

HUMANWARE AND GOAL ATTAINMENT IN HEALTH SERVICE ORGANIZATIONS IN SOUTH EAST REGION OF NIGERIA

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Abstract

This study investigated the effect of humanware (a component of ICT) on the goal attainment of service health organizations in Owerri, Imo State, Nigeria. Specifically, they examined the effect of employee digital skillsets, refresher training, and ICT adoption and usage on organisational goal attainment. The study adopted a descriptive research design and sampled 330 respondents across health service organizations such as clinics, pharmacies, dispensaries, and laboratories. Both stratified proportionate random and simple sampling were used in selecting the samples from the population. Both descriptive (mean, percentages, and tables) and inferential (simple regression) statistics were employed for the purpose of data analysis. Findings revealed that the possession of digital skillsets has significantly contributed to the attainment of organisational goals for health service firms. Findings further revealed that refresher training on digital skills has significantly contributed to organisational goal attainment and that adoption and usage of ICT have a moderately positive and significant effect on the goal attainment of health service firms. The study recommended, among other things, providing training programmes for workers on how best to deal with information technology and building and developing individual abilities among workers to use them properly.

Keywords: *Humanware, goal attainment, digital skillsets, refresher training, usage ICT*

Introduction

The capabilities of the companies often rely on their people since they are essential as part of the mechanism for innovation in the organization (Attwood, 2015). Identifying and recruiting the right employees with the right education and skillsets will ensure the success of such an organization. According to Attwood (2015), employees are recognized as finite resources and the key to implementing a new strategy for the organization. A study by Khalil (2016) on an SME manufacturing enterprise in the northern town of Rundu, Namibia, found that relatively high levels of skill among employees provided an impetus for a desire to be more

competent. Attwood (2015) reveals that the knowledge base factor, level of employee's readiness which includes technical skills, experience, and willingness to learn give affects to the technology transfer performance

As technology is transforming the health sector across the globe, so is the need for the sector to have employees with the right digital skillsets to stay afloat amidst this technological disruption. Equally, communications systems make it faster for patients to get in touch with their physician. Based on the above, the health organisation needs to keep employees' technical and digital skills infused in the scheme of work, this formed the core area of this study to examine peculiarities in the adoption of human ware in health service segments as tools toward maximum productivity in the employees.

Statement of the Problem

The adoption of technologies is strategic for improving the quality of the health care system in Nigeria. However, studies have shown that a lack of technical and digital skillsets among health workers is one of the most critical factors affecting firms in the Nigerian health sector (Konttila, Siira, and Kyngäs, 2019). Paul (2018) argued that for health service firms to be able to provide quality health care systems, digital and technical skillsets, training and development, and ICT usage are strategic. Stan (2019) further stressed that without ICT infrastructure deployment, usage, and investment in current digital skillsets, firms may not survive the current storm of effects that technological disruption brings. Meanwhile, research carried out by the United Nations Commission found that a lack of a sufficiently skilled labour force unable to assimilate and adapt the new knowledge to local conditions impedes the implementation of new strategies for technology transfer activities (Augustina and Harries, 2015); hence, the below questions;

- a) Is having digital and technical skills strategic for employees in the health sector?
- b) Can employee training and use of digital technologies improve employees' competencies?
- c) Will the adoption and usage of ICT improve organizational competitiveness?

Empirically, there is a dearth of literature on how humanware. Kariuki (2015), which focused on infoware, was carried out in the public sector of Kenya. Similarly, the study of Muhammad and Muhammad (2010), which focused on technoware (a component of ICT that focuses on physical assets like machinery), was carried out in the manufacturing and banking sectors of Pakistan.

Based on the above gaps, the current study investigated human aspect of technology (humanware) in the health sector of Nigeria using variables such as employee digital skillsets, training and development, and ICT usage.

Objectives of the Study

This study aimed at determining the effect of humanware on organizational goal attainment in the health service sector in south eastern Nigeria. Specifically to:

- a) determine the effect of employee digital skillsets on organizational goal attainment
- b) examine the effect of employee refresher training on organizational goal attainment
- c) ascertain the effect of the adoption and usage ICT on organizational goal attainment organizational.

Research Questions

- what is the effect of employee digital skillsets on the organizational goal attainment?
- to what extent does employee refresher training affect organizational goal attainment?
- how does the adoption and usage ICT affect organizational goal attainment?

Statement of Hypotheses

HO₁: Employee digital skillsets has no significant effect on organizational goal attainment.

HO₂: Employee refresher training has no effect on organizational goal attainment.

HO₃: ICT adoption and usage have no effect on organizational goal attainment

Significance of the study

This study serves both organizations and enterprise practice in general, but in particular skewed to accessing effect of adoption of variables of humanware towards achieving organizational goal in health sector given the sensitivity, peculiarity and current global competitiveness of the health sector in our society.

Scope of the Study

The target population of this study focused on employees, employers and management staff of health service organizations with some level of automations, this formed the unit scope. The geographical scope of study focused on health service organizations with relatively some level of automations within the 5 south east regions of Nigeria for a wholistic coverage. The content scope revolved around variables of humanware; Employee skillset, refresher training, ICT adoption and usage while organizational goal attainment represents the dependent variable.

Review of Related Literature

Conceptual Framework

Operational conceptual model evolved in this study is shown below;

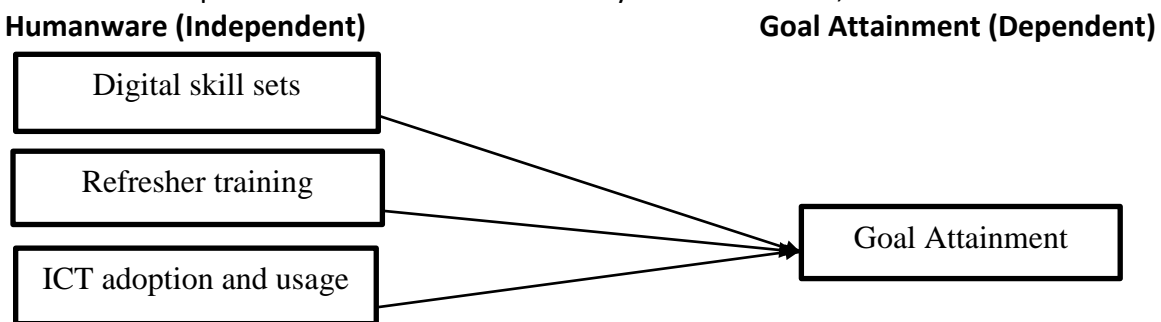


Figure 1: Operational Conceptual Model

Researcher's Desk (2023)

Information Technology

Technology, Kochen (2011), observed impacts in three stages. First, it 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 & Blakeman, 2009).

Macmillan Dictionary defines IT as "the acquisition, processing, storage and dissemination of vocal, pictorial, textual and numerical information by a micro-electronics-based combination of computing and telecommunications". 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. Also Modern information technology deals with a wide variety of ways of representing information, textual and non-textual.

Humanware (H) as a component of Information Technology

Humanware (H) is the human skills needed for using hardware and infoware to carry out the required activity or task. The capabilities of the companies often rely on their people since they are essential as part of the mechanism for innovation in the organization (Attwood, 2015). Identifying and recruiting the right employees with the right education and skillsets will ensure the success of firms and organizations. According to Attwood (2015) employees are recognized as finite resources and the key to implementing a new strategy of the organization. A study by Khalil (2016) on an SME manufacturing enterprise in the Northern town of Rundu, Namibia found that relatively high levels of skill among employees provided an impetus for a desire to be more competent. Attwood (2015) reveals that the knowledge base factor, level of employee's readiness which includes technical skills, experience, and willingness to learn give affects to the technology transfer performance.

Dimensions of Humanware

The development of humanware component of information technologies requires employees having the right digital skills and constant training and development to meet up with technological changes.

A. Digital Skills: Healthcare perspective

As defined by IGI Global (2020), "digital skills" are knowledge and skills required by individuals for the optimal use of information and communication technologies. This includes digital literacy, data management, collaborative work, communication skills, content generation, security, and the ability to solve problems in virtual environments. These skills allow a person to make strategic use of information through information technology.

Digital skillsets are abilities required to use digital technologies. They enable individuals to produce and share digital content, communicate and collaborate, and solve problems for effective and creative self-fulfillment in life, learning, work, and wider social activities (Chy 2021).

The healthcare sector is changing through the increasing use of digital applications, telemedicine, or artificial intelligence (AI) applications, especially in diagnosis and treatment planning (Masters, 2019). Moreover, modern information and communication technologies enable e-health (Kampmeijer, Pavlova, Tambor, Golinowska, and Groot, 2016) and individualised medicine. Patients can obtain information on the Internet and access a wealth of personal health data via health apps (Higgins, 2016).

The rapid change to a digitalized healthcare system and the associated requirements demand extensive skills from health care professionals in the use of digital technologies, both in training and in the clinical workplace (Konttila, Siira, and Kyngäs, 2019).

B. Refresher Training or Retraining:

This is a training programme designed for the old or existing employees of an organization, with a purpose to acquaint them with the new skills, methods, and processes required to improve their performance on the job (Konings and Vanormelingen, 2010). Retraining is conducted to keep employees updated with the latest inventions (Konings and Vanormelingen, 2010). The need for the retraining arises when there is a continuous fall in the performance of a worker and the attitudinal conflict arises. The Retraining is essential because of the following reasons (Kulkarni, 2013): to get the best out of the employees, retain the employees, increasing the pool of talent for an organization and saving the cost incurred in hiring a new talent.

C. ICT Usage and adoption

According to Burhalis (2003), ICT has given huge impact to operations, structures and strategies of firms. The use of ICT not only leads to saving of costs and resource optimization, and it also leads to improved customer service (Ashraf & Murtaza, 2008). Indeed use of ICT has become a way of live in all spheres of life.

ICT provides new ways of storing, processing information in an organization as well as exchanging information with their stake holders as well (Kollberg & Dreyer, 2006). Using ICT in organizations enables transparency and facilitates information sharing (Shanker, 2008). Fullantelli and Allegra (2003) states that ICT gives organizations a wide range of possibilities for enhancing their competitiveness and provides mechanism for them to acquire new markets.

Organizational Goal Attainment

Goal attainment is the process through which human and other resources are mobilized to attain collective goals (Simon, 2017). Employees should also have the proper tools and resources to help them meet organizational goals (Kaplan & Norton, 2006).

Setting organizational goals also helps build workplace harmony because it makes employees work toward attaining similar goals (Fried & Slowik, 2014).

The firm's goal can be grouped into three (Fried & Slowik, 2014):

- i. **Strategic goals:** These are goals -- often big picture, qualitative, long-term goals -- an organization aims to achieve.
- ii. **Tactical goals:** These are smaller picture, qualitative goals, often with a quantitative element that focuses on transforming official goals into operational goals.
- iii. **Operative goals:** These are goals with measurable steps required to achieve a desired outcome.

Theoretical Review

The section involves reviews of relevant theories which were critical in guiding this study. The Resource Based Theory was used in this study.

Resource Based Theory (RBT)

This theory was developed by Birge Wenefeldt in 1984. The theory acknowledges that firms achieve competitive advantage and superior firm performance through synergistic mix of valuable, rare, inimitable and non-substitutable resources that they possess (Barney, 1991). Further, RBT asserts that firms use these resources to implement strategies by effectively and efficiently developing capabilities that can be leveraged to sustain competitive advantage (Barney, 1991). There are two types of resources: tangible and intangible. Tangible assets are physical things which can easily be bought in the market so they confer little advantage to the companies in the long run because rivals can soon acquire the identical assets while intangible assets are everything else that has no physical presence but can still be owned by the company (Anand, Wamba and Sharma, 2013). The RBT's underlying premise is that a firm differs in fundamental ways because each firm possesses a "unique" bundle of resources-tangible and intangible assets and organizational capabilities to make use of those assets (Anand, Wamba & Sharma, 2013). Each firm develops competencies from these resources, and when developed especially well, these become the source of the firm's competitive advantage (Pearce & Robinson, 2007).

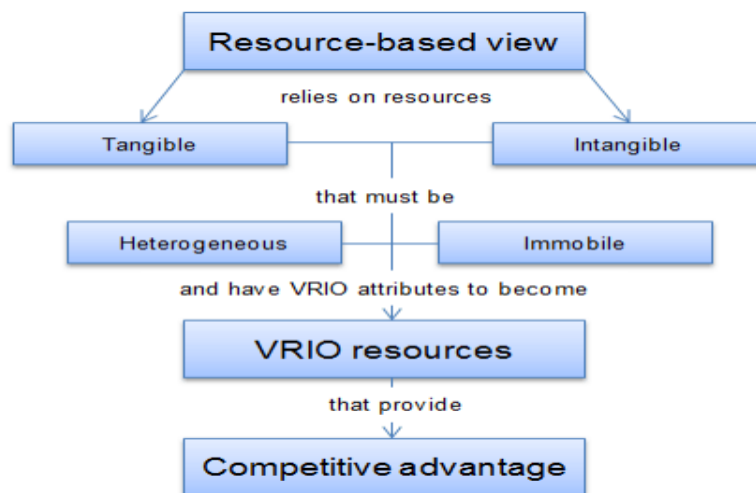


Figure 2.1 Resource Based Theory

Source; Wikipedia.com

In regard to this study, the following factors can be viewed as forming bundles of firm assets; computing resources and capabilities, top Management Support, ICT skills and human capital.

Empirical Review

Wimalarathna, Deshika, and Perera (2022) investigated the effect of employee skills on customer satisfaction: A study on automobile sector employees in Kurunegala District, Sri Lanka. Using a multistage sample technique, 125 clients who visited the automobile sales center were chosen as the sample of this study. Along with the descriptive statistics, correlation analysis, chi-square, multiple regression, and factor analysis were used in the study's analysis.

Findings suggest that the technical, soft, and job-related skills of employees have an impact on clients' satisfaction.

Ida (2017) investigated the effect of employees' work experience on performance Amber Hotel in Kenya. The research design adopted in the study was descriptive design. Further, the study population were 125 Amber Hotel employees from different departments who were selected using stratified sampling design. The statistical tool used in the data analysis was correlation analysis. The findings revealed that employee work experience has positive significant relationship on effectiveness and efficiency, quality of services and products produced, employee's job performance, and employees' turnover.

Fanice, Wilfred, Elegwa, and Willy (2017), investigated the relationship between employee innovativeness and perceived service quality by government Ministries in Kenya. The study adopted descriptive survey research design. The data collected was analyzed using descriptive and inferential statistics. The regression results showed that employee innovativeness had significant and positive effect on perceived service quality by government ministries in Kenya.

Monday (2015) carried out a study on the Evaluation of the Effect of Manpower Training and Development in Service Organization. The study was a descriptive research method and adopted the system theory. The study took a sample of 154 respondents from a population of 250 from the total population of staff in the Power Holding Company of Nigeria (PHCN) Zaria used as a case study. Major findings indicated that there is a positive correlation among all the variables. Result of the model summary shows that the independent variables account for 39.1% of the variation in organizational performance.

Manal & Refaat (2015) investigated the impact of human resource management on technological innovation in Jubail Primary Industrial Sector, Kingdom of Saudi Arabia. Statistical analysis of correlation was used to analyze the obtained data between HRM and organizations' technological innovation. The findings showed that enhancing technological innovation in industrial organizations is possible through integrating HRM practices, developing HR activities and emphasizing on HR role in the industrial organizations' strategic planning.

The study of lidoro (2018) sought to establish influence of training on performance of health workers at Kakamega county general teaching and referral hospital, Kenya. The study employed descriptive cross sectional design. Descriptive statistics such as mean, standard deviation and percentages were calculated. Linear regression was done to establish cause effect relationship between the variables. The findings indicated that training was statistically significant.

Al Fawzan (2003) investigated the modern information systems and their impact on the performance of employees – a survey on the General Customs Authority, Saudi Arabia. The study aimed know the sources of information flow in the Customs Department, and the identification and classification of internal and external information of interest, and find out the positive role of systems use modern information on the performance of employees, as well as knowledge of the negative role of the systems use modern information on the performance of employees. Among the most important findings of the study 61% of respondents do not know

for specialized training programs in the field of modern information technology, and answered 24.2% of respondents said that it is not already present in the training programs,

Hisham and Siddig (2017) examined the impact of employee skills on service performance in Sudan. The study utilized both the descriptive and cross-sectional research design. A sample size of 384, was drawn from the population method using the convenient sampling technique. Using the simple regression method for statistical analysis, the findings reveal that employee competencies have a direct impact on the service performance and customer experience and it is significant, and that customer experience has a direct impact on service performance.

Eucharía and Uchechukwu (2019) investigated technological skills and its influence on employees' performance in manufacturing firms in South-East Nigeria. A sample size of 86 respondents was drawn from the population via simple random sampling. A simple linear regression was conducted on the data. The result indicated a statistically significant association between ICT skills and employee job performance.

The study of Peter (2013) investigated the effect of the use of Information and Communication Technology performance of Community Based Organizations in Kitui County, Kenya. The study used descriptive research design. The study revealed that Community Based Organizations had insufficient computer hardware resources and that Information and Communication Technology Infrastructure had helped them enhance communication amongst themselves and with other stakeholders.

Research Methodology

Research Design, Population of the Study, and Sample Size Determination

The study adopted descriptive research design. A descriptive study design was used in obtaining an in-depth investigation of service health firms. The targeted population of the study is 155 across different selected health institutions.

Table 3.1. Population of Selected Health Service Organizations

Category	No of Health organizations	Targeted Population (Staff)
Hospitals	20	600
Pharmacies	40	400
Health Centres	10	200
Patent & Chemist	250	500
Others	50	200
Total	370	1900

In determining the sample size, Taro Yamane's formula use:

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

Thus, the sample size is determined below:

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

n =330

Sampling Procedure, Data Source, Research Instrument, and Data Analysis

The stratified proportionate random and simple sampling techniques were used in selecting the sample. The study used both the primary and secondary sources of data. The research instrument utilized was the questionnaire constructed four-point Likert scale.

In analyzing the data gotten from the field, the use of tables and mean were used in analyzing the questionnaire while the simple regression analysis via Statistical Package for Social Sciences (SPSS) was used in testing the hypotheses.

Data Analysis and Results

Responses Rate, Demographic, and Reliability

As shown in Table 4.1, the responsible rate is 100%, which is above the threshold of 50%. This response rate was very satisfactory to draw conclusions for the study. The response rate was representative. According to Mugenda and Mugenda (2003), a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good; and a response rate of 70% or higher is excellent. Based on the assertion, the response rate was considered excellent.

Response rate Table 4.1 Response Rate

	Target Frequency	Actual Frequency	Percentage of response
Service Health Firms	330	330	100%

Source: Field Survey, 2023.

From Table 4.1, the study found out that the majority of the respondents, 51.9%, were females, whereas 48% were males; this is an indication that both genders were involved in this study, and thus the finding of the study did not suffer from gender bias. The study requested the respondent to indicate their age category, from the findings 27.5% of the respondents indicated that they were less than 30 years, 36.2% were between 31 to 40 years, 16.5% of the respondent indicated they were aged between 40 to 50 years, while 19.6% of the respondents indicated that they were aged between 50 years and above. This is an indication that respondents were well distributed in terms of their age.

Response rate Table 4.2 Response Rate

Variable		Frequency	%
Gender	Male	159	48
	Female	171	51.9
Age group	less than 30	91	27.5
	30- less than 40	120	36.2
	40- less than 50	55	16.5
	50 years and more	64	19.6
Educational level	Wace	60	18.2
	Diploma	107	32.2
	Bachelor	127	38.5
	Post- graduate	36	11

Work Experience	less than 10 years	148	44.8
	5-15years	133	40.1
	15-20years	36	11
	20 years and Above	13	3.9

Source: Field Survey, 2023.

The study also sought to determine the professional qualifications of the respondents. From the findings (Table 4.2), the study established that 18.1% are WACE holders, 32.2% of the respondent hold diploma qualifications, 38.5% of the respondent indicated to have attained bachelor degree holders, while 11% of the respondent indicated to hold degree qualifications. This is an indication that most of the respondents engaged in this study have good educational experience and, hence, can respond to the questions.

The study requested respondent to indicate the number of years they had served in their respective firms. From the findings, the study established that 44.8% of the respondents had worked for a period ranging from 5 to 10 years, 40.1% indicated that they had worked for 10-15 years. 11% had served for a period ranging from 15 to 20 years, and 3.9% had worked for a period of over 20 years. This implies that the majority of the respondents had served for a considerable period, which indicates that most of the respondents had vast experience that could be relied upon by this study.

Table 4.3: Reliability Coefficients

Scale	Cronbach's Alpha	Number of Items
Employee digital skillsets	0.821	8
Refresher training	0.848	7
ICT adoption and usage	0.897	7
Goal Attainment	0.867	5

Source: Field Survey, 2023.

Reliability analysis was subsequently done using Cronbach’s Alpha which measures the internal consistency by establishing if certain item within a scale measures the same construct. Using the Cooper & Schindler (2003) indicated 0.7 to be an acceptable reliability coefficient, it is concluded that items are reliable.

Below is the formula for Cronbach’s alpha.

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

Where:

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

Source; Jim frost (statisticsbyjim.com)

Inferential Statistics: Test of Hypotheses**Regression Analysis**

HO₁: Employee digital skillsets will have no significant effect on organizational goal attainment.

Table 4.4. Regression: Effect of Employee digital skillsets on organizational goal attainment

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.000	.313		.002	.999
	Digital Skillsets	.879	.011	.974	77.952	.000
F-value = 6076.549, p<0.05, Durbin-Waston = 0.489, R ² = .949						

a. Dependent Variable: Goal Attainment

b. Independent Variable: Digital Skillsets

Source: Field Survey Result, 2022

HO₂: Employee refresher training will not have any effect on organizational goal attainment.

Table 4.5. Regression: Effect of Refresher training on organizational goal attainment

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
2	(Constant)	-.735	.387		-1.900	.000
	Refresher Training	1.042	.016	.963	64.951	.000
F-value = 4218.602, p<0.05, Durbin-Waston = 0.375, R ² = .982						

a. Dependent Variable: Goal Attainment

b. Independent Variable: Refresher Training

Source: Field Survey Result, 2022

HO₃: ICT adoption and usage will have no moderate effect on organizational goal attainment

Table 4.6. Regression: Moderating effect of ICT adoption and usage on goal attainment

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
3	(Constant)	-2.196	.233		-9.438	.000
	ICT adoption and Usage	1.089	.010	.988	114.273	.001
F-value = 13058.289, p<0.05, Durbin-Waston = 0.220, R ² = .975						

a. Dependent Variable: Goal Attainment

b. Independent Variables: ICT adoption and Usage

Source: Field Survey Result, 2022

Discussion

Hypothesis One (HO₁):

HO₁: Employee digital skillsets will have no significant effect on organizational goal attainment.

Table 4.4 indicated that the possession of digital skillsets has significantly contributed to the attainment of organisational goals of health service firms ($B = .879$, $P 0.00$), and thus, the HO was rejected. The above implies that such possession of skills would enable employees to deliver quality health services, stay motivated, improve their productivity, and improve efficiency. Also, such skillsets have broadened employees' experience in finding solutions to work-related problems, contribute innovative idea and accomplishing goals.

The above findings are in line with the findings of Wimalarathna, Deshika, and Perera (2022), who investigated the effect of employee skills on customer satisfaction in Kurunegala District, Sri Lanka, and found a significant positive effect. The findings are also in line with those of Hisham and Siddig (2017), who examined the impact of employee skills on service performance in Sudan and found a positive, significant effect.

Hypothesis Two (HO₂):

HO₂: Employee refresher training will not have any effect on organizational goal attainment.

Results from Table 4.5 indicate that refresher training on digital skills has significantly contributed to organisational goal attainment. This is demonstrated with a beta value of $B = 1.042$ $P < 0.000$. Hence, the null hypothesis was rejected and the alternative accepted. The above implies that by providing digital training to employees in areas like operating and setting up ICT devices, digital collaboration and communication, data science analytics, digital HR processes, data storage, cyber-security, and information processing, major organisational goals have been achieved. Hence, training employees on digital technology has improved the quality of healthcare delivery.

These findings confirm that refresher training and organisational goal attainment are inextricably linked. This is in line with the submissions of Ida (2017), Monday (2015), and Lidoro (2018) that found a positive and significant effect of training on organisational performance.

Hypothesis Three (HO₃):

HO₃: ICT adoption and usage will have no moderate effect on organizational goal attainment

As indicated in Table 4.6, the regression analysis shows that the adoption and usage of ICT have a moderately positive and significant effect on goal attainment ($B = 1.089$, $P 0.00$). The above findings imply that the adoption and usage of ICT tools and devices have improved clinical operations like patient health assessment, documentation, telemedicine, and the electronic medical record; hence quality of healthcare delivery.

This is in line with the submissions of Manal and Refaat (2015), Al Fawzan (2003), and Peter (2013), which found the adoption and usage of ICT to have impacted positively and significantly on organisational performance.

Conclusion

The knowledge, skills, and experience of employees are strategic in the achievement of organisational goals. Also, the human aspect of information communication technology must

be developed through training for organisations to be able to retain talent, improve efficiency, and increase customer satisfaction.

The result of this empirical study indicates that humanware (a component of ICT) has a positive and significant effect on organisational goal attainment. Specifically, it is concluded that the possession of digital skillsets is strategic to organisational goal attainment. The study also concluded that providing constant digital training for employees (refresher training) has contributed to the attainment of organisational goals. Finally, it is concluded that the adoption and usage of ICT have improved goal attainment.

Recommendation

Based on the above findings, the study recommends that:

1. Healthcare service organisations and professionals should be familiar with available e-health and m-health solutions and know how to use them in an effective, responsible, and ethical way, with the interests of the patient at the center.
2. Health professionals, including physicians, nurses, dentists, pharmacists, and midwives, should possess skills and aptitude for communication, data analysis, computer literacy, medical device compatibility, data protection programs, mobile applications, cloud storage, surfing the internet, and the ability to read, understand, and forward information using smart devices.
3. Providing training programmes for workers on how best to deal with information technology and developing individual abilities among workers to use it properly

Limitation of the study and areas for Further Research

While the present study further revealed the effect of humanware on organizational goal attainment in general. It is pertinent to note that the study's current finding cannot be generalised based on the fact that the participants of the study included only employees from the health sector in the south-east of Nigeria.

The study mainly focused on the health sector hence there is need to replicate the study different organizations in other sectors like manufacturing, banking, transportation, and oil and gas so as to find out the effect of humanware (an aspect ICT) on performance firms in Nigeria. Also, further research should be carried out to improve the understanding of the role of employee competencies in service businesses. More studies should also be conducted, taking cultural traits and characteristics of the local business environment into consideration.

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