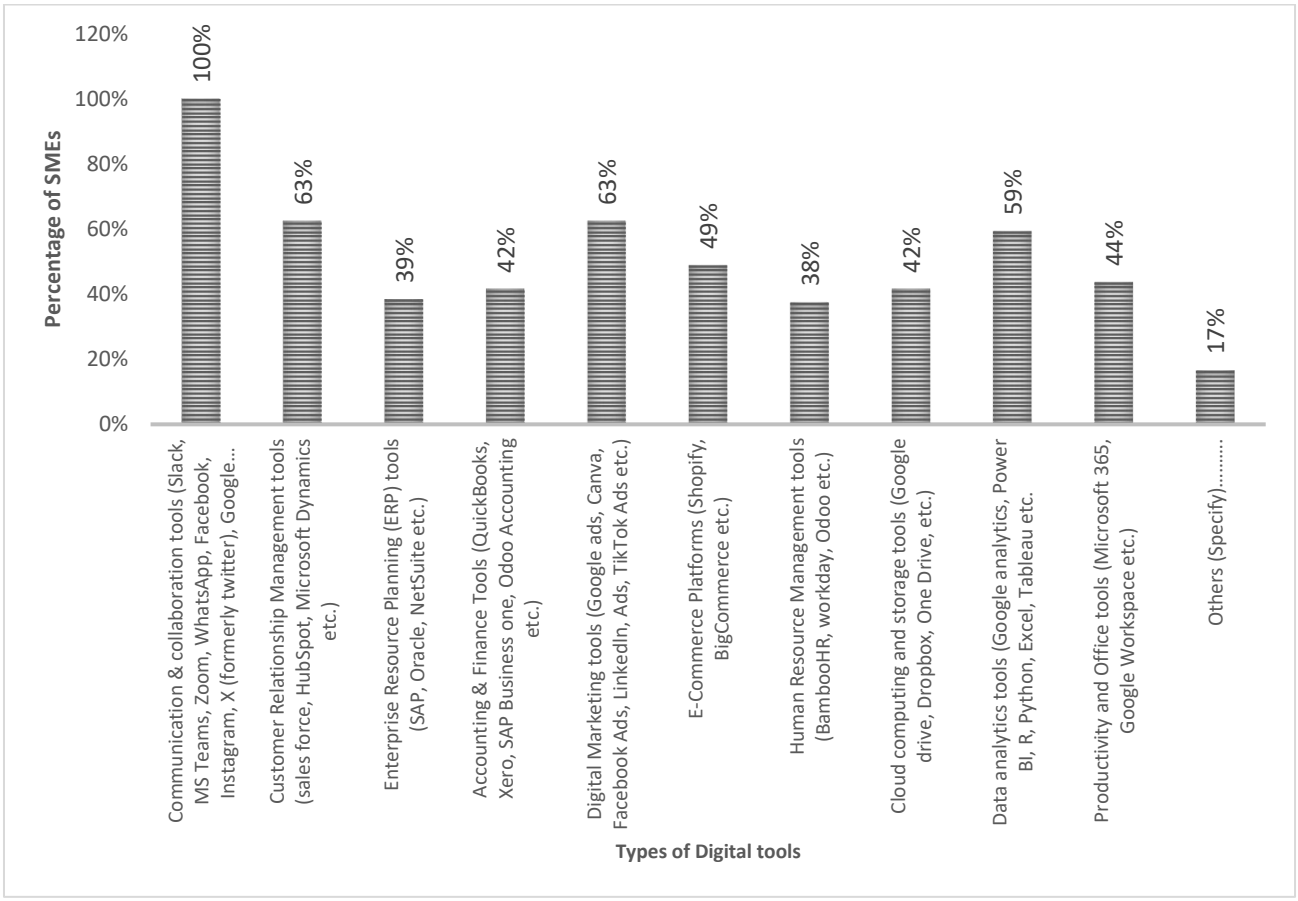
Individual-level characteristics		
Variables	**Frequency**	**Percentage (%)**
Gender Male	59	61.46
Gender Female	37	38.54
Age <20	2	2.08
Age 20-30	40	41.66
Age 31-40	36	37.50
Age 41-50	9	9.38
Age >50	9	9.38
Educational Qualification		
Upper Secondary Education	11	11.46
Post-secondary non-Tertiary Education	4	4.17
Short-cycle tertiary education	23	23.96
Bachelor's degree or equivalent tertiary education level	53	55.21
Master's degree or equivalent tertiary education level	4	4.17
Doctoral degree or equivalent tertiary education level	1	1.03
Industry classification		
Agriculture, Forestry, Fisheries and Veterinary	2	2.08
Arts and Humanities	8	8.33
Business, Administration, and Law	21	21.88
Education	14	14.58
Engineering, Manufacturing, and Construction	1	1.04
Health and Welfare	17	17.71
Information and Communication Technologies	11	11.46
Natural Sciences, Mathematics, and Statistics	6	6.25
Services	6	6.25
Social Sciences, Journalism and Information	10	10.42
Current Job Position CEO	27	28.13
Current Job Position Finance/Accounting Manager	32	33.33
Current Job Position General Manager	14	14.58
Current Job Position Human Resource Manager	4	4.17
Current Job Position IT Manager	5	5.21
Current Job Position Operations Manager	4	4.17
Current Job Position Owner(s)	8	8.33
Current Job Position Procurement & Supply Chain	2	2.08
Firm-level characteristics		
Variables	**Frequency**	**Percentage (%)**
Primary Customers Individual Customers (B2C)	23	47.92
Primary Customers Other Businesses (B2B)	2	4.16
Primary Customers Both B2C and B2B	23	47.92
Primary Customers B2G	0.0	0.0
Firm Size Small (10-49)	15	31.25
Firm Size Medium (50-249)	33	68.75
Firm Age 0-10	28	58.33
Firm Age 11-20	9	18.75
Firm Age 21-30	8	16.67
Firm Age 31-40	3	6.25
Firm Age >40	0.0	0.0
Location Makurdi	18	37.50
Location Gboko	20	41.67
Location Otukpo	10	20.83

Source: Own work, pilot survey data processing

We also see that surveyed SMEs operate across diverse industries from the firm-level characteristics. This diversity is important because it reveals how digitalization plays out differently which is dependent on the sector-specific dynamic activities such as the intensity of technology, how the SMEs deliver value, and many other factors.

Figure 1 further shows how SMEs employ different types of digital tools in their business operations. The figure shows a clear understanding and trend that the majority of the SMEs have high adoption and usage of communication (e.g., WhatsApp, email, Zoom), marketing and customer engagement (social media, websites), and financial transactions like (mobile banking, with moderate use of tools for record and according purpose (e.g., QuickBooks) while a lower fraction employs more advanced tools like ERP systems and cloud-based solution.

Fig. 1: How SMEs Employ Different Types of Digital Tools



Source: Own work, pilot survey data processing

4 Reliability of the measurements

This study reports both descriptive statistics, i.e., mean and standard deviation, and reliability statistics, i.e., Cronbach's alpha and factor loadings for each construct to determine the appropriateness and internal consistency in our study. As seen from Table 2, the mean values for most constructs measured were comparatively high and ranged between 4.0 and 4.4. This implies that most respondents agreed with the items measured, and it indicates that Nigerian SMEs have a positive perception about digitalization and the use of digital tools in their operations. More specifically, the categories under Digitalization, Perceived Benefits, Digital Business Strategy, and Financial Performance had the highest mean values while Barriers to Digitalization revealed significantly lower mean values that range from 2.67 to 3.30, this indicates that while barriers to the digitalization of SMEs do exist, most respondents might not view them as significant obstacles to hinder their financial performance. Going forward, there is a reasonable degree of agreement among the respondents as revealed by the standard deviation values for the majority of the items, with the range from 0.5 to 0.8. However, there are just a few showing a higher standard deviation.

Furthermore, this result reveals that all constructs employed in the study demonstrated good internal consistency in the reliability analysis, above the suggested Cronbach's alpha threshold of 0.70. For example, with the factor loadings that range from 0.830 to 0.947 and a Cronbach alpha value of ($\alpha = 0.958$), the Digitalization construct measured has demonstrated exceptional reliability and a robust correlation between the items. Looking at the Cronbach Alpha, if the item is deleted, it is used here to support the study, as it helps to assess the internal consistency (reliability) of the scale. Table 2 below shows how much a single item contributes to the scale reliability of the overall α value. Based on the discussion above, it is safe to say that this analysis confirms that the measurement items are statistically significant, and internally consistent and show strong validity for further inferential analysis such as Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM).

Tab. 2: Constructs measurement (items statistics, reliability, and factor loading)

Construct	Items	Mean	Standard deviation	Cronbach's Alpha if Item Deleted	Factor Loading	Cronbach's Alpha (α)
Digitalization	DIG1	4.375	.6957	.950	.830	.958
	DIG2	4.250	.6919	.945	.947	
	DIG3	4.115	.6937	.955	.844	
	DIG4	4.198	.7274	.952	.850	
	DIG5	4.188	.7482	.946	.900	
	DIG6	4.104	.8053	950	.893	
Top Management Support	TMS1	4.104	.6185	.831	.719	.877
	TMS2	3.969	.6637	.848	.666	
	TMS3	4.188	.6574	.821	.769	
	TMS4	4.156	.7007	.868	.770	
Digital Literacy and Skills	DLS1	4.115	.7238	.846	.777	.873
	DLS2	3.875	.6316	.857	.860	
	DLS3	3.833	.6631	.835	.832	
	DLS4	3.802	.6899	.840	.842	
	DLS5	4.063	.6242	.852	.685	
Digital Business Strategy	DBS1	4.135	.7631	.920	.808	.922
	DBS2	4.125	.6145	.912	.693	
	DBS3	4.240	.5358	.913	.734	
	DBS4	4.115	.6378	.907	.707	
	DBS5	4.188	.6574	.894	.839	
	DBS6	4.115	.6035	.901	.795	
Competitive Pressure	CP1	3.865	.9825	.929	.661	.871
	CP2	4.135	.7201	.817	.839	
	CP3	4.208	.6260	.796	.871	
	CP4	4.188	.5891	.811	.880	
Perceived Benefits	PB1	4.406	.5984	.937	.785	.947
	PB2	4.302	.6420	.938	.881	
	PB3	4.313	.5708	.942	.839	
	PB4	4.240	.6101	.927	.863	
	PB5	4.302	.5334	.938	.739	
	PB6	4.281	.6094	.935	.816	
Barriers to Digitalization	BD1	2.844	.9739	.922	.812	.930
	BD2	3.302	.7126	.936	.709	
	BD3	2.948	.9578	.896	.883	
	BD4	3.135	.8736	.903	.864	
	BD5	2.667	1.0785	.905	.871	
Perceived Organizational Resources	POR1	3.792	.6510	.819	.735	.849
	POR2	3.604	.6681	.823	.674	
	POR3	3.875	.7033	.795	.821	
	POR4	3.750	.6995	.795	.781	
Financial Performance	FP1	4.323	.7473	.947	.882	.956
	FP2	4.260	.6188	.947	.854	
	FP3	4.292	.6591	.950	.864	
	FP4	4.115	.7164	.944	.809	
	FP5	4.042	.7281	.950	.810	
	FP6	3.990	.6644	946	.856	

Source: Own work, pilot survey data processing

Conclusion

This pilot study reveals the increasing role of digital tools and digitalization in enhancing the financial performance of SMEs in Nigeria. It was evident that most SMEs recognize the benefits of digitalization, however, important sectoral differences remain visible in the adoption of more advanced digital technologies employed by the SMEs, like the wholesale/retail trade, education, healthcare, manufacturing, professional and agricultural sectors.

Despite the potential of this study, it cannot be said to be without limitations. The study is cross-sectional in nature, the data is self-reported, and this may be a basis to introduce response bias and limit causality. However, the main survey is designed to be longitudinal in nature, with phase 1 being carried out in 2025 and phase 2 to be carried out in 2026. Finally, the findings in this study lay the foundation for further inferential discussions and also serve as a document to guide policymakers and support SMEs targeting to intensify their digital capabilities in the Nigerian SME sector.

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