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Effect of Unified Theory of Acceptance and use of Technology on Tax Professionals' Response to Digitalization and Automation of Tax Administration Processes in Sub Saharan Africa

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Abstract

The ability of any organization, particularly, the Federal Inland Revenue Service of Nigeria to succeed mostly depended on the ability of the human resource available to be able to adapt to reasonable professional ways of executing responsibilities. The general acceptability of the human resource to professionally execute and respond to their responsibilities by the use of technology on digitalization and automation of administrative processes needed a clear unification of purpose. The Unified Theory of Acceptance and Use of Technology (UTAUT) explained the users' plans, intentions and behaviours of those ready to use information systems, acceptance of technology determined by four factors: performance expectancy, effort expectancy, social influence, and facilitating conditions. The Federal Inland Revenue Service, a core revenue generating agency for the government of Nigeria, viewed the automating of tax administration processes to its significant effect on revenue optimization. The study adopted the descriptive survey design in consideration of a population of 2,460 of staff of the Federal Inland Revenue Service, banks, and finance experts among others. The study adopted the Yamane formula to arrive at a sample size of 344. The simple random sampling method was used for the selection of 352 staff of the Federal Inland Revenue Service, banks, and finance experts among others for personal and self-administered interviews. However, 344 respondents were recorded and documented. The source of data used for this study was primary source. The nature of the structured interview questions used for this study was a five-point Likert-scale and validated by four professional in related field. The method of data analysis was by linear regression employed to test the hypothesis to see the effect of automating tax administration processes on revenue optimization in the Federal Inland Revenue Service of Nigeria. Finding revealed that the automation of tax

administration processes has positive significant effect on revenue optimization in the Federal Inland Revenue Service of Nigeria. In conclusion, the utilization of technology in the executing of responsibilities in revenue drive in the Federal Inland Revenue Service was of great importance to increase revenue for the Federal Government. Recommendation was that the Federal Government of Nigeria should deploy more recent technological gadgets to the Head office and all the Branches of the Federal Inland Revenue Service and embark on massive training and retraining of all staff by engaging professional training institutes on hands-one training, every six months with feedback mechanisms.

Key: Unified, Acceptance, Technology, Tax, Professionals, Digitalization, Automation

Introduction

Nations have their various economic policies that are driven by various factors. These factors are based on the various organs available to drive the policies. One of such factorial entity is the revenue driven entity. In Nigeria, at the federal government level, it is the Federal Inland Revenue Service. The Federal Inland Revenue Service in Nigeria is powered by law to drive the collection of certain taxes from citizens and organizations as the case may be in Nigeria There then, lies the system and approach to drive the assessment, collections, and remittance of revenue so collected. There then come the use of technology in their operations,

The Unified Theory of Acceptance and Use of Technology (UTAUT) is one model that explains the users' plans, intentions and behaviours of those ready to use information systems in executing their functions. This theory examines the acceptance technology, determine by the effects of performance expectancy, effort expectancy, social influence and facilitating conditions

According to Venkatesh, Morris, Davis, and Davis (2003), the Unified Theory of Acceptance and Use of Technology model is user acceptance of technology as determined by four factors: performance expectancy, effort expectancy, social influence, and facilitating conditions. The progression and advance in information communication technology (ICT) dissemination and have dramatically changed the way organizations execute their activities. Venkatesh et al., 2003 opine that the theoretical model of Unified Theory of Acceptance and Use of Technology suggests that the actual use of technology is determined by behavioural intention. The perceived likelihood of adopting the technology is dependent on the direct effect of four key constructs, namely performance expectancy, effort expectancy, social influence, and facilitating conditions. The effect of predictors is moderated by age, gender, experience and voluntariness of use

The application of the technologies in the workplace has redefined inter- and intra-organizational communication has streamlined business processes to ensure benefits, such as higher productivity, the wellbeing of employees and the satisfaction of consumers (Papagiannidis & Marikyan, 2020). Furthermore, to achieve such benefits, organizations make great spending on technologies. Alaa (2020) posits that, the Unified Theory of Acceptance and Use of Technology has taken place as one of the most developed and intensive models to test technology adoption and acceptance. Alaa (2020) further said, this model has been reported as robust and trusted for application on different technologies and viable after doing

any modification operation over it. It also has the minimum amount of complexity according to its limited number of constructs and moderating variables that make it more applicable and understandable to study the acceptance behavior to any new technology.

Edidiong, Emer, and Adegboyega (2022) on their discussion said tax administrations worldwide have become highly digitized with a diverse and sophisticated array of e-services to enhance the taxpayer experience. They further went on to say the high rates of failure of e-government services, is critical and better to understand the factors that are essential to the success of a digital tax system. They suggested for future research directions based on the conceptual framework that will help advance our understanding of digital services in tax administration beyond technology acceptance models.

Okafor,2012 and Petutschnig, (2017) emphasize that digital taxation is, therefore, a system that fits with the ecosystem approach given it arguably leans heavily on the engagement of actors outside of the revenue authorities to succeed. This is because of the wide-ranging impact taxation can have on the economy ranging from changing taxpayer behaviour, ease of doing business, inequality, poverty, and fiscal policy.

Cotton and Dark 2017; OECD, 2016A; OECD 2016b, in their view suggests that multilateral institutions, particularly members of the Platform for Collaboration of Tax such as the UN, IMF, WBG, and OECD have been at the forefront of digital government, conducting multiple reports and lobbying governments to improve their digital capabilities

THE OBJECTIVE OF THE STUDY IS:

To investigate the effect of Automating tax administration processes on revenue optimization in the Federal Inland Revenue Service of Nigeria

THE STUDY HYPOTHESIS STATED BELOW:

H_0: Automating tax administration processes has no significant effect on revenue optimization in the Federal Inland Revenue Service of Nigeria

H_1: Automating tax administration processes has significant effect on revenue optimization in the Federal Inland Revenue Service of Nigeria

METHODOLOGY

The study adopts the Realism philosophy according to Dazeley, . This is because it provides independency of the observer, value-free approach to science, focus on facts, causalities and fundamental laws and brings out the a specific position on reality . Furthermore, concepts have to be operationalized with samples and depend on quantifiable observations that lead to statistical analysis. In addition, the researcher is independent from the study and there are no provisions for human interests within the study. Babajide (2012) adopted the positivism philosophy. The circumstance surrounding the adoption of the survey design by Babajide (2012) properly gathered data with empirical views microfinance effect on micro and small enterprises (MSEs) performance in Nigeria.

Due to the objective of the study, the descriptive survey design approach was adopted in consideration of a population of 2,460 staff of the Federal Inland Revenue Service, banks, and finance experts among others. The area of coverage was Abuja and Jos in consideration of certain pertinent factors. Ndife (2013) adopted same method in determining the impact of microcredit institutions on starting up on the survival and growth of Small and Medium Enterprises (SMEs).

Jones (2014) used the survey design to investigate the effect of loan on the performance of micro and small enterprises with small business having considerable challenges on loan, which affects performance.

The study adopted the Yamane formula to arrive at a sample size of 344 from the population staff of the Federal Inland Revenue Service, banks, and finance experts among others. The sample size applies to the number of staff of the Federal Inland Revenue Service, banks, and finance experts among others responses of 2,460. Therefore, a mathematical formula propounded by Yamane (1967:886) as applied to determine the sample size for proportion of the small business.

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

Where:
N = is the population of the total number of staff of the Federal Inland Revenue Service, banks, and finance experts among others responses and documented
n = is the sample calculated from total of consumers spending responses population
e = is the error or confidence level.
In essence: n = the sample size, N = total population, e = margin of error.
The conventional confidence level of 95% applies to ensure an accurate result from the sample.
Based on this, the error term is equal to 0.05.
Using the revenue optimization responses population of 2,460 with error margin of 0.05, the sample size is as:

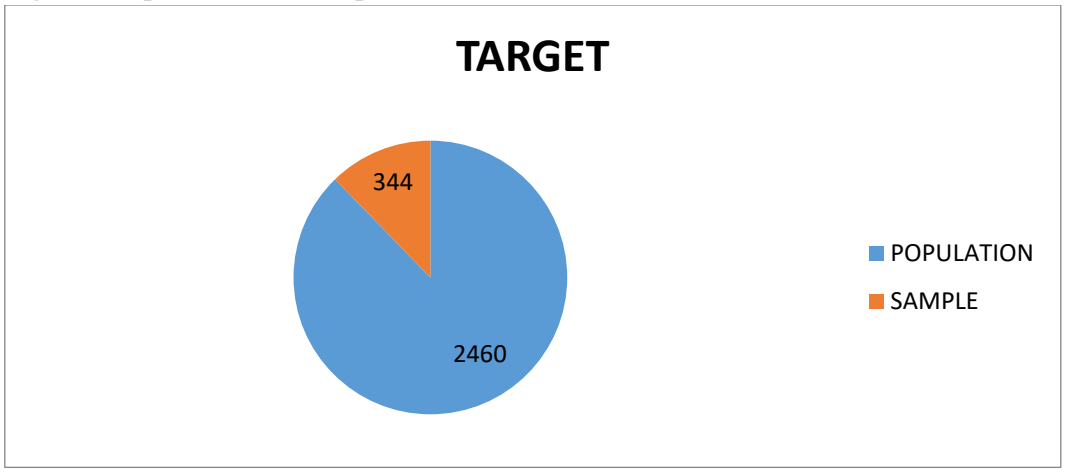
$$n = \frac{2,460}{1 + (2,460 \times 0.0025)}$$
$$n = 344$$

Table 1: Population and Sample

TARGET	
POPULATION	2460
SAMPLE	**344**

Source: Researcher. The spread of the Population and the sample

Figure 1 Population and Sample



Source: Researcher: Pictorial representation of the Population and Sample

Therefore, the sample size of 344 considered adequate to represent the population.
The simple random sampling method was used for the selection of staff of the Federal Inland Revenue Service, banks, and finance experts among others respondents with a consideration of 352 staff for personal and self-administered interviews. The instrument for the collection of data was a personal and self-administered interview. The selection of 352 for personal and self-administered interviews was justified to be able to retrieve a sizable number of responses to the sample size of 344. The source of data used for this study was primary source. The nature of the structured interview questions used for this study was a five-point Likert-scale which ranges from "strongly agree" to "strongly disagree" (1 = 'Strongly Agree', 2 = 'Agree', 3 = 'Neutral', 4 = 'Disagree' and 5 = 'Strongly Disagree'), and validated by four professional in related field. The method of data analysis was by linear regression employed to test the hypothesis to see the effect of automating tax administration processes on revenue optimization in the Federal Inland Revenue Service of Nigeria..
This study adopted the Internal Consistency Testing (ICT) where each of the interview questions (variables) conducted as the most convenient method for testing for the internal consistency. Calculating the reliability coefficient helped to understand such errors in testing and the Pearson's correlation coefficient applied. The formula is given as:

$$r = \frac{N\Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{[N\Sigma X^2 - (\Sigma X)^2][N\Sigma Y^2 - (\Sigma Y)^2]}} \quad \ldots 2$$

Where:

N is the total number of pairs of test and retest scores
Y is the Independent Variable
X is the Dependent Variable

For example, the 352 respondents responded on the interviews test and retest, and then N is 352. Following the N is the Greek symbol sigma, which means the sum of xy means we multiply x by y, where x and y are the test and retest scores. If 352 respondents responded the test and retest, then we summed all 352 pairs of the test scores (x) and multiplied them by the sum of retest scores (y). But the n is 344 as the sample size.
Decision Criterion: If the test result falls within the acceptable range of 1.0, we accept and continue the study else we change the study.
The method of data analysis was by linear regression for the primary data employed to test the hypothesis to see the effect of automating tax administration processes on revenue optimization in the Federal Inland Revenue Service of Nigeria. Justification for this adoption was that the researcher wants to establish and predict the behavior of set of ordinal level dependent variables with an independent variable. Linear Regression Analysis applies when predicting a linear Ordinal variable. The authority for adopting this method is from McCullagh (1980). In their study on: Effect of microfinance services on performance of business owned by women, Mutisya, Okibo and Olweny (2014) did a similar research applying the Model.

The formular of the Linear Regression Analysis is

Revenue Optimization - model

$RO_i = \beta_1 + \beta_2 ATAP_i + u_i$ …5

Where:

RO_i = Revenue Optimization

$ATAP_i$ = Automating Tax Administration Processes

β_1, = Constant term

β_2, = coefficient of ATAP

u_i = error term.

Assumptions of the Regression

- **Linear relationship:** The outcome variable Y has a roughly linear relationship with the explanatory variable X.
- **Homoscedasticity:** For each value of X, the distribution of residuals has the same variance. This means that the level of error in the model is roughly the same regardless of the value of the explanatory variable (homoscedasticity - another disturbingly complicated word for something less confusing than it sounds).
- **Independent errors:** This means that residuals (errors) should be uncorrelated.
- **Problems with outliers/influential cases:** It is important to look out for cases, which may unduly influence your regression model by differing substantially to the rest of your data.
- **Normally distributed residuals:** The residuals (errors in prediction) should be normal distributed.

For pre-data analysis, the data collected through the administration of questionnaires coded based on the range of values from the questionnaire options. It expected that the data do not exceed the expected range. Out-of-range value test conducted. The Out of Range Value uses excel by identifying the Minimum and Maximum variables according to Excel Tips and Tricks (Pryor.com 2014).

Decision rule

Any Value within 1-5 is within range

Any Value outside 1-5 is out of range

Linear regression and normality of dependent variable: Linear Regression analysis describes and evaluates the relationships between a specified dependent variable and one or more independent variables. We then conclude that regression is an appropriate statistical method in order to confirm or disconfirm the chosen hypothesis. An important assumption for a valid regression elaborated and tested in order to ensure that the final regression model is not flawed.

One important assumption of the regression analysis is that the dependent variable be normal distributed. To describe a symmetrical, bell-shaped curve, the greatest frequency of scores around in the middle combined with smaller frequencies towards the extremes (Pallant, 2005). The regression in this study has one dependent variable Revenue Optimization (RO) while Automating Tax Administration Processes (ATAP) independent variable. If the dependent variable is not normally distributed, there is little point in performing regression analysis because a major assumption of the model is broken. The dependent variable calculated by using the mean of their items that measured it.

The correlation applied to test if there are excessive correlations between the variables in the model.

The formula given as:

$$r = \frac{N\Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{[N\Sigma X^2 - (\Sigma X)^2][N\Sigma Y^2 - (\Sigma Y)^2]}}$$

Where:

N is the total number of pairs of test and retest scores
Y is the Independent Variable
X is the Dependent Variable

Decision rule

Any value between 0-0.4 is weak correlation
Any value between 0.5-0.7 strong correlations
Any value between 0.75-1 is very strong correlation

Table 2: Correlation Matrix

		CS	VAT
CS	Pearson Correlation	1	.313**
	Sig. (2-tailed)		.000
	N	352	344
VAT	Pearson Correlation	.313**	1
	Sig. (2-tailed)	.000	
	N	352	313
****. Correlation is significant at the 0.01 level (2-tailed).**			

Interpretation

The correlation result for dependent and independent variable in table 2 shows that the variable has a relationship to Automating Tax Administration Processes (ATAP). The result revealed that Automating Tax Administration Processes correlated to Revenue Optimization 31.3%.

Decision

The decision here is that the study should forge ahead since there is relationship of the variables.

In this study, the hypothesis tested used the Regression Analysis
Restated as:
H_0: Automating tax administration processes has no significant effect on revenue optimization in the Federal Inland Revenue Service of Nigeria
H_1: Automating tax administration processes has significant effect on revenue optimization in the Federal Inland Revenue Service of Nigeria

Test Statistic: Simple Linear Regression analysis

Formula:

$RO_i = \beta_1 + \beta_2 ATAP_i + u_i$ …3

Where:

RO_i = Revenue Optimization

$ATAP_i$ = Automating Tax Administration Processes

β_1, = Constant term

β_2, = coefficient of Automating Tax Administration Processes
u_i = error term.
P-value = Calculated value
Decision Rule: Reject Ho if *P<0.05*
Accept Ho if *P*>0.05

The decision rule is that if the p-value is less than the level of significance of 0.05, the null hypothesis will be rejected while the alternate hypothesis is accepted. However, if the p-value is greater than the level of 0.05 accept the null hypothesis and reject the alternate.

Data
The data for estimation is presented in Table 2

Table 3
Regression result: Automating Tax Administration Processes

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.362	.133		5.102	.000
	ATAP	.261	.161	.323	2.233	.000

a. Dependent Variable: CS

Source: SPSS 25.0

Interpretation
As shown in Table 3, the standardized regressions result for Automating Tax Administration Processes is 0.261. This means that Automating Tax Administration Processes (ATAP) has influence on Revenue Optimization (RO). It denotes that with better and increase unification and professional response to Automating Tax Administration Processes (ATAP), it will lead to increase in Revenue Optimization (RO). A 1% increase in the level of Automating Tax Administration Processes (ATAP) will bring about a 26.1% increase in the Revenue Optimization (RO). A position that the Federal Inland Revenue will benefit more for the application of the Automating Tax Administration Processes in the system of operational responsibilities.

Decision
Since the p-value 0.000 is less than the significance level of 0.05 as shown in Table 3, we reject the null hypothesis; automating tax administration processes has no significant effect on revenue optimization in the Federal Inland Revenue Service of Nigeria. While the alternate hypothesis of: Automating tax administration processes has significant effect on revenue optimization in the Federal Inland Revenue Service of Nigeria is accepted. In concluding,
Automating tax administration processes has significant effect on revenue optimization in the Federal Inland Revenue Service of Nigeria.

DISCUSSION OF findings
We rejected the null hypothesis and did not fail to accept the alternate hypothesis, which states that automating tax administration processes has significant effect on revenue optimization in the Federal Inland Revenue Service of Nigeria. Finding revealed that the automation of tax administration processes has positive significant effect on revenue optimization in the Federal

Inland Revenue Service of Nigeria. Therefore, it holds meaning that when there is an improvement and provision of technological gadget and professionally accepted by staff and trained by professionals for their use, then revenue optimization will increase.

CONCLUSION

We conclude that, the acceptance and utilization of technology professionally in the executing of responsibilities in revenue drive in the Federal Inland Revenue Service is of great importance to increase revenue for the Federal Government. However, there are different factors that leads to increase in revenue optimization which include the uniformity of acceptance, professional response by staff and the ability of staff to be trained and able to use most recent gadgets to drive revenue. The higher the uniformity of acceptance of use of technology on professional applications, the increase is revenue optimization.

RECOMMENDATION

The Federal Government of Nigeria should deploy more recent technological gadgets to the Head office and all the Branches of the Federal Inland Revenue Service and embark on massive training and retraining of all staff by engaging professional training institute's personnel to teach on hands-one training, for every six months with feedback mechanisms.

In support of this recommendation is Canares, 2016; Jimenez, Macant Sionnaigh, & Kamenov, 2013 study that National aid agencies are not far behind; the German Technical cooperation, the US Agency for International Development (USAID), the UK Department for International Development (DFID) and Australian Aid are some of the notable agencies that are highly focused in providing aid for developing countries to engage in digital taxation services.

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