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TECHNOLOGY ADOPTION AND COMPETITIVENESS OF SMALL AND MEDIUM SCALE ENTERPRISES IN OBIO AKPOR LOCAL GOVERNMENT AREA OF RIVERS STATE, NIGERIA

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Abstract

This study examines the impact of technology adoption on competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State. The indicators of technology adoption adopted include: financial technologies (FinTech), e-commerce platforms and social media platforms. The population of this study consisted of 585 registered small and medium scale enterprises (SMEs) in Obio Akpor Local Government Area of Rivers State. The study sample size consisted of managers of 283 small and medium scale enterprises (SMEs) in Obio Akpor Local Government Area of Rivers State. The sample size was determined by Taro Yamane formula. The study made use of simple random sampling technique to selected the respondents (managers). The study made use of primary data and structured questionnaire as the data collection instrument. Frequencies and simple percentages were used to analyse the demographic data of the respondents and the research questions while simple regression technique was used to test the hypotheses at 5% significant level. The findings of the study showed that financial technologies (FinTech), e-commerce platforms, social media platforms and accounting and bookkeeping software contribute positively and significantly to competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State. Based on the findings, the study concluded that technology adoption has contribute positively and significantly to competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State. The study recommended online stores should partner with FinTech service providers to introduce affordable, user-friendly, and secure digital payment solutions tailored to of small and medium scale enterprises.

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Introduction

Small and medium scale enterprise are like the little engines that keep the economy running. They may be small, but they are mightily important. These businesses are the backbone of many economies because they create jobs and help communities grow [1]. Small and medium scale enterprise (SMEs) are renowned for serving as growth and development drivers for nations, consistently increasing a nation's gross domestic product (GDP) and enhancing per capita income and productivity. In addition to this, small and medium

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scale enterprise (SMEs) are responsible for establishing economic balance through the allocation of industrial resources and encouraging resource utilization in general. These factors contribute to making small and medium scale enterprise (SMEs) essential in every nation where they operate. However, despite significant efforts from all stakeholders to enhance their production, small and medium scale enterprise (SMEs) still fall short of the standards expected of them. One of the main reasons for the reduction in their anticipated levels of competitiveness is attributed to a poor attitude toward technological innovation [2]. As the years goes by, the business world is leaning more and more toward technology, making it almost impossible to separate the two from each other. Innovation breeds business, and since technology paves the way for innovation, it can be gathered here that business needs technology to be sustained. Small and medium scale enterprise has always existed since the early times of man. Even though it only began with the simplistic barter system, businesses would not be the same as it is today without the advancements in technology. All the major industries would fall into a catastrophic collapse if one were to take away technology from business, since majority of business operations and transactions somehow involve the use of technology [3]. According to Palvia, technology adaptation is important for helping businesses. Most methods of adaptation involve some form of technology, which in the broadest sense includes not just material and equipment but also diverse forms of knowledge. Technology is the catalyst of growth for small medium scale enterprises (SMEs). Chiefly, information technology (IT) is believed to be the main driver of the economy, ever since the industrial revolution. With the exception of information technology, most technologies either provide minor changes to a broad spectrum of industry, or a significant change but limited to a specific industry. In the context of small medium scale enterprises (SMEs), technology facilitates the expansion of new markets, where companies can compete or act as a supply chain partner in a network that has already been designed by international conglomerates [4].

Furthermore, technology adoption significantly improves operational efficiency for small and medium scale enterprises (SMEs), enabling them to compete more effectively with larger corporations. Automation tools such as Enterprise Resource Planning (ERP) systems integrate various business functions, such as inventory management, accounting, and human resources, into a single platform, reducing redundancies and minimizing errors. Hence, small and medium enterprises (SMEs) using Enterprise Resource Planning (ERP) systems experience a 22% increase in productivity due to streamlined workflows [5]. Additionally, cloud-based solutions like Google Workspace and Microsoft 365 facilitate real-time collaboration among remote teams, eliminating geographical constraints and reducing operational delays. These technological advancements enable small and medium enterprises (SMEs) to achieve higher output with fewer resources, positioning them competitively in fast-paced markets [6]. More importantly, digital tools empower SMEs to expand their market reach and engage customers more effectively. E-commerce platforms like Shopify and WooCommerce allow businesses to sell products globally without the need for physical storefronts, increasing sales by an average of 15-25%. Social media marketing, facilitated by platforms such as Facebook Business Suite and Instagram Shopping, enhances brand visibility and enables targeted advertising to specific demographics. Customer Relationship Management (CRM) software, including HubSpot and Salesforce, helps SMEs track customer interactions and personalize marketing campaigns, leading to a 30% improvement in customer retention rates [7].

However, despite their importance, many of these enterprises struggle with low productivity and weak competitiveness in an increasingly digitalized business environment. While technology adoption has been globally recognized as a key driver of business growth and efficiency, small and medium scale enterprises (SMEs) in Rivers State particularly in Obio Akpor Local Government face unique challenges in leveraging digital tools such as e-commerce platforms, financial technology (FinTech), and business management software. The competitiveness of SMEs in Obio Akpor is further constrained by infrastructural limitations and socioeconomic factors peculiar to the area. While some enterprises have begun adopting basic technologies like social media for marketing and mobile payment systems, many still rely on traditional, manual processes due to poor internet connectivity, high costs of digital tools, and low levels of technological awareness among business owners. Additionally, the predominance of informal business structures and limited access to financing further exacerbates the digital divide, leaving many small and medium scale enterprises (SMEs) vulnerable to competition from larger firms and more technologically advanced enterprises in urban centers like Port Harcourt. This situation underscores the need to examine

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how contextual factors in Obio Akpor Local Government such as local government policies, availability of training programs, and access to reliable electricity, shape the relationship between technology adoption and small and medium scale enterprises (SMEs) competitiveness. Therefore, given the strategic economic position of Obio Akpor Local Government Area as an urban hub in Rivers State, understanding the impact of technology adoption on the competitiveness of small and medium scale enterprises (SMEs) in this locality has significant implications for local economic development. While existing studies have explored technology adoption among Nigerian SMEs at the national level, there is limited empirical research focusing on sub-national variations, particularly in Obio Akpor Local Government Area of Rivers State. It against the identified problem and gap that this study seeks to determine the impact of technology adoption on competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State.

Objectives of the Study

The aim of this study is to determine the impact of technology adoption on competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State, Nigeria. Specifically, the study seeks to:

1. Evaluate the impact of financial technologies (FinTech) on competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State.
2. Determine the impact of e-commerce platforms on competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State.
3. Investigate the impact of social media platforms on competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State.

Research Questions

In a view of accomplishing this research work effectively, the following questions were raised and answered in this study:

1. How does financial technologies (FinTech) impact competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State?
2. What is the impact of e-commerce platforms on competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State?
3. To what extent does social media platforms impact competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State?

Research Hypotheses

As a follow-up to the research objectives, the following null hypotheses were formulated and tested in the course of this study:

H_{01}: There is no significant relationship between financial technologies (FinTech) and competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State.

H_{02}: There is no significant relationship between e-commerce platforms and competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State.

H_{03}: There is no significant relationship between social media platforms and competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State.

Literature Review

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Theoretical Framework

To provide solid theoretical foundations for this study, Technology Acceptance Model (TAM), Innovation Diffusion Theory and Resource-Based View Theory are adopted and reviewed as follows:

a. Technology Acceptance Model (TAM)

This theory was developed by Davis in 1985. Technology Acceptance Model (TAM) theorizes that an individual's behavioral intention to adopt a particular piece of technology is determined by the individual's attitude toward the use of that technology. Attitude, in turn, is induced by two beliefs: perceived usefulness and perceived ease of use. Perceived usefulness is defined as the extent to which persons believe that technology will enhance their productivity or job performance while perceived ease of use is defined as the degree to which an individual believes that using a technology will be simple [8]. In other words, the model suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it. The factors are; perceived usefulness (PU) and perceived ease-of-use (PEOU). According to Technology Acceptance Model, one's actual use of a technology system is influenced directly or indirectly by the user's behavioral intentions, attitude, perceived usefulness of the system, and perceived ease of the system [9]. Acceptance Model research has shown that perceived usefulness is a strong determinant of user acceptance, adoption, and usage behavior. The theory proposes that the customers', bankers' and management's behavioral intention determine the attitude toward adoption of the technology. The model places more emphasis on how perceived ease of use would positively affect perceived usefulness. Exogenous variables such as environment are also the antecedent that induces perceived usefulness and perceived ease of use. Thus, Technology Acceptance Model is based on both important perceptive factors as perceived usefulness and perceived ease of use. The aim of every corporate organization is to maximize profit and minimize cost at the barest minimal and technological adaption helps to achieve this. Davis, Bagozzi and Warshaw also asserted that, the Technological Acceptance Model postulates that computer usage is determined by BI, but differs in that BI is viewed as being jointly determined by the person's attitude toward using the system (A) and perceived usefulness (U), with relative weights estimated by regression [8]:

$$BI = A + U \qquad (1)$$

This model represented in a linear form depicts the Behavioural Intention to use (BI) to People's Attitude towards Using the System (A) and Perceived Usefulness of the technology adopted (U). According to Technological Acceptance Model, when SME owners perceive a technology (e.g., e-commerce platforms, accounting software) as enhancing productivity (PU) and requiring minimal effort to operate (PEOU), they are more likely to integrate it into their operations, leading to improved efficiency, cost reduction, and market expansion [10]. For instance, small and medium scale enterprises (SMEs) adopting cloud-based ERP systems due to their perceived benefits in inventory management and real-time data access gain a competitive edge through faster decision-making and streamlined workflows [11]. However, Technological Acceptance Model also highlights that external variables (e.g., training, cost, and social influence) moderate these perceptions, suggesting that SMEs with adequate support systems are better positioned to leverage technology for competitiveness [12]. Thus, Technological Acceptance Model provides a framework for understanding how small and medium scale enterprises (SMEs)s' technology adoption decisions, driven by perceived value and usability, ultimately translate into enhanced competitiveness through operational optimization, customer engagement, and innovation.

b. Innovation Diffusion Theory

This theory was developed by Rogers in 1983. Diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system. Diffusion is a special type of communication concerned with the spread of messages that are perceived as new ideas [13]. This idea is perceived by individuals as new and something brought into the system to aid ease of how people interact in a given society. With each passing day, the development in technology changes the way

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we see, we think and we relate with one another in the society. These innovations have been able to help make things easier for human like communication, transportation, banking, security etc. The critical factors that determine the adoption of an innovation at the general level are the following: relative advantage, compatibility, complexity, trialability and observability. The four main elements of Diffusion theory as proposed by Rogers in his work are; the innovation, communication channels, time and a social system. Rogers defined innovation as an idea, practice, or object that is perceived as new by an individual or other unit of adoption [13]. It matters little so far as human behaviour is concerned, whether or not an idea is "objectively" new as measured by the lapse of time since its first use or discovery. Newness in an innovation need not just involve new knowledge, someone may have known about an innovation for some time but not yet developed a favourable or unfavourable attitude towards it, nor have adopted or rejected it [13]. Innovation Diffusion Theory (IDT) explains the effect of technology adoption on small and medium scale enterprises (SMEs) competitiveness by analyzing how technological innovations spread through a social system over time and how their adoption influences business performance [14].

According to Innovation Diffusion Theory, small and medium scale enterprises (SMEs) adopt technologies based on five key attributes: relative advantage (perceived superiority over existing tools), compatibility (alignment with current practices), complexity (ease of use), trialability (ability to test before full adoption), and observability (visibility of benefits to others) [14]. Small and medium scale enterprises (SMEs) that recognize technologies like e-commerce or digital payment systems as offering clear competitive advantages (e.g., cost reduction, market expansion) are more likely to adopt them early, gaining first-mover benefits such as increased market share and customer loyalty [15]. However, the rate of adoption varies across small and medium scale enterprises (SMEs) due to differences in risk tolerance, resource availability, and external pressures (e.g., competition, regulatory requirements). Innovation Diffusion Theory also highlights the role of communication channels (e.g., peer networks, industry reports) and social systems (e.g., business associations) in accelerating technology diffusion, enabling late-adopting SMEs to learn from early adopters and mitigate implementation risks. Ultimately, Innovation Diffusion Theory suggests that small and medium scale enterprises (SMEs) that strategically adopt innovations aligning with these attributes enhance their competitiveness through improved efficiency, customer reach, and adaptability to market changes.

Empirical Review

Ahmadu, Shittu, Famoti, Igwe, Akokodaripon, Ewim, Udeh and Abutu examined a theoretical framework for empowering Nigerian SMEs [16]. Grounded in the Technology Acceptance Model (TAM), Diffusion of Innovations (DOI) theory, and the Resource-Based View (RBV), the framework examines factors influencing technology adoption. Key drivers include perceived usefulness, ease of use, cost, and accessibility, while barriers encompass financial constraints and regulatory complexities. The framework highlights government policies, financial incentives, and training programs as critical enablers of technology adoption. Technology adoption enhances SME resilience by improving operational efficiency, reducing costs, and expanding market reach through digital platforms and e-commerce.

Unegbu, Yawas, and Asabe studied the profound influence of digital transformation on Nigerian SMEs. Employing a quantitative research approach, data from a diverse sample of Nigerian SMEs is collected to assess the relationship between digital transformation and SME outcomes [17]. A substantial proportion actively integrates digital tools and technologies into their operations, underscoring their recognition of the strategic value of digitalization. Perceived benefits of digital transformation encompass amplified operational efficiency, extended market access, innovation, elevated customer satisfaction, cost savings, and streamlined internal processes.

Mishrif and Khan assessed the technological transformations and the challenges facing SMEs during the pandemic [18]. Using quantitative and qualitative primary data, the study tested eight hypotheses applying paired t-test and Pearson's correlation. The primary data used were collected through the survey questionnaire and interviews with business owners and company executives covering the period 2020–2021. The results showed strong correlations between technology use before and during COVID-19;

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technology use during COVID-19 and in future; and technology use before COVID-19 and in future. They also revealed that technology adoption has been a successful persistence strategy during the pandemic and that highly digitized SMEs are more likely to adopt industry 4.0 technology.

Shahadat, Nekmahmud, Ebrahimi, and Farkas examined the technological, environmental and organizational factors that influence digital technology adoption in the small and medium enterprises (SMEs) sector in developing countries [19]. A purposive 535 sample was accumulated from higher- and middle-level managers of SMEs firms through a structured questionnaire. Data and hypotheses were analyzed using partial least squares-structural equation modelling. Results showed that relative advantage, complexity, observability, perceived cost, top management support, innovativeness of top management, competitive pressure and government support have significant determinants of ICT adoption in SMEs.

Adetayo, Temilade, and Oludare investigates the impact of technological changes on the performance of small and medium enterprises (SMEs) in Lagos State, Nigeria. Employing an explanatory research design, the study utilized a sample comprising six Local Government Areas (LGAs) within Lagos State, with 30 questionnaires administered to SME owners in each LGA, totaling 180 questionnaire copies. The study employed descriptive and inferential statistics to test hypotheses and analyze the data. The findings reveal significant positive relationships between technological changes and SME performance indicators, highlighting the transformative potential of technology adoption for SMEs in Lagos State.

Omoush, Lassala, and Navarrete examined the relationships between digital business transformation, organizational learning, frugal innovation and Small and Medium Enterprises (SMEs) resilience in emerging markets [20]. Empirical data collection has been implemented using a questionnaire method from 214 owners and managers of SMEs. The partial least squares structural equation modeling (PLS-SEM) approach was used. The results showed that digital business transformation significantly impacts frugal innovation and SMEs' resilience in emerging markets. They also confirm the significant impact of frugal innovation on SMEs' resilience. Furthermore, the results revealed that organizational learning significantly impacts digital business transformation, frugal innovation and SMEs' resilience.

Etim, James, Ekong, and Jemil examined the causality between ICT utilization and the performance of MSMEs in Nigeria [21]. Cross-sectional research design was adopted. Using a structured questionnaire, the study obtained primary data from 337 operators of MSMEs. The data obtained were descriptively analyzed, whereas the hypotheses of the study were tested using regression analysis. The study found that ICT utilization had a significant positive effect on the performance of MSMEs in Nigeria. Specifically, the findings showed that the utilization of ICT tools by operators of MSMEs in Nigeria had the capacity to substantially improve their performance by enhancing market visibility, marketing effectiveness and business survivability.

Arobo examined the value and influence of digital marketing on the competitive participation of small and medium-sized establishments in the business environment [22]. This study applied a qualitative research approach which involved five (5) companies which operate as SMEs. Semi-structured interviews were conducted. Secondary data/information relevant to the study was also gathered through peer-reviewed articles, journals and websites. The study concluded with the view that digital marketing is identified as creative and efficient method of acquiring, growing and maintaining customer relationships.

Zamani studied the influential concepts on technology adoption in Small and Medium Enterprises (SMEs) through conducting a systematic literature review and finding a better understanding of the current body of knowledge [23]. A systematic literature review approach is taken here, which includes the following steps: Determination of key words and strings, selection of databases, setting inclusion and exclusion criteria, conducting the search in chosen databases over a specific period of time. The study indicates how fragmented the literature is and how it concentrates on studying the impact of only a limited number of categories of concepts.

Kusuma, Muafi, Aji and Pamungkas examined the acceptance factors, barriers, benefits, and strategies for resolving Information and Communication Technology (ICT) adoption and usage problems based on the different demographic characteristics of SMEs [24]. A survey using self-administered questionnaires was conducted to retrieve information from SME owners/managers in Pekalongan, the local city of Indonesia.

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The items in the questionnaire were discussed with various experts in the field and a pilot study was conducted prior to the distribution of the research instrument. The study made some interesting findings. No significant differences were found in the SMEs' adoption factors between the demographics of gender groups and educational qualifications. However, significant disparities were found to exist among the age compositions, managerial status, and years in business.

Rosa and Azizah provided an existing literature review on technology adoption in SMEs [25]. This study identified and evaluated peer-reviewed journal publications (systematic review) focusing on technology adoption in SMEs based on research articles published within the 2011-2021 period. The literature review shows valuable progress in the area under discussion. The study prompts insightful avenues academic for future studies of technology adoption in SMEs and practitioners communities to use and encourage others to use technology.

Mohammed and Naveen discussed the impact of digitalisation on Small and Medium enterprises in Nigeria [26]. The study utilised both the primary and secondary source of data collection and made use of the chi square to test its hypothesis. Findings in the study however showed that digitalisation has a great impact on Small and Medium Enterprises of Nigeria as it automates the product and process as a result of which both quality and production increases. Despite having a high potential for future growth, the Small and Medium Enterprises in Nigeria are said to experience some challenges such as lack of digital strategy trainings, lack of usage of digital technology for business purposes and lack of safe cybersecurity intelligence.

Okundaye, Fan and Dwyer carried out a qualitative, multiple-case study to determine how small-to medium-sized enterprise (SME) leaders in Nigeria [27]. Individual interviews were undertaken with participants to gain an understanding of their experience of determining the merits of and implementing ICT. Four major themes emerged from the data analysis: ICT adoption factors, ICT roles and benefits, role of government and SME success factors. The findings of this study may help SME leaders and government leaders address many of the factors inhibiting the adoption of ICT in SMEs in Nigeria.

Akanbi and Akintunde employed the use of a quantitative research approach to analyse the behavior, experience, perspective of Small and Medium Scale Enterprises operators towards electronic commerce adoption in Nigeria [28]. Based on the quantitative approach imbibed in this study, questionnaire was used to collect data. Data collected were analysed using descriptive analysis. The study showed that e-commerce has potentials to improve the performance of SMEs operators if factors limiting the adoption of e-commerce like security issues, under developed infrastructures, poor delivery logistics and poor courier systems, infrastructure facilities, incompatibility of business with e-commerce etc.

Okundaye conducted a multiple case study to explore how SME leaders in Lagos, Nigeria, adopted information and communication technology (ICT) as a business strategy to increase profitability and compete globally [29]. The data collection method included in-person semistructured interviews of participants and review of existing company data. Data were analyzed using inductive data analysis. Four major themes emerged from the data analysis: ICT adoption factors, ICT roles and benefits, role of government, and SME success factors. The findings of this study may help SME leaders and government leaders address many of the factors inhibiting the adoption of ICT in SMEs. The findings of this study may positively affect social change by ensuring that SMEs are successful and able to create jobs, which in turn may help to alleviate poverty and promote socioeconomic development through adoption of ICT.

Mbah, Ekwo and Obi evaluated on technology adaptation strategies by SMEs in Nigeria [4]. The study had a population of 175 staff of Central Bank of Nigeria in Enugu state. The sample size of 122 was drawn using Freund and William's formula at 5 percent error margin. A survey design was adopted for the study. Instrument used for data collection was the questionnaire. Three hypotheses were tested using regression. The findings indicate that there is positive effect of the adaptation of mobile phone on SMEs in Nigeria, there is positive effect of the adaptation of cash tilling machines on SMEs in Nigeria, there is positive effect of the adaptation of institutional website on SMEs in Nigeria.

Olise, Anigbogu; Tonna and Okoli conducted a study on determinants of ICT Adoption for Improved SME's Performance in Anambra State, Nigeria [30]. Transaction over the internet has helped in linking-up SMEs to global competitiveness. The study provided empirical evidence on levels of awareness and

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adoption patterns of ICT facilities among SMEs; it evaluates factors influencing ICT adoption in the SME sector; and also assesses the impact of ICT adoption on SMEs performance. The study adopted simple percentage; mean, standard deviation, t-test statistics, and regression analysis were used to conduct the various analysis of this study. The study shows that there is significant difference in the levels of awareness and adoption patterns of ICT facilities among SMEs.

Morteza, Tang, Sabouri and Norzima carried out a research which provided a better and clearer understanding of IT adoption within SMEs by reviewing and analyzing current IT literature [31][32][33]. In this research, the review of literature includes theories, perspectives, empirical research and case studies related to IT adoption, in particular within SMEs from various databases such as Business Premier, Science Direct, JStor, Emerald Insight and Springer Link. The proposed model of effective IT adoption is believed to provide managers, vendors, consultants and governments with a practical synopsis of the IT adoption process in SMEs, which will in turn assist them to be successful with IT institutionalization within these businesses.

Literature Gap

This study has reviewed theoretical and empirical studies that are related to technology adoption on competitiveness of small and medium scale enterprises in Nigeria and other developing and developed economies. A review of the related empirical studies revealed that while existing studies have explored technology adoption among Nigerian small and medium scale enterprises at the national level (Nigeria as a whole), there is limited empirical research focusing on sub-national variations, particularly in Rivers State. More specifically, none of the related studies covered Obio Akpor Local Government Area of Rivers State. It against the identified literature gap that this study seeks to determine the impact of technology adoption on competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State.

Methodology

Survey research design was used in this study. Also, primary data were used for this study and these data were collected through structured questionnaire. The questionnaire items were structured and measured using a five-point Likert rating scale as follows: Strongly Agree (SA) = 5 points, Agree (A) = 4 points, Undecided (U) = 3 points, Disagree (D) = 2 points, Strongly Disagree (SD) = 1 point.

The population of this study consisted of 585 registered small and medium scale enterprises (SMEs) in Obio Akpor Local Government Area of Rivers State. This information is obtained from Small and Medium Enterprises Development Agency (SMEDAN) in Nigeria. However, since the population of this study is known, the sample size of this study was determined using Taro Yamane's formula at 5% significant level. The mathematical expression of Taro Yamane formula is given as:

$$n = \frac{N}{1 + N(e)2}$$

Where, n = Sample size, N = Population size, e = level of significance/ tolerable error (0.05), 1 = Constant

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Applying the formula, the sample size is obtained as follows:

$$n = \frac{585}{1 + 585 * (0.05)^2}$$

$$n = \frac{585}{1 + 585 * (0.0025)}$$

$$n = \frac{585}{1 + 1.4625}$$

$$n = \frac{585}{2.4625}$$

$$n = 237.563$$

$$n \approx 238$$

Based on the above calculation, the sample size of this study consisted of managers of two hundred and thirty-eight small and medium scale enterprises (SMEs) in Obio Akpor Local Government Area of Rivers State.

Lastly, the data analysis was undertaken in two different phases starting with univariate analysis using simple percentages, frequencies and weighted means while bivariate analysis was carried out to test previously formulated hypotheses using regression technique.

Result and Discussion

Data Presentation

This section presents analysis of questionnaire administration and retrieval as follows:

Table 1: Questionnaire Administration and Retrieval

PARTICULARS	NUMBER OF CASES	PERCENTAGE
Copies of Questionnaire Administered	238	100
Copies of Questionnaire Retrieved	225	94.5
Copies of Questionnaire Not Retrieved	13	5.5
Copies of Questionnaire Completed but Invalid	5	2.1
Copies of Questionnaire Completed and Valid	220	92.4

Source: *Field Survey, 2026.*

From table 1, out of the 238 copies of questionnaire administered to the respondents, 220 copies of the questionnaire representing 92.2% were correctly filled and thus suitable for the purpose of data analysis.

Univariate Analysis

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This section presents the univariate analysis of the research questions using tables, frequencies, simple percentages, and weighted mean scores as follow:

Research Question One: How does financial technologies (FinTech) impact competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State?

Table 2: Analysis of Questionnaire Items on the Relationship between Financial Technologies (FinTech) and Competitiveness of Small and Medium Scale Enterprises in Obio Akpor Local Government Area of Rivers State

S/N	QUESTIONNAIRE ITEMS	SA (%)	A (%)	U (%)	D (%)	SD (%)	$\overline{X}$	DECISION
Q1.	FinTech platforms (e.g., mobile banking, digital wallets) have improved access to credit and financing for my business.	78 (35.5%	80 (36.4%)	10 (4.5%)	30 (13.6%)	22 (10.0%)	3.74	Accepted
Q2.	The use of FinTech solutions has reduced transaction costs and enhanced the financial efficiency of my enterprise.	77 (35.0%)	98 (44.5%)	10 (4.5%)	17 (7.7%)	18 (5.5%)	3.90	Accepted
Q3.	FinTech services enable our business to reach and serve more customers through digital payment options.	69 (31.4%)	111 (50.5%)	7 (3.2%)	19 (8.6%)	13 (5.9%)	3.91	Accepted

Source: Field Survey, 2026.

Note: *SA = Strongly Agree, A = Agree, U = Undecided, D = Disagree, SD = Strongly Disagree,* $\overline{X}$ *= Weighted Mean Scores*

Table 2 shows the univariate analysis of items 1, 2 and 3how financial technologies (FinTech) impact competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State. The results of this analysis as shown in the table revealed that the five items on the impact of financial technologies (FinTech) on competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State have weighted mean values of 3.74, 3.90, 3.91 respectively and each of this weighted mean value is above the criterion mean of 3.0. In addition to this, the results of this analysis as shown in the table also revealed that greater percentages of the respondents agreed/strongly agreed to each of the questionnaire items. Based on these results, it can therefore be statistically concluded that the respondents accepted and are in agreement that financial technologies (FinTech) impacts competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State.

Research Question Two: What is the impact of e-commerce platforms on competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State?

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Table 3: Analysis of Questionnaire Items on the Relationship between E-Commerce Platforms and Competitiveness of Small and Medium Scale Enterprises in Obio Akpor Local Government Area of Rivers State

S/N	QUESTIONNAIRE ITEMS	SA (%)	A (%)	U (%)	D (%)	SD (%)	$\overline{X}$	DECISION
Q4.	Using e-commerce platforms has increased the visibility of our business beyond the local market.	91 (41.4%)	88 (40.0%)	6 (2.7%)	16 (7.3%)	19 (8.6%)	3.98	Accepted
Q5.	E-commerce platforms have enabled our SME to attract and retain more customers.	79 (35.9%)	86 (39.1%)	7 (3.2%)	27 (12.3%)	21 (9.5%)	3.81	Accepted
Q6.	Selling products or services online has improved the overall sales performance of our business.	81 (36.8%)	95 (43.2%)	9 (4.1%)	16 (7.3%)	19 (8.6%)	3.92	Accepted

Source: Field Survey, 2026.

Note: *SA = Strongly Agree, A = Agree, U = Undecided, D = Disagree, SD = Strongly Disagree,* $\overline{X}$ *= Weighted Mean Scores*

Table 3 shows the univariate analysis of items 4, 5 and 6 on the impact of e-commerce platforms on competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State. The results of this analysis as shown in the table revealed that the five items on the impact of e-commerce platforms on competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State have weighted mean values of 3.98, 3.81 and 3.92 respectively and each of this weighted mean value is above the criterion mean of 3.0. In addition to this, greater percentages of the respondents agreed/strongly agreed to each of the questionnaire items on. Based on these results, it can therefore be statistically concluded that the respondents accepted and are in agreement that e-commerce platforms has an impact on competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State.

Research Question Three: To what extent does social media platforms impact competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State?

Table 4: Analysis of Questionnaire Items on Relationship between Social Media Platforms and Competitiveness of Small and Medium Scale Enterprises in Obio Akpor Local Government Area of Rivers State

S/N	QUESTIONNAIRE ITEMS	SA (%)	A (%)	U (%)	D (%)	SD (%)	$\overline{X}$	DECISION
Q7.	Social media platforms (e.g., Facebook, Instagram, WhatsApp) have increased customer	74 (33.6%)	90 (40.9%)	14 (6.4%)	22 (10.0%)	20 (9.1%)	3.80	Accepted

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	awareness of my business.							
Q8.	Social media helps my business compete more effectively with larger enterprises.	64 (29.1%)	84 (38.2%)	14 (6.4%)	38 (17.3%)	20 (9.1%)	3.61	Accepted
Q9.	Interacting with customers via social media improves customer relationships and loyalty.	78 (35.5%)	78 (35.5%)	10 (4.5%)	30 (13.6%)	24 (10.9%)	3.71	Accepted

Source: Field Survey, 2026.

Note: *SA = Strongly Agree, A = Agree, U = Undecided, D = Disagree, SD = Strongly Disagree,* $\overline{X}$ *= Weighted Mean Scores*

Table 4 shows the univariate analysis of items 7, 8 and 9 on the impact of social media platforms on competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State. The results of this analysis as shown in the table revealed that the five items on the impact of social media platforms on competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State have weighted mean values of 3.80, 3.61 and 3.71 respectively and each of this weighted mean value is above the criterion mean of 3.0. In addition to this, the results of this analysis as shown in the table also revealed that greater percentages of the respondents agreed/strongly agreed to each of the questionnaire items. Based on these results, it can therefore be statistically concluded that social media platforms has an impact on competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State.

Bivariate Analysis (Tests of Hypotheses)

Our hypotheses testing in this study were carried out using simple linear regression.

The decision rule for accepting or rejecting each hypothesis is stated as follows:

a. If the significant value (P-value) is less than 0.05, reject the null hypothesis at 5% level of significance.
b. If the significant value (P-value) is greater than the 0.05, accept the null hypothesis at 5% level of significance.

Testing of the First Hypothesis

H_{01}: There is no significant relationship between financial technologies (FinTech) and competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State.

Table 5: Regression Analysis of Financial Technologies (FinTech) and Competitiveness of Small and Medium Scale Enterprises in Obio Akpor Local Government Area of Rivers State

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.770	.070		11.009	.000

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	Financial Technologies (FinTech)	.848	.017	.934	49.610	.000

a. Dependent Variable: *Competitiveness of Small and Medium Scale Enterprises*

Source: Field Survey (SPSS Regression Result), 2026.

From the results in Table 5, current border security measures and strategies have a positive value of 0.770. This implies that there is a positive significant relationship between financial technologies (FinTech) and competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State.

Decision on the First Hypothesis: The first hypothesis was tested at 5% level of significance. The result showed the *p-value* to be 0.000 while the *alpha value* is 0.05. Following the decision rule, i.e. since the *p-value* (0.0000) is less than the *alpha value* (0.05), we therefore reject the null hypothesis one (H_{01}) and conclude that there is a significant relationship between financial technologies (FinTech) and competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State.

Testing of the Second Hypothesis

H_{02}: There is no significant relationship between e-commerce platforms and competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State.

Table 6: Regression Analysis of E-Commerce Platforms and Competitiveness of Small and Medium Scale Enterprises in Obio Akpor Local Government Area of Rivers State

Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**T**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	.694	.065		10.611	.000
	E-commerce platforms	.856	.016	.945	54.875	.000
a. Dependent Variable: *Competitiveness of Small and Medium Scale Enterprises*						

Source: Field Survey (SPSS Regression Result), 2026.

From the results in Table 6, efficient border management has a positive value of 0.694. This implies that there is a positive significant relationship between e-commerce platforms and competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State.

Decision on the Second Hypothesis: The second hypothesis was tested at 5% level of significance. The result showed the *p-value* to be 0.0000 while the *alpha value* is 0.05. Following the decision rule, i.e. since the *p-value* (0.0000) is less than the *alpha value* (0.05), we therefore reject the null hypothesis two (H_{02}) and conclude that there is a significant relationship between e-commerce platforms and competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State.

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Testing of the Third Hypothesis

H_{03}: There is no significant relationship between social media platforms and competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State.

Table 7: Regression Analysis of Social Media Platforms and Competitiveness of Small and Medium Scale Enterprises in Obio Akpor Local Government Area of Rivers State

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.181	.072		2.493	.013
	Social media platforms	1.049	.017	.958	63.194	.000
a. Dependent Variable: *Competitiveness of Small and Medium Scale Enterprises*						

Source: Field Survey (SPSS Regression Result), 2026.

From the results in Table 7, current border security measures and strategies have a positive value of 1.049. This implies that there is a positive significant relationship between social media platforms and competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State.

Decision on the Third Hypothesis: The first hypothesis was tested at 5% level of significance. The result showed the *p-value* to be 0.000 while the *alpha value* is 0.05. Following the decision rule, i.e. since the *p-value* (0.0000) is less than the *alpha value* (0.05), we therefore reject the null hypothesis three (H_{03}) and conclude that there is a significant relationship between social media platforms and competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State.

Discussion of Findings

The findings emanating from this study indicated there is a positive relationship between financial technologies (FinTech) and competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State. Also, the result of the first hypothesis tested showed that there is a significant relationship between financial technologies (FinTech) and competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State. This finding is in agreement with the work of Mbah, Ekwo and Obi who found that there is a significant relationship between financial technologies (FinTech) and financial performance of SMEs in Nigeria [4].

Furthermore, the findings emanating from this study indicated there is a positive relationship between e-commerce platforms and competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State. Also, the result of the second hypothesis tested showed that there is a significant relationship between e-commerce platforms and competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State. This finding is supported with the work of Mishrif and Khan which stated that e-commerce platforms is one of the technologies adopted as survival strategy for small and medium enterprises during COVID-19 [18]. Lastly, the findings emanating from this study indicated there is a positive relationship between social media platforms and competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State. Also, the result of the third hypothesis tested showed that there is a significant relationship between social media platforms and competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of

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Rivers State. This finding is consistent with the work of Okundaye, Fan and Dwyer who showed that social media platforms on the performance of Nigerian small-to medium-sized enterprises [27].

Conclusion

The impact of technology adoption on competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State has been established in this study. The findings of the study showed that financial technologies (FinTech), e-commerce platforms, social media platforms and accounting and bookkeeping software contribute positively and significantly to competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State. Based on the findings, the study therefore concludes that technology adoption has contribute positively and significantly to competitiveness of small and medium scale enterprises in Obio Akpor Local Government Area of Rivers State.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. Online stores should partner with FinTech service providers to introduce affordable, user-friendly, and secure digital payment solutions tailored to of small and medium scale enterprises. Policies should encourage financial literacy training and provide incentives for small and medium scale enterprises to integrate mobile banking, POS systems, and digital wallets to improve efficiency and market competitiveness.
2. E-commerce platforms (e.g., Jumia, Konga, Jiji, Temu) should design inclusive policies that reduce onboarding costs and provide capacity-building programs for of small and medium scale enterprises in Obio-Akpor. This will ensure that smaller businesses can leverage digital marketplaces for visibility, wider customer reach, and enhanced competitiveness.

Online stores should establish policies that guide of small and medium scale enterprises on leveraging social media advertising, influencer marketing, and customer engagement strategies. Training and awareness campaigns should be institutionalized to help of small and medium scale enterprises maximize social media for branding, product promotion, and customer loyalty.

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