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TECHNOWARE AND CUSTOMER RETENTION IN HEALTH SERVICE ORGANIZATION IN SOUTH EAST REGION OF NIGERIA

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Abstract
This study investigated the effect of technoware (Technology) deployment on customer retention of service organizations in Owerri, Imo State Nigeria. Specifically, the study examined the effect of ***customer relation management (CRM) software deployment, cloud computing web-application deployment, and investment in computerized accounting system on customer retention*** *of service firms****. Using the*** *purposeful sampling technique, the study sampled 330 respondents working across* ***different health service organizations in South East region. Applying the Simple*** *Regression analysis, the study found that the studied firms have employed technologies like CRM, cloud computing, and computerized accounting systems in enhancing their operations. The study further found that the deployment of both CRM, cloud computing and computerized accounting systems had significant effect on customer retention. The study recommended among others that service organizations should provide CRM training to all employees to be able to consistently utilize the system for maximum result. Such knowledge will help track customer behavior through sales cycle; gather relevant data on customer needs.*

Introduction

Background of the Study

In today's global and dynamic competitive environment, organizations are leveraging on technology to innovate, improve efficiency, cost effectiveness, and deliver high quality products and services to customers (Allen and Morton, 2014). ICT innovation is becoming more and more relevant, mainly as a result of three major trends; intense international competition, fragmented and demanding markets and diverse and rapidly changing technologies (Wheelwright & Clark, 2012).

According to Daft (2007) IT can be defined as the hardware, software, telecommunications, database management, and other information-processing technologies used to store, process, and deliver information. Information technology is one of the key innovations that is frequently implemented to assist in this process (Hobday, 2010). IT is also considered as a tool of marketing, contacting customers and looking for possible customers, as well as presenting IT services as distinguished potential services for customers (UNDP, 2011; Werthner and Klein, 2015). In Rogers (2018), as noted by previous scholars in this field, technological infrastructure by business organizations can be grouped in the dimensions of humanware, technoware, inforware, and orgaware.

The Technoware (T) which was the focus of this study targeted its effect on automations and retention of customers. Hajfatali (2009), described Technoware as an embodied technology in various objects to produce goods and services such as tools, equipment, machines, installation, physical facilities, and hardware. The dimensions of Technoware (T) deployment in a sensitive sector like health service organizations to be considered in this study includes; customer relationship management (CRM) software, cloud computing assets, and computerized accounting systems (CAS) as rising tools to help improve financial reporting system of an organization (Micallef, 2022; Galletta, Celesti, & Villari, 2018; Shiraj, 2015). The Nigerian health service sector needs automations to tackle instances of global epidemic and enhance service delivery; hence need for this study.

Statement of the Problem

The focal point of Information Technology (IT) is to enhance service and product content delivery of enterprise processes. With the advent of new technological innovation such as CRM, cloud computing, and CAS service firms can leverage on them to strengthen their competitive advantage via customer attraction and retention. However, within the South East Nigeria, not much is known on the adoption and deployment of these technowares by service firms. Hence, the study raised the following issues: Have service firms within the region leveraged and deployed these technologies to improve their customer retention rate? How effective are these technologies in improving the firm's customer retention?

From the empirical perspective, studies on the impact of technology on organizational performance have been carried. However, these studies where carried out from different dimensions, segments and geographies. For instance, Olanrewaju (2016) investigated the influence of information technology in Nigeria focusing only in the banking sector. Similarly, Akhwani, Dastane, Satar, and Johari (2020) investigated information technology deployment in Malaysia using technological change, IT knowledge management, and IT infrastructure. To fill in the above identified gaps (content and geographic), other ICT software variables such as CRM, cloud computing, and CAS (computerized accounting system) as it relates to firms ability to retain its customers in health service sector of south east region of Nigeria will form the cruz of this study.

Objectives of the Study

The study aims to determine the influence of Technoware deployment on customer retention of service firms in the South East Nigeria. The specific objective is to:

i. determine the effect of **customer relation management (CRM) software deployment on customer retention** of health service organization**.**

ii. **examine the effect of cloud computing web-application deployment on customer retention of service organization.**

iii. assess the effect of **computerized accounting system on customer retention** of service organization**.**

Research Question

The following questions will guide the study;

i. What is the effect of **customer relation management (CRM) software deployment on customer retention** of health service organizations**?**

ii. **To what extent does cloud computing web-application deployment affect customer retention of health service organizations?**

iii. What is the effect of **computerized accounting system on customer retention** of service organizations**?**

Hypotheses Formulation

The following null hypotheses were formulated to ascertain the effect of Technoware deployment on customer retention of service firms in the South East Nigeria.

HO_1: The deployment of **customer relation management (CRM) software has no significant effect on customer retention of health service organizations**.

HO_2: Cloud computing web-application deployment has not significantly influenced customer retention of health service organizations.

HO_3: Computerized accounting system has no significant effect on customer retention of health service organizations**.**

Significance of the study

This study is of immense importance to service organizations, but specifically help to access impact of Technoware IT tools on customer retention in health service firms in south East region.

Scope of the Study

The scope of this study is narrowed to unit, geographical and content scope. The target population of this study is employees, employers and management staff of health service organizations in firms observed to have some level of automations serving as unit scope. The geographical scope of study focuses on health service organizations within the 5 south east regions that have deployed one or two IT tools so as to obtain viable needed data. The content scope revolved around variables of Techno ware in the range of CRM application, Cloud computing and computerized accounting systems as the independent variables while customer retention represents the dependent variable.

Review of Related Literature

Conceptual Framework

The researcher used the following operational conceptual model to show the variables and indices to be covered in the study.

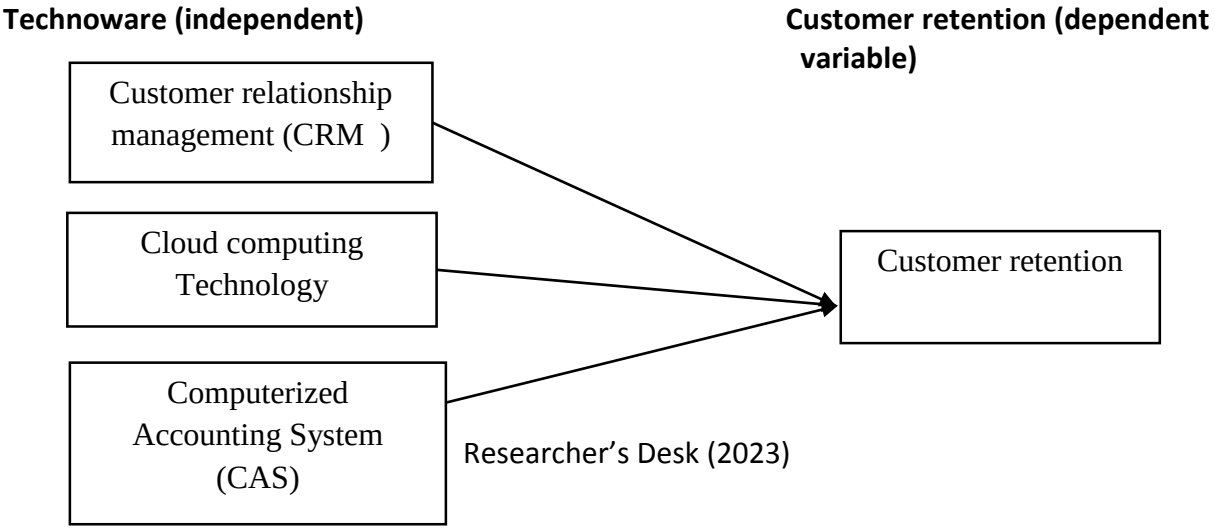

Figure 1: OPERATIONAL CONCEPTUAL MODEL

Information Technology

According to Baker (2012) at its most general level technology may be regarded as definable specifiable way of doing anything. Technology observed by (Manfred Kochen 2011) impacts in three stages; First, enables us to do what we are now doing, but better, faster and cheaper; second, it enables us to do what we cannot do now; and third, it changes our life styles. Information technology is a recent and comprehensive term, which describes the whole range of processes for generation, storage, transmission, retrieval and processing of information (Bowden and Blakeman, 2009). Two points are worth consideration about this definition (Kochen, 2011): the new information technology is seen as involving the formulating, recording and processing and not just transmitting of information. Modern information technology deals large ways of representing information; it covers more than textual, numerical, visual, and auditory representations.

It came into use in the late 1980's replacing earlier terms like Electronic Data Processing (EDP), Management Information System (MIS), although the latter terms are still in use (Frenzel, 1996) ICT has transcended the role of support services or only electronic data processing; its fields of applications are somewhat global and unlimited. ICT devices include data recognition equipment, factory automation hardware and services, telecomputing and teleconferences using real time and online system (Adeoti, 2005).

IT and Business Processes

According to Evans and Wurster (2007) the competitiveness of future economies will, to a great extent, depend both on the development and application of these technologies. The World Wide Web forced most organizations to rethink the way they do business and how they can reengineer their business processes as businesses can now interact more efficiently, competent businesses become digital and networked, facing a whole range of fresh opportunities and challenges (Dennis, 2007). According to Bocij (2003) technology has already revolutionized a wide range of functions including business functions, external environment monitoring, communicating with partners and with consumers at large. The emergent mobile technologies and mobile commerce are expected to change drastically a number of industries and to force organisations to reconsider their

strategic management (Evans and Wurster, 2007). Information technologies can provide powerful strategic and tactical tools for organizations, which, if properly applied and used, could bring great advantages in promoting and strengthening their competitiveness (Porter, 2001).

In this light IT can act as an enhancer of collaboration and a networking tool amongst employees, customers and partners because it removes the barriers to real-time communication and effective information sharing (Scott, 2001). IT helps organisations innovate through fusion of new technologies with society and business thus enabling the creation of new knowledge and discovery (Diem, 2007). IT is being used by organizations to improve performance, communication, motivate employees, increase competitiveness, improve market dynamics, and repositioning the company against its competitors facilitating entry into new markets (Hagen, 2010).

Dimensions of Technoware

Technoware (T) is the physical assets such as equipment or machinery that is used to carry out a specific activity or task. Augustina and Harries (2015) posited once a new technology option is decided upon, a firm needs to deploy the resources to exploit it either by creating technology via in-house R&D or acquiring it through a joint venture or technology licensing. According to Khalil, (2016), the ability of a firm to manage the acquisition of new technology and modify such acquired technology will determine the success of the implementation of the firm's technology strategy and improve the firm's effectiveness. The dimensions of technoware within the context of this study are:

i. Customer Relationship Management Software

"CRM is short for Customer Relationship Management, the industry term for the set of methodologies and tools that help an enterprise manage customer relationships in an organized way" (Arezu and Alireza, 2016). Micallef (2022) asserted that customer relationship management (CRM) is a technology for managing a company's relationships and interactions with all of its customers and potential customers. A CRM solution helps a business to focus on their relationships with individual people; including customers, service users, colleagues, or suppliers throughout the lifecycle with them, including finding new customers, winning their business, and providing support and additional services throughout the relationship (Micallef, 2022).

CRM can help companies of all sizes drive business growth, and it can be especially beneficial to a small business, where teams often need to find ways to do more with less (Kumar & Reinartz, 2016). A CRM system can give companies a clear overview of their customers. With such deployment, organizational members can see everything in one place; a simple, customizable dashboard that can tell about a customer's previous history with the firm, the status of their orders, any outstanding customer service issues, and more (Verhoef, 2013). The CRM tool organises this information to give a firm a complete record of individuals and companies overall, so a firm can better understand its relationship over time (Nataraj, 2010).

ii. Cloud Computing Technology

The data needs to be accessed over the Internet, or at least the data needs to be synchronized with information over the Internet (Stefana, 2014). Cloud computing has 3 main elements (Buyya, Broberg, & Goscinski, 2010): ***Cloud-based software (Datta apps), Cloud-based infrastructure (Hardware data centres) and Cloud-based platforms (data test hubs)***

Cloud-based software refers to programs accessible via any internet-connected device like a computer, laptop, tablet, or mobile phone. It examples include: internet banking, G Suite (word processor, spreadsheet, email, file storage), MYOB (accounting software), dropbox (file storage), canva (design and presentation tools and templates), sales-force (customer relationship manager), and zoom (video conferencing) (Nazanin, Abbas, & Sanaei, 2013). In recent years, cloud-based

software has become the preferred method for many software companies to sell software as a service to business and personal customers (Bauer, 2018). It benefits include (Queens Land Government, 2022): easy to set up and use immediately, easy to access remotely, easy to share access with multiple staff members in the work environment and remotely, also easy to share documents and business records with your professional service providers (e.g. accounting, legal).

iii. Computerized Accounting System (CAS)

Computerized accounting system is a tool which, when incorporated into the field of Information System, were designed to help in the management and control of topics related to firms' economic-financial area (Shiraj, 2015). The software used to track transactions provides internal reporting data, external reporting data, financial statements, and trend analysis capabilities (Shiraj, 2015). Computerized Accounting System helps track revenue and expenses, prepare taxes, and estimate profits (Mike, 2019).

Fig. 1. Features of a Computerized Accounting System (CAS)
Source: https://www.techjockey.com/blog/what-is-computerized-accounting-system

Computerized accounting software can be easily stored and accessed on a computer, network server, or remotely on any device that is connected to a strong mobile data or Wi-Fi connection (Mike, 2019). Computerized accounting is the need of the hour, and your business definitely needs it for the following reasons (Cliff, 2022), cost effectiveness, automation, Accuracy, **Scalability and security**

Customer Retention

It is the core and heart of the relationship marketing and is important to most of the companies because the cost of acquiring the new customers is way more than the cost of retaining the existing one (Lindgreen, Davis, Brodie, and Buchanan-Oliver, 2020). Customer Retention is concerned with upholding the relationship established between the organization and the customer (Ndubisi, 2017). Therefore, it can be considered as the primary goal of the organizations practicing CRM strategies and applications (Ang, & Buttle, 2016).

Theoretical Framework

The study will rely on theoretical models to determine the impact of technoware (technology) on customer retention of service firms. The study will therefore rely on; the Technology Acceptance Model (Davis, 1989) and Model of the organisation (Leavitt, 1965).

The Technology Acceptance Model (ATM)

Technology Acceptance Model (TAM) is one of the most successful measurements for computer usage effectively among practitioners and academics (Davis, 1989). TAM is consistent with

(Rogers, 1983) theory on diffusion of innovation where technology adoption is a function of a variety of factors including; relative advantage and ease of use. Two particular beliefs are addressed through TAM; perceived usefulness and perceived ease of use. Perceived usefulness is the degree to which a person believes that the use of a system will improve performance. Perceived ease of use refers to the degree to which a person believes that the use of a system will be effortless.

Model of the Organisation

The research theoretical framework to be applied in this study is based on the model of the organisation (Leavitt, 1965). The model suggested that an organisation consists of four interrelated components: structure, task (strategy), people, and technology as presented in Figure 2.2.

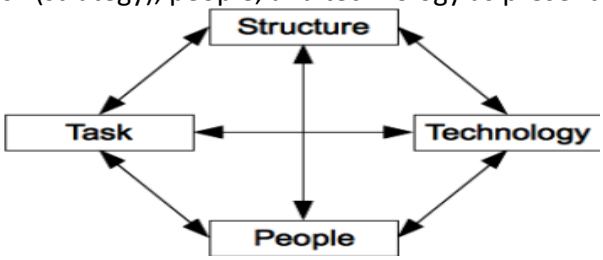

Fig. 2.2 Component of an Organization
Source: Leavitt (1965)

Organisation's structure refers to systems of communication, systems of authority, and systems of workflow; organization's strategy can be defined as the establishment of the basic long-term objectives of an enterprise, and the adoption and commitment of resources to a course of action intended to obtain these corporate objectives (Chandler, 1962); People refers to individuals working in the organisation and; Technology can be defined as the tools, techniques, and actions used to transform organisational inputs into outputs (Daft, 1995). Leavitt (1965) reported that if any of the four components changes, the other three must also change.

Empirical Review

Olanrewaju (2016) studied the effects of information technology on organisational performance in Nigerian Banking Industries. The study employed the field survey research approach. A sample of 100 respondents was randomly selected. Chi square was the statistical analysis tool employed in testing the hypothesis. Findings revealed that technological innovation influenced banks employee's performance, customer's satisfaction and improvement in banks profitability.

In a similar study, Muhammad, Nadeem, and Huzaifah (2014) studied the impact of technological advancement on employee performance in Banking Sector of Bahawalpur Region, Pakistan. The survey research design was used for the study. The study targeted 151 respondents using simple random sampling technique. Findings from Regression analysis revealed that technological advancement has significant impact on motivation and training of employees. Further, motivation was found having significant impact on employee performance but training has no significant impact on employee performance.

Donat (2010) studied the impact of technology on the business strategy performance relationship in building core competence in Uganda Small Medium Enterprises (SME's). Using the qualitative research from the period of 2005-2009, findings revealed that the performance of SME vary with the choice of the business strategies they adopted that result to building core competences with regard to the competitive advantages. Additionally, to a certain degree, the

findings of the study suggest technology as measured by technological complexity of process moderates the relationship between business strategy and the performance of SME's.

The study Kimani (2015) examined the impact of information technology on organizational performance: Case of population Services Kenya. To achieve the objectives of the study, a descriptive survey was used. Primary data was collected using a semi-structured questionnaire. The population for this study comprised of the entire PS Kenya staff which was 438. The study findings revealed that majority of the respondents had various IT company devices at their disposal to enable them perform their duties. The study results indicated that IT use explains 82.4% of organisational performance at PS Kenya.

Further, Akhwani, Dastane, Satar, & Johari (2020) investigated the impact of technology adoption on organizational productivity Malaysia. The framework has three independent variables viz. technological change, information technology (IT) infrastructure, and IT knowledge management and one dependent variable as organisational productivity. The sample consisted of 300 IT managers and senior-level executives (production as well as service team) in leading IT companies in Malaysia selected using snowball sampling. The Structural Equation Model (SEM) and path analysis were conducted using AMOS 22. The research findings demonstrated that technological change and IT infrastructure positively and significantly impact the organisation's productivity while IT knowledge management has significant but negative impact on organizational productivity of IT companies in Malaysia.

Abdullahi, Shehu, & Usman (2019) investigated the impact of information communication technology on organizational productivity in the Nigeria banking industry. The descriptive survey research design was employed. The study targeted 140 respondents of First Bank Plc. Kano branch using the non-probability sampling technique. The Close-ended questionnaire (primary data) was the major research instrument. Multiple regression was the statistical tool employed in analyzing the data. The result indicates that hardware component, software component and network have significant and positive impact on organizational productivity in the Nigeria banking industry.

Shiraj (2015) examined the impact of using computerized accounting systems (CAS) in financial reporting among SMEs in Sri Lanka. The methodology espoused for the study was a case study research approach for which the data gathered were respondents in South Eastern Region part of Sri Lanka. The study established that computerized accounting system had a great impact on quality of financial reports. The findings shows a strong significant positive relationship between the variables ($r=0.741$, $p>0.000$) which implies that computerized accounting system and financial reporting among SMEs in South Eastern region of Sri Lanka.

Methodology

Research Design

This study adopted descriptive survey method. The method chosen was helpful in collecting data in order to answer questions that have been raised.

The targeted population for the study consists of health service organizations ranging from employees, management and owners of hospitals, clinics, health centres (Pharmacies and dispensaries) and other health related firms. The total targeted population is 1900 respondents.

Table 1.Target Population for the Study

Categories	Total Targeted Staff
Hospital	600
Pharmacy	400
Health Centres	200
Patents |& Chemist	500
Others	200
TOTAL	1900

Sample Size Determination

The researcher determined the sample size using the Taro Yamane's formula as stated by Alugbuo (2002). The formula is as follows:

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

Where:
n=sample size
N=number of items in the universe or population

e^2=square of maximum allowance for sampling error or level of significance.

For this research, the sample size is:
Substituting the value into this formula, we have

$$\mathrm{n} = \frac{1900}{1 + 1900(0.05)^2}$$

$$\mathrm{n} = \frac{1900}{5.75} = 330 \cong 330$$

Our sample size will be 330 respondents in health service organizations.

Sampling Procedure

The sampling units were purposively selected based on the knowledge and disposition of the sampled respondent to the subject of technology deployment and how these technologies have improved customer retention of their respective banks.

The main source of data for this study was primary and secondary sources of data and both were used in achieving the purpose of the study. The primary data (questionnaires) was self-administered to both managerial and non-managerial staff of selected service organizations operating within 5 South east states using the drop and pick method. The questionnaire was designed in Five-Point Likert-scale format namely; strongly agree (4), agree (3), disagree (2), and strongly disagree (1). The secondary data were sourced from the academic database, published journals, textbooks etc.

Validity and Reliability of the Research Instrument

The validity of the questionnaire was determined by ensuring that the items in the questionnaire conform to the study's constructs (variables). Also, the researcher further used the expert judgmental method in ensuring clarity, objectivity, and relevance (content validity). The

researcher further established the reliability of the questionnaire by computing the alpha coefficient of the items (questions) in the questionnaire. Cronbach's alpha of 0.7 and above indicates a high level of internal consistency in the questionnaire. Therefore, the study's measuring instrument was considered reliable since all items Cronbach's alpha was 0.97.

Below is the formula for Cronbach's alpha.

$$\alpha = \frac{N * \overline{c}}{\overline{v} + (N-1) * \overline{c}}$$

Where:

- N = number of items
- $\overline{c}$ = mean covariance between items.
- $\overline{v}$ = mean item variance.

- **Source; Jim frost (statisticssbyjim.com)**

Method of Data Analysis

The data collected was mostly quantitative and was analyzed using both descriptive (percentage) and inferential statistics (Simple Regression analysis).

Decision Rule

a. Accept H_0 and reject H_1 if P-value >0.05
b. Accept H_1 and reject H_0 if P-value <0.05

Data Analysis, Findings and Discussion

The study targeted 330 respondents from 5 segments of health service organizations. A total of 330 were filled correctly and returned using drop and collect format. Thus, representing 100% survival rate. This response rates was considered sufficient and representative and conforms to Mugenda and Mugenda (2015) stipulation that a response rate of 50 percent is adequate for analysis and reporting; a rate of 60 percent is good and a response rate of 70 percent and over is excellent.

Demography of the Respondents

A total of 330 respondents are 51.9% of female and 48% of women. Age of respondents is divided into four categories namely 30-40 years old as much as 36.2%, < 30 years as much as 27.5%, > 50 years old as much as 19.6% and 40-50 years old as much as 16.5%. Going educational experience, a total of 330 respondents are graduates (38.5%), Diploma as much as 32.2%, Wace holders (18.1%), and Post graduate as much as 11%. Length of working of respondents are < 510 years as much as 44.8%, 10-15 years as much as 40.1%, 15-20 years as much as 11% and 50 > years as much as 3.9%.

Reliability Test of the Measuring Variables

As shown in Table 2, the Cronbach's alpha for technoware variables and customer retention variable was in the range of 0.85 to 0.88, which exceeded Sekaran's (2003) minimum acceptable level of 0.70. Therefore, the measures used in this study were considered reliable

Table 2. Reliability Test

No.	Factor	Item	Mean	SD	Cronbach Alfa Test
1.	CRM Software	1-6	4.13	0.61	0.85
2.	**Cloud computing**	1-6	4.14	0.54	0.87
3.	**Computerized accounting**	12-18	3.60	0.57	0.86
4	Customer Retention	19-24	3.57	0.61	0.88

Source: Field Survey, 2023

Descriptive Analysis of Technoware Deployment

Responses on technoware variables and customer retention variable namely CRM software, cloud computing web applications, and computerize accounting system and customer retention are analyzed below.

Table 3. Types of CRM Software used by Service Firms

CRM Category	In use
Monkey Pesa CRM	36
Sage CRM	31
Oracle CRM Nigeria	148
Smart App	44
Sugar CRM	39
Others	31

Source: Field Survey, 2023

As shown in Table 3, the most popular CRM software used by the studies services firms include Oracle CRM, Monday.com, Sugar CRM, Monkey Pesa CRM and others. The above software have comes with a lot of feature like sales automation, business insights, trend-tracking with dashboard, charts and reports, email and SMS communication, customer self-service, document library, and campaign progress result and report.

Table 4. Impact of CRM Software Application on the Firm

Statements	SA 4	A 3	D 2	SD 1	Mean	Remark
CRM software provides opportunity for live chat support and easy communication with customers	120 36.3%	210 63.6%	-	-	3.36	Accept
CRM software has enabled the business increase its customer retention rate	97 29.3%	198 60%	14 4.2%	21 6.3%	3.12	Accept
CRM software deployment has enhanced internal collaboration among department	140 42.2%	191 57.8%		-	3.43	Accept
CRM software has enabled the business anticipates customers changing needs	101 30.6%	218 66.0%	-	11 3.3%	3.23	Accept
CRM software facilities customer feedback	96 29%	221 66.9%	13 3.9%	-	3.25	Accept
CRM software deployment has improved your marketing campaign on targeted customers'	119 36%	201 60.9%	-	10 3.0%	3.3	Accept
Average					3.28	

Source: Field Survey, 2023

The results in Table 4. show that majority of the respondents represented by an average mean of 3.28 agreed that the deployment of customer relation management (CRM) software has impacted positively on the business operations of their respectively organizations. CRM provides opportunities for live chart support and easy communication customers had a mean of 3.36, and CRM software increasing customer retention rate had a mean of 3.12. CRM enhancing internal collaboration had a mean of 3.43, while CRM helping in anticipating customers changing needs had a mean of 3.23. Facilitating customer feedback had a mean of 3.25, and improving the business marketing campaign had a mean of 3.3.

The implication of the above is that such deployment have positively impacted on customer experience, track customer interactions, grow revenue, automate feedbacks and sales to customers.

Table 5. Impact of Cloud computing Software deployment on the Firm

Statements	SA 4	A 3	D 2	SD 1	Mean	Remark
Cloud computing technology has improved business efficiency and cost reduction	101 30.6%	189 57.2%	27 8.1%	13 3.9%	3.14	Accept
Cloud computing technology deployment has enhanced data security	178 53.9%	118 35.7%	14 4.2%	20 6.0%	3.37	Accept
Cloud computing deployment has enhanced internal collaboration among department	109 33.0%	211 63.9%	10 3.0%	-	3.33	Accept
Data storage and recovery for the business improved through cloud computing	204 61.8%	108 32.7%	8 2.4%	10 3.0%	3.53	Accept
Cloud computing technology deployment has improved customer experience	189 57.2%	130 39.3%	-	11 3.3%	3.50	Accept
Cloud computing technology deployment has improved decision making	201 60.9%	119 36%	10 3.0%		3.57	Accept
Average					3.406	

Source: Field Survey, 2023

The results in Table 5. show that majority of the respondents represented by an average mean of 3.406 agreed that the deployment of cloud computing software has improved business operations in terms of helping the business store data in the cloud via mail and Google drive and has equally enabled the recovery of data when needed (Mean = 3.53). Cloud computing provides data security had a mean of 3.37, and that cloud computing improves collaborations among departmental units had a mean of 3.33. Cloud computing enhance customers experience had a mean of 3.50, while cloud computing improves decision making had a mean of 3.57. Improve business efficiency and cost reduction had a mean of 3.14. The above implies that with the deployment of cloud computing, operating cost of businesses are reduced as virtual workspace is maximized also reducing infrastructure deployment cost while easing meeting of customer needs at extreme working situations.

Table 6. Impact of Computerized Accounting System on the Firm

Statements	**SA** **4**	**A** **3**	**D** **2**	**SD** **1**	**Mean**	**Remark**

Deployment of CAS has enhanced automation and tracking of transactions	87 26.3%	231 70%	7 2.1%	5 1.5%	3.21	Accept
Deployment of computerized accounting has improved data security and reporting	195 59%	118 35.7%	10 3.0%	7 2.1%	3.51	Accept
Improved accuracy, speed, and quality service delivery	88 26.6%	208 63%	19 5.7%	15 4.5	3.11	Accept
Improves accessibility and sharing of information like bills	130 39.3%	189 57.2%	11 3.3%	-	3.36	Accept
Improves forecasting of inventory requirements	127 38.4%	186 56.3%	9 2.7%	8 2.4%	3.30	Accept
Average					3.29	

Source: Field Survey, 2023.

The results in Table 6. show that majority of the respondents represented by an average mean of 3.29 agreed that the adoption and applications of computerized accounting software has improved business operations in terms of improving task automation and tracking of transactions (Mean = 3.21). Deployment of computerized accounting has improved data security and reporting had a mean of 3.51, and that computerized accounting has improved accuracy, speed, and quality service delivery had a mean of 3.11. Computerized accounting improves accessibility and sharing of information like bills had a mean of 3.36, while improved forecasting of inventory requirements had a mean of 3.30.

Table 7. Customers Retention

Statements	SA 4	A 3	D 2	SD 1	Mean	Remark
Customers are updated on new product features, changes in prices among others via technologies	97 29.3%	229 69.3%	-	4 1.2%	3.26	Accept
Products/services offered by the business to the customers are of quality	195 59%	118 35.7%	10 3.0%	7 2.1%	3.51	Accept
Customers complaints are handled timely	78	218	19	15	3.08	Accept

	23.6%	66%	5.7%	4.5		
Customers issues are solved promptly through both offline and online solutions	189 57.2%	130 39.3%	11 3.3%	-	3.53	Accept
The business utilizes various advertising medium to stay in touch with the customers	125 37.8%	189 57.2%	9 2.7%	7 2.1%	3.30	Accept
Average					3.33	

Source: Field Survey, 2023.

Findings from Table 7 revealed that the studied organizations strived at improving their customer retention rate. The evidence is shown by updating of customers of new products, changes in price via deployed technologies (Mean = 3.26). Findings equally revealed that customers' complaints are given prompt priority and are handled via offline and online solutions (Mean = 3.08). Finally, findings revealed that the firms utilize various advertising medium in staying in touch with the customers' (Mean =3.30).

Inferential Statistics: Test of Hypotheses

HO_1: The deployment of **customer relation management (CRM) software has no significant effect on customer retention of service firms**.

Table 8: Regression model on the effect of CRM software on customer retention

Model 1	**Predictors**	***R***	***R^2***	**β**	**F-statistic**	***Std. Error***	***t***	***p***
	Constant	.940	.884	1.321	2506.475	.312	4.268	.000
	CRM			.782		.016	50.065	.004

SPSS result, 2023

HO_2: Cloud computing web-application deployment has not significantly influenced customer retention of service firms.

Table 9: Regression model on the effect of cloud computing technology on customer retention

Model 1	**Predictors**	***R***	***R^2***	**β**	**F-statistic**	***Std. Error***	***t***	***p***
	Constant	.969	.939	2.334	5084.749	.205	11.371	.000
	Cloud Computing			.705		.010	71.307	.000

SPSS result, 2023

HO_3: Computerized accounting system has no significant effect on customer retention of service firms**.**

Table 10: Regression model on the effect of computerized accounting system on customer retention

Model 1	**Predictors**	***R***	***R^2***	**β**	**F-statistic**	***Std. Error***	***t***	***p***

Constant	.984	.968	1.557	9856.608	1.55	10.032	.000
Computerized accounting			.919		.009	99.280	.000

SPSS result, 2023

Discussion of Findings

CRM software deployment and Customer Retention

The result of the first analysis as shown in Table 8 shows that the value of R^2 is 0.884, it means that the model is strong in explaining the variation of independent variable to dependent variable. In other words, customer retention can be explained by the variation in CRM software deployment, while the rest (100%-74.3% = 11.6%) is explained by other causes outside the model. The value of F test (ANOVA) is 2506.475 with a significance of 0.000 < 0.05. Because the significance is much smaller than 0.05, this regression model can be used to predict customer retention. The above results equally revealed that the deployment of CRM software had significant effect on customer retention. This is demonstrated by the coefficient of determination reveals that (β = .782, p<.05). Hence, the null hypothesis is rejected and is concluded that the deployment of CRM technology has improved customer retention in health service firms operating within the 5 south east states. The above findings is supported with that of Akhwani, Dastane, Satar, & Johari (2020) that found IT infrastructure having positive significant effect on organizational performance.

Cloud computing web-application and Customer

The result of the second analysis as shown in Table 9 shows that the value of R^2 is 0.939, it means that the model is strong in explaining the variation of independent variable to dependent variable. In other words, customer retention can be explained by the variation in cloud computing web-application, while the rest (100%-82.4% = 6.1%) is explained by other causes outside the model. The value of F test (ANOVA) is 5084.749 with a significance of 0.000 < 0.05. Because the significance is much smaller than 0.05, this regression model can be used to predict customer retention. The above results equally revealed that the deployment of cloud computing software had significant effect on customer retention. This is demonstrated by the coefficient of determination reveals that (β = .705, p<.05). Hence, the null hypothesis is rejected and is concluded that the deployment of cloud computing web-application has improved customer retention of health service firms operating within 5 south east states. The above findings are in consonance with the finding of Abdullahi, Shehu, & Usman (2019) that found software deployment have significant effect on organizational productivity in the Nigeria banking industry.

Computerized accounting system deployment on customer retention

The result of the third analysis as shown in Table 10 shows that the value of R^2 is 0.96.8, it means that the model is strong in explaining the variation of independent variable to dependent variable. In other words, customer retention can be explained by the variation in computerized accounting system deployment, while the rest (100%-96.81% = 3.2%) is explained by other causes outside the model. The value of F test (ANOVA) is 9856.608 with a significance of 0.000 < 0.05. Because the significance is much smaller than 0.05, this regression model can be

used to predict customer retention. The above results equally revealed that the deployment of computerized accounting system deployment had significant effect on customer retention. This is demonstrated by the coefficient of determination reveals that ($\beta = .919$, $p<.05$). Hence, the null hypothesis is rejected and is concluded that the deployment of computerized accounting system, has improved customer retention of health service firms operating within the 5 south east states. The above findings is supported by that of Shiraj (2015) who found strong positive relationship between computerized accounting systems (CAS) on performance of SMEs in Sri Lanka.

Conclusion and Recommendation

The study found that a lot of organizations in health segment in 5 south eastern region of Nigeria have partially deployed series of IT technoware infrastructures such as CRM software, cloud computing, and computerized accounting systems. These IT infrastructures helped in automating tasks and tracking of business transactions hence make them more competitive and able to improve service delivery to clients hence, it is concluded that the deployment of CRM system has improved customer retention. It is also concluded that the deployment of cloud computing, CRM and computerized accounting systems IT infrastructures has made way for evolvement and adaptation of customized software pragrammes that has helped automate both service and decision making processes in health firms.

Based on the above, the study recommends that:

i. Digital skillsets are strategic to organization competitive. Hence, service organizations should strive towards provision of basic IT infrastructures to pave way for automations of customer service task (CRM) to ensure sustained customer retention.
ii. Service firms should continue to invest in cloud solutions IT infrastructure as this will assist them maximize applications that are cloud related in order leverage on its benefits via data security, cost reduction, and customer engagement.
iii. The computerized accounting systems can enable automation of highly repetitive tasks thus enabling the firm cut down costs. In addition, the real-time monitoring of costs along production lines enables managerial decisions and inventory tracking. Lastly, the deployment of a computerized accounting system plays a significant role in resource monitoring, fixed assets and financial management

Contribution to Knowledge

The study contributed to knowledge in the area of concept. The study discussed in detail digital technologies that firm can leverage on in improving customer retention namely, cloud computing, CRM software, and computerized accounting systems. The above will help managers and researchers alike understanding the need in investing in these technologies for competitiveness. Empirically, the study contributed to knowledge by fining some gaps identified in the literature. For instance, the study of Akhwani, Dastane, Satar, & Johari (2020) that was carried out in Malaysia used variable such as technological change, IT knowledge management, and IT infrastructure. The above identified gaps (content and geographic), were filled by the current study via the use of new variables such as CRM, cloud computing, and CAS.

Areas for Further Research

This study sought to assess the effect of technoware on customer retention of service firms operating in Owerri, Imo State Nigeria. The study mainly focused on service organizations

such as hotels, transport companies, health organization, and customer service points. Hence, there is need to replicate the study using many other industries like oil and gas and food and beverages. This will help in improving generalization.

Also, the study recommends that more study should be done on challenges facing information technology use in organizations in Nigeria.

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