

IMPACT OF INFORMATION SYSTEM PACKAGES ON PRODUCTIVITY OF MICRO AND SMALL BUSINESSES IN KADUNA MAIN TOWN

Amuche Agbo Peter

Department of Business Administration, Kaduna Polytechnic, Kaduna State

Corresponding Author's email: a.amuche@kadunapolytechnic.edu.ng



Abstract

The use of information and telecommunication infrastructures to manage business processes today cannot be said to be restricted to large business organisations alone. It is in the light of the foregoing that the study was embarked on to assess the impact of business information system packages adopted by micro and small business owners within the strategic locations in Kaduna main town, North West of Nigeria. Data for the study were collected through the use of five (5) sets of structured questionnaires designed and administered across 17 enterprises. A survey design was used sampling a total of 184 managers and employees of all targeted micro and small businesses in Kaduna town. The study used descriptive analysis and correlation analysis based on Stata Package to analyze the collected data. The study found that over 88 percent of the micro and small businesses sampled deployed one or another form of business information system packages in the management of their business processes. In addition, application of information system packages correlates positively and significantly with speedy service delivery, increased sales volume, accurate accounts records; but negatively and insignificantly correlates with sustained stocks level. The study recommends based on the findings that since deployment of business information system package has become a major factor in determining the success of micro and small businesses, more efforts must be put in place by owners and managers in embracing ICT in general and business information system packages in particular.

Keywords: *business information packages, micro and small businesses, business processes, ICT.*

Introduction

Micro and Small business firms are seen operating on streets and within reachable distances around our areas of habitations. These sets of business organisations do not only help to meet the various needs of customers or consumers of different categories but help in providing other essential services such as employment generation for the locals of where they operate, other social responsibilities like free borehole water, free charging of electronic devices. The usefulness of micro and small businesses everywhere, whether developed, developing and less developed or underdeveloped countries can be seen and felt by every promoter of good development. As cited in Oyerinde and Adeyemi (2013), micro, small and medium enterprises have been found according to European Commission (2005) reports that in all the 25 countries of the enlarged European Union to have provided about 75 million jobs and this carry about 99% of all firms' contributions to jobs generations. In another vein, small and medium enterprises SMEs as well as micro businesses have been described to have driven job growth more than large companies due to fast

creation of additional jobs (Agwu, 2018). Micro and small enterprises (MSEs) in some countries engage or employ up to 25% or more of working age population (Mead & Leidholm, 1998).

Meanwhile, micro and small business firms are fast growing and are enhanced nowadays as a result of access to information technology (IT). The use of information technology is no longer domiciled with large firms since the cost of acquiring moderate but powerful IT infrastructures cannot be said to be too exorbitant again (Mead & Leidholm, 1998). Some information system packages or application packages that micro and small business firms are using today are downloaded online and have been so helpful in promoting efficient execution of various business processes at work place. Information system packages such as transaction processing systems TPS like order processing, machine control, accounts receivable systems are all out there to assist micro and small business firms to be able to track orders, effectively control machines at work places and profitably collect proceeds from sales of goods and services to customers while maintaining good customer satisfaction. As opined by Pollard (2006), within the knowledge economy/information society, viable firms produce high technology products and convert material resources, human efforts, as well as other economic resources into goods and services that can afford customers' satisfaction.

In an efforts to realize the general objective fashioned for the study which is examining the impact of information system packages on productivity of small and micro businesses SMBs operating within Kaduna Main town, it would specifically cover the examination of the extent to which the use of information system packages impacts speedy service delivery; volume of sales; accurate accountability; and enhanced sustained maintenance of stock levels by SMBs. Furthermore, the paper is structured as follows: statement of the problem, literature reviews and conceptual framework, methodology adopted in the study, results, discussion and analysis, and in addition, conclusion and recommendations. Furthermore, while trying to achieve the objectives stated from the foregoing, the following hypotheses stated guided the study:

H₁: Use of information system packages by micro and small businesses operating within Kaduna town does significantly influence speed of service delivery to customers.

H₂: Information system packages utilization by micro and small businesses within Kaduna town does improve their product sales volume.

H₃: Application of information system packages by micro and small businesses within Kaduna town does lead to accurate accountability.

H₄: Using information system packages does lead to sustained maintenance of stock level by micro and small businesses within Kaduna town.

Statement of the Problem

To remain afloat in the society nowadays, MSEs would require high quality information since such provide them with greater value, better than rivals, when comparing price, quality, and services. Running a successful business operations require appropriate acquisition and utilization of scarce economics resources both in the developed and developing countries of the world. Smooth running of business processes seen to be better enhanced in the developed world today which might be attributed to presence and utilization of advanced information technology infrastructures. The same thing may not be said to be in all African countries especially Nigeria. Issues of non-compliant with modern technology deployment of the operation of businesses abound in this part of the world, Kaduna in particular where a good number of employees and managers of (SMEs) are seen battling with the use of pen and papers (i.e. manual methods) when

attending to customers instead of the use of electronic devices which could have enhance speed of work, accuracy and efficient business operations. The practice of using manual method at this time clearly contradict Ling (2017) who opines that both small and medium enterprises (SMEs) and large firms require the use of computer technology which guarantee them three unique capabilities including dynamic capability, determinant integrating capability, and utility capability to have an edge above their competitors.

Although, previous studies exist where efforts were made to x-ray the possible relationships between information and communication technology in general and information systems in particular and firms' performance but the present study attempted to cover noticeable gaps in domain, time and variables. Most of the previous studies were conducted in countries other than Nigeria; the ones conducted in Nigeria which the author has been privileged to see were carried out in other cities of Nigeria than Kaduna and it was concentrated more on SMEs, than MSBs. It is in the light of the above that this paper attempts to reduce the noticeable gaps in domain, period, and variable combination. Above all, the variable combination in the study made it unique for ascertaining the impact of information system packages on productivity of micro and small businesses in Kaduna town.

Literature Review

At this point, consideration must be given to knowing the meanings of the major concepts used in this study. These among others include the followings:

Information Systems

Information system is defined according to Laudon and Laudon, (2008) as an interrelated components working together to collect, process, store, and disseminate information to support decisions making coordination, control, analysis and visualisation in a firm. This, in simpler words could mean the application of modern technology including use of hardware, software and people who operate them in the course of running businesses for the sake of easy access to needed information at the point of making decisions at work places. In another vein, information systems is described according to Valacich and Schneider (2010) as combinations of hardware, software, and telecommunications networks that people build and use to collect, create, and distribute useful data, typically in organisational settings. Putting it differently, Cordelia and Iannacci (2011) define information systems as sets of interrelated components that collect or retrieve, process, store and distribute information to support decision-making, coordination, control, analysis and visualisation. Different kinds of information systems are needed by different categories of workers in a firm depending on their peculiar job requirements. There could be information systems that serve the needs of workers based on the functions they perform or the positions they occupied at work places. There are other information systems designed for business use which help firm to operate from a single central database repository. Information system packages as used in the study simply refers to any acquired programs (software) or on-line applications that micro and small business firms use either via personal computer systems or any other hand-held devices which enable them to access quality information at the right time, at the right place and by the right persons.

Micro, Small and Medium Enterprises (MSMEs)

The definition of MSMEs varies from one country to another. Although, there common factors or characteristic that are mostly used to describe them. These include: paid-up capital, employment, assets, and turnover. Adopting the definition put forward by Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) through a National Policy on MSMEs, it says that Micro

enterprises include all firms that operate with less than 10 persons under its employment and having less than 5 million naira as assets but exclude land and buildings. Small enterprises comprised of all firms operating with employment capacity of 20 to 49 workers and having between 5 to 50 million naira worth of assets but exclude land and buildings. Also, the policy pegs all firms operating with employment capacity between 50 to 199 employees and having assets worth above 50 but less than 500 million naira excluding land and buildings. The policy further clarified that should there be any dilemma between employment-based or assets-based criteria, the employment base supersedes assets base. This then means that where a firm has employment capacity lower than 10 but has assets worth more than 5 million naira, such firm would still maintain micro business categorisation. In a similar vein, Bank of Industry defines MSMEs as: micro enterprises comprising all enterprises with employment capacity of less or equal to 10, total assets of less or equal to 5 million naira and turnover of less or equal to 20 million naira; small enterprises are all business enterprises that have employment capacity of more than 11 but less or equal to 50, total assets of greater than 5 but less or equal to 100 million naira, and annual turnover of less or equal to 100 million naira; medium enterprises include all enterprises that have employment capacity of above 51 but less or equal to 200, total assets worth of above 100 but less or equal 500 million naira and turnover of less or equal to 500 million naira.

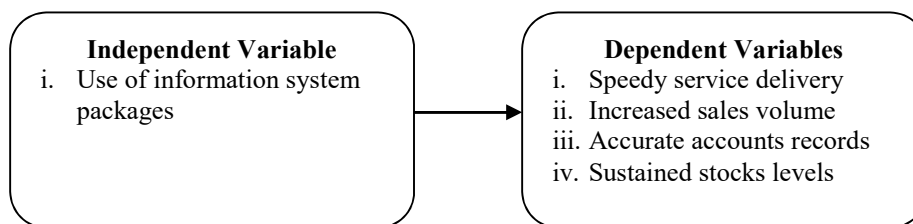


Figure 1: Conceptual Framework

Source: author's illustration

The above framework suggests that varied relationships and influence might exist between independent variable – information system packages and the dependent variable as proxy by speedy service delivery, increased sales volume, accurate accounts records, and sustained maintenance of stock levels.

Review of Previous Related Studies

A study conducted by Ling (2017) in Malaysia which was designed using survey methodology found in Malaysia that both small and medium enterprises (SMEs) and large firms need to use computer technology which guarantee them three unique capabilities including dynamic capability, determinant integrating capability, and utility capability to better serve their customers well and to perform better within the firm.

In another study which was conducted in Kosovo by Namani (2009) on the role of information technology in small and medium enterprises found that information technology usage grows SMEs productivity, and in addition leads to reduction in cost of production and as well shortened product life cycle. Also, Donner and Escobari (2010) investigated evidence of mobile use by small and medium enterprises in developing countries. The study found that almost 80% of operators of small and medium enterprises in developing countries are involved in mobile use but only 48% of them use it for business purpose. It was equally discovered that vendors of enterprise resource planning (ERP) which integrates all information systems within a firm are have brought low the

cost of the software or even brought it to free of charge for owners of SMEs in developing countries so as to compete with large firm operators.

Agwu, (2018) examined the relevance of information technology in the effective management of selected SMEs in Lagos State, Nigeria. The study found that a bright future of SMEs in Nigeria is entrenched in the application of information technology. In addition, the study found that information technology is vital for smooth performance of management functions of organisation.

Methodology

The paper is designed based on data collected from a survey of 96 micro and small businesses within Kaduna town. Stratified sampling technique was adopted in selecting the 96 samples of micro and small businesses. In addition, 2 staff of each selected SMBs were given copies of questionnaires and out of the 192 copies of questionnaires administered, 184 were correctly filled and returned which represented 96% return rate. In order to validate the results from the study, a pilot of 136 copies of questionnaires were earlier administered to owners and employees of micro and small businesses in Kaduna town with reasonable responses. Use of information system packages served as independent variable, while speedy service delivery, increase sales volume, accurate account records, and sustained stock levels served as dependent variables. The data were collected between February and July 2019. The study used descriptive statistics and correlation as tools to analyze data collected.

Presentation, Analysis and Results

Table 1: Selection of MSBs in Kaduna town by Sector.

S/N	Sectors	Frequency
1	Super Markets	10
2	Printing and Publishing	6
3	Food and Beverages	6
4	Textile Sales and Distribution	4
5	Packaging	4
6	Hotel and Tourism	6
7	Agriculture	5
8	Building Materials	6
9	Engineering Technology	3
10	Chemical and Paints	5
11	Health Care	6
12	Media	5
13	Information and Communication Technology	6
14	Automobile Spare Parts	5
15	Commercial Services	8
16	Computer and Office Equipment	7
17	Industrial Products	4

Source: survey 2019

Table 1 above depicts the frequency of respondents sampled from MSBs across 17 sectors in Kaduna town. 5-point-Likert scale was used to measure the responses from the total number of 184 respondents who correctly filled the questionnaires. They were designed in this order: strongly agreed = 5, agreed = 4, undecided = 3, disagreed = 2, and strongly disagreed = 1.

Table 2: Some form of information system packages are deployed in your business operations

Option	Frequency	Percentage
Strongly agreed	60	32%
Agreed	73	40%
Undecided	46	25%
Disagreed	5	3%
Strongly disagreed	-	-
Total	184	100

Source: author's computation, 2019

Table 2 shows that 133 out of the 184 correspondents agreed, which represent 72% of the sample that some form of information system packages are deployed in their business operation. 46 correspondents representing 25% were undecided, and 5 correspondents representing 3% disagreed.

Table 3: Application of information system packages in the firms' business processes operations) improves speed of service delivery.

Option	Frequency	Percentage
Strongly agreed	133	72%
Agreed	30	16%
Undecided	21	12%
Disagreed	-	-
Strongly disagreed	-	-
Total	184	100

Source: author's computation, 2019

Table 3 shows that 163 correspondents representing 88% agreed that application of information packages improves speed of service delivery among operators of MSBs in Kaduna town. It also depicts that 21 correspondents representing 12% were undecided.

Table 4: Use of information system packages leads to increased sales volume

Option	Frequency	Percentage
Strongly agreed	122	66%
Agreed	62	34%
Undecided	-	-
Disagreed	-	-
Strongly disagreed	-	-
Total	184	100

Source: author's computation, 2019

Table 4 displays that 184 correspondents all agreed that deployment of information system packages improve sales volume.

Table 5: using information system packages improved accurate accounts records in the firm

Option	Frequency	Percentage
Strongly agreed	128	70%
Agreed	56	30%
Undecided	-	-
Disagreed	-	-
Strongly disagreed	-	-
Total	184	100

Source: author's computation, 2019

Table 5 shows that all correspondents agreed to the question that use of information system packages improved accurate account records in the operation of MSBs in Kaduna town.

Table 6: sustained stock level is achieved with the application of information system packages.

Option	Frequency	Percentage
Strongly agreed	62	34%
Agreed	81	44%
Undecided	38	21%
Disagreed	3	1%
Strongly disagreed	-	-
Total	184	100

Source: author's computation, 2019

Table 6 shows that 144 of the correspondents agreed with the question that application of information system packages helps operators of SMBs in Kaduna town to achieve sustained stock level and represent 78%, while 21% were undecided and 1% disagreed.

Table 7: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min.	Max.
ISD	184	4.022	.829	2	5
SSD	184	4.609	.685	3	5
ISV	184	4.663	.472	4	5
AAR	184	4.696	.461	4	5
SSL	184	4.098	.776	2	5

Source: Stata 11.2 version

Key:

ISD = Information System Deployment

SSD = Speedy Service Delivery

ISV = Increased Sales Volume

AAR = Accurate Accounts Record

SSL = Sustained Stock Level

Table 7 shows that 184 correspondents participated in answering the research questions which were measured using the 5-point-Likert scale. The mean of each of the responses to the questions were given which guided the researcher's decisions on accepting or otherwise on each question. The standard deviation is given as well depicting the variation alongside minimum and maximum point ticked for each question.

Table 8: Correlation Matrix

	ISD	SSD	ISV	AAR	SSL
ISD	1.000				
SSD	0.804	1.000			
ISV	0.797	0.804	1.000		
AAR	0.203	0.244	-0.022	1.000	
SSL	-0.054	0.072	0.060	0.114	1.000
	0.464	0.329	0.416	0.123	

Source: Stata 11.2 version

Table 8 displays how the the independent variable information systems deployment (ISD) correlates with the other proxies of dependent variables and how all the variables correlate with one another. It can be seen that ISD being the independent variable correlates positively with all the dependent variables except SSL. It equally shows that ISD has significant impacts on all the dependent variables exception of SSL again.

Test of hypotheses

In order to test the hypotheses earlier proposed, decision criteria was based on the mean statistics gotten in table 7. Any of the questions which scored with a mean above 3.5 would be accepted and those that scored below 3.5 would be rejected.

H₁: Use of information system packages by micro and small businesses operating within Kaduna town does significantly influence speed of service delivery to customers.

Based on the mean computed in table 7, the value is 4.609 which is greater than the 3.5 acceptable point. It thus implies that use of information system packages significantly affect the speed of service delivered to customers by micro and small businesses operating within Kaduna town and hence the hypothesis accepted.

H₂: Information system packages utilization by micro and small businesses within Kaduna town does improve their product sales volume.

Also using table 7, mean value of 4.663 as computed is greater than the acceptable point of 3.5; hence the hypothesis accepted meaning that use of information system packages by micro and small businesses within Kaduna town improves on their sales volume.

H₃: Application of information system packages by micro and small businesses within Kaduna town does lead to accurate accountability.

Using the mean value also from table, 4.696 is greater than 3.5 acceptable point. Therefore the hypothesis is accepted implying that use of information system packages helps to ensure accurate accounts records in the operation of micro and small businesses within Kaduna town.

H₄: Using information system packages does lead to sustained maintenance of stock level by micro and small businesses within Kaduna town.

4.098 as a value of mean in table 7 signifies that use of information system packages significantly impacts on the sustenance of stock levels of micro and small businesses operating within Kaduna town and the hypothesis therefore accepted.

Results

Table 1 depicts the number of firms selected from a population of all micro and small businesses operating within Kaduna town. In all 96 of such firms were selected to form the sample of the study. Tables 2 – 6 shows the responses provided by a total number of 184 stratified respondents selected across the sampled firms using questionnaires method. Table 7 indicates the descriptive statistics gotten from the use of Stata statistics package. The total observation was 184; ISD has mean and standard of 4.022 and 0.829 respectively. This indicates that ISD has mean which is greater than the minimum acceptable mean of 3.5 and the high rate of standard deviation signifies how well the data were distributed. In addition, SSD has 4.609 and 0.685 as mean and standard deviation respectively. This as well indicated that data were normally distributed and had a mean higher than the acceptable rate of 3.5. ISV, AAR, and SSL all had 4.663, 4.696, and 4.098 as mean respectively while they had 0.472, 0.461, and 0.776 as standard deviation accordingly. This again that all the variables had mean well above 3.5 and the data well distributed.

Table 8 shows the correlations between the independent variable and the dependent variable proxies. Information system deployment ISD positively correlates with SSD at 80.4% and significant at 0.000. This goes to show that deployment of information system packages by micro and small businesses operating within Kaduna town can significantly affect speedy service delivery positively. Equally from table 8, ISD correlates with ISV at 79.7% and 0.000 significant at 5% level. This as well indicates that the more resources are deployed into information system packages, the more sales volume of micro and small businesses operating within Kaduna town increased. Furthermore, ISD correlates with AAR at 20.3% and 0.006 significance value. This also depicts that deployment of information system packages in the operation of micro and small businesses in Kaduna town has tendency of ensuring accurate accounts records. In addition, ISD correlates negatively with SSL at 5.4% and a poor significance level of 0.464.

Findings

It has been found that use of information system packages significantly impacts speed of service delivery by micro and small businesses operating in Kaduna town based on the hypothesis one as earlier stated and tested. This is corroborated by the correlation which also indicated that ISD was positive 80.4% significant at 0.000 with SSD. Also, the study found that ISV has 4.66 and 0.47 mean and standard deviation respectively. It also has 79.7% and 0.000 significance correlation values. This implies that information system deployment significantly impacts on sales volume of SMBs in Kaduna town. AAR has 4.69 and 0.46 as mean and standard deviation respectively. AAR as well has 20.3% and 0.00 correlation values, depicting that information system deployment positively and significantly impacts accurate account records of SMBs in Kaduna town. This result is line with Agwu (2018) in a paper which found that use of information technology by management of SMEs helps to improve productivity and market share thereby increasing the effectiveness of management. The results also confirms the finding in the study Donner and Marcela (2010) which says that mobile use helps many SMEs become more productive, and does so through improvements in sales and marketing, and procurement processes. In addition, the

study found that SSL has 4.09 and 0.77 mean and standard deviation respectively while having - 5.4% and 0.46 correlation values. This implies that even though, information system deployment has been accepted based on the mean valued to have contributed to SSL, it equally shows from the correlation that more deployment of information system packages would negatively impact on sustenance of stock levels among SMBs operators in Kaduna town. This is in line with Adebayo (2013) in a study which found a weak impact of ICT on productivity of SMEs.

Conclusion

Based on the findings from the analyzed data using mean statistics and correlation, the study therefore concludes that above 88% of micro and small businesses within Kaduna town deployed one form or another of information system packages in their operations. In addition, the use of information system packages results in improving speedy service delivery, increased sales volume, accurate accounts records and sustenance of profitable stock levels.

Recommendations

Following the findings and conclusion of the study, it is recommended that:

- i. Owners and managers of micro and small businesses operating within Kaduna town are encouraged to deploy more of information system packages in their operations since it has a tendency of improving the speed of services delivered to customers.
- ii. Managers who are mostly owners of micro and small businesses are encouraged to deploy more of information system packages following its significant impact on their sales volume.
- iii. Owners of micro and small businesses operating within Kaduna town are advised to deploy more of information system packages more since it ensures accurate accounts records of their operations.
- iv. Owners and managers of micro and small businesses within Kaduna town are encouraged to monitor the contributions of the deployment of information system packages to know the actual its actual direction before further investment since this study found negative correlation of information system deployment to sustained stock levels in their operations.

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