INNOVATIVE MANAGEMENT SYSTEMS FOR SUSTAINABLE DEVELOPMENT IN THE 21ST CENTURY

A BOOK OF ARTICLES FROM THE 1ST INTERNATIONAL CONFERENCE, FACULTY OF MANAGEMENT SCIENCES, AKWA IBOM STATE UNIVERSITY, NIGERIA

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2023

INNOVATIVE MANAGEMENT SYSTEMS FOR SUSTAINABLE DEVELOPMENT IN THE 21ST CENTURY

A BOOK OF ARTICLES

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PREFACE

This is a ***Book of Articles*** derived from the 1st International Conference of the Faculty of Management Sciences, Akwa Ibom State University (AKSU), Nigeria. It is edited by three members of the Local Organising Committee (LOC) who consented to doing so. The Book has twenty (20) chapters from 20 selected papers presented at the conference. This section of the book contains a brief note on the Faculty of Management Sciences, AKSU. It highlights the origin and metamorphosis of the Conference, its theme and constitution of the LOC. It also gives the step by step procedures followed to establish the fundamentals for the Conference.

Faculty of Management Sciences (AKSU): Faculty of Management Sciences as presently constituted in the academic brief of the University is made up of five (5) Departments as follows: Departments of Accounting, Business Administration, Banking and Finance, Marketing and Public Administration which are currently functional.

Philosophy: The main focus of the Faculty is the training and development of middle and high level manpower to administer the affairs of Government, Government institutions as well as effectively manage business organizations through the applications of fundamental academic principles to administrative/management decisions and control. This is aimed at promoting efficiency, effectiveness and organizational institutional stability in all its ramifications.

Vision: The Vision of the Faculty is to attain the highest level of excellence in teaching, research and community development. This vision is pursued with vigor and a high level of consistency to enable the Faculty rank among the best of its kind in Nigeria and Africa. An important aspect of the vision is to promote linkages with universities, public services and industries in Nigeria and abroad as well as to catch up with the current level of attainment in scholarship development in management disciplines.

Mission: The Mission of the Faculty of Management Sciences evolves in three different areas namely: Teaching Research and Community Development. Thus students in this Faculty are exposed to training and development in a way that will sharpen their minds to be useful academics, public intellectuals and professionals who will be able to offer effective contributions to management and economic development in Nigeria and in the world at large.

Motto: Expanding the Horizon of Knowledge through Teaching and Research

The 1st International Conference: The idea for the 1st International Conference was initiated by the serving Dean of the Faculty, **Professor Nkanikpo Ibok Ibok**, *B.Sc., MBA, Ph.D.*, *Professor of Consumer Psychology and Industrial Marketing* at the 2nd Faculty Board meeting held on13th January, 2020. The noble idea was unanimously adopted and the Local Organising Committee was instantly constituted and was eventually inaugurated as follows:

The Local Organising Committee (LOC)
Dr. Ekong Daniel, *Chairman*
Dr. Christabel Brownson, *Secretary*
Dr. Imoh Imoh-Ita
Dr. Eno Ukpong
Dr. Aniebiet Etuk

The LOC was mandated to bring out the Theme of the Conference and to plan for the successful conference. It was also mandated to secure conducive accommodation for the participants. Subsequently, the LOC at its maiden meeting held on 3rd February, 2020 adopted the theme: **INNOVATIVE MANAGEMENT SYSTEMS FOR SUSTAINABLE DEVELOPMENT IN THE 21ST CENTURY.** Nevertheless, the LOC initially felt that the international Conference was not

attainable at the time given the inadequacy of facilities within and outside the University campus. The thinking of the LOC was however not palatable to the Board when presented. Rather, the LOC was encouraged to proceed with Conference arrangements.

Therefore, the LOC met again on 14th February, 2020 to deliberate and eventually came out with the conference proposal. However, due to Covid-19 pandemic the proposal could not be presented to the Faculty Board until April, 2021 when in person meetings resumed as Covid-19 vaccines were widely available. The Conference proposal was presented to the Faculty Board at its meeting held in April, 2021 where it was accepted and adopted for implementation.

COVID-19 Pandemic: During the period beginning December, 2019 through almost the whole of 2020, the virus, called 'corona virus' which started in China spread rapidly throughout the world. Morbility was extensive in all age groups, but more in 50 years and above. There was a total lock down of social and economic activities in all states of Nigeria including Akwa Ibom State. As a result, Akwa Ibom State University was locked down. When eventually Covid-19 vaccines were available and full University activities resumed later in 2020, the LOC was able to resume its work.

The Year 2021: The Faculty Conference Local Organising Committee(LOC) CONSTITUTION was drafted and Signed on the 6th Day of August, 2021. The Conference Proposal was presented to the Vice Chancellor by the LOC at a meeting with the Vice Chancellor and the management team on 28th September, 2021. After due considerations of the proposal the Vice Chancellor gave his verbal consent and approval to the Conference proposal for implementation but adjusted the Students' registration fee from N10,000 to N5000 in order to encourage student participation. The Vice Chancellor also gave approval for the University grant.

Bank Account: Approval to open a Corporate Bank Account with the Fidelity Bank PLC, Abak Road, Uyo was granted on the 11th November, 2021. Consequently, a corporate Bank Account was opened as follows:

Bank Name: **Fidelity Bank Plc.**
Account Name: **FMS AKSU International Conference**
Account Number: **5700067211**

Initial Conference Arrangements: With the release of the initial university grant on10th January, 2022, the LOC set out the Conference arrangements. A total of 48 Abstracts were received from across the world.

Postponement Due to ASUU National Stike: The initial Conference arrangements for Monday, 7th March, 2022 - Thursday, 10th March, 2022 was eventually postponed indefinitely due to the protracted ASUU National Strike.

The **2nd Conference Arrangements:** After the suspension of ASUU national strike, the LOC proposed for additional fund since the initial fund earlier received was far expended for the initial preparations. With the Vice Chancellor's verbal consent at a meeting with him and his management team on 8th December, 2022 , the Conference was now rescheduled for :**Tuesday**, **7TH – Friday, 10TH March, 2023**. The second grant was eventually received on the 7th February, 2023 .

Postponement Due to 2023 General Election: When eventually the schedules for the 2023 general elections were released, there was directive to close Universities including Akwa Ibom State University from Wednesday, February 22, 2023 to Tuesday, March 14, 2023. With this directive, and eventual postponement of the States elections the Conference dates twice needed adjustments. The **3rd Conference Arrangements:** Tuesday, 27th – Thursday, 29th March, 2023 was now the new Conference date after the general elections .

Postponement Due to Cash Crisis: The conference was once more postponed from Tuesday, 27th – Thursday, 29th March, 2023 to 3rd -5th May, 2023 due to cash crisis experienced during this period as a

result of the Cashless policy introduced by the Central Bank of Nigeria (CBN). The postponement was adopted to allow the financial system of the country to stabilize for ease of movement and lodging. The **4th Conference Arrangements:** 3rd to 5th May, 2023 was now another new date for the Conference.

Postponement Due to Population Census Announcement: Shortly after the 4th Conference arrangements were concluded for 3rd to 5th May, 2023, the National Population Commission (NPC) announced that 3rd to 5th May, 2023 were scheduled for the National Census exercise. Again, the Conference date needed to be adjusted accordingly from 3rd to 5th May, 2023.

The 5th and Final Conference Arrangements: Wednesday, 10th – Friday, 12th May, 2023 was now the new date for the Conference. The 1st International Conference of the Faculty of Management Sciences, Akwa Ibom State University was eventually held this time to the Glory and Honour of the Almighty God.

Ekong Daniel
Christabel Brownson
Imoh Imoh-Ita
December, 2023.

AKNOWLEDGEMENTS

On behalf of the Local Organizing Committee (LOC), we wish to acknowledge with appreciation the Vice Chancellor, Akwa Ibom State University (AKSU), Professor Nse U. Essien for his role as the Chief Host and ensuring that the occasion felt not his partial presence, but through to the end of the opening ceremony. We acknowledge the Deputy Vice Chancellor (Academics), Professor Umoren E. Umoren; The Deputy Vice Chancellor (Administration), Professor Ita Ewa-Oboho; the Registrar, Dr (Mrs.) Ebi G. Eno-Ibanga; the Busar, Dr. Jacob M. Eseneyen; the Librarian, Dr. Nse Akwang all of Akwa Ibom State University, Nigeria for their respective roles to make the Conference a huge success.

We particularly acknowledge the Dean of the Faculty and Head, Obio Akpa Campus of AKSU for his personal commitments to the success of the Conference. He was always accessible for phone calls and in person calls. His advices and yielding spirit were what were actually needed to achieve the stride. He made the campus quite conducive for the event. His prompt approvals to requests and effective mediation between the LOC and the University Management were very appealing.

We acknowledge the Heads of Departments and all Faculty Board members for finding us worthy of the weighty responsibility. We appreciate the support and solidarity they gave before, during and after the event. We acknowledge all the students in Obio Akpa campus of AKSU and especially the students of the Faculty of Management Sciences, for their support and team spirit demonstrated during the event. We acknowledge the esteemed keynote speaker, Professor Ntiedo Umoren. We commend him for the research made on the Subject and for the actual extemporaneous delivery that made the occasion very lively.

We acknowledge all the guests from within and outside Nigeria, paper presenters, and all attendees for their contributions and presence that made a success of our maiden International Conference. We acknowledge Professor Don Baridam for his role as the Conference Chairman. We acknowledge the Deputy Dean of the Faculty, Dr. Enefiok Ibok (Assoc. Prof.). We acknowledge Professor Joseph Udoanyang for the job well done as the chairman of Communiqué Committee. We acknowledge Dr. Akpanim Ekpe (Assoc. Prof.) for presenting the fine Vote of Thanks. We acknowledge Dr. (Mrs. Anthonia Ubom (Assoc. Prof.) for serving well as the Discussant of the Lead Paper. We acknowledge Professor Vincent Nyoyoko for his Prayers. We acknowledge Professor Otoabasi Akpan for accepting the assignment to read the citation of the Lead Presenter. We acknowledge Dr. Monday Dickson and Dr. Daasi Gibson for their roles in supporting to make the Conference a success. We acknowledge all who contributed in various ways not mentioned.

We appreciate Professor Emmanuel P. Udofia for the time and other resources expended to review entire chapters of the book and writing the foreword. We thank all the authors of the book chapters for not giving up on the project despite the challenges and the rigors they went through to put their submissions as demanded. We wish to state here that the views contained in the various chapters of the book are entirely those of the authors.

Ekong Daniel
Christabel Brownson
Imoh Imoh-Ita
December, 2023

FOREWORD

Over the years, researchers in many disciplines are increasingly showing great interest in the analysis of complex problems in a sustainable fashion. The management sciences, therefore, cannot be an exception considering the numerous complexities and intricacies that present themselves in the many disciplines that come under it.

Of the many challenges that confront the management sciences today, sustainability remains one of the most intractable. This book *Innovative Management Systems for Sustainable Development in the 21st Century* is a collection of articles designed to increase the understanding of the role of innovation in the sustainable management of business related systems and their cognates. In it, the authors have attempted in a very ambitious manner to further strengthen the already familiar nexus existing between innovative management systems and sustainable development in the 21st century.

The book results from a major focus on contemporary management strategies. From their experiences, the authors have drawn up some important lessons to guide our current and continuing operations as we continue to pursue the needed goal of sustainability in our management strategies. The contents of the book, presented in 20 chapters represent an interesting mix of both the management sciences and some of its cognates. Chapters 1-6, 9, 10, 16 and 19 are all directly concerned with business management and accounting, while 11-15 have direct bearing on the aspect of the environment related to land cover change, sand mining and biodiversity conservation. While chapters 7, 8 and 20 address issues of governance and chapter 17 is concerned with the media and innovative management systems, chapter 18 presents matters related to education, health and economic development.

In a world that is inching closer and closer to both interdisciplinary and multidisciplinary approaches to learning and research, the diverse nature of this collection makes it altogether novel, enriching, enduring and I dare to add, adroit. I commend the pains taking efforts of the contributors and the skills of the editors in putting together this useful work. It is, therefore, with great pleasure that I deem it fit to recommend this book to teachers and students alike, researchers, practitioners, and all who are involved in the management of business systems and their numerous cognates.

Emmanuel P. Udofia
Professor of Statistical Geography and the Environment,
University of Uyo, Nigeria.
Monday, December 18, 2023.

INTRODUCTION

It is a rare privilege and special honour to add this note of introduction to the ***Book of Articles*** derived from the 1st International Conference of the Faculty of Management Sciences, Akwa Ibom State University. I appreciate the editors and all contributors for the hard work to make this publication a reality.

The title of the book: ***Innovative Management Systems for Sustainable Development in the 21st Century*** derived from the theme of the Conference is very apt especially now that the world is tilting toward knowledge-based economy. The book addresses some burning issues bothering our nation with a view to solving the critical global problems. Nigeria as a nation should domesticate the Sustainable Development Goals into our national life as a policy, to foster innovations which will propel the national economy of Nigeria into global competitiveness by encouraging new ideas. Accordingly, managing innovation in the 21st century requires following the right procedures, pathways and carefully selecting approaches; avoiding wastages, improving productivity and increasing employee satisfaction.

I am delighted that the Faculty of Management Sciences, Akwa Ibom State University has made this contribution to the on-going national discourse in order to migrate from the traditional system to the modern innovative management system which enhances sustainable development. It is important that we fast-track our strategies, to catch-up with the developed economies, where ICT is the key. Very soon, machine is going to replace human beings in the industry. As a Faculty, it is our goal to produce industry-ready graduates who imbibe the culture of Research and Development as a means for Sustainable Development.

I therefore recommend this book to be a 'must read' to the managers of business, stakeholders and policy makers of all sorts as well as decision makers at various levels whose job is to channel the right tactics into strategies that all companies and organizations are facing in the 21st century.

Professor Nkanikpo I. Ibok, ***B.Sc., MBA, Ph.D***
Professor of Customer Psychology and Industrial Marketing
Dean of Management Sciences, Akwa Ibom State University/
Head of Obio Akpa Campus of Akwa Ibom State University, Nigeria
22nd December, 2023

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CHAPTER ONE

INFLUENCE OF PRODUCT INNOVATION ON CONSUMER PURCHASE DECISION OF MOBILE PHONES IN AKWA IBOM STATE, NIGERIA

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Abstract:
This study examines the influence of product innovation on consumer purchase decision of mobile phones in Akwa Ibom State, Nigeria. The survey research design was used for this study. Data for the study were obtained through a structured questionnaire administered to the respondents. A convenience sampling technique was used to select 334 respondents for the study. Data obtained for this study were tested using multiple linear regression model. The findings of the study revealed that there is a positive significant effect of improved quality, new design and new features on consumer purchase decision of mobile phones in Akwa Ibom State. Based on the findings, it was recommended that mobile phones manufacturing companies should continuously introduce innovative values into their products in forms of improved quality, new design and new features to attract consumers' patronage.
Keywords: Product innovation, improved quality, new design, new features, consumer purchase decision.

INTRODUCTION

In a competitive business environment, innovation is the key for the survival and development of a firm. Product is anything offer to the market that is capable to satisfy the consumer needs or wants. Product can be tangible or intangible. It can take a variety of forms, including a physical object, a service, etc. (Attih, 2013, Attih, 2023).Product innovation is the introduction of new value into a product by a firm to have competitive advantage over others. It is a source of growth and success for firms and very important to the economic growth. According to Sumiati (2020) innovation is what companies required to stand out among competitors. Wahayuni (2019)asserted that product innovation is a new product development process due to an increase in the additional value of a product, which makes it different from other products.

Pulungan, Fauzi and Rini (2018) described product innovation as the development of new product that can be marketed and the process of changing applications for new technologies into products that can be sold. According to the authors, product innovation plays crucial role in terms of influencing purchase decisions. They opined that each company must develop new products, because new product ideas shape and transform the future of the company. Product innovations are important to the manufacturers, marketers and consumers. It is the means to satisfy changing consumers' needs, wants and preference as well as making variety of products available in the market. Companies usually make use of innovation to provide added value to a product.

Consumer purchase decision can be influenced by product innovation components which can be in forms of improve quality, new design, new features or model, etc. However, despite the importance of product innovation to organizations, some lack creative ideas on which of the component(s) of product innovation will add value to their products. Therefore, this study is basically to examine the influence of product innovation on consumer purchase decision of mobile phones in Akwa Ibom State, Nigeria.

The main objective of this study was to examine the influence of product innovation on consumer purchase decision of mobile phones in Akwa Ibom State, Nigeria. The specific objectives were:

i. to examine the effect of improved quality on consumer purchase decision of mobile phones in Akwa Ibom State.
ii. to ascertain the influence of new design on consumer purchase decision of mobile phones in

Akwa Ibom State.

iii. toanalyze the effect of new features on consumer purchase decision of mobile phones in Akwa Ibom State.

iv. to determine the influence of improved quality, new design and features on consumer purchase decision of mobile phones in Akwa Ibom State.

The findings of this study will be useful to the manufacturers of mobile phones. It will help the manufacturers of mobile phones to formulate policies on product innovations and to identify the innovation component that mostly influenced the consumer purchase decision of their products. The findings will also add to the existing body of knowledge on product innovation and consumer purchase decision in mobile phone industry, especially in Nigeria. It will serve as a reference material for researchers who want to carry out a study on similar or related topics.

The study was restricted to the users of mobile phones in Akwa Ibom State, Nigeria. It focused on three (3) product innovation components-improved quality, new design and features as independent variables and consumer purchase decision as dependent variable. The unit of analysis was the users of mobile phones in Akwa Ibom State, Nigeria.

Concept of Product Innovation

Dokumentasi (2016)defined product innovation as 'the company's ability to improve product design, features or specifications as per customer's wishes or enhance the value of products and services by creating new products or services'. Product innovation can be described as the development of new products, changes in design of established products, or use of new materials or components in the manufacture of established products (...). 'Product innovation can also be defined as the use of new ideas to the processes, or other aspects of the activities of a firm that lead to increased value'().Product innovation is the development of new value into the existing product in forms of quality, design or features to satisfy consumer's needs and wants. Components of Product Innovation include**: Product Quality:** Kotler and Armstrong (2016)described product quality as 'the ability of product to perform its function'. Ability including durability, reliability, easy to operate and repair and other attributes for all products. According to Kotler and Keller (2012), product quality is 'the ability of a product to provide performance results that match or even exceed what a customer expected'.**Product Design:** Homburg, Schwemmle and Kuehnl (2015) defined product design as a 'set of constitutive elements of a product that consumers perceive and organize as a multidimensional construct comprising the three dimensions of aesthetics, functionality and symbolism'. Product design is the totality of product features. It is the combination of how the product looks. **Product Features:'**Product features are characteristics of product that describe its appearance, components and capabilities'(www.aha.io>roadmapping>guide>requirements-management>what ar.). Product features are the physical characteristics of product that contribute to it performance or benefits it offers.

Concept of Consumer Purchase Decision: Kolter and Armstrong (2016)described consumer purchase decision as a buyer's decision-making stage in which an individual decides to actually purchase the product being considered. The authors explained that a purchase decision is the decision regarding a brand or product to purchase. According to Djatmito and Pradama (2015), purchase decision making process is the stage in which consumers actually purchase the product. Consumer purchase decision is referred to the final choice or selection made by consumer regarding which product to buy. 'The act of purchase is the stage, which the consumer deciding on what to buy, where to buy and how to buy'(Preethan and Mohan, 2019).

Rayi and Aras (2021) studied how product innovation and motivation drive purchase decision as consumer buying behaviour in Greater Jakarta. The survey research design was used to obtained information from the respondents. The sample size of 96 respondents was selected for the study. The hypotheses were tested using structural equation model. The findings revealed that there is a significant relationship between product innovation and consumer purchase decision. It was concluded that the main factor for innovation that can be accepted by millennial is the product quality that remains good.

Tarmidi, Prince, Dosinaen, Siahaem, Azzadi, and Napitupulu(2021) investigated the effect of product innovation and price on purchasing decisions on shopee user in Bandung (case study on

electronic products labeled shipping from oversea). The quantitative approach was used in the study. The sample size of 100 respondents was selected for the study using non probability sampling technique. The hypotheses were tested using multiple linear regression model. The results showed that product innovation and price have significant influence together on the purchase decision of consumers in Bandung. It was concluded that product innovation and price play an important role in influencing consumers purchase decision.

Abilova and Karaduman(2019) conducted a study on the effect of product innovations on consumer decision making process in Turkey. The survey research design was used to obtained information from the respondents. The sample size of 385 respondents was selected for the study. The hypotheses were tested using multiple linear regression model. The findings revealed that there is a significant relationship between product innovation and consumer purchase decision. The hypotheses were tested using multiple linear regression model. It was concluded that product innovation plays crucial role in influencing consumers purchase decision.

Lahindah and Siahaan (2018) examined the influence of product innovation and service quality to buying decision and impact to repeat buying at Progo Road, Bandung. The survey research design and interview were used to obtain data from the respondents. The sample size of 384 respondents was selected for the study. The hypotheses were tested using Warp. PLS 30 model. The findings of the study showed that product innovation and the service quality influence buying decision in the culinary industry along the progo Road, Bundung. It was concluded that product innovation and service quality significantly impact on buying decision but did not impact repeat buying.

Pulungan, Fauziand Rini(2018) investigated the effect of product innovation, consumer attitude and advertising at the purchase decision of Yamaha Motorcycle in CV Sejatic Mitra Motor Meda Marelan. The descriptive quantitative research method was used to obtain data from the respondents. The sample size of 1455 consumers was selected for the study. The hypotheses were tested using multiple linear regression model. The findings revealed that simultaneously, the innovation of product, consumers' attitude and advertisement attraction had a positive and significant impact on the decision to buy. It was concluded that product innovation plays crucial role in influencing consumers purchase decision of Yamaha Motorcycle in CV Sejatic Mitra Motor Meda Marelan.

Hatta, Rachbini and Parenrengi (2018)analyzed product innovation, product quality price, and purchase decision in Bogor city. Survey research design was used to obtained information from the respondents. The sample size of 150 consumers was randomly selected for the study. The hypotheses were tested using structural equation modeling. The results revealed that respondents' perceptions of innovation and product quality, price, promotion, and the level of purchasing decisions were highly significant. It was concluded that product innovation and product quality price have positive influence consumer purchase decision.

Ginting and Sembiring(2017) examined the effect of product innovation, product quality and city image on purchase decision of UisKaro woven fabric. The survey research design was used to obtained information from the respondents. The sample size of 95 respondents was selected for the study. Hypotheses were tested using simple regression model. The results showed that simultaneously product innovation, product quality and city image have positive and significance influence on the buying decision of UisKaro. It was concluded that product innovation has a positive and significance effect on the purchase decision of consumers in UisKaro.

Shiau(2014) studied the impact of product innovation on behaviour intention: The measurement of the mediating effect of the brand image of Japanese Amime Dolls. The survey research method was used to obtain information from the respondents. The sample size of 434 respondents was selected for the study. Hypotheses were tested using simple regression and correlation. The findings of the study showed that new products, services innovation and technological innovation had a significant and positive impact on brand image. It was concluded that product, services and technology innovations play crucial role to enhance companies brand image.

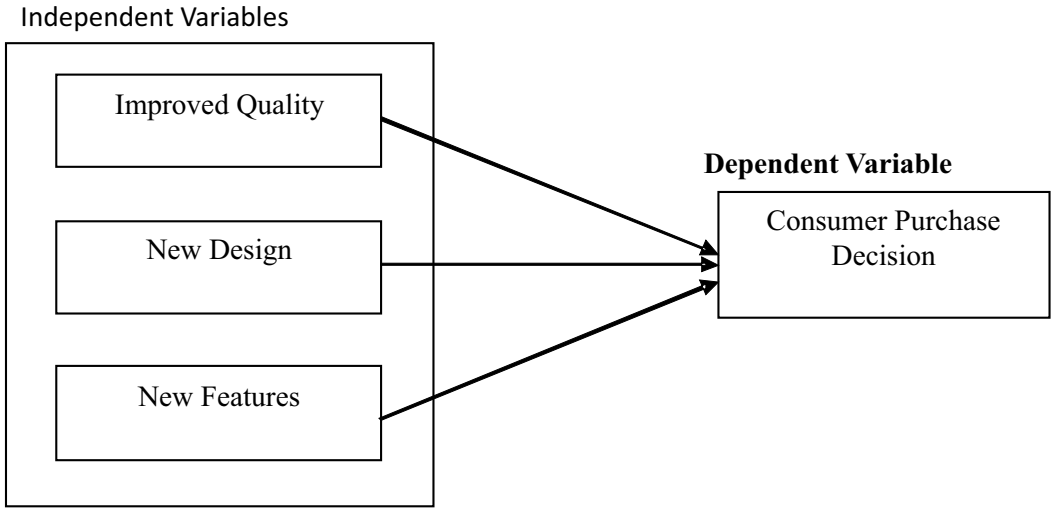
Awan and Zahra (2014) investigated the impact of innovations on consumers' behaviour: A case study of PAK Electron Limited in Pakistan. The field survey research design was used to collect data from the respondents. The sample size of 200 customers was selected using convenience sampling technique. The hypotheses were tested using S-curve model. The findings of the study

revealed that the effect of innovations are significant on the behaviour of customers and 75% of respondents endorsed that innovative electronic product attracted customers and have brought positive change in their behaviour and living standards. It was concluded that innovation plays a key role in changing consumers' behaviour and growth of business of innovative firms.

METHODOLOGY

The survey research design was used in the study. It involves systematic gathering of quantitative data from respondents through self-administered structured questionnaire. The population of this study comprised all the users of mobile phones in Akwa Ibom State. The convenience sampling technique was used to select 334 users of mobile phones in Akwa Ibom State.

Conceptual model was developed to determine the influence of product innovation on consumer purchase decision as dependent variable. The model specifies that consumer purchase decision of mobile phones in Akwa Ibom State is a function of improved quality, new design and features.



Source: Author's Conceptual Model (2023)

To determine the influence of independent variables (product innovation)-improved quality, new design, new features and dependent variable-consumer purchase decision of mobile phones, a multiple regression model was developed.

The model is expressed mathematically as follows:

$Y = f(X_1, X_2, X_3)$

$Y = a_1 + b_1X_1 + b_2X_2 + b_3X_3 + e$

Where:

Y = Consumer Purchase Decision

X_1 = Improved Quality

X_2 = New Design

X_3 = New Features

$\mathbf{a}$ = Constant

$\mathbf{b_1, b_2, b_3}$ = Regression coefficient of each variable

$\mathbf{e}$ = error term

Data for this study were obtained through primary source. The primary data were collected through a structured questionnaire administered to respondents. Data obtained from the respondents were analyzed using descriptive statistics basically mean, standard deviation and skewness. The hypotheses were tested using multiple linear regression model. All hypotheses were tested at the 0.05 level of significance with $p<0.05$ indicating statistical significance. To enhance data analysis, Statistical Package for the Social Sciences (SPSS), Version 22.0 was used.

DISCUSSION OF FINDINGS

Table 1: Summary of the descriptive statistics for the research variables

Variables	No. of items	Mean score	Standard deviation	Skewness
Improved quality	3	10.32	1.32	-0.70
New design	3	10.04	4.60	12.27
New features	3	10.15	4.59	12.34
Consumer purchase decision	3	10.17	4.59	12.350

Result in Table 1 presents summary of the descriptive analysis of the research variables (improved quality, new design, new features and consumer purchase decision). The mean rating of 10.32, 10.04, 10.15 and 10.17 were obtained for improved quality, new design, new features and consumer purchase decision with standard deviation of 1.32, 4.60, 4.59 and 4.59 respectively. This indicates that among the three product innovation variables improved quality was more rated than new design and new features. The standard deviation obtained for improved quality was less than that of the other variables indicating that there is an agreement in the responses of the respondents with regards to improved quality than new design and new features. The skewnesses obtained with the exception of improved quality were all greater than 0 indicating positively skewed data. The relationship among the variables was examined and the result obtained is as presented in Table 2. Result of correlation in Table 2 reveals that improved quality ($r = .484$, $p<0.05$), new design ($r =.320$, $p<0.05$) and new features ($r = .841$, $p<0.05$) all have significant positive relationship with consumer purchase decision. These results imply that the better the improvement in the quality, new design and features are introduced into product, the better the level of consumer purchase decision. Result of the multiple linear regression is as presented in Table 3.

Table 2: Summary of the relationship between improved quality, new design, new features and consumer purchase decision

Variables	1	2	3	4
Improved quality	1.000			
New design	.117	1.000		
New features	.407**	.266**	1.000	.841**
Consumer purchase decision	.484**	.320**	.841**	1.000

***Significant at 1% (p<0.01), *Significant at 5% (p<0.05)*

Table 3: Summary of the multiple linear regression results showing the effect of improved, new design, new features on consumer purchase decision

Variables	β_{uns}	SE	β_s	t-calc.	P-value	Tolerance	VIF
Constant	-1.481	.467		-3.174	.002	-	-
Improved quality	.158	.044	.045	3.582	.000	.923	1.084
New design	.157	.030	.157	5.263	.000	.166	6.008
New features	.832	.030	.833	27.608	.000	.164	6.111
R^2	0.984						
R^2 adjusted	0.967						
F-calc.	2167.551						
P-value	0.0000						
p-value for Breusch - Pagan-Godfrey	0.760						

*SE= standard error, VIF - Variance Inflation Factor, β_{uns} = unstandardized coefficients, β_s = Standardized coefficients, **significant at 1% (p<0.01).*

Result in Table 3 reveals coefficient of determination of 0.984 with adjusted R^2 of 0.967 which indicates that 96.7% of the variation in consumer purchase decision was accounted for improved quality, new design and new features while the remaining 3.3% were as a result of other variables not in the regression model. The multicolliearity among the independent variables was examined using tolerance and Variance Inflation Factor (VIF) and the result yielded tolerance values of .923, .166 and .164 for improved quality, new design and new features with VIF values of 1.084, 6.008 and 6.111 respectively. The tolerance values were all greater than .10 while VIF were all less than 10 indicating that there is no evidence of multicollinearity. Test of Heteroscedasticity was conducted using Breusch-Pagan-Godfrey test and p-value of .760 was obtained which is greater than 0.05 ($p>0.05$) indicating that the error term is homoscedastic.

For improved quality, the unstandardized regression coefficient of .158 was obtained which indicates that improved quality has positive effect on consumer purchase decision. The standardized beta coefficient of .045 was obtained for improved quality which indicates that if other variables are held constant, for every 1unit improvement in improved quality of product, consumer purchase decision will improve by .045. Result also reveals t-calculated of 3.582with p-value of 0.000 ($p<0.05$). The t-calculated (3.582) is greater than the t-critical value of 1.97 at the 0.05 level of significance which means that there is a significant positive effect of improved quality on consumer purchase decision of mobile phones in Akwa Ibom State.

Result also shows that new design ($\beta = .157$, SE= 0.044, t-cal.= 5.263, p= 0.000, $p<0.05$) has a positive effect on consumer purchase decision. The standardized beta coefficient of .157 was obtained for improved quality indicating that if other variables are held constant, for every 1-unit improvement in new design, consumer purchase decision will increase by .157. Result also shows t-calculated of 5.263 with p-value of 0.000 ($p<0.05$). The t-calculated of 5.263 is greater than the t-critical of 1.97 at the 0.05 level of significance which implies that there is a significant influence of new design on consumer purchase decision of mobile phones in Akwa Ibom State.

Similarly, for new features, the result also shows that new features ($\beta = .833$, SE= 0.030, t-cal. = 27.608 p= 0.000, $p<0.05$) has a positive effect on consumer purchase decision. The standardized beta coefficient of .833 was obtained which implies that if other variables are held constant, for every 1unit improvement in new features, consumer purchase decision will increase by .833. Result also shows t-calculated of 27.608 with p-value of 0.000 ($p<0.05$). The t-calculated (27.608) is greater than the t-critical of 1.97 at the 0.05 level of significance which indicates that there is a significant effect of new features on consumer purchase decision of mobile phones in Akwa Ibom State. For the joint contribution of the three product innovation variables, the F-calculated of 2167.551 with p-value of 0.000 were obtained. The F-calculated (2167.551) is greater than the F-critical of 2.65. The null hypothesis is rejected and hence there is a significant influence of improved quality, new design and new features on consumer purchase decision of mobile phones in Akwa Ibom State. Result also indicates that among the three product innovation variables, new features have the most significant positive effect on consumer purchase decision of mobile phones in Akwa Ibom state. The results of this study agrees with the research findings of Rayi and Aras (2021); Tarmidi, Prince, Dosinaen, Siahaem, Azzadi, and Napitupulu(2021);Abilova and Karaduman (2019); Lahindah and Siahaan(2018), Hatta, Rachbini and Parenrengi(2018) that showed positive significance influence of product innovations on consumer purchase decision.

CONCLUSION AND RECOMMENDATIONS

The study was on influence of product innovation on consumer purchase decision of mobile phones in Akwa Ibom State, Nigeria. The results clearly revealed that improved quality, new design and new features have significant positive relationship with consumer purchase decision of mobile phones. The results also revealed that when there is an improvement in product components, there will be positive influence on consumer purchase decision. Therefore, it is concluded that product innovation plays an important role in influencing consumers purchase decision of mobile phones. Based on the findings, it was recommended that mobile phones manufacturing companies should continuously introduce innovative values into their products in forms of improve quality, new design and new features to attract consumers' patronage. The implication of this research is that the manufacturers of mobile phones can further influence the level of consumer purchase decision by adding new values or attributes to their products.

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CHAPTER TWO

HUMAN CAPITAL ACCOUNTING AND LABOUR TURNOVER IN NIGERIAN COMPANIES: THE INTELLECTUAL ASSETS' WASTE IMPLICATIONS

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Abstract
Human capital or human resource accounting ensures measurement of the value of human resources that have been recruited by organisations, trained and developed as human assets. This study explored the effect of human resource accounting on labour turnover of listed companies in Nigeria and the implied cumulative wastages on intellectual assets in the Nigerian space. The study adopted a quantitative correlational research design to examine the relationship between the independent and the dependent variables, and was anchored on human capital theory. Purposive sampling technique was used to obtain archival data for 20leading companies based on market capitalization within the period, 2018 to 2022. The multiple linear regression model was used to test for the analysis. The findings showed that cost value of human resource process had significant relationship with labour turnover, with the attendant negative implications. A key recommendation for management of organizations is to amortize the capitalized amount expended on human capital development over a period of time, as this will evidence sound accounting principles and policies, and abate the challenges of going-concern concept in accounting.

Keywords: Human resource accounting, valuation of human resources, human capital, labour turnover, intellectual assets' waste.

INTRODUCTION

Human capital, referring to the knowledge, skills, and abilities possessed by employees, plays a crucial role in the success of any organization. In Nigerian companies, the management of human capital and the impact of labour turnover have significant implications for the utilization and preservation of intellectual assets. This article explores the relationship between human capital accounting, labour turnover, and the potential waste of intellectual assets in Nigerian companies. In the statement of financial position of companies, normal features reflected are physical properties, investments, and sometimes fictitious assets such as goodwill and patents. Human resources, which is one of the main sources of competitive advantage of companies over others are rarely considered as assets and seems not to have been rightly recognised. The traditional framework for viewing the resources available to a company which are its assets are the four Ms - money, material, machine and manpower. These are classified under the three main components of statement of financial position as assets, liabilities, and equity. Assets are known as resources owned by the company, and are acquired or generated with funds from equity or debt. Human resource, according to Arkan (2016), is the most important resource of an organization, since it controls and directs other resources. It has been identified as the process of recording the value of workers as a form of asset in the books of a firm. The accounting of human resource is the measurement of the resources of the workforce in relation to their recruitment, training and development for addition of value to the firm. Many companies would spend huge finances to recruit and train human resources, only to lose them without a bit of value added to the organization on such investment (Anuonye, 2017).

At the macroeconomic level, the human resource of any country plays an important role in industrial development, economic growth and sustainability (Bassey & Arzizeh, 2012). Owing to lack of

accountability and sustainability of this resource, Nigeria has witnessed massive movement of her trained human resource in the form of brain drain at the macro level.
Omonijo, Nnedum, and Ezeokana (2011)attributes this menace to poor leadership in the country. At the organizational level, most Nigerian companies suffer human resource depletion occasioned in high labour turnover. Some of the personnel leave the employ of their companies after much capital was spent on training and development. Out of this, some travel outside the shores of Nigeria to seek for better life, as the micro and macro-economic variables do not seem to favour them. Either way, this results in waste of intellectual assets for companies on the one hand, and for the country in general (Abiola, &Adisa, 2020).

Intellectual assets are forms of intangible assets which are embedded in what is now known as knowledge economy, and embodies intellectual effort in the firm that drives growth. As put by Kujansivu and Lonnqvist (2007) intangible assets constitute the value of a company's intellectual capital needs to be taken into account in financial reporting. Bontis (2004) asserts that the elements of knowledge-driven economies are knowledge production and knowledge innovation, whose source is intellectual capital or knowledge capital.

Every business organization has the objective to survive, grow and make profit, and for this objective to be realized, wastes of materials and human resources must be reduced or eliminated (Oginni & Omoyele, 2018). The contribution of individual companies collectively contributes to the growth of the national economy. A company can have an unprecedented market growth in a short period owing to knowledge innovation arising from intellectual capital. Anuonye (2017) recalled a world bank report as far back as 1998-1999 which described knowledge capital as the key to sustained economic growth and improvements in human well- being.

The present global economy has shown a shift in the balance from resources to knowledge, such that knowledge becomes a determining factor on the standard of living in the economy. This accounts for why the most technologically advanced economies such as China, USA, Japan, and others are truly knowledge-based. The findings from that world bank report indicated that knowledge has become the key economic resource and the dominant source of competitive advantage among companies locally, and countries globally. This makes it a reality to consider knowledge-based economy, where intellectual capital should be treated as a resource, just like any other asset. The implication here is that expenditure on human capital should no longer be treated as a cost, but as investment (Pulic, 2004).

Knowledge-driven companies and economies show that skilled employees constitute the intellectual capital, and play crucial roles in value creation through increased efficiency. Therefore, for companies to survive in this competitive information age, there must be strategies for measurement or valuation of human resources, and how to sustain them as assets of the companies. Absence of sustainability of human capital would manifest in wastages. This is the concept of assets' waste management, and specifically for this study, our concern is on intellectual assets waste which can manifest in labour turnover. Although there are many views that labour turnover is like a double-edged sword, old workers and non-performing staff must be replaced for productivity, but where employees who are trained and equipped for the job leave abysmally, the firm is jeopardized (Fajana, 2011).

The problem that this study sought to solve was the abdication of human capital to the background, as if it were not a major narrative to the productivity of the organization. This is so noticed because measuring human capital becomes as difficult as anything else could be in firms. Anuonye (2017) opines that intellectual capital as an asset is used to generate future revenues, and as such, should be considered when valuing a company by capitalizing instead of expensing them in the current period. Intellectual capital as a form of intangible asset is a formidable component for value creation, but poor measurement and inadequate reporting underestimates the contribution of human assets. The poor recognition of this type of asset and its measurement can elucidate labour turnover in companies.

It is true that companies in Nigeria, and the world over are going through economic stress which can lead to reorganisation, restructuring, rationalization, downsizing, rightsizing, retrenchment, and other labour-related terminologies which can affect the human assets of the concern by depleting sound brains, hence disrupting productivity. The labour force on its own, for fear of the unknown would want to move their

services to other companies, sometimes to other countries, where they will have better welfare packages and labour stability. This is an obvious problem, hence the study of intellectual assets' waste and its propensity to affect human capital asset in the form of labour turnover and brain drain.
Human capital accounting as an aspect of intellectual capital is a factor in the knowledge based economy. Every company makes profit or loss on its investment depending on its resource management objectives. The objective of this study therefore was to measure human resources cost value, using historical cost method, multiplier method, replacement cost method and the economic value method as proxies and to explore the relationship between human resource accounting and labour turnover considering the implied cumulative wastages on these intellectual assets on selected companies listed on the Nigerian exchange group.
Going concern is an accounting concept which explains one of the characteristics of organisation is its continued existence. Whereas employees may not have continued working relationship with the organisation, they would eventually leave the organisation where they were trained as intellectual capital which was relied on for its growth and productivity (Flamholtz, 1999). Intellectual capital therefore embodies human capital, structural capital, and relational capital.

The concept of human resource or human capital, which stems from intellectual capital as applied in knowledge economy is exposed in contemporary accounting literature since the influence of fixed assets and financial assets is comparable to the influence of intangible assets. Many scholars (Sydler, Haefliger, & Pruska, 2014) and Nasser (2018) are of the opinion that intellectual capital is an essential element in achieving organizational performance. While most firms in the industrial era were known to rely on manufacturing capabilities, companies in the post-industrial era rely greatly on knowledge and information for sustainability and profitability. This is where intellectual capital is anchored in the contemporary business environment.
As put by Stewart (2001) intellectual capital is made up of intelligence and knowledge, and this is shown in the current economic reality when the power of intellectual freedom achieves certain financial benefits through careful processing of intangible assets. This view point therefore asserts that intellectual capital includes all intangible resources available to the company to confer an advantage to it, which when combined with other resources would result in future benefits.
Conceptually, Pulic (1998) propounded the "Value Added Intellectual Coefficient" (VAIC™) as a methodology for measuring intellectual capital. VAIC™ is a universal indicator showcasing intellectual abilities, and representing the measure for business efficiency in a knowledge-based economy. Therefore, we can measure human capital, structural capital and relational capital as bases of human capital accounting.

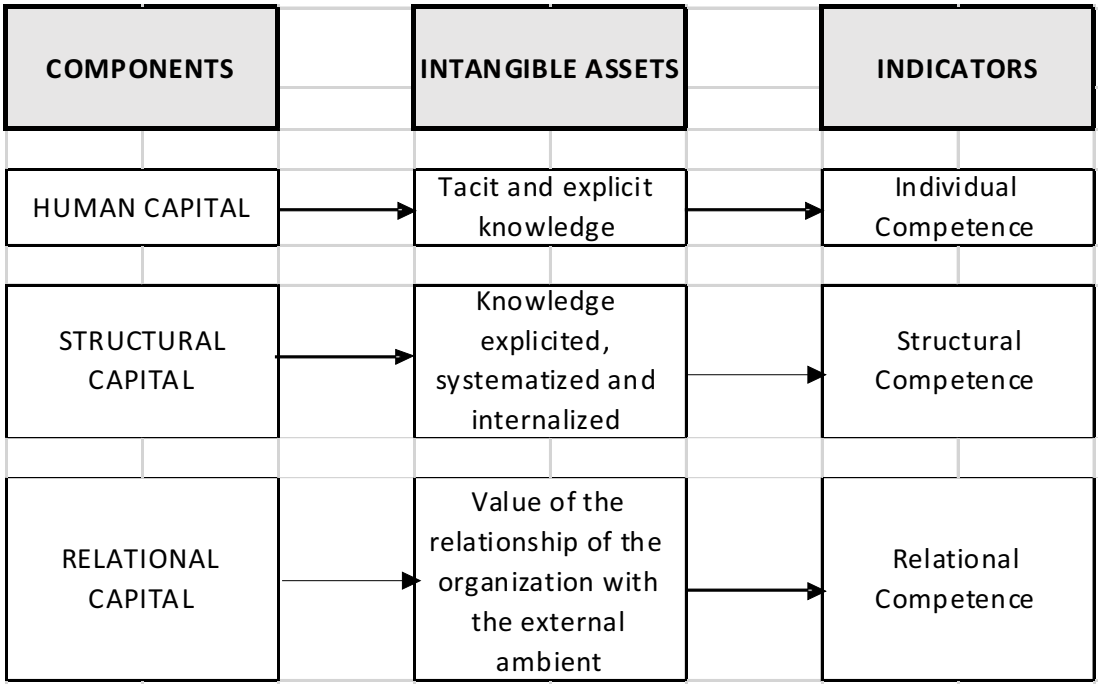

Fig. 1: Value Added Intellectual Coefficient components and indicators in the organization
Adapted from Bueno, Arrien & Roddriguez (2003).

Concept of human capital

Human capital can be defined as the totality of the output of the individual engaged in the production of goods and services for the benefit of the society. It is the conscious effort put by the staff to aid production and service for the general economic well-being of the company, other entities or the nation. Verguwen and Alem (2005) takes human capital as the value of all the workers in the organisation with all the attendant rewards attached to their utilization. According to Roos and Roos (1997) the workers go away with the human capital training they had gained in the organisation, whenever they leave. Human capital can then be seen as the generic term for the competencies, skills, and motivation of the employee. In monetary terms, human capital consists of all the remunerations and benefits paid to the worker. In technical terms, human capital is the training, higher education, seminars as well as practical work experiences gained in an employment. From the social perspective, human capital is the ability of the worker to relate well with people, communicate and discuss in constructive manner, nurture trust and good behaviour so as to place goodwill on the organization. It includes emotional intelligence and the creativity and flexibility of individual employees for harmonious co-existence within the work environment.

Motivationally, human capital assumes responsibilities which are committed to the fulfilment of tasks and the willingness for exchange of open knowledge in areas such as satisfaction with labour situations, as well as participation in corporate achievements (Anuonye, 2017). Human capital could also be seen as leadership, owing to the fact that it can motivate and lead people, develop, communicate and implement strategies aimed at enhancing corporate goals (Anuonye, 2017).

Structural capital

Structural capital is the wheel upon which human capital rotates and it is seen as the supportive infrastructure which drives human capital in an organization. Sydler, Haefliger, and Pruska (2014) classified structural capital into organisational capital, process capital, and innovation capital. As an aspect of intellectual capital, it consists of trademarks, patents and formulas, management style, company reputation, image, corporate culture, networking, mission and vision. Furthermore, Khot and Vaidya (2023)see structural capital as the difference between non-thinking and thinking resources that use different management methods such as culture, organisational processes, technology, information systems to achieve corporate goals.

Relational capital refers to the build-up of business relationship which may enable an organisation to stand out among its competitors. It is a pointer to the inclination or preference that customers have for the products or services of an organisation. For an organisation to maintain a high level of relational capital, there must be an exhibition of very high sense of salesmanship and marketability in the sales force with its customers (Khot&Vaidya2023).

Intellectual capital as an asset

The accounting policy of organisations to treat human resource costs such as training and development costs in the statement of profit or loss should as a matter of fact be reversed since human resource accounting is critical in the modern business operations. As organisations use intellectual resources to generate future revenues, such resources ought to be considered as an asset for purposes of company valuation. This can be exercised by capitalising, rather than expensing them in the current period. This would translate to recognising intangible asset such as intellectual capital as an asset and reporting same alongside the physical assets in the statement of financial position. Uwah (2017) asserts that capital expenditure decisions of manufacturing companies in Nigeria should have a paradigm shift from traditional assets measurement where tangible resources were dominant, to what is done in developed economies, where intellectual resource is a key determinant of competitive advantage among firms, leading to economic success and value creation.

For human resource, a major component of intellectual capital to qualify as an intangible asset, the entity should have rights which would enable her to control future economic benefits of the resource through legal protection and physical custody. This intellectual resource asset should therefrom generate future cash flows, since the service of workers are expected to create economic value for the organisation. This assertion as expected would allow sufficient control for the recognition of human resources as an asset because money is spent on its development to enhance the future economic development of the organisation or a country. The argument on this assertion would however arise if human beings, as living assets should not be allowed freedom of job mobility as a matter of human right (Kolakovic, 2003).

Measurement of human capital

Okeke (2016) assert that human capital should be measured as an asset since as a resource, it is used to generate future revenues. All assets are reported on the statement of financial position, therefore as intangible assets, human capital should be reported along with physical assets and not expensing them as remuneration in the profit or loss statement. This argument is valid because money is spent on the development of human resources to enhance the future economic value of the company. Having suggested this, there is a challenge in human resource accounting, of valuation method.

In measuring intangible assets, the dominant valuation bases are the cost approach and value approach methods. In using these to measure human resource accounting, two methods seen in the cost approach are acquisition cost method and replacement cost method. In the acquisition cost method, organisations would capitalize all costs related to human resources such as training and welfare, and amortize it in the profit or loss account in its entirety, from appointment till retirement. The replacement cost approach is used to determine whether to keep working or replace the worker. This approach considers the cost of replacing the human resource, and helps in determining whether the appointment of employees is in anywhere beneficial to the organisation or not (Khot & Vaidya (2023).

The value approach method of measuring human resource is three-fold. According to Kolakovic, (2003) the present value method, value to the organisation method, and expense model method are considered. The present value method considers all future benefits to employees to determine if the organization can afford the cost and could gain in the future from costs incurred on human resources, while the value to the organisation approach considers the most valuable employee of the organisation to determine if the organisation is earning premium profits from the services of that employee. This would help in finding the value of that employee. The expense model method on the other hand divides the employees into two categories – decision making category and decision execution category. The actual costs incurred on both categories are therefore determined to know whether it is beneficial to the organisation or not (Kolakovic, 2003).

Valuation method determines whether costs of human resources when capitalised should be amortized, and at what rate. Bragg (2007)however asserts that whatever method of amortization adopted should be the one that most conveniently matches the expected pattern of the consumption of the asset's expected economic benefits.

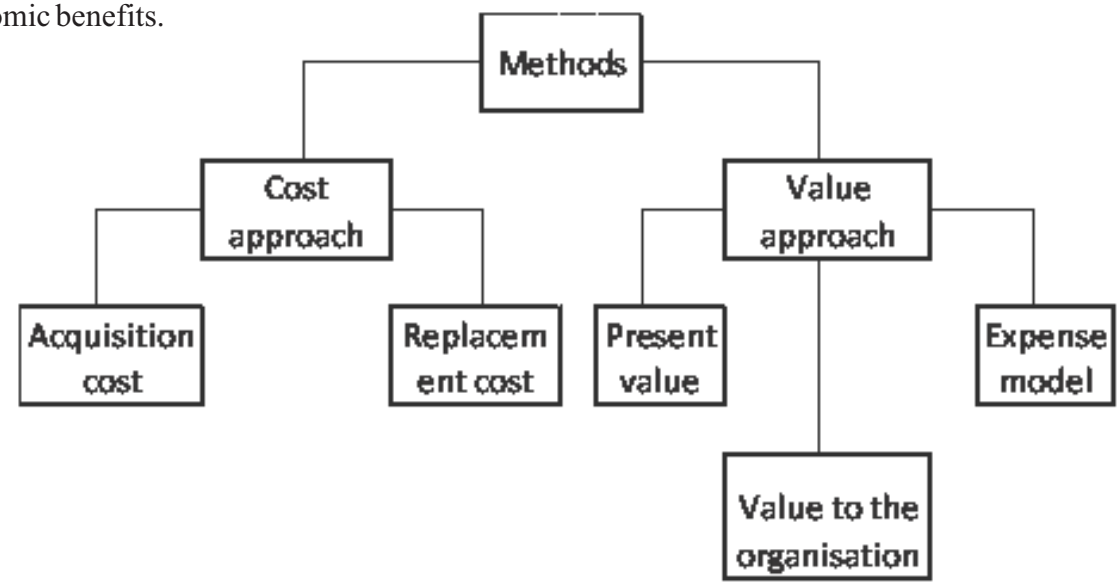

Fig. 2: Human resource accounting methods. *Adapted from Khot & Vaidya (2023).*

Methods of human resource valuations

Human capital accounting involves the measurement and valuation of the knowledge, skills, and competencies that employees bring to an organization. It recognizes that employees are not just a cost but also an asset that contributes to the company's overall value. By quantifying and assessing the value of human capital, organizations can make informed decisions regarding talent management, training, and development. Uwah, Aji and Essien (2023) describe some methods used in human resource valuations as may be relevant to different entities. One of the methods is the historical cost method, which is **associated** with hiring, training, acclimatisation, of the labour force. Based on conventional accounting principles,

this approach is fairly straightforward as it tries to match costs and revenues appropriately. However, it has a drawback in that it does not address the requirement to create human resource accounting system based on systematic valuation of human resources. Another method is the replacement cost method approach, which estimates the cost of replacing current employees through recruitment and training, and also, lost opportunity costs. This accomplishes the goal of doing periodic evaluations of human resources and aids in future human resource planning. The standard cost method determines the total cost of recruiting and hiring each employee, as well as the cost of any training or development.

The Economic value method, as pointed out by Uwah (2023) indicates that every payment made to the employees are calculated and approximately discounted to get their present economic value, while the present value method takes the net contributions of employees to the earning of the organisation into consideration, since they are discounted to have present value of human resources.

Amortization of human capital

Anounye (2017) posits that the greatest challenge in human resource accounting lies in the method of valuation. It is the valuation method that would determine whether such costs should be amortised and at what rate. Various methods of valuation have been suggested in literature including that of Lev and Schwartz, Brumment, Flamholtz, Morse and Linkert. According to Ekundayo and Odhigu (2016) the original cost method by Brumment has been implemented by some companies. The method suggests the capitalization of training and development costs while other costs on recruitment be expensed in the statement of profit or loss.

Bragg (2007) suggests that the amortization method that is most appropriate is the one that matches conveniently, the expected usage pattern of the asset's future economic benefits. If no criteria for this method is available in a company, he asserts that a straight line method of amortisation be adopted from other alternative methods. The International Financial Reporting Standards (IFRS) has been very apt on the classification and measurement of intangible assets. IFRS adopting IAS 38 has classified intangible assets into those with finite useful lives and those with indefinite useful lives. It is common knowledge that human beings cannot live indefinitely, therefore classification of human resource measurement is made under intangible assets with finite useful lives. According to IFRS 5, the amortisation method used shall reflect the pattern in which the asset's future economic benefits are expected to be consumed by the entity. In this case human asset, with a finite useful life shall be allocated on a systematic basis over its useful life.

Concept of labour turnover

Labour turnover refers to the rate at which employees leave an organization and are replaced by new hires. High labour turnover can have detrimental effects on a company's intellectual assets. When experienced and knowledgeable employees leave, their expertise and institutional knowledge are lost, leading to a potential waste of intellectual assets. This loss can result in decreased productivity, increased training costs, and a decline in overall organizational performance. Labour turnover is evaluated by relating the number of employees leaving during a period of time to the total or average number employed in that period. Sometimes, this measurement may not beevaluated. Adebayo, Oginniand Ajayi(2013) argued that labour turnover is strictly the movement out of organisation with the intention to join or not to join another organisation. They assert that employee's decision to leave and join another organization is a constant phenomenon in workplace which is contingent on many variables such as work design, location and organizational policies, among others.

Oginni and Omoyele (2018) posit that high labour turnover has a detrimental effect on a company's performance, as such it should be kept as low as possible. Benedict, Josiah and Akpeti (2012) opine that the costs of labour turnover could be seen in loss of production between departure of employees and engagement of suitable replacement. Mostly in the manufacturing concern, there will be higher incidence of scrap with new trainees, while generally, other costs associated with it are loss of goodwill and information leak to competitors. That is why remedial measures, such as improving working conditions and welfare of staff is a necessity (Uwah, 2023).

Labour turnover may be voluntary or involuntary, but Aji, Uwah, Essien and Akinninyi (2023) point out that there are pull and push factors responsible for the phenomenon in companies. The pull factors are variables outside the company which attract employees to leave, while the push factors are the variables inherent in the company which compels workers to leave their jobs.

Waste of intellectual assets

The waste of intellectual assets due to labour turnover can have long-term consequences for Nigerian companies. It hinders innovation, impedes knowledge sharing, and reduces the organization's ability to adapt to changing market conditions. Moreover, the loss of intellectual assets can negatively impact employee morale, leading to a vicious cycle of turnover and further waste of valuable knowledge and skills.The essence of corporations is to make profit. The maximization of that profit and the stakeholders' wealth has been major issue of research in company's corporate investment strategy. To be ahead of other companies in business, it is necessary for management to obtain competitive advantage and continuously improve its strategies. The major index of measuring the performance of companies arising from the strategy implementation is the role of human capital and its knowledge. Its wastage management is a determinant factor. To mitigate the waste of intellectual assets and manage labour turnover effectively, Nigerian companies need to adopt strategic human capital management practices. This includes implementing competitive compensation packages, providing opportunities for career growth and development, fostering a positive work culture, and establishing effective knowledge management systems. By recognizing and valuing human capital, organizations can create an environment that encourages talent retention and reduces the risk of intellectual assets' waste (Bassey & Tapang, 2012).

Many scholars (Abeysekera, 2012; Ahuja & Ahuja, 2012; Antonelli, Atonietti & Guidetti, 2010) are of the opinion that the effective management of people planning must be a part of overall corporate strategy. When the management of human capital is sub-optimized, the result would be the loss and/or forgetfulness, or use of knowledge that does not add value for the company.In the competitive era as we are, if intellectual capital which is knowledge-based is not properly managed, and the competitors do, the latter will get better results(Elias & Scarbrough, 2004). Knowledge waste by an organisation is detrimental to its value addition process because it is seen as a failure in the process of knowledge conversion (Ferenhof, 2011).

Stewart and Ruckdeschel (1998) used intellectual capital classification, and Pulic (2004) considered Value Added Intellectual Coefficient (VAIC) to encompass the three categories of intellectual capital - human capital, structural capital and customer or relational capital as the summary of everything everybody in a company knows that gives it a competitive edge. Sveiby (1997) describes intellectual capital as intellectual material, knowledge, experience, intellectual property, information, and many more that can be put to use to create wealth.According to Sydler, Haefliger, and Pruska (2014) intellectual capital as an asset is the possession of knowledge, applied experience, organizational technology, customer relationships, and professional skills that provide a competitive edge in the market.This captures both stocks and flows of the company's overall knowledge base which is reflected in its performance, but not the loss of knowledge on it.

Measures of intellectual assets' waste

Ferenhof (2011) describes intellectual capital waste as any failure to optimize the use of trained human capital asset, whose cost of training was borne by the organization. This can manifest in reinvention, lack of system discipline, underutilized people, scatter, hand-off, and wishful thinking.

Reinvention is a type of intellectual waste that organization bears if its designed solutions, components, projects, experiences or knowledge acquired previously are not reused.*Lack of system discipline* has to do with factors related to obscurity of organizational objectives, poor schedule discipline, lack of cooperation by trained staff, and incompetence or lack of training (Bauch, 2004; Ferenhof, 2011). According to Locher (2008) when employers do not use their skills and expertise completely, human capital is underutilized. This is showcased when staff are given very limited roles and responsibilities, when in reality they could assume much more, if the system was effectively designed.

Scatter syndrome occurs when there are actions that make knowledge to be ineffective by flow disturbance and disruption of teamwork. These tendencies may appear in two situations where there are communication barriers such as distance, incompatible computational formats, or skill barriers where people do not transform data into usable knowledge. The other case is the use of poor tools which stifle the flow of knowledge. This arises when employees are forced to use tools without properly analysing their relevance to the job process (Ward, 2007; Ferenhof, 2011).

Hand-off is experienced when there is separation of knowledge, responsibility, action and feedback. People who do not have enough knowledge are exposed to make decisions for the company which

effectively culminates into useless information and time wasting.*Wishful thinking*as a means of intellectual waste is indicated when employees operate in the dark by blindly making decisions without consistent data which would lead to supposed earned knowledge being discarded (Ward, 2007).

Firm specific human capital theory

According to Becker's (1975) firm-specific human capital (FSHC) theory, if businesses must cover the expense of employee training, high turnover rates will reduce their incentives to invest in employee development. As employees have smaller opportunity costs of leaving their jobs, the incentive will be even less when firm specific and general training are less distinct. Consequently, as turnover rises, organisational performance declines. Even if FSHC is developed through "learning-by-doing," its accumulation is still favourably correlated with employees' length of service. Therefore, a larger turnover rate will still result in poorer organisational performance.

The performance of an organisation is negatively impacted by turnover in addition to the direct loss of human capital represented by the departing employees. This idea is relevant to the current study in that output lost during the unoccupied and training periods, administrative resources spent for separation, recruiting, and training, and other opportunities to improve the production process could have been utilised instead. High employee turnover may also be detrimental to the growth in value of the company.

Okeke (2016) evaluated the influence of organisational commitment and work satisfaction on the desire of school teachers in Ijebu North Local Government Area, Ogun State, to leave their jobs. Three instruments—the turnover intention scale, organisation commitment scale, and intrinsic motivation inventory—were employed in the study, and the data were analysed using multiple regression and simple percentage. According to the results, the criterion variable (intention to leave the organisation) was determined by the two determinant factors (organisational commitment and intrinsic motivation) when they were combined. The results also showed that the strongest predictor of school teachers' intention to leave their jobs was organisational commitment.

Abeysekera (2012) performed research on downsizing and globalisation in India and found that there is a need to learn about and comprehend the many components of downsizing or staff layoffs, such as why and what the causes of downsizing are in India. Correlation was performed to analyse the data after using primary data. According to the study, downsizing has both favourable and unfavourable consequences on organisational effectiveness. Lower personnel costs, less red tape, quicker decision-making, improved communications, and job enrichment are the positive effects. On the other hand, employees may experience negative effects such as depression, anxiety, mental tension, stress, anxiety, social and personal life breakdown, psychological break with the company, difficulty finding another job, and so forth. However, the adverse repercussions on organisations can include a decrease in reputation, a poor rating, a decline in employee trust, an uncomfortable work environment, a decline in productivity, a failure to retain talent, a failure to draw in quality applicants, and more.

Khot and Vaidya (2023) conducted research on hiring and firing in India, and the results showed that, in order to ensure and protect employees, hiring and firing must go by a number of central and state rules. Additionally, it was discovered that terminating employees without abiding by the necessary rules had a negative impact on the effectiveness (goodwill) of the majority of Indian organisations. Correlation was performed to analyse the data after using primary data.

Oginni and Omoyele (2018) conducted a study in Nigeria on the changing methods for keeping employees in a globalised economy. Correlation statistical analysis was employed to examine primary data. According to the study, organisations should implement critical sustainable retention trends like creating a strategic plan, involving employees in decision-making, starting a personalised compensation plan, installing mechanisms for career planning, training and development, and developing flexible work programmes in order to reduce the rate of employee turnover and keep up with the current demands of the global economy and organisational performance.

Nassar, (2018) studied the changing recruitment landscape and its effect on organizational performance. Primary data and correlation was used in the analysis of data. The study found that retrenchment affects organizational performance such that retrenched employees go away with their skills to other organisations, thus making the learning curve expenses on the employees to be lost psychologically and

METHODOLOGY

Ex post facto research design was adopted in this study as it allowed for the examination of the independent and dependent variables. The population was twenty (20) leading listed companies based on market capitalization within the period, 2018 to 2022, which was equally taken as the sample size. Secondary sources of data used in the study consisted of the annual report and accounts of the selected companies. Descriptive and inferential statistics were used in analysing the data. To determine how human resources accounting is measured in the selected companies, the content analysis was developed. Each company was scored "1" for full disclosure, "1/2" for partial disclosure, and "0" for non-disclosure under content analysis, which is contemporarily the most widely used technique for analysis of accounts in annual reports. Multiple regression was used to test the hypotheses at 5% level of significance. Table 1 below shows a summary of theoretical and empirical specification of models.

Model specification

Following the model put up by Uwah (2020), the model for this study was adapted as follows:

Model: *Labour turnover = f (Human capital accounting)*
i.e. LTO = f (HCA).
Therefore, *LTO = f (HCM, SCM, PVM).*
LTO = $a_0 + \beta_1 HCM_{it} + \beta_2 SCM_{it} + \beta_3 PVM_{it} + \mu_{it}$

Where: i = 1,2,3……10, and t = 1,2,3,4,5.

From the foregoing, the following multiple regression models were estimated.

Model 1: Historical cost method (HCM) and All employees leaving (ALL)
ALL = *f (HCM, SCM, PVM)*……..(1a)
ALL = $a_0 + \beta_1 HCM_{it} + \beta_2 SCM_{it} + \beta_3 PVM_{it} + \mu_{it}$…….(1b)
Model 2: Standard cost method (SCM) and Employees leaving and replaced (ELR)
ELR = *f (HCM, SCM, PVM)*……..(2a)
ELR = $a_0 + \beta_1 HCM_{it} + \beta_2 SCM_{it} + \beta_3 PVM_{it} + \mu_{it}$…….(2b)
Model 3: Present value method (PVM) and Old and new Employees (ONE)
ONE = *f (HCM, SCM, PVM)*……..(3a)
ONE = $a_0 + \beta_1 HCM_{it} + \beta_2 SCM_{it} + \beta_3 PVM_{it} + \mu_{it}$……..(3b)
Model 4: Human capital accounting (HCA) and Labour turnover (LTO)
LTO = *f (HCM, SCM, PVM, IAW)*……..(4a)
LTO = $a_0 + \beta_1 HCM_{it} + \beta_2 SCM_{it} + \beta_3 PVM_{it} + \beta_4 IAW + \mu_{it}$……..(4b)
Where:
ALL = All employees leaving (All employees leaving/Average number employed)
HCM = Historical cost method (Costs associated with hiring, training, acclimatization of employees)
ELR = Employees leaving and replaced (Number of employees leaving & replaced/ Average number employed)

SCM = Standard cost method (Industry's value of human resources, ie, SH×SR)
ONE = Old and new employees (Old and new employees/ Average number employed)
PVM = Present value method (Net contributions of employees to the earnings of the organization
LTO = Labour turnover (number of employees leaving during a period of time to the total or average number employed in that period
HCA = Human capital accounting

$\beta_1 - \beta_4$ = Regression coefficients
IAW = Intellectual assets' waste
μt = Error term

Analysis

Content analysis was used in the data analysis. Data from the Nigerian Exchange Group from 20leading companies based on market capitalization within the period, 2018 to 2022 were coded and analysed using descriptive statistics and inferential statistical technique (multiple regression). Multiple regression statistical technique was employed given the multiple independent variables of the study. Hence, the outcome of the multiple regression was used to test the stated hypotheses at 0.05 alpha level of significance. In the regression model, statistical test such as the R-value, Adjusted R2 value, t-test, F-test, the standardized beta value, were employed to the test result. Intellectual assets waste was taken as the control variable. This measured the failure to optimize the use of trained human capital asset, whose cost of training was borne by the organization.

Data analysis

Table 1: Descriptive statistics for HCM, SCM, PVM and LTO

Research Variables	N	Minimum Statistic	Maximum Statistic	Mean Statistic	Standard Deviation	Skewness	Std. Error	Kurtosis	Std. Error
HCM	50	-0.8784	0.2176	-0.1256	0.3986	-1.269	0.287	-0.170	0.566
SCM	50	0.1125	1.1286	0.6885	0.2603	-0.182	0.287	-1.240	0.566
PVM	50	0.6615	3.1871	1.2999	0.6502	1.776	0.287	3.069	0.566
LTO	50	0.0208	0.2727	0.1167	0.0590	0.935	0.287	0.506	0.566
Source: Authors' data processing using SPSS 23									

Table 1 shows the descriptive statistics for the variables of the study, being HCM, SCM, PVM and LTO. Minimum values of -0.8784, 0.1125, 0.6615, were obtained for the sub-variables of the independent variable respectively while 0.0208 was computed for LTO. The maximum values of 0.2176, 1.1286, 3.1871, were obtained for HCM, SCM, and PVM respectively and 0.2727 was computed for LTO. The mean statistic of -0.1256, 0.6885, 1.2999 were obtained for HCM, SCM, and PVM respectively while 0.1167 was obtained for LTO. The Kurtosis measuring the normality of the data distribution for HCM and SCM was less than 0, while that obtained for PVM and LTO were greater than 0. A measure of the skewness of the data shows that HCM and SCM were skewed to the left, while PVM and LTO were skewed to the right (skewness > 0). The result of the skewness and Kurtosis in this study is an indication that the variables did not follow a normal distribution.

Table 2 : Showing simple regression analysis and its associated ANO VA of the effect of Historical Cost Method (HCM) onAll employees leaving (ALL)

Model	R	R squared	Adjusted R Square	Unstarndardized Coefficient		Standardized Coefficient	t	Sig	Result
				B	Std. Error	Beta			
HCM	0.087	0.008	-0.007	0.023	0.032	0.087	0.717	0.476	Insignificant (Accept H0)
				ANOVA					
Model		Sum of Squares	df	Mean Square		F	Sig.		
HCM	Regression	1.721	1	1.721		0.514	0.476		
	Residual	224.198	49	3.346					
	Total		50						
Dependent variable: All employees leaving (ALL)									

Source: Researchers' computation (2023)

Table 2shows the effect of historical cost method of valuation on all employees leaving the employ of the listed companies in Nigeria. From the Table, both R^2 and the adjusted R^2 values measure the proportion of the variation in the dependent variable (ALL). The adjusted R^2 shows the modification for the limitation of R^2 and it is considered as a measure of the model's fitness. The value of adjusted R^2 is -0.007 indicates that the proxy of the independent variable (HCM) has less than 1% variation on the dependent variable. The multiple correlation coefficient (R) with a value of 0.087 is an insignificant 8% effect of HCM on ALL. The R^2 value of 0.008 realized shows a very insignificant relationship between the two variables. The table also reveals a p-value of 0.476 which is greater than the alpha value of 0.05. This means that there is no significant effect of historical cost method on all employees leaving the organisation.

Table 3: Showing simple regression analysis and its associated ANOVA of the effect of standard cost method of valuation (SCM) on the number of employees leaving who have to be replaced by the listed companies in Nigeria (ELR)

Model	R	R squared	Adjusted R Square	Unstarndardized Coefficient		Standardized Coefficient	t	Sig	Result
				B	Std. Error	Beta			
SCM	0.925	0.856	0.854	0.502	0.025	0.925	19.945	0.000	Significant (Reject H0)
				ANOVA					
Model		Sum of Squares	df	Mean Square		F	Sig.		
SCM	Regression	3910.149	1	3910.149		397.783	0.000		
	Residual	658.600	49	9.83					
	Total	4568.749	50						
Dependent variable: Employees leaving and replaced (ELR)									

Source: Researchers' computation (2023)

As could be seen from Table 3, the effect of standard cost method of valuation of human assets on the number of employees who left and were replaced by the listed companies is shown. The table's analysis shows a Beta value of 0.925 which is about 93% of the total intellectual capital waste to the firms. A multiple correlation coefficient (R) of 0.925 which indicates a high correlation was observed to correspond with this beta value. The R^2 value of 0.856 which shows the effect of about 86% on the dependent variable was also observed. However, the value of the adjusted R^2 which is the modification for the limitation of R^2 was 0.854. This indicates that the independent variable in the model explains about 85% variation on the dependent variable. The unstandardized B value of 0.502 shows that as standard cost measures increase or decrease by one unit in value, there is a corresponding 0.502 unit in the value of employees replaced which increases or decreases in the sampled manufacturing firms. More so, the associated analysis of variance (ANOVA) reveals the sum of squares for regression and residual to be 3910.149 and 658.600 respectively, while the mean squares values are also shown as 3910.149 and 9.830 respectively, which indicates a significant effect of the independent variable on the dependent variable. Finally, the Sig. value reveals 0.000, which is less than the alpha value of 0.05 level. This means that there is a significant effect of standard cost measures on the employees who left the employ and were replaced.

Table 4: Showing simple regression analysis and its associated ANOVA of the effect of present value method of valuation (PVM) on old and new employees (ONE) in the listed Nigerian companies

Model	R	R squared	Adjusted R Square	Unstarndardized Coefficient		Standardized Coefficient	t	Sig	Result
				B	Std. Error	Beta			
PVM	0.281	0.079	0.065	0.894	0.373	0.281	2.395	0.019	Significant (Reject H0)
				ANOVA					
Model		Sum of Squares	df	Mean Square		F	Sig.		
PVM	Regression	1401.685	1	1401.685		5.734	0.019		
	Residual	16377.376	49	244.438					
	Total	17779.061	50						
Dependent variable: Old and new employees (ONE)									

Source: Researchers' computation (2023)

Data presented on Table 4 above reveal the effect of present value method of valuation on old and new employees of the firms. From the Table, PVM has a Beta value of 0.281, indicating an approximate contribution of 28% to the effect of valuation on ONE in the firms under study. This result shows a positive correlation coefficient and also a relatively average effect. A p-value of 0.019 realized also shows that the value is less than the 0.05 alpha level, which makes us to reject the null hypothesis three. This indicates that there is a significant effect of present value method of valuation (PVM) on old and new employees (ONE) in the listed Nigerian companies. The unstandardized B value of 0.894 also explains that an increase in the value of PVM will give an increase of about 89% in the value of ONE. The associated analysis of variance (ANOVA) reveals that the sum of squares for regression which is same as mean of square was 1401.685 and 16377.376 was the residual value for PVM.

Table 5: Showing multiple regression of the joint effect of historical cost, standard cost, and present value methods of valuation on all employees who left, number of employees leaving to be replaced, and total number of employees (old and new) in the listed Nigerian companies.

Model	R	R squared	Unstarndardized Coefficient		Standardized Coefficient	t	Sig	Result
			B	Std. Error	Beta			
Constant	0.086	0.650	-15.499	6.493		-2.387	0.020	Significant
HCA			0.540	0.074	0.568	7.291	0.000	Significant
IAW			0.742	0.143	0.405	5.205	0.000	Significant
			ANOVA					
Model	Sum of Squares	df	Mean Square	F	Sig.			
Regression	14686.606	2	7343.303	61.344	0.000			
Residual	7900.717	48	119.708					
Total	22587.323	50						
Source: Field data analysis (2023) from SPSS V.23								

The data in table 5shows the extent to which human capital accounting (HCA) affects labour turnover (LTO) of 10 sampled companies for the period 2018 to 2022 used in the study. The SPSS result shows what the effect looks like when the control variable, Intellectual capital assets' waste (IAW) is introduced. The multiple regression analysis shows a Beta value of 0.568 for Human capital accounting by Nigerian firms and its corresponding dependent variable, labour turnover. A Beta value of 0.405 is also revealed for intellectual capital asset' waste as control variable showing its relationship with labour turnover of listed firms in Nigeria. These data inform us that about 57% of human capital accounting contribute to the determination of labour turnover of firms in Nigeria, while about 40% of intellectual assets' waste is contributed by labour turnover in these firms. The variables, one independent and the other control, show significant values at 0.000 Sig. level. A multiple correlation between the dependent variable, labour turnover (LTO) with the independent variable, human capital accounting (HCA), and the control variable, intellectual assets' waste (IAW) was also made. A multiple regression correlation coefficient (R) of 0.086 was seen. A high correlation. R square (R^2)value of 0.650 was also realized. This implies that while about 8.6% of multiple correlations (R) were established between the independent and dependent variables, about 65% was realized as the contribution of the independent variable to the labour turnover of firms in Nigeria with the intellectual capital assets' waste as a control variable factored in. The table revealed that a value of 0.000 is the p-value. As this value is lower than the alpha value of 0.05, means that there is a significant effect of human capital accounting variables on labour turnover in listed firms in Nigeria.

CONCLUSION

The essence of business is to continue to make profits for a foreseeable future. Accountants call this, the going-concern and administrators refer to this as succession plan**.** In conclusion, if firms are unable to adequately measure and record the intellectual efforts of their employees, human assets would not be accounted accounted for, and value would not be added to the organisation because many employees would be leaving for other employments within and outside the country. This gives rise to the brain drain syndrome. Productivity would be low, and intellectual assets would be lost. Human capital accounting and the management of labour turnover are crucial considerations for Nigerian companies. Recognizing the value of intellectual assets and addressing the implications of their waste can lead to improved organizational performance, innovation, and competitiveness. By investing in their employees and implementing effective human capital management strategies, Nigerian companies can unlock the full potential of their intellectual assets and drive sustainable growth in the dynamic business landscape.

RECOMMENDATIONS

The following recommendations were considered appropriate for the study.

Intellectual waste can manifest in reinvention, lack of system discipline, underutilized labour force, hand-off, and wishful thinking. It is recommended that management watch out for these manifestations even when labour turnover is controlled.

Management of organizations should amortize the capitalized amount expended on human capital development over a period of time. This will evidence sound accounting principles and policies, and abate the challenges of going-concern concept in accounting.

Intellectual capital as a form of intangible asset is a formidable component for value creation. It is recommended that this resource should be adequately measured and reported for value creation.

All the methods of human resource valuations should be employed by management to measure the joint contribution of human resources variables in order to mitigate human assets' waste arising from labour turnover in organisations.

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CHAPTER THREE

PETROLEUM PROFIT TAX AND NIGERIA ECONOMIC DEVELOPMENT: A PERCEPTION APPROACH

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Abstract:
PPT is a major source of revenue of the Federal Government of Nigeria to meet its statutory obligations of ensuring the economic development of a nation. The main objectives of this study was to examine the impact of PPT and Nigeria Economic Development. A descriptive research designed was used, which focused on the population of two (2) selected federal establishments in Nigeria; (Tax official from Federal Inland Revenue Service and Central Bank of Nigeria). sixty (60) respondents were selected as samples from above institutions using conveyance sampling techniques. The instrument used for the collection of data was questionnaire which consisted of twenty-two (22) items structured in five (5) Likert scale. Mean and standard deviation were used for the analyses. The research findings reveal that there is a very strong relationship between PPT and Nigeria economic development. To this end, it is recommended that government should improve PPT that will help them to finance agriculture, education and other initiatives. They should train the tax personnel that will enable them to: generate more revenue, discourage borrowing money from external sources. Finally, government should try to eliminate tax evasion and avoidance in Nigeria, that will enable them to control illegal/ un-ethical activities of the oil sector in Nigeria and to control foreign oil companies who are coming to Nigeria through improper channel.

Keywords: Petroleum Profit Tax, Avoidance, Tax Evasion, Economy Development.

INTRODUCTION

The Petroleum Profit Tax (PPT) Act, 1959 provides for the imposition of tax on the chargeable profits of companies that are engaged in petroleum operations in Nigeria. Petroleum operations is defined under the Petroleum Profit Tax Act (PPTA) as "the winning or obtaining oil in Nigeria by or on behalf of a company for its account by any drilling, mining, extracting or other like operations or process, not including refining at a refinery, in the course of a business carried on by the company engaged in such operations, and all operations incidental thereto and any sale of or any disposal of chargeable oil by or on behalf of the company" Nigeria economy is dependent on oil, as it cannot finance social and economic growth in the absence of a large oil revenue base. Oil accounts for about 90-95% of the export revenue, over 90% of foreign exchange earnings and about 80% of government revenue. The oil industry is thus the hub of the Nigerian economy, and needs to be sustained if the country is to achieve real economic growth. According to Nwete (2003), the oil glut of the 80's that greatly impacted on global oil prices and the low Organization of Petroleum Exporting Countries (OPEC) quota, foisted on the country various fiscal regime for petroleum especially the petroleum profit tax of 85% and 20% royalty regime, all in a bid to get more revenue to oil the nation's economy. Since then Nigeria has had lofty aims for its oil industry, including the desire to increase reserve from 34billion barrels to 40billion barrels by 2010 and subsequently its OPEC quota, optimization of oil revenue, increase in the industry's local content, and continuous attraction of foreign investment as a way of promoting and sustaining investment in the oil industry. If we compare it with other economic activities, the petroleum industry has wider attraction because of its special nature, which stems from the fact that till date, it remains the largest and most important industry in the world. It has continuously provided the world's energy and industrial needs, from transportation to agriculture. It has also been a Monet spinner just for the oil production companies, providing them with the opportunity of economic and social development, and second for the multinational oil companies engaged in its extraction, and by extension the industrialized market to which the earnings of the multinational oil companies. From exploration to eventual production, the cost of developing and operating an oil field is very high and probably higher than any other industry. Gelb (1981) averred that oil and gas production had been reviving

favorable tax treatment for many years, although one special provision dealing with percentage depletion was repeated for most oil and gas produces in 1975.The whole of the industry from exploration to production is filled with risks. From the high possibility that a hole in the ground will not yield reserves, the risks that the reserves if discovered will not be in commercial quantity to justify the investment, the technology risk in oil field development, to the failure of operations and vagaries of international oil prices. Thus upstream investment remains very risky and unpredictable. Most times development of new fields involve the sinking of capital before actual production reveals the reservoir characteristics, unlike most other economic activities. The objectives of petroleum taxation according to Nwete (2004) are numerous among which are: taxing in the petroleum industry is a way of achieving government's objective of exercising right and control over the public asset, Government imposes very high tax as a way of regulating the number of participants in the industry and discouraging its rapid depletion in other to conserve some of it for future generation. This is effect will achieve government aim of controlling the petroleum sector development. The second objective is that the high profit profile of a successful investment in the oil industry makes it a veritable source for satisfying government objective of raising money to meet its socio-political and economic obligations to the citizenry. The third objective is to make petroleum taxation an instrument for wealth re-distribution between the wealthy and industrialized economics represented by the multinational organizations, who own the technology, expertise and capital needed to develop the industry and the poor and emerging economies from where the petroleum resources are extracted. Environmental factor is another objective of petroleum taxing. The high potential for environmental pollution and degradation stemming from industry activities makes it a target for environmental taxation, as a way of regulating its activity and promoting government quest for a cleaner and healthy environment. Cleaner production may be achieved by imposing tax on it for pollution and environmental offences. Under the PPT Acts of 1959, an oil company, in computing its taxable profits from petroleum operations, is entitled to deduct all outgoings and expenses which are wholly, exclusively and necessarily incurred by such company for the purpose of such petroleum operations. PPT is a major source of the income being generated by the Federal Government of Nigeria. Odusola (2016).The industry remains the largest and most important industry in Nigerian economy. In view of the high rate of taxing the petroleum operatives, tax allowances are given to the companies as incentives. Tax allowance is a form of incentive used to ameliorate the difficulties and high tax burden inherent in a fiscal regime in order to include, promote and sustain investment in that fiscal regime. Tax allowances may not ameliorate the political risks of an investment; but will go a long way in addressing the imbalances especially between the government and the investor arising from a very tax burden. Tax allowance give a picture of how much of the investment risks the government is willing to share with the investor, and therefore affect the investor's decision based on his analysis of the after tax return of the investment in the prevailing circumstances. For the ascertainment of the profit of the company in involved in petroleum operations, the following is the aggregate of the income assessable to tax: proceeds of sale of all chargeable oil in the period, value of chargeable oil disposed in the period under review, value of chargeable natural gas in the period and all income in the period that is incidental to and arising from petroleum operations. In determining the chargeable profits, the Petroleum Profit Act of 1959 as amended in 1990 provides for some incentives or tax benefits, which involve the following: Value of Natural Gas sold: The value of the gas contract may not be fully subjected to tax because discount is granted for possible losses arising from spillage and evaporation. The amount of discount to be granted is determined by the quality of the gas while the quality of the gas itself is defined by the load factor Odularu (2008). Capital allowances are granted to companies engaged in petroleum operations in lieu of depreciation in accordance with PPTA 1990 broken into two types: a. investment tax credit: This is one of the tax offsets granted companies engaged in petroleum operations under section 17 of PPTA 1990 as stated thus: qualifying expenditure rare On-shore operations (Land operations) 5% Operations in territorial waters and continental shelf up to and including 100 meters of water depth (off-shore operations) 10% Operations in territorial waters and continental shelf areas in water depth between 100 meters and 200 meters (off-shore operations) 15% Operations in territorial waters and continental shelf areas beyond meters of water depth 20% b. annual allowance: An annual allowance is granted in respect of qualifying capital expenditure incurred wholly, exclusively and necessarily by any company on any asset for a given period. Annual allowances are granted on a straight-line basis, over a five-year period, while 1% of the initial cost of each asset is to be retained in the books, and may only be disposed of on the authority of a certificate of disposal issued by the federal minister of mines and mineral resources (Attama,2004).The 1% balance must be retained for as long as the asset has not been sold. According to PPTA 1990, table II of the second schedule stipulated the following rates as incentives: Year 1, 20% Year 2, 20% Year 3, 20% Year 4, 20% Year 5, 19%. This paper covered the impact of Petroleum Profit Tax and Nigeria Economic Development with Forte Oil plc, Mobil Oil plc, Dozzy Oil Plc, Conoilplc, Total plc, and Oandoplc as the case of study as at June to December, 2019.

Despite all these incentives available for the oil exploration companies, the industry still encounters the following identified problems first of all: weak and poor administration of PPT from the oil companies, it courses the following things; - loss of government revenue from the oil companies, it allows government to borrow loan from external sources, it allow government to abundant of capital project because of the shortage of public fund in the country (Odularu, 2008). Poor financial keeping records from the oil companies for them meet up of the demand of tax authority(Nzotta, 2007).Secondly there is tax evasion and avoidance in the oil companies which so many things happen include; illegal /un-ethical activities in the oil companies, allowing the oil companies coming to Nigeria

This study examines the impact of PPT and Nigeria Economic Development, the main purpose of this paper is to: - Evaluate the relationship between PPT and economic development in Nigeria. Assess weak and poor administration of PPT on revenue generation in Nigeria and assess the effect of tax evasion and avoidance of PPT on economic development in Nigeria.

The questions here now are: what is the relationship between PPT and economic development? Is the assess the weak and poor administration of PPT on revenue generation in Nigerian? Is the effects of tax evasion and avoidance of PPT on economic development in Nigeria?

PPT is a tax applicable to upstream operations in the oil industry. It is particularly related to rents, royalties, margins and profit sharing elements associated with oil mining, prospecting and exploration leases. According to the PPT Act 1959, Petroleum operation is defined as "mining or obtaining and transportation of petroleum or chargeable oil in Nigeria by or on behalf of a company for its own account by any drilling, mining, extracting or other like operations or process not including refining at a refinery, in the course of a business carried on by the company engaged in such operations and all operations incidental thereto any of or any disposal of chargeable oil by or on behalf of the company (Bawa & Moh'd,2007).

Tax evasion is a deliberate act on the part of taxpayer not to pay tax due (Nzotta, 2007).tax evasion and its sister tax avoidance are key fundamental problems of tax administration in a developing country like Nigeria (Azaiki & Mohammed,2007). All forms of taxes in Nigeria are to some extent avoided or evaded because the administrative machinery to ensure effectiveness is weak. As a result of the diversities and complexity in human nature and activities, no tax, law can capture everything hence; loophole will exist and can only be reduced or eliminated through policy reforms. Tax evasion and avoidance lead to loss of revenue for the government. A high degree of tax evasion has unpleasant repercussions on resources; it affects wealth redistribution and economic growth; it creates artificial bias in macroeconomic indicators. No matter how fair a tax system appears to be on paper, it will lack the standards of equity if there is high incidence of tax evasion or artificial tax avoidance. The border line of tax evasion and avoidance is very thin.

Tax avoidance is a way of identifying the loop-hole in the tax law and then taking advantage of such a loop-hole to reduce the tax payable (Nwezeaku,2015). Excess tax avoidance leads to tax evasion. According to Nzotta (2007), tax avoidance and evasion in Nigeria is a serious limitation to the revenue mobilization efforts of the public sector in the country. The different tiers of government in Nigeria rely on taxes as a major source of revenue for the implementation of their programmed. Thus, a high level of tax avoidance and evasion sustains a number of distortions in the resource profile of the government. Tax evasion and avoidance have generated considerable interest and concern to the government and finance experts in most recent time. This is because of their socio-economic implications and the effects on government's revenues and fiscal viability in the long run. Canadian Department of National Revenue gave a comprehensive definition of tax evasion: "Tax evasion is the commission or, the omission of an act knowing with intent to deceive so that the tax reported by the taxpayer is less than the tax payable under the law, or a conspiracy to commit such an offence. This may be accomplished by the deliberate omission of revenue, the fraudulent claiming of expenses or allowances, and the deliberate misrepresentation, concealment, or withholding of materials facts"

Economic development is the development of economic wealth of countries or regions for the well-being of their inhabitants (Odusola, 2006). From a policy perspective, economic development can be defined vices as efforts that seek to improve the economic well-being and quality of life for a community by creating jobs and supporting or growing incomes and the tax base. Economic development implies improvements in a variety of indicators such as literacy rates, life expectancy, and poverty rates. Gross Domestic Products is a specific measure of economic welfare. Economic development encompasses policies that governments undertake to meet broad economic objectives such as price stability, high employment, expanded tax base, and sustainable growth (Nwete, 2003). Economic development: is the process by which a country may experience economic growth and a re-allocation of resources away from primary production and toward manufacturing (Wall, 2001).

METHODOLOGY

In this paper, the researcher adopted descriptive research design approaches. This is use to establish the impact PPT and Nigeria Economic Development. Saunders (2007), indicate that descriptive studies establish the causal relationship between the two variables. For example, this approach established the effect between PPT and Nigeria Economic Development. The population of the study includes the tax official from Federal Inland Revenue Service (FRIS) and staffs of Central Bank of Nigeria (CBN). The researcher issue sixty (60) questionnaires were administered to the Account and Finance Manager units from the above two institutions,

only forty-two(42) were willing and able to provided needed information for the study. The study adopted Krejcie and Morgan, (1970) method of determining sample size. The ever increasing need for a representative statistical sample in empirical research has created the demand for an effective method of determining sample size.

Base on the population for this study being sixty (60) staffs of the above federal establishments institutions were issued the questionnaires, the sample size will be fifty-two (52). In this paper, the researcher used primary data to make this research reliable. For the primary data, closed ended questionnaires with five variables of Strongly Agree (SA), Agree (A), Strongly Disagree (SD), Disagree (D) and Indifferent (ID) were adopted with linker scales of 5,4,3,2 and 1 respectively for the variables. The data for this paper was collected using Questionnaires.

ANALYSIS AND DISCUSSION

The analysis of data is a means of answering research question were tested using chi-square method and Statistical Package for Social Sciences (SPSS) version twenty (20) was used for the computation of primary data.

Relationship between Petroleum Profit Tax (PPT) and Economic Development

Table 1.1 Relationships between PPT and Economic Development

S/NO	PPT	SA	A	SD	D	ID	ME	STD
1	PPT enables gov.t to constructs roads in Nigeria.	12 (12.1)	20(20.0)	12(12.1)	6.(6.0)	-	3.94	1.384
2	PPT enables gov.t to construct Hospitals in Nigeria	22(22.2)	14(14.1)	5 (5.0)	11 (11.1)	-	4.11	1.236
3	PPT enables gov.t to finance Agricultural programmed in Nigeria	15 (15.1)	24(24.1)	9 (9.1)	4 (4.1)	-	3.92	1.338
4	PPT enables to finance hydro electrical power project in Nigeria	21(21.1)	18(18.1)	8 (8.1)	5 (5.1)	-	3.78	1.359
5	PPT enables gov.t to enhance/ support Human Development	20(20.1)	22 (22.1)	7 (7)	3 (3.1)	-	3.41	1.505
6	PPT enables gov.t to finance & control environmental floods in Nigeria	24(24.1)	7 (7.1)	18 (18)	3 (3.1)	-	3.90	1.305

7	**PPT enables gov.t to finance education programmed & initiatives in Nigeria** **Grand total**	**19(19.1)**	**22(22.1)**	**2 (2.1)**	**9 (9.1)**	**-**	**3.65** **3.85**	**1.312**

Sources: Field survey, 2019

Table 1 item 1, showed that 20.0 % of the respondents agreed, that PPT enables government to construct roads in Nigeria that is why they have high rate of percentage among others, 12.1 % of the respondents agreed, while 6% of the respondents choose disagreed. The average mean showing is 3.94 (STD 1.384) that is indicating that the respondent agreed that PPT enables government to constructs roads in Nigeria.

Table 1 item 2, showed that 22% of the respondents strongly agreed, that PPT enables government to constructed Hospitals in Nigeria, 14% of the respondents agreed, while 11% of the respondents choose disagree. The average men showing is 4.11 (STD 1.236). These indicate that the respondents agree that PPT enables government to constructed Hospitals in Nigeria.

Table 1 item 3, showed that 24% of the respondents agreed, that PPT enables government to finance agricultural programmed in Nigeria, 15% of the respondents strongly agreed, while 9% of the respondents choose strongly disagree. The average men showing is 3.92 (STD 1.338). This indicate that the respondents agree, that PPT enables government to finance agricultural programmed in Nigeria.

Table 1 item 4, showed that 21% of the respondents strongly agreed, that PPT enables government to finance hydro electrical power project in Nigeria, 19% of the respondents agreed, while 8% of the respondents choose strongly disagree. The average men showing is 3.78 (STD 1.359). This is indicated that the respondents agree, that PPT enables government to finance hydro electrical power project in Nigeria.

Table 1 item 5, showed that 22% of the respondents agreed, that PPT enables government that PPT enables government to support human development in Nigeria, 20% of the respondents strongly agreed, while 7% of the respondents choose strongly disagree. The average men showing is 3.41 (STD 1.505). This indicated that the respondents agree, that PPT enables government to support human development in Nigeria.

Table 1 item 6, showed that 24% of the respondents strongly agreed, that PPT enables government to finance and control environmental floods in Nigeria, 18% of the respondents strongly agreed, while 7% of the respondents choose agree. The average men showing is 3.90 (STD 1.305). This is indicating that the respondents agree that PPT enables government to finance and control environmental floods in Nigeria.

Table 1 item 7, showed that 22% of the respondents agreed, that PPT enables government to finance educational programmed/ initiatives in Nigeria, 19% of the respondents strongly agreed, while 9% of the respondents choose disagree. The average men showing is 3.65 (STD 1.312). This is indicating that the respondents agree, that PPT enables government to finance educational programmed / initiatives in Nigeria.

Weak and Poor Administration of PPT on Revenue Generation in Nigeria :

Table 2.1Weak and poor Administrat ion of PPT on Revenue Generation in Nigeria.

S/NO		SA	A	SD	D	IN	ME	STD
1	Weak and Poor Administration of PPT enables gov.t to loss more Revenue	15(15.1)	18(18.1)	8(8.1)	11(11.1)	-	4.12	1.198
2	Weak and poor Administration of PPT enables gov.t to borrow money from external sources.	18(18.1)	20(20.1)	3(3.0)	7(7.1)	4 (4.0)	3.30	1.162
3	Weak and poor administration of PPT enables gov.t loss confidence for controlling the state	2(2.0)	12(12.1)	24(24.1)	8(8.1)	6(6.0)	4.29	1.163
4	Weak and poor administration of PPT enables gov.t to abundant capital project	21(21.1)	25(25.1	1(1.0)	3(3.1)	2(2.0)	3.75	1.164
5	Weak and poor administration of PPT would not enables gov.t pay personal cost(salary)	18(18.1)	21(21.1)	4(4.1)	7(7.1)	2(2.0) Grand mean	3.91 3.79	1.126

Sources: Field survey, 2019

Table 2 item 1, showed that 18.1 % of the respondents agreed, that weak and poor administration of PPT enables government to loss more revenue in Nigeria, 15.1 % of the respondents strongly agreed, while 11.1 % of the respondents choose disagreed. The average mean showing is 4.12 (STD 1.198) that is indicating that the respondent agreed, weak and poor administration of enables government to loss more revenue in Nigeria.

Table 2 item 2, showed that 24.1 % of the respondents agreed, that weak and poor administration of PPT enables government to borrow money from external sources in Nigeria,18.1 % of the respondents strongly agreed, while 7.1 % of the respondents choose disagreed. The average mean showing is 4.0 (STD1.162) that is indicating that the respondent agreed, weak and poor administration of enables government to borrow money from external sources.

Table 2 item 3, showed that 24.1 % of the respondents strongly agreed, that weak and poor administration of PPT enables government to lose confidence for controlling state 12.1 % of the respondents agreed, while 8.1 % of the respondents choose disagreed. The average mean showing is 4.29 (STD 1.163) that is indicating that the respondent agreed, weak and poor administration of enables government to lose confidence for controlling state.

Table 2 items 4, showed that 25.1 % of the respondents choose strongly agreed, that weak and poor administration of PPT enables government to abundant capital project in Nigeria, 21.1 % of the respondents strongly agreed, while 3.1 % of the respondents choose disagreed. The average mean showing is 3.73 (STD 1.164) that is indicating that the respondent agreed weak and poor administration of enables government to abundant capital project.

Table 2 item 5, showed that 21.1 % of the respondents choose agreed, that weak and poor administration of PPT enables government not to pay personal cost (salary) in Nigeria, 18 .1 % of the respondents strongly agreed, while 7.1 % of the respondents choose disagreed. The average mean showing is 3.91 (STD 1.126) that is indicating that the respondent agreed, weak and poor administration of enables government not to pay personal cost (Salary) in Nigeria.

Effect of Tax Evasion and Avoidance of PPT on Economic Development in Nigeria

This part talks about effect of Tax Evasion and Avoidance of PPT on Economic Development in Nigeria.

Table 3 Effects of Tax Evasion and Avoidance of PPT on Economic Development in Nigeria

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S/NO	Tax evasion/ Avoidance	SA	A	SD	D	IN	ME	STD
1	Tax Evasion & Avoidance of PPT on economic Development in Nigeria	16(16.1)	7(7.1)	18(18.1)	4(4.1)	7(7.1)	3.81	955
2	Tax evasion and avoidance of PPT enables oil companies to perform illegal/unethical activities of the oil sector in Nigeria.	21(21.1)	18(18.1)	2(2.0)	8(8.1)	3(3.1)	4.35	955
3	Tax evasion and avoidance of PPT would not enables Nig. Gov.t to participate OPEC meeting	8(8.1)	21(21.1)	8(8.1)	7(7.1)	7(7.0)	3.87	1.251
4	Tax evasion / avoidance of PPT enables foreign oil companies to come in to Nig. Without following the proper channels	7(7.1)	20(20.1)	5(5.1)	4(4.1)	16(16.1)	3.38	955

5	Tax evasion/ avoidance of PPT enables gov.t of Nigeria to stop follow OPEC as their member	20(20.1)	18(18.1)	3(3.1)	7(7.1)	4(4.1) **Grand mean**	4.12 3.79	1.013

Sources: Field survey, 2019

Table 3 item 1, showed that 18.1 % of the respondents strongly agreed, that tax evasion/ avoidance of PPT enables government to loss proper records on tax administration in Nigeria, 16.1 % of the respondents strongly disagreed, while 7.1 % of the respondents choose agreed. The average mean showing is 3.81 (STD 955) that is indicating that the respondent agreed, tax evasion/ avoidance of PPT enables government to loss proper records on tax administration in Nigeria.

Table 3 item 2, showed that 21.1 % of the respondents strongly agreed, that tax evasion/ avoidance of PPT enables oil companies to perform illegal/ unethical activities of the oil sector in Nigeria. 18.1 % of the respondents agreed, while 8.1 % of the respondents choose disagreed. The average mean showing is 4.35 (STD 983) that is indicating that the respondent agreed, tax evasion/ avoidance of PPT enables oil companies to perform illegal/unethical activities of the oil sector in Nigeria.

Table 3 item 3, showed that 21.1 % of the respondents agreed, that tax evasion/ avoidance of PPT enables Nigeria government not to participate meeting with OPEC. 9.1 % of the respondents strongly agreed, while 8.1 % of the respondents choose strongly disagreed. The average mean showing is 3.87 (STD 1.251) that is indicating that the respondent agreed, tax evasion/ avoidance of PPT enables Nigeria government not to participate meeting with OPEC.

Table 3 item 4, showed that 20.1 % of the respondents agreed, that tax evasion/ avoidance of PPT enables foreign oil companies to come in to Nigeria without follow the proper channel. 16 % of the respondents strongly agreed, while 5.1 % of the respondents choose strongly disagreed. The average mean showing is 3.38 (STD 955) that is indicating that the respondent agreed, tax evasion/ avoidance of PPT enables foreign oil companies to come in to Nigeria without follow the proper channel.

Table 3 item 5, showed that 20.1 % of the respondents agreed, that tax evasion/ avoidance of PPT enables foreign oil companies to come in to Nigeria without follow the proper channel. 18.1 % of the respondents strongly agreed, while 3.1 % of the respondents choose strongly disagreed. The average mean showing is 4.12 (STD 1.013) that is indicating that the respondent agreed, tax evasion/ avoidance of PPT enables foreign oil companies to come in to Nigeria without follow the proper channel.

DISCUSSION OF FINDINGS

In line with the work Ogbonna & Appah(2012), the effect of controlling petroleum sector, is to enables government to generate more revenue in the country, the second objective is that the high profit profile of a successful investment in the oil industry makes it a veritable source for satisfying government objective of raising money to meet its socio-political and economic obligations to the citizenry. And base on the result founded PPT enable government to: construct roads, Hospitals, finance agricultural programmed, finance hydro electrical power projects, finance educational programmed and initiatives and PPT enables government to finance and to control environmental floods in Nigeria.

Base on the result founded, weak and poor administration of PPT enables government to: loss more revenue, borrow money from external sources, lose confidence for controlling the state (country),abundant capital project, and will not enables government to pay personal cost (salary) as at when due. According to Nzotta (2007) Weak and poor administration of PPT from the oil companies, it courses; loss of government revenue from the oil companies, it would support government to borrow loan from external sources, it courses government to abundant of capital project because of the shortage of public fund in the country and poor keeping of financial records from the oil companies for them meet up of the demand of tax authority.

Base on the findings of this work, tax evasion and avoidance of PPT would enables government to: loss proper records on tax matter from the oil companies, it would give chances for oil companies to perform illegal and unethical activities of the oil sector in Nigeria, it will not enable the Nigeria government to continue be a member of OPEC and it would support foreign oil companies to come in to Nigeria without following the proper channel. According to Egbogah (2009) tax avoidance and evasion in Nigeria is a serious limitation of the revenue which affect the efforts of the public sector in the country. The different tiers of government in Nigeria rely on taxes as a major source of revenue for the implementation of their programmed. Thus, a high level of tax avoidance and evasion sustains a number of distortions in the resource profile of the government. Tax evasion and avoidance have generated considerable interest and concern to the government and finance experts in most recent time. This is because of their socio-economic implications and the effects on government's revenues and fiscal viability in the long run(Nwadighoha, 2007).

CONCLUSION

The study shows that there is good relationship between PPT and economic development in Nigeria. This indicated that PPT enable the government to: construct roads, hospital, finance hydro- electrical power projects, finance and control environmental floods in Nigeria.

The study clearly shows that there is weak and poor administration of PPT on revenue generation in Nigeria: it would enable the government to: loss more revenue, borrow money from external sources, lose confidence for controlling their states, abundant capital project and it would not allow the government to pay personal cost (salary).

This study also reveals that tax evasion and avoidance of PPT has serious impact on economic development in Nigeria; it enables the government to loss proper record on tax matter from the oil companies, it will enable the oil companies to performs illegal / unethical activities of the oil sector in Nigeria, it will not enable the Nigeria government to continue to be a member of OPEC and it will enable foreign oil companies to come in to Nigeria without following the proper channel.

RECOMMENDATIONS

1. Government should improve the collection of PPT that would enable them to: finance agricultural sector, educational programs and initiatives in Nigeria.
2. Government should train the tax personals that will enable them to generate more revenue, that will not encourage government to borrow money from external sources, would not abundant capital projects in the country and to pay personal cost (salary).
3. Government should try to eliminates tax evasion and avoidance in Nigeria: that will enable them to: maintain proper tax records, control illegal and un-ethical activities of the oil sector and to control foreign oil companies that are coming in to Nigeria without following proper channel.

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CHAPTER FOUR

DISRUPTIVE INNOVATION: IT'S IMPLICATIONS ON SERVICE DELIVERY IN AKWA IBOM STATE UNIVERSITY

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Abstract:
The concept of disruptive innovation or technology is becoming more popular now than ever before. In this study, we will examine disruption in the context of technology or innovation that makes previous products, services or processes ineffective, particularly as it affects Akwa Ibom State University. Using a cross sectional survey of eighty respondents drawn across all units of the University, it was established that disruption may be driven by a number of factors, costs, quality, customers, regulation and resources. Using inferential statistics, the results revealed specific implications, particularly, the discontinuity of previous technologies and/or ways of working in the University which are no longer viable. Based on these findings, we concluded that Akwa Ibom State University can make a critical error by neglecting to keep up in a rapidly changing market place. Hence, some implications were drawn for management decision.

Keywords: Innovation, Disruptive Innovation/Technology, Sustainable Development, Service Delivery, Akwa Ibom State University.

INTRODUCTION

Christensen (2008) in Yadav (2018) has observed that higher education is fundamentally being disrupted by various new tools and online environment, adding that rapid advancement in information and communication technologies has brought about various changes in education and the structure of colleges and universities resulting in moving up the quality chain and losing touch with mainstream.
Institutions according to (evolution, com/opinions-innovations-higher-education) need to provide an environment that regulates the creation and distribution of content, expanding opportunities for reusing, remixing and repositioning knowledge and content.

This is where disruptive education defined by Caldera and soares (2011) Robinson et al (2016) as the process by which a sector that has previously served only a limited few because its products and services were complicated, expensive and inaccessible, is transformed into one whose products and services are simple, affordable and convenient and serves many no matter their wealth or expertise comes in. Millar, Lockett and Ladd (2018), see disruption in the context of technology and innovation as "change that makes previous products, services and processes ineffective" which implies discontinuity whereby previous technologies and/or ways of working are no longer viable. The study aimed at investigating the relationship between disruptive innovation/technology and work process delivery and identifying the major factors driving disruptive innovation/technology.

The Concept of Disruptive Innovation/Technology

Technological change can either be disruptive or sustaining. Christensen (1997) cited in Feder (2017) sees disruptive innovations as those associated with new technologies that cause a shift in the technological paradigm and business routines, creating new products that eventually lead to the demise of existing products, while sustaining innovations he continued, reinforce the technological paradigm and business routines but do not lead to the creation of new products rather the development of existing ones.

Gressman (2019) blames the development or growth of disruptive innovation on the failure of incumbent firms to develop sustaining innovations to increase profits, stimulate growth, listen to better serve those

customers rather, they focus on improving their products and services for their most demanding and most profitable customers resulting in the failure to meet the needs of those not currently served by them. Disruptive technologies or innovations come into fill the "hole" by successfully targeting overlooked on consumers and delivering similar functionality that incumbents do with technologies that tend to be cheaper, smaller, less durable and more convenient. Because the incumbent pursue higher profit, they under-estimate these entrants that move upmarket delivering the performance that the incumbents mainstream customers desire while preserving the advantage that drove their easily success like lower prices or greater convenience. The adoption of the new entrants' products in volume by the mainstream, customers resulted in the emergence of disruptive innovations or technologies. According to Yu & Hang, (2009) in Genici and Alpkan (2015), disruptive innovation involves products, services or approaches that transform existing markets or create new ones by trading off raw performance for the sake of simplicity, convenience, affordability and accessibility, adding that the main objective of disruptive innovation is not to bring the best performance products or services to the current customers but to bring lower performance products or services to markets by the introduction of other benefits.

Mbata (2015) observed that emerging technologies have proved to be force to reckon with as far as transforming teaching and learning are concerned, adding that the major role of these technologies in education is to empower the technology to present educational activities, innovative technologies he continued, also bring about active learning and encourage collaborative, creative, integrative and evaluative aspects in the educational sector. Also Mbata (2014), also cited in 2015 stated that recent studies on the diffusion and adoption of ICTs in higher education recommended that a robust ICT infrastructure be made available to enable all stakeholders involved in the teaching and learning process to use e-learning systems effectively.

Banks (2008) in Cu and Amin (2018) noted that with the commercialization of internet in 1995, there has been massive disruption in everything we do and use in our life of which the higher education sector was not an exception. The internet he continued, as transformed the traditional classrooms into a new way of learning via distance education medium.

Rostine (2022) cited in Akpan, Mfon and Ibok (2022), identified three types of innovations that impact on marketing operations to include: Innovation that makes something cheaper, faster or easier e.g email. The second is one that improves something that already existed. Examples include cloud computing which has to do with improving computer storage to allow people to store data online, instead of having hard copies of everything, CRM software which manages customer relationship from anywhere at anytime while the last but not the least involves companies changing the way they run their operation such as changing the way they sell products.

Characteristics of Disruptive Innovation:
Disruptive innovations exhibit a number of characteristics which help to distinguish them from those of established firms. The following is a list of characteristics of disruptive innovations from Libliographic research developed by Zubizarreta, Ganzarain,Caudrado and Lizarralde (2020):

1. 2007 Different value proposition of other applications on the market that change the added value for customers, create new markets or customer groups and construct logic for new forms of earnings.

2. 2005 Cheap, simple, initially lower performing and then fast improving. They are only useful in remote or emerging markets. Customers first reject them.

3. 2020 They disrupt established models or redefine the meaning of value creation and acquisition. They focus on developing a more concise technology that is not valued within the mainstream market as the technology is gradually improved.

4. 2019 They enable a new set of product features different from those associated with mainstream technologies and are initially inferior to the latter in certain attributes. Over time, the

performance of disruptive technologies surpasses those of the dominant technologies and they eventually 'invade' the mainstream markets.

5. 2019 They bring a very different value proposition to the market and deliver products and services of greater simplicity, convenience, affordability and lower costs.

6. 2000 Key feature: they lock customers in a new way; they do not follow the traditional trajectory of improving the performance valued by mainstream consumers; they improve performance along parameters different from the traditional ones.

7. 2020 They start out in low-profit margin businesses or low-end markets. Over time, their performance continues to improve to a level that satisfies the mainstream clientele. They provide an appropriate innovation approach for SMEs through new market discovery and felicitate a 'covert' attack on the incumbents.

8. 2006 Their attributes are not valued among mainstream consumers because their weaker performance; they provide a new value proposition to attract new customer segments and customers more sensitive to price; they sell at lower prices; they penetrate from niche market into the mainstream markets.

9. 2009 Their performance is worse than the established attributes, they are cheaper, simpler, more comfortable or more reliable, they address current non-consumers, they are based on standard components, their business model is significantly different, their value network has a low overlap.

10. 2015 They usually begin within small companies with low profit margins and little or no concern with existing organizational structures. Disruptive innovations are those that bring or emphasize unexploited attributes of products and services already offered on the market, unlike traditional forms.

11. 2013 They provide better services than incumbent technologies and they change the way in which those technologies are used.

12. 2013 They possess better value within one dimension (or more) that are orthogonal to those of existing products and, hence are desired by some niche customers. Disruptive innovations are typically cheaper, simpler, smaller and, frequently, more convenient to use.

13. 2016 Their performance is usually below that of mainstream products but lower price or unique features compensate it. They can provide significant competitive advantage to firms. Advantages may stem from being a quick mover or a quick follower.

14. 2016 They use low-cost technology while ensuring high technical quality, key features and facilitate high service quality. They are easy to use.

15. 2016 An innovation with 'good enough functionality that has a low cost. An innovation that changes the performance metrics, or consumer expectations, of a market by providing radically new functionality, discontinuous technical standards, and new forms of ownership

Factors Driving Disruptive Innovation/Technology

Technological development or breakthroughs do not just happen; they are induced, influenced or driven by certain factors. Understanding what drives the rate of disruptions should be managed. Rapid disruptions are not fundamentally different from any others except that they don't require conceptually different responses (https://hbr.org/2015/12/what-is-disruptive-innovation)Millar, Lockett and Ladd (2018) identified cost, quality, customers, regulations and resources as drivers of disruptive

innovation. According to them;

(a) Cost of new technologies and / or processes make old ones uncompetitive in terms of production cost as the new ones are so cheap that old ones become unprofitable.

(b) Quality of new technologies and / or processes they say, raises the quality of products or services to a level that makes the old ones uncompetitive.

© On customers; they argue that significant changes in consumer or business customer preferences make previous products or services unattractive relative to new ones.

(d) In the aspect of regulation, they observe that new laws or regulations no longer permit old ways of working giving environmental or labour protection regulations designed to improve social conditions as an example.

(e) On resources, they argue that previously important resources are no longer readily available for a variety of reasons ranging from exhaustion of natural resources to trade blockades.

Distinction between Disruptive Innovation and Technology

Millar *et al*. (2018) distinguish between disruptive innovation and disruptive technology as follows;
Disruptive innovation is the commercial introduction of products, service, process and/or organizational change that disrupt the activities of existing players in an industry or similar organizational system, whereas Disruptive technology is the technology with the potential to create disruptive innovation.

Disruptive technologies are low level technologies that appear in the market under the rader and overtime continue to upgrade or create entirely new technology.
According to Christen Son (2013) cited in Terry (2020), a low-level disruptive product, when newly in the market, meets one of the following criteria: smaller, cheaper, lighter, more convenient and simultaneously lesser either in quality or power.

From the literature reviewed, Terry (2020) identified the following products as low-level disruptive, starting as inferior product but improving substantially to include;

(i) The personal computer (PC) which could not have the processing power to compete with the mini computers. The PC was considered more of a children's toy than the competition (Christen & Overdorf 2000)
(ii) Toyota, a disruptive entity that first joined the American market with a low end low profit car, not threatening GM or other US car companies eventually developed the Camry and Lexus and threatened others (Schimidt & Druechi, 2008).

Assessment of the Disruptiveness of an Innovation

Disruptive innovations are known to make or mar the success of an organization. Given this assertion, organizations must devise a means of evaluating the disruptiveness of an innovation. According to Zubizarreta*et al.* (2021) in Guo, Pan, Guo, Gu and Kuusisto (2019) in determining whether an innovation (product or service) is disruptive is critical in that this type of innovation has the capacity to disrupt, the market status quo in a radical way, toppling incumbents, adding that knowing the disruptiveness of an innovation can prevent the possible failure of these traditional incumbents.

Also in Zubizarreta*et al.* (2019), Nagy, Schuessler and Dubinsky (2016) enumerated these adverse outcomes to include reduced market share, decreased status, and even bankruptcy or the demise of an organization. They further argued that if managers could identify disruptive innovations before these technologies have affected markets, they could take actions to turn a potential marketplace disruption into a new opportunity or at the very least, prevent the failure of their organizations.
Arising from scarcity in literature on the evaluation of the disruptiveness of an innovation, Zubizarreta et al (2019) identified some studies that address the potential disruptiveness of innovations to include:

Guoet at (2019) that developed a disruptive innovations quantitative evaluation model taking into account three dimensions: technological characteristics, market dynamics and eternal environment.
Sianio and Puumalainen (2007) who analyzed the way in which companies measure the disruptive potential of a new technology and relates its effects to company operations. They created conceptual framework that enables a company to evaluate ex-ante the disruptive potential of a new technology.

Keller and Husig (2009) who developed a model that allows the ex-ante identification of disruptive innovations in the software industry based on a checklist related to a disruptive innovation.
Hardman Steinberger-Wikkens Van der Horst(2013) that identified three (3) fundamental characteristics that characterize disruptive technologies for market leaders, disruption for end users and disruption of existing infrastructure. The identified characteristics are used for identifying a potentially disruptive technology and concluded that a technology must share at least two of above characteristics for it to be labelled as disruptive.

Roy (2018) who explored the role of leading users in the face of disruptive change concluded that the relevant lead user paves the way for a potentially disruptive technology to become a definitely disruptive one adding that the study also displayed some characteristics that can be significant in identifying relevant lead users amongst others.

Harmful Effects of Disruptive Innovations
A disruptive innovation affects both economy and people through their market penetration and power of restructioning process. Marguarett and Just (2017) in table 1 analyzed those implications with a view to identifying and demonstrating how disruptive innovations are strongly linked to reiterating industrial and technological evolution and revolutions.
Marquarett & Just (2017) found out that disruptive innovation have negative effects on the people as they lead to unemployment, immerseration and exploitation of labour, child labour as well as decreasing privacy. This is because when an organization computerizes its operations, many staff of the organization will be replaced with computers and their services no longer required. In addition, there will be immerseration and exploitation.

Marquarett and Just (2017) found out that the introduction of power weaving loom (disruptive innovation) in 1788 brought about the beginning of the 1st industrial revolution in 1784 which led to mechanization and rationalization of work resulting in unemployment and immerseration, exploitation of labour and child labour, adding that the years 1941, 1969, 1971, 1973, 1995 and 2007 saw the emergence of disruptive technologies such as computer, internet, e-mail, mobile phone mp3 player and Apple iphone respectively. These technologies have given rise to unemployment, tensed competition, loss of market share, cyber-crimes and social vices amongst others in the economy.

In another development, Resolver (2022) identified 9 biggest risks to Disruptive Innovation and Technology in 2020.

1. Compliance and Legal Violations
Consumers and regulators expect companies to identify address, and mitigate risks surrounding the privacy and protection of consumer data in the cloud. This implies keeping abreast with current and upcoming data protection legislation like GDPR in Europe and HIPAA in US health care, adding that compliance and risk mitigation should go beyond simply complying with legislation. Consumers he said increasingly want companies to be fully transparent about where their data goes, who sees it and what will be done with it.

2. Data Breaches
An average cost of data breach according to IBM'S 2019 cost of a Data Breach Report was put at $3.92 affecting about 25,000 records. This fact was given by Resolver (2020) who also revealed that an average lifespan of a breach is 314 days which also result in a significant savings to organizations put at about $1.2 million. Although data breach cannot be prevented, Researchers conducted by IBM security have identified some measures that have proven helpful and controlling them to conclude incident response teams and the use of encryption.

3. User Privacy

User's privacy was highly encroached upon in 2018 as a number of companies suffered high – profile data breaches which compromised their customers private information. It is reported that Marriott International Inc., faced a breach which exposed personal information of their 500 customers. Though the attack the hackers gained access to names, phone, numbers, emails, passport numbers, travel details and payment information of customers making it difficult for companies to gather data without violating their user's privacy or exposing their personal information to malicious actors.

4. Fairness and Equity

Another injury caused by disruptive innovation and technology is that of fairness and equity. Resolver (2022) reports that machine learning continues to be an exciting form of disruptive technology for many applications as it offers the possibility if removing human bias from the equation when making important judgments and decisions but added that it is only effective of data set and model are themselves free of bias

5. Reputational Risk

Disruptive technologies are also known to cause reputational risks. This is because Artificial Intelligence systems proned to errors, subject to bias or easily hacked can expose an organization to public critism. This came to light when the Government of Australia recently discovered when they implemented an algorithm designed to detect welfare fraud. It was found that flaws in the algorithm caused thousands of welfare recipients to receive false debt notices which eventually led to a public outary and an official investigation by the Australian Senate.

6. Spoofed Chatbots

Another risk caused by disruptive technology in the creations of malicious Chatbot with the branding of a legitimate business and placing it in an app store for unsuspecting customers of that brand to seek help and download the Chatbot. When this happens, they have a direct line to that consumer and all the sensitive information and personal identifiable information (P11) that will help them to fraudulently help the client with their real query. What is more, the hackers not even ask the consumers to download an app to encounter a spoofed chatbot but may through malware place their spoofed chatbot right on the company's legitimate website.

7. Ethical and Legal Concerns

The need to address ethical and legal issues of disruptive innovations could not have come at a better than now that AI systems have become more intelligent and gaining more agency. Companies researching self-driving cars are advised to deal with their own versions of philosophical dilemmas like the trolley problem. Questions such as when an accident is inevitable is it acceptable for a self-driving car to divert its course in order to save more people if that puts its passengers' lives at risks? Whose lives should be prioritized – the car's passengers or the pedestrian's outside the vehicle?

8. Greater Complexity in the Internet of Things (IOT)

Given the predictions by Eriksson that up to 29 billion devices will be connected to the internet of things by the year 2022, Businesses are asked to make sure that their IOT connected devices are safe with no default passwords and all security updates installed. These devices range from Smartphones and GPS devices to "Smart" thermostats and toasters capable of offering billions of new attack vectors for malicious actors.

9. Public Safety

Data breaches of personal and financial data are very devastating, and the repercussions are limited to the individual. The risk is even worse when the attackers are able to breach an IOT network that manages public infrastructure. The attack could range from hacking traffic lights to bringing down of power plants (Resolver 2022).

Resolver protects what matters (g) over 1000 of the world's largest organizations use Resolver's cloud software to protect their employees, customers, supply chain, brand and shareholders he added.

Sustainable Development

Poskrobko (2007) defined sustainable development as a sustainable, stable and self-supporting development, it requires an enterprise to take on a completely new philosophy of management where the community of enterprise interests and employees form the basis of future successes on the market resulting in moral and ethical conduct both towards employees and the entire community for the benefit of which it operates (Pen, 2005) in Iwona & Machmick (2017) Porter and Linde (1995) in Gomes, Schener and Isak (2011) while analyzing sustainability issue noted that product and process innovations may help to improve firm's environmental performance and also drive them to achieve benefits or advantages such as lower costs, greater productivity or entry into new markets.

Leading companies have built their approaches to sustainable development upon approaches summarized below;

i. Ensuring the corporation understands what the society expects of t, in return expressing clearly what the firm itself stands for, and then reinforcing these values in ways that stretch the organization and create a spirit of continuous improvement.
ii. Developing the tools and approaches to improve performance across the social, environmental and economic pillars of sustainable development and incorporating these tools within routine business processes.
iii. Setting focused targets and putting in place the means to measure performance and conform that the targets are being achieved. (Dearing/OECD TIP WORKSHOP, 1916/2000)

In this workshop, management was advised amongst others to;

i. Pay more attention to how business is being framed and recognize that few people are actually promoting the benefits that companies themselves consider that technology is providing.
ii. Recognize that innovation can be highly disruptive and requires ethical guidelines that are fit for the time and place.
iii. Pay more attention to the contribution.

Disruption and the Future of Higher Education

While examining the role of disruptive technology in the future of higher education, it has been observed that although disruptive technology is not a magical way to transform education, it however must;

i. Interrupt our usual policies, practices and assumptions.
ii. Force new thinking and new approaches to ensuring student learning in higher education.
iii. Enable online learning that potentially qualifies as a disruptive innovation in education

For higher education to harness the disruptive qualities of online learning, certain qualities must be satisfied;

i. It must be student-centered, with learning put first, and flexible enough to accommodate different styles and interests. It should provide necessary supports while the students do the work.
ii. It must be designed to offer options, motivate students, and provide connections to students lives, jobs and communities.
iii. It must capitalize on the willingness of faculty and students to experiments and fail, to improve and to keep at problems until solutions are crafted.
iv. Lastly, it is important to remember that disruption also manifests in more negative trends; increased plagiarism, cheating, and distraction.

Disruptive and its implication for the future of Higher Education

1. There will be the emergence of new software or tools labeled 'disruptive technologies' as frequently as we do now.
2. For disruption to accuse, people need to increase their faith in it since no tool on its own is likely to produce disruption. Disruption will occur when we upset our status quo, focus on student-

centered learning, change relationship, sharpen our insight and design instruction to increase learning and lower costs.

3. Some tools will and some won't be truly disruptive. Those that re will probably force a pause in our usual thinking, a reassessment of the past produces, a letting go of past assumptions, and an introduction of a new perspective as open a new way for doing work. (https://er.educause.edu/articles/2010/3/the-role-of-disruptive-technology-in-thefuture-of-higher-education).

METHODOLOGY

The research design used for this study wascross sectional survey research. The study population comprises both teaching and non-teaching staff of Akwa Ibom State University that make use of innovation/technology in their work. Data for the study came from both primary and secondary sources. A total of 85 copies of the questionnaire were purposively administered on the respondents out of which 80 were duly filled and returned. Ordinary Regression Model analyzed the data

Table 1: Summary of opinions of the respondents

Items	SD	D	A	SA
A	5	8	49	18
B	4	8	50	18
C	4	7	49	20
D	4	8	42	26
E	8	8	40	24
F	7	10	40	23

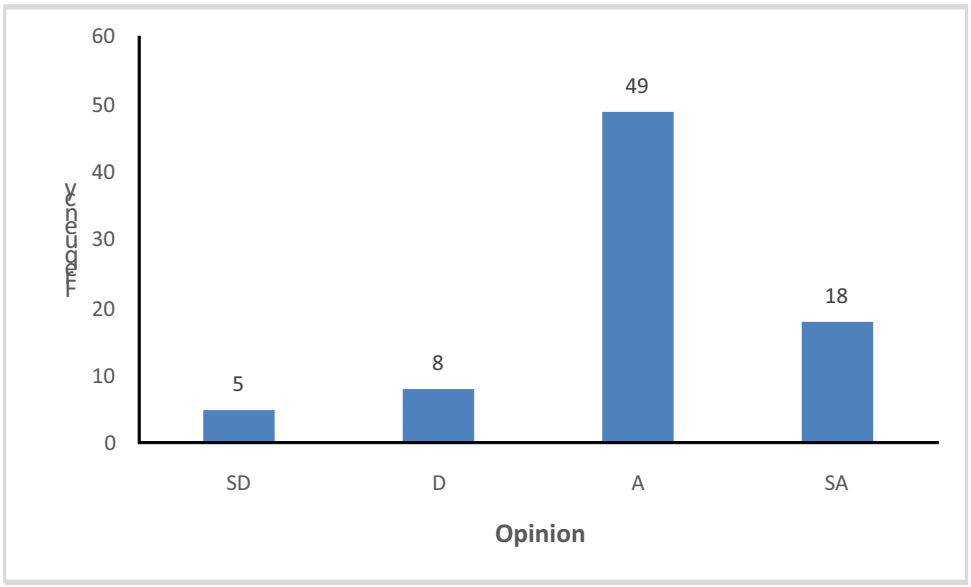


Fig 1: Bar chart showing respondents' opinions on item

Where
SD, D, A, and SA represents Strongly Disagree, Disagree, Agree, and Strongly Agree respectively
Similarly,
Item 1: Disruptive innovation is defined as the innovation of an existing technology that alters the characteristics of the products and services in the market endowing them with greater value and better service delivery.
Item 2: Disruptive innovation creates new products that eventually lead to the demise of existing ones
Item 3: Disruptive technology (e.g. Computer) enhances the effectiveness and efficiency in teaching, learning and research thereby resulting in better service delivery in Akwa Ibom State University.
Item 4: Disruptive technology e.g. computer causes injuries to its users in their service delivery in Akwa Ibom State University
Item 5: Disruptive technology also results in loss of income on the part of those it displaces from work in the course of their service delivery in Akwa Ibom State University.
Item 6: Cost, quality, customers, regulations and available resources have been identified as factors driving disruption and service delivery in Akwa Ibom State University.

Table 1 item A above shows that out of 80 respondents (workers of Akwa Ibom State University interviewed) 5 strongly disagree that disruptive innovation in the innovation of an existing technology that alters the characteristics of the product or service in the market endowing them with greater value, 8 disagree, 49 agree whole 18 strongly agree. The implication of this study is that disruptive innovation alters the characteristics of products and services in the market, endowing them with greater values.

Also in Table 1 item B above, 4 out of 80 respondents strongly disagreed that disruptive innovation creates new products that eventually lead to the demise of existing ones, 8 disagreed, 50 agreed, while 18 strongly agreed. This implies that disruptive innovation creates new products that eventually lead to the demise of existing ones.

In Table 1, item C above, 4 respondents strongly disagreed that disruptive technology e.g(computer) enhances the effectiveness and efficiency in teaching learning and research thereby resulting in better service delivery in Akwa Ibom State University, 7 disagreed, 49 agreed while 20 strongly agreed. This implies that the adoption of disruptive technology in Akwa Ibom State University ha resulted in effective teaching, learning and research as well as general efficiency.

In Table 1, item D above, 4 respondents strongly disagreed that disruptive technology e.g computers, causes injuries to it users in their service delivery in Akwa Ibom State University, 8 disagreed, 42 agreed, while 26 strongly agreed that disruptive technology causes injuries to its users in Akwa Ibom State University.

Also in Table 1 above, items E, 8 respondents strongly disagreed that disruptive technology also results in loss of income on the part of those it displaces from work in the course of their service delivery in Akwa Ibom State University, 8 disagreed, 40 agreed, whole 24 strongly agreed. This implies that disruptive technology results in loss of income in the course of their service delivery in Akwa Ibom State University.

Also in Table 1, item F above, 7 respondents strongly disagreed that cost quality, customers, regulations and available resources drive disruption and service delivery in Akwa Ibom State University, 10 disagreed, 40 agreed while 23 strongly agreed. This implies that the above factors drive disruption and service delivery in Akwa Ibom State University

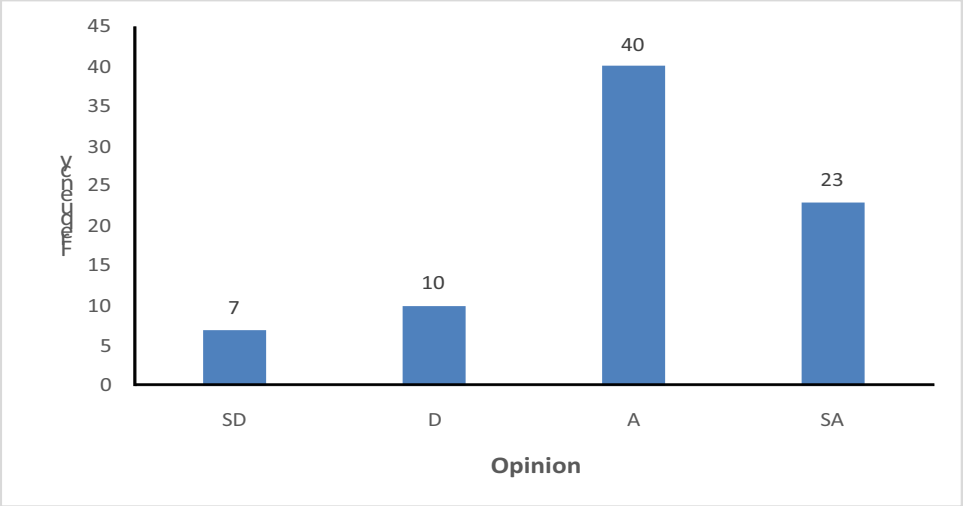


Fig 2: Bar chart showing respondents' opinions on item 2

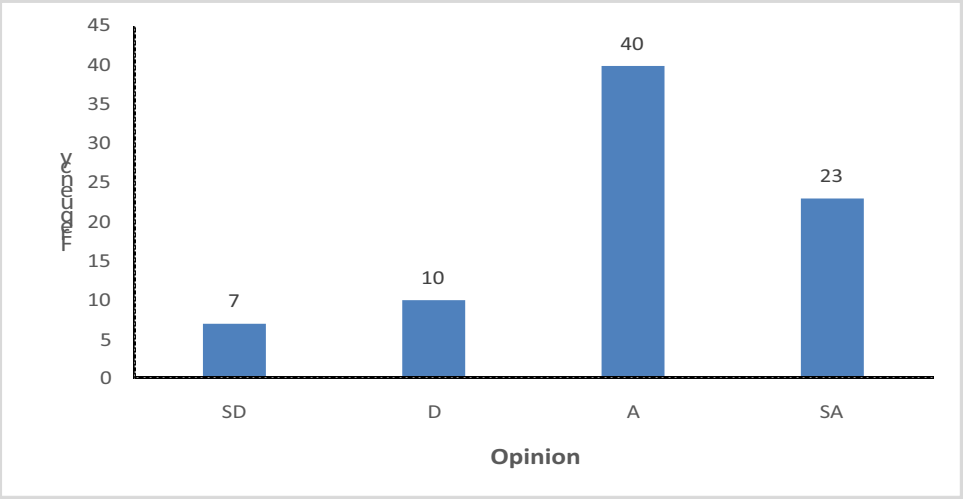


Fig 3: Bar chart showing respondents' opinions on item 3

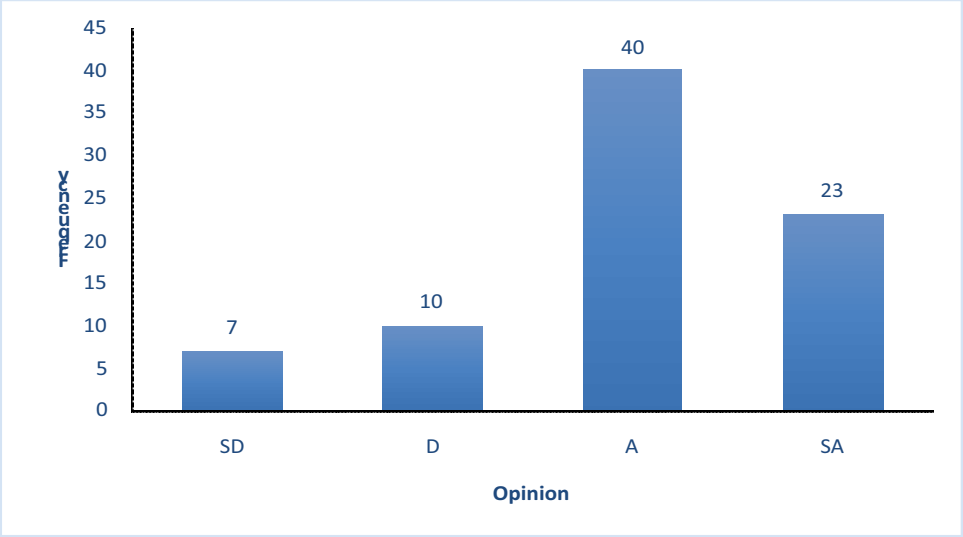


Fig 4: Bar chart showing respondents' opinions on item 4

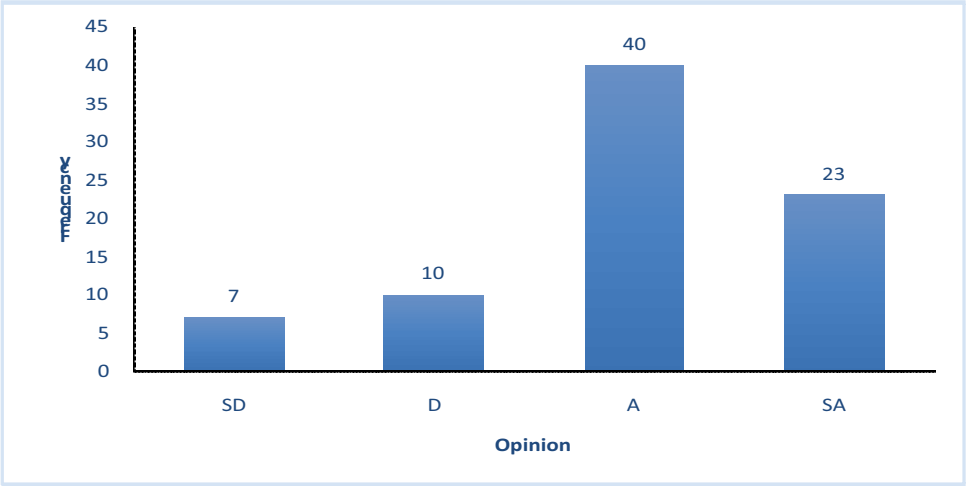


Fig 5: Bar chart showing respondents' opinions

Fig 5: Bar chart showing respondents' opinions on item 5

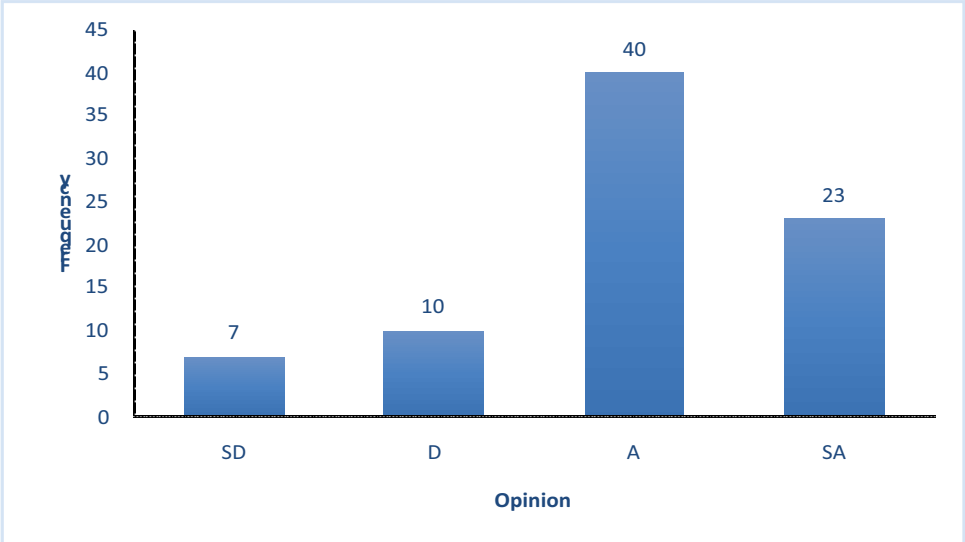


Fig 6: Bar chart showing respondents' opinions on item 6

Analysis Using Ordinal Regression Model Approach

Table 2: Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	Df	P-value
Intercept Only	79.175			
Final	77.484	1.691	5	0.890

Table 3: Goodness-of-Fit

	Chi-Square	Df	P-value.
Pearson	6.910	10	0.734
Deviance	6.791	10	0.745

DISCUSSION OF FINDINGS

In Table 2, the statistically non-significant chi-square statistic (*p<.0.890*) indicates that the Final model does not give a significant improvement over the baseline intercept-only model. This tells that the model does not give better predictions than if we just guessed based on the marginal probabilities for the outcome categories. Table 3 shows the output which is the *Goodness-of-Fit*. This table contains Pearson's chi-square statistic for the model (as well as another chi-square statistic based on the deviance). These statistics are intended to test whether the observed data are consistent with the fitted model. We conclude that the data and the model predictions are similar and that we have a good model. The results for our analysis suggest the model fits very well (*p<.0.734)*.

Table 4: Parameter estimates

		Estimate	Std. Error	Wald	df	P-value
Threshold	[opinion = 1.00]	-2.577	.268	92.279	1	0.000
	[opinion = 2.00]	-1.532	.231	43.907	1	0.000
	[opinion = 3.00]	1.070	.224	22.871	1	.000
Location	[Items=1.00]	-.048	.306	.025	1	.875
	[Items=2.00]	-.009	.306	.001	1	.976
	[Items=3.00]	.096	.306	.098	1	.755
	[Items=4.00]	.301	.306	.968	1	.325
	[Items=5.00]	.065	.306	.045	1	.832
	[Items=6.00]	0	.	.	0	.

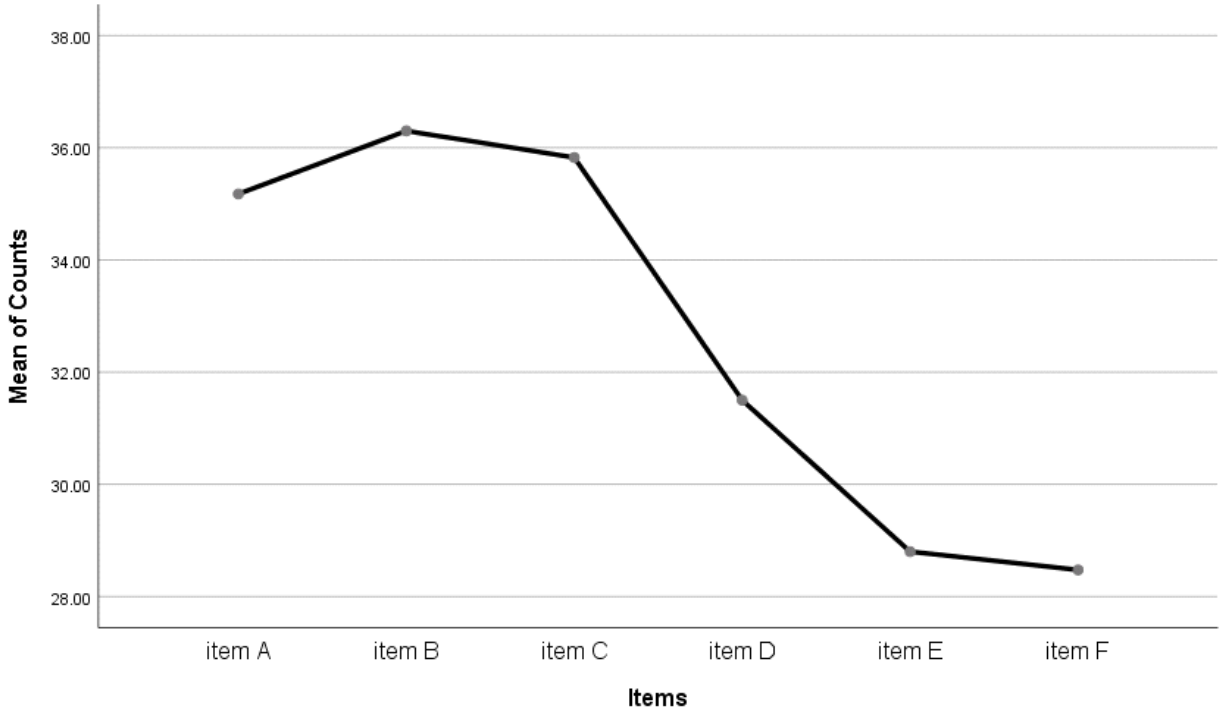
The threshold coefficients are not usually interpreted individually. They just represent the intercepts, specifically the point (in terms of a logit) where opinions might be predicted into the higher categories. The odds of having *opinion 2 or below* (opinion=2) is just the complement of the odds of having 3; the odds of having *opinion 3 or below* (opinion=3) are just the complement of the odds of being *level 2 or above*, and so on.

Since item 6 represents our base or reference category the cumulative logits for item 6 are simply the threshold coefficients printed in the output (opinion = 1, 2, 3). We take the exponential of the logits to give the *cumulative odds (co)* for item 6. These logits are converted to cumulative proportions/probabilities we calculate the predicted *cumulative probabilities* from the cumulative odds (co) simply by the formula 1/(1+co). The predicted probability of having opinion 2 is to work out the *category probability* by subtraction. Of all the categories, item 4 (0.301) gives the odd ratio of 1.3512, this is highest contribution to the predicted of the response. This means the odds of having any of the opinions is 1.35 higher in item 4 (disruptive technology e.g. computer causes injuries to its users in their service delivery in Akwa Ibom State University) than the reference category. Next to it is item 3 (0.096) with odd ratio of 1.1008, this item has the second highest contribution to the predicted response. It means the odds of having any of the opinion is 1.10 higher in item 3 (disruptive technology e.g. computer, enhances the effectiveness and efficiency in teaching, learning and research delivery in

Table 5: Test of Parallel Lines

Model	-2 Log Likelihood	Chi-Square	df	P-value
Null Hypothesis	77.484			
General	70.693	6.791	10	.745

This test (Table 5) compares the ordinal model which has one set of coefficients for all thresholds (labelled Null Hypothesis), to a model with a separate set of coefficients for each threshold (labelled General). If the general model gives a significantly better fit to the data than the ordinal (proportional odds) model $p<0.05$) then we are led to reject the assumption of proportional odds. In this case, the hypothesis is not rejected, which is better for our model. This means there is significant relationship between disruptive innovation/technology and the danger posed by its usage and there is significant relationship between disruptive innovation/technology and the factors driving its usage.



This mean plot shows how people responded to the questions. It can be seen that item 2 (Disruptive innovation creates new products that eventually lead to the demise of existing one) has the highest frequency. This is closely followed by item 3 (disruptive technology (e.g. Computer) enhances the effectiveness and efficiency in teaching, learning and research delivery in Akwa Ibom State University), which means that most of the respondents believe that disruptive technology contributes positively to service delivery in Akwa Ibom state university.

Managerial Implications:

Understanding what drives disruption is helpful for predicting outcomes; but shouldn't alter the way disruptive should be analyzed. Major issues of disruption and social implications have not been fully addressed in recent studies. Finding innovative ways that can better drive service delivery in the university system is a test of cooperative leadership paradigms, which management, staff and students each have key roles to play. The message we have here about the connection between innovation and service delivery offer a clear sense of opportunity and obligation on the attempt of all stakeholders. The nature of the challenge is apparent from the results of the university wide survey. Breakthrough

innovations of whatever kind or type are likely to be rejected by people because they cannot use them. Consequently, the University, depending on the nature of the technology and the degree if awareness of its potential consequences, require different risk management response. These would involve an acknowledgment that:

a. Innovation can be highly disruptive and requires some ethical balance or evidence that fit the 3eorganization.
b. Managing innovations and technology development requires a managerial commitment of enhancing sustainable balance of change over time.
c. The challenge for the university is to find new ways to align innovation with staff and students expectations and to provide management framework that is based on discussing, deciding and the delivering sustainable service value.
d. When new technology or innovation arises, disruption theory on principles should guide organizations strategic choices
e. Disruptive innovation can generate new markets and provide a better balance between costs and performance as well as important new market niches; for instance, creating e-learning and teaching platform for students' decisions of e-instructional materials.

CONCLUSION AND RECOMMENDATIONS

The study investigated the degree of relationship between disruptive innovation and it service delivery in Akwa Ibom State University. Based on the findings of the study it was concluded that there exist a strong, positive relationship between disruptive innovation and the level of service delivers in Akwa Ibom State University. This implies that the higher the degree of disruptiveness inherent in the innovation, the higher its service delivery. It was also established that cost, quality customers, regulations and available resources drive disruption and service delivery in Akwa Ibom State University.

RECOMMENDATIONS

This study recommends the following;

1. The Management of Akwa Ibom State University is enjoined to acquire high level innovative technologies for use in its service delivery as the study reveals that the higher the degree of disruptiveness inherent in the innovation, the higher will be its degree of service delivery
2. As it was also revealed in the study that cost, quality, customers, regulations and available resources drive disruption and hence service delivery in Akwa Ibom State University, it is recommended that the Management of the University should pay proper attention to factors of cost, quality, customers, regulations and available resources as they have been identified as drivers of disruption and service delivery in Akwa Ibom State University.

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CHAPTER FIVE

BUSINESS PROCESS RE-ENGINEERING (BPR): A CONTEMPORARY TOOL FOR STRATEGIC RESPONSE IN SELECTED BREWING FIRMS IN THE NIGERIAN BREWERY INDUSTRY

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Abstract:
The main objective of this study was to assess Business Process Reengineering (BPR) as a contemporary tool in strategic response among selected brewing firms in the Nigerian brewing industry. The authors assessed the effects of information Technology (IT), infrastructure and top-level management commitment, as BPR indicators, on the strategic response of selected brewing firms in the Nigerian brewery industry. The Survey research design approach was used in the study. The target population of the study were 2,063 staff of selected Brewery firms in the country, irrespective of their level, while the sample size was 335, as determined using Taro Yamane sample size determination technique. Data collected for the study were mainly from primary sources, with the use of structured copies of questionnaire. The data were further analyzed using the simple linear regression analysis. Findings showed that both information Technology (IT) infrastructure and top-level management commitment, which are BPR proxies, have positive and significant effects on the strategic response of the studied brewing firms in the Nigerian brewery industry. The researchers concluded that BPR is a massive contemporary tool that could serve as a strategic response in the studied brewing firms in the Nigerian Brewery industry. On the basis of the aforementioned findings, it was recommended that the studied brewing firms should invest reasonable in information Technology (IT) infrastructure and their employees should be trained accordingly; and the top-level managers should see themselves as co-implementer's of the BPR mechanisms in the studied brewing firms as this could create a synergistic working atmosphere between the top-level managers and their subordinates, which could prove pivotal towards a successful implementation of BPR practices in the brewing firms.
Keywords: Business Process Reengineering (*BPR),Information Technology (IT) infrastructure, top-level management commitment*.

INTRODUCTION

Firms such as the Nigerian brewery industry is established to survive, grow and contribute meaningfully to the economic growth and development of a nation. Through firms' sustainable business process and procedures, the macroeconomic objectives of a country is collectively achieved. In today's Nigerian brewery industry, the competitive dynamisms that exist among brewing firms have made it mandatory that brewing firms need incorporate value-adding method(s) of business operations if they are to remain relevant in the industry (Olajide and Idowu, 2020). To achieve the above assertions, Business Process Reengineering (BPR) has been conceived as strategic contemporary tool that could help brewing firms in Nigeria to revamp their business operations in order to operate in an effective and efficient manner.

Business Process Reengineering (BPR) is a collective process that is concerned with adding value to firm's business operations (Rajapathirana and Hui, 2017). Elsewhere, Amer and Kandli (2010) conceived it as a continuous and radical improvement in firm's business operations in a non-conventional manner. Relatedly, Hammer and Champy (1993) posit that Business Process Reengineering (BPR) refers to fundamental redesigning of firm's business processes in order to attain relative performance

improvement in areas such as costs, services and speed. Accordingly, Balasubramanian (2010) defined Business Process Reengineering (BPR) as a dramatic change in firms overall business processes and structures that is aimed at helping an organization to realize its corporate goals. In view of the above prepositions, Business Process Reengineering (BPR) do not support maintenance of the status-quo. Rather, it inevitably demands complete turnaround, with the objective of adding value to all chains of business processes. The overriding assumption is that maintaining the existing business method is more cost ineffective and devoid of value that are prerequisite in surviving in the competitive rivalry among firms.

Information Technology (IT) infrastructure and management commitment are key variables of Business Process Reengineering (BPR) (Hammer, 1990). Most Business Process Reengineering (BPR) experts see Information Technology (IT) infrastructure as key vehicle towards the successful implementation of BPR objectives (La Rock, 2003). Effective application of IT in BPR requires a top-down approach; one where the managers buy the idea first before it is communicated across board. However, mere designing and installing an IT platform is never suffice to achieve holistic turnaround in business process reengineering. It rather requires a tripartite combination of business process strategy, IT strategy and human resources. Successful combination of these factors ensure that firms would be able to respond timely and profitably to the rapid changes in the operating environment they are involved in. Evidence equally abound that successful application of Information Technology (IT) infrastructure, as BPR mechanism, could be pivotal in launching a strategic response among competing firms (Hammer, 1990; Khan and Khan, 2004).

The success of any BPR practices rest hugely on the commitment level of the top-level managers (Michael, Faith and Christiana, 2018).Referred to as reengineering leadership, the commitment level of management employees is crucial in order to steer BPR process in the right direction. However, management in any organization do not approve and implement BPR in a vacuum. They unquestionably apply their skills, knowledge, ability, capability, expertise and experience gained overtime. The emphasis on these parameters stem from the fact that, it is easier for top-level managers to successfully implement BPR practices in an organization than individuals who are inexperienced in that course. Resultantly, when top-level managers lead by example, it foster positive work atmosphere which is reflected in the form of decrease level of change resistance, holistic cooperationfrom all functional units, bottom-up pattern of information and communication, among others (Keya, 2015). It encourage collaborative work environment that serves as an intangible resource that is needed to build and strengthen firms competitive tussle.

As a construct, strategic responseentails the direction and scope of an organization activities, which is targeted at helping organizations fit into their operational environment, meet the ever-changing needs of the market as well as fulfill the stakeholder's expectations (Kairu, 2013). Given this viewpoint, the understanding of strategic response rest on how an organizations use the chain of activities they engage in to respond strategically to the competitive forces within it. In the words of Awero (2011), it is all about the choices, decisions and actions that firms take to achieve their objectives. Buttressing this assertion, Hooley, Peircy and Nikolaud (2008) see strategic response as well-designed frameworks that strategically guides and determines the nature and direction of an organization's goals.

For a substantial number of years now, the Nigerian brewery industry has been a well-recognized market both in Nigeria and Africa in extension. At a point, the industry was pronounced as the largest provider of alcohol in Africa (Elumah and Shobayo, 2018). Owing to the industry's growth and cash generating tendencies, it has attracted other players in the industry, both regional and global. The swift entrance of these players, overtime, has gone from mere participants in the industry to huge competitive rivals among the indigenous brewing firms in the country. For instance, South African Breweries Miller (SABM) recently acquired two operating bases, which significantly shows their strategic action and direction in the industry. Added to that, recent inconsistent nature of macro-economic variables in Nigeria that is characterized with increase in beer consumption among youth visa-a-vis aged group, insecurity issues that has made it almost impossible to distribute produced products, general decline in disposal income among the populace and the unending yearn for quality among the consumers due to their improved knowledge of the industry and substitute products have made it mandatory that brewing firms in Nigeria need to change their erstwhile means of business operations. They inevitably need reengineering mechanisms such as Information Technology (IT) and top-level management commitment in their business processes in order to remain in business and strategically respond to competitive rivalry and dynamisms in the industry. This assertion, thus, formed the thrust and focus of this paper.

Statement of the Problem

In the last decades, the Nigerian brewing industry, just like any other industry in the country, is seriously undergoing strategic challenges. Given the current economic hardship, the industry is characterized with high costs of operation, gradual decline in beer consumption among the populace due to low disposal income, and changes in operational techniques as enforced by customer's knowledge of the industry. Equally, the entrants of new players in the industry has also created problems in terms of price of products, quality of service offered, product preference and product delivery. The need to keep with such competition and aftermath of the economic downturn has forced brewing firms in Nigeria to think of new means to carry out their business operations.

The efficacies of BPR in helping business organizations to remain relevant and continue in their value-adding business operations have been explored. However, few of such studies, especially in the Nigerian brewing industry, focused on the link between BPR and firm's performance. While doing that, efficiency and effectiveness has often been used as proxies of organizational performance. Though BPR and strategic response has been addressed in other studies, but strategic response was more conceived from strategic competitive advantage prism rather than a response mechanism. As a result, this study examines the effects of information Technology (IT) infrastructure and top-level management commitment as BPR indicators on strategic response in the Nigerian brewing firms.

Objectives of the Study

The main objective of this study is to assess BPR as a contemporary tool in strategic response among selected brewing firms in the Nigerian brewing industry. The specific objectives are to:

i. Examine the effect of Information Technology (IT) infrastructure as BPR indicator on the strategic response of selected brewing firms in the Nigerian brewing industry; and

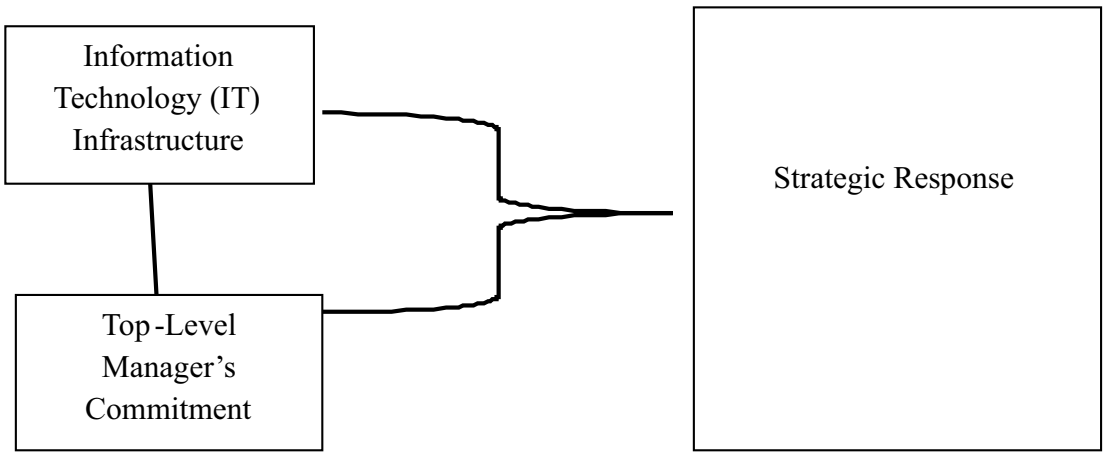

Figure 2.0: Conceptual Model for the Study
Source: Author's (2023)

In order to survive and operate profitably in any business landscape, old fashioned business operation methods need to be improved upon due to competitive tussle among firms in a given industry. In the Nigeria brewery industry, the competitive rivalry among brewing firms have heightened over the years due to the entrance of other major players in the industry as well as changes emanating from the unstable macro-economicvariables in the country. Overtime, it has become necessary that brewing firms in the industry need to be aggressive by revamping their business process and procedures in order to uphold their competitive advantage, both among the indigenous brewing firms and the regional players. Information Technology (IT) infrastructure and top-level management support has been identified as key BPR variables (Teng, James, Grover and Fiedler, 1994;Habib, 2013)that could help business organizations such as the Nigerian brewery industry to respond optimally, just-in-time (JIT) and strategically to the competitive dynamism ongoing in the industry. Careful implementation of the aforementioned BPR variables bring incredible developments to the existing brewing firms as well as improved performance, which are positive indications of strategic response of such firms.

The Concept of Business Process Reengineering (BPR): It is believed that BPR is an offshoot of different developments. In the 1960s, BPR is believed to have emerged from the early classical strategic management philosophies, which approached business operations using strategic thinking.

Elsewhere, since an in-depth work on BPR is accredited to Michael Hammer and Thomas Davenport in the late 1990's, BPR is equally agreed to have emerged out of the economic crisis and recessions that evolved in the late 1980s and 1990s (Arnott and O'Donnell, 1994) as cited in Chen (2001). Succinctly put, the period of economic crisis, created a dire need for financial reengineering. Supporting this assertion, Hammer and Champy (1993) opined that BPR was thought of as an outlet to help business organizations out of the ongoing crisis by reviewing their business processes so as to become leaner, better and profitable.

Regardless of the aforementioned developments, BPR is said to have developed formally due to the works of Thomas Davenport (1990) and Michael Hammer (1990) respectively. Thomas Davenport (1990) wrote an article titled, *the new industrial engineering: information and business process redesign,* which was published in the Sloan Management Review. Michael Hammer (1990), on his part, wrote an article titled, *re-engineering work: don't automate, obliterate*, which was published in Harvard Business Review. At first, both authors did not use the word business process reengineering; rather, they use concepts such as continuous improvement and radical change.

As a construct, BPR has been conceived as a strategic intervention tool that is applied in business operations in order to achieve outcomes that are less time and money consuming (Orugbu, Onyeizugbe and Onuzulike 2015).Hammer and Champy (2001) sees it as strategic analysis and redesign of non-value methods of business operations within and between enterprises (Hammer and Champy. 2001). Elsewhere, Stoica, Clawat and Shin (2004) submit that Business Process Reengineering (BPR) is the complete evaluation and amendment of corporate activities in areas of strategy, process, technology, organization and culture, with the objective of revamping corporate objectives that non-value adding. Championing the same viewpoint, Goksoy, Ozsoy and Vayvay (2011) opined that Business Process Reengineering entails reinventing processes by abolishing and revamp the old ones, by designing completely and radically new processes.

Furthermore, Crowe, Fong and Zayas-Castro (2002)contend that Business Process Reengineering (BPR) is a contemporary management tool that is used to engineer unconstrained, basic and quick transformations in organizations by revamping already existing strategic operations, policies, organizational structures, values and support system in a conventional manner.In the words of Qarouti (2000), BPR is designed to facilitate rapid redesign and radical change of business processes, with the sole of objectives of adding values to organizational systems, policies and structures, which would help to improve productivity, customer satisfaction, and general performance of an organization (Qarouti, 2000). To this definition, Jalali, Maroofi, Navidand Mohammady (2013) as cited in Al-Halalmeh (2018) added that such rapid redesign and radical change is usually unrestricted, and include changes in further areas like organizational techniques, management systems, organizational values, with the aim of achieving improved outcomes across all functional units and operations of an organization. Conceptual overviews on Business Process Reengineering (BPR) would be incomplete without referencing that of Hammer and Champy (1993). They posit BPR is the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical contemporary measures of performance, such as cost, quality, service, and speed.

Altogether, the underlying idea about Business Process Reengineering (BPR) is the fact that it is never planned, designed and implemented to completely discard all business processes. While the activities organizations engage may still be in existence, the target of Business Process Reengineering (BPR) is to introduce innovative means through which the operations could be carried to add values. It is a supporting system; one that is designed to invent newapproach to business operations (Sherwood-Smith, 1994) as cited in Chen (2001). As Stoddard and Jarvenpaa (1995) as cited in Bii (2008) succinctly puts it: although Business Process Reengineering (BPR) facilitates radical designs, it does not necessarily promise a revolutionary approach of change to organizational operations. Business process reengineering incremental radical changes in the way organizations carry out their operations in order to achieve significant results in the aspect of cost reduction and increase in profit margins. Thus, Business Process Reengineering (BPR) does not seek to alter existing processes; but, it forces companies to ask whether improving operations in an organization is necessary and finding a better way to do it (Siha and Saad, 2008). Successful implementation of Business Process Reengineering (BPR) enables business organizations to achieve incremental progress, which helps in improving business performance (Shin and Jemella, 2002). Considering such importance, a Business Process Reengineering (BPR) design that is properly crafted and implemented could be all that is required for business organizations, brewing firms in the Nigerian brewery industry inclusive, to respond strategically to the competitive dynamisms that exist in the industry.

In Business Process Reengineering (BPR) studies, Information Technology (IT) infrastructure has been identified as key variables of Business Process Reengineering (BPR) (Davenport and Short, 1990; Hammer, 1990; Eke and Achilike, 2014). These Business Process Reengineering (BPR) variables are discussed as shown hereunder:

Information Technology (IT) Infrastructure: IT infrastructure is defined as the basic foundation of the IT portfolio that is usually shared across different functional units in the form of reliable services, and usually initiated and managed by Information System (IS) unit of an organization (Broadbent, Weill, O'Brien and NeD, 1996) as cited in Broadbent, Weill and St. Clair (1999). Such IT infrastructure foundation or portfolio includes: technical and managerial expertise that are required to provide reliable services. Because IT infrastructure can be shared across boundaries and functional units, IT infrastructure remarkably differ from other IT investments and applications. When such broad-based approach in IT infrastructure implementation is maintained, it resultantly gives IT infrastructure an integrative status; helping an organization to achieve end to end BPR objectives (Davenport 1999). Viewed from a different prism, there is equally a well-accepted iterative relationship between IT infrastructure and BPR. IT infrastructure can serve as barriers to and enablers of BPR, especially when the firm's IT infrastructure is inappropriate or inflexible (Earl and Kuan 1994; Brancheau, Janzand Wetherbe, 1996). Most times, firms do not usually have the needed IT infrastructure to initiate the new business redesign. Regarding such situation, the business benefits of applying IT infrastructure to the business process can be a powerful argument to justify the infrastructure investments in BPR (Broadbent, Weill and St. Clair, 1999).

Concerning early attempt to formalize BPR, Hammer (1990) once opined that, in order to achieve significant benefits, it is not suffice to computerize the old ways; rather, a fundamental redesign of business processes that is directed at key organization's operations is necessary. The above assertion shows the importance that is associated with Information Technology (IT) infrastructure in Business Process Reengineering (BPR) discussions. In fact, Hammer (1990) argued that, Information Technology (IT) is a key factor for an organization that wants to witness radical changes in their business operations. The overwhelming emphasis on Information Technology (IT) infrastructure is premised on the assumption that, long before the advent of modern computers and means of communication, organizations have relied on old-fashioned means of business processes, procedures and operations. The emergence of Information Technology (IT), therefore, serves as a BPR stimulus that is geared towards discontinuing the old process; breaking away from old business structures, systems and rules. Most especially, effectiveness in IT infrastructure practices in an organization allows firms to conduct their businesses in different locations and permit quicker delivery to customers, supports rapid service provision and paperless transactions (Aremu and Saka, 2008).

Top-Level Management Commitment: Successful implementation of BPR programs in any organization requires the efforts of all employees. Nevertheless, more important to BPR course is the efforts of top-level managers. Depending on their status in an organization, Li, Guohui and Eppler (2008) collectively referred to them as BPR initiators. The emphasis on top-level managers for successful operations of BPR programs stem from the fact that their experience that they gain overtime, skills, abilities and competencies are essential in pulling all employees in the same direction, especially as BPR calls for new redesign, approach, procedure and process to work operations. Equally, BPR cannot implement itself. An integrative approach to work operations that is spearheaded by the top-level managers is pivotal towards the successful initiation and sustenance of BPR practices in an organization (Malhotra, 1998) as cited in Michael, Faith and Christiana (2018).

Furthermore, all BPR implementation process always encounter certain measures of change in an organization. The implementation could be more challenging given the hyper-competitive nature of the current business environment (Efi*et al.,* 2017). As the change agents or change initiators (Akpaetor and Madubuike, 2022), the importance of the top-level managers in handling such structural shocks should not be quickly ignored. Elmuti and Kathawala (2011) posit that top-level managers at that point assumes the position of visionaries, motivators and communicators. Expressed differently, the lead the new process. This gives insight to the fact that initiating change or strategic response in an organization do not necessarily involve the efforts of all employees (Akpaetor and Madubuike, 2022). Added to that, leading the new process is a function of top-level managers wealth of experience on BPR practices. That is, aside managing the structural shocks that emanate from the new process, it will be difficult for the top-level managers to manage the new process completely without being knowledgeable on BPR methodologies. Buttressing this assertion, Abdolvand, Albadv and Ferdowsi (2008) submit that sound knowledge of BPR

practices by top-level managers is often crucial in the new business process. La Rock (2008) affirmed that by positing that top-level manager's in-depth knowledge of BPR practices help in realistic realization of BPR objectives. Since significant success of BPR practices rest on the shoulders of top-level managers, it is expected that managers within such ladder in an organization should be creative and innovative while initiating the new process as well as leading other members of the organization. There should be well-defined structures and clear paths for the contributions of every member of an organization; paving the way for the chance to disagree and criticize each other's viewpoint, with the aim of arriving at a best solution to BPR challenges.

An Overview of Strategic Response

Pearce and Robinson (2005) defines strategic response as the set of strategic decisions and actions that led to strategy formulation and implementation that are used to achieve firm's objectives. Kairu (2013) equally conceived it as firm's well-planned reaction that is strategically directed to changes that has already occurred in the operational environment or is yet to occur. In the words of Awero (2011), it refers to firm's reaction to what is happening within the environment which they operate. Strategic response are decisions and actions that firms apply or resort to in the face of business competition or turbulent business landscape. When an organization fail to respond to competition, it unavoidably opens up itself for competitive attack from rival firms. It could require redesigning firm's strategic abilities and capabilities to align with the changes ongoing in the operating environment. There are various strategic decisions and actions available to business organization as strategic response mechanisms. The beauty of strategic response lies in identifying and utilizing strategic decisions and actions that would open up window of business opportunities for a firm, as well as facilitate the realization of pre-determined corporate goals. Firms have sustainable competitive advantage when their strategic response help them in broadening their customer base, fend up stiff competition from their competitors and maintain superior leadership in the market, which ultimately lead to the enjoyment of above-average-returns.

The Nigerian brewery industry is an important sector that contribute significantly to growth and development course of the nation. Due to the robustness and large market share of the industry, there has been strategic restructuring of the industry overtime due to competition. Regional players, most notably, has gradually entered into the industry to have a share of the market, thereby providing intense competition with already existing indigenous brewing firms in the industry. Consequently, the Nigerian brewery industry is seriously undergoing competitive tussle, especially with new players in the market. The brewery industry now operate in a Darwinian market, where the fittest survive. Added to that is the outcomes emanating from the dynamic nature of the business environment which these brewing firms operate. Recently, the market is now characterized of knowledgeable consumers with strong preference for quality, availability of substitute products, consistent decline in consumer's disposal income in the country, and reoccurring insecurity challenges in the country. Coping with such increasing pressure unquestionably required brewing firms in the industry to rethink their method of business operations (Pearce and Robinson, 2005), so as to improve their business process and procedures, which are integral in helping the brewing firms to continuously meet the increasing demands of the market. Buttressing this assertion, Chepkwony (2001) submit that when business organizations are faced with intense competitive dynamism, they respond by aligning with such environment. The brewing firms must recognize the need of responding to those challenges or face the risk of going out of business. In the words of Aosa (1992), firms must respond strategically by being more innovative as they serve their customers in such turbulent business landscape.

In competitive dynamism studies, it is evident that BPR equip many firms with certain attributes and strategies necessary to respond just-in-time to changes in the operational environment. In BPR literature, it is explained that BPR variable such as change management could serve as an effective strategic response tool as firms use it to facilitate organizational progress and improved corporate fortune (Liviu and Christian, 2015). Oon and Hartini (2014) as cited in Okeke, Oboreh, Nebolisa, Esione and Chukwuemeka (2019)contend that where change management process, as one of BPR variable, is effectively applied, it resultantly lead to operational advantage. Elsewhere, BPR could equally serve as a strategic response, depending on the value propositions and offerings of a firm. For instance, Achieng (2014) posit that by providing value-laden results that rival firms fail to replicate in the form of reducing operational costs, eliminating unproductive activities, engaging in restructuring such as top management delayering, and elimination of errors, firms are able to shield off competitive war with their competitors. For speed, as a competitive response attribute, BPR helps business organizations improve their delivery by reducing cycle time and shortening delivery periods (Slack, Chambers and Johnston, 2007).

Resource-Based-View (RBV) Theory: The Resource-Based View (RBV) theory was developed by Wernerfelt in 1984 through his work, *A Resource-Based View of the Firm*. Subsequently, RBV theory was further developed by Wernerfelt's compatriot such as Barney in 1991. Originally, Resource-Based View (RBV) theory was developed to help business organizations to understand sources of their competitive advantage and what they could do to sustain it overtime. The principle of Resource-Based View (RBV) states that: through the careful use of firm's tangible and intangible assets, an organization can achieve competitive advantage. Explaining what tangible assets are, Wang, Chen and Chen (2012) as cited in Umar (2008), opined that they are physical assets that are tractable, could be measures, seen and touched, while intangible assets are assets that are not seen physically seen, difficult to touch or quantify. Consequently, the underlying assumption on RBV theory is that, as long as these assets remain valuable, rare, difficult to imitate and are non-substitutable, they would continue to serve as a source of competitive advantage to an organization over a long period of time (Wernerfelt, 1984).

The Resource-Based View (RBV) theory, without doubt, theoretically explain the use of BPR as a contemporary tool for strategic response in the Nigerian brewery industry. Given the hyper-competitive dynamisms that exist in the brewery industry, the surest way for brewing firms in the industry to survive and remain competitive is to revamp their old-fashioned methods of business operations; one that is spearheaded by Information Technology (IT) infrastructure and top-management commitment. These two BPR variables, though has been identified as being beneficial to BPR success; recently, they have become key enablers in achieving BPR objectives. Both BPR variables are both tangible and intangible in nature, thus, helping the studied firms to experience complete benefits that comes from successful implementation of BPR practices. More so, the ability to maintain the valuableness, rarity, difficult to imitate and are non-substitutable features of these BPR variables would not only help the concerned brewing firms to enjoy returns that is above average, but to continually do so in a sustainable manner. All brewing firms in the industry has bundle of resources at their disposal. However, the ability to create a difference from other firms using these unique resources remarkably position one brewing firm different from the other. Thus, RBV theory best explains the rationale behind the use of BPR as a contemporary strategic response tool in the Nigerian brewery industry.

Sungau, Ndunguru and Kimeme (2013) carried out a study on **Business Process Re-Engineering: the Technique to Improve Delivering Speed of Service Industry in Tanzania. The objective of the study was to assess** *effect of business process re-engineering on delivering speed forenhanced organizational performance. Cross-sectional research design was used in the study. The population of the study was all service organizations in Tanzania, while the sample size was ninety five. Copies of structured questionnaire was used in generating needed responses from the respondents. Primary data generated were analyzed using descriptive and inferential statistics. Results from the analysis showed that BPR positively improves delivering speed ofservice organizations. The researchers concluded that the adoption of BPR enhances delivering speed of services of the studied organizations. The reviewed study differ from the present study in terms of scope and research design.*

Olajide and Idowu (2020) studied Effects of Business Process Reengineering on Organisational Performance in the Food and Beverage Industry in Nigeria. The objective of the study was to examine the effect of BPR component (Organization resources: innovative thinking and process function) on the operational performance of food and beverage firms in Nigeria, among others. The researchers applied survey research design in the course of the study. The population of the study was 7,969, while the sample size was 400. Copies of structured questionnaire was used in generating the needed primary. Analyses of formulated hypotheses were done using simple linear regression. Results from the findings showed, among others that, BPR components of organizational resources and process function showed negative and insignificant effect on the operational performance of the studied firm, while innovative thinking showed a positive and significant effect on the dependent variable. The researchers recommended, among others that, the process component of BPR should be redesigned for the organization to enjoy sustained corporate outcomes. The reviewed study differs from the present study as the researchers focused on food and beverage industry in Nigeria and the use of multistage sampling technique.

Ongeri, Magutu and Litondo (2020) conducted a study on Business Process Reengineering strategy: Its Impact on the performance of companies manufacturing food in Kenya. The objective of the study was to ascertain the effect of BPR on the performance of food manufacturing companies in Kenya. Cross-sectional survey research design was adopted by the researchers. The required primary data were generated through a structured questionnaire. Analysis of the generated primary data were done using simple linear regression.

Results from the analysis showed, among others that, BPR methods have significant effects on the performance of the studied companies in Kenya. The researchers concluded that BPR used in the organization positively and significantly affected the performance of the food manufacturing firms in Kenya. By concentrating on food manufacturing companies in Kenya, use of cross sectional research design and PPMC method of data analysis, the reviewed study differs from the present study by scope, research design and method of data analysis.

Bako and Banmeke (2019) examined Impact of Business Process Re-Engineering on Organizational Performance (A Study of Commercial Banks and Micro-Finance Banks in Ilaro). The objective of the study, among others, was to find out the role of Information Technology (IT) in the attainment of the organization's goals. The researchers adopted survey research design. The population of the study was 143, while analysis were done using 124 copies of the questionnaire that were correctly filled and returned in a usable form. Primary data generated from the administered questionnaire were analyzed using simple linear regression. Results from the analysis showed, among others that Information Technology (IT) played positive and significant role in the use of BPR in attaining the goals of the studied organization. The researchers, therefore, recommended that the reward system in the studied organization should be reviewed, knowing the benefits reward systems such as salary increment, promotion, empowerment and compensation could have towards successful implementation of BPR in the studied banks. By focusing on commercial banks and the use of descriptive methods of data analysis, this reviewed study differs from the present study by scope and method of data analysis.

In their study, Awolusi and Atiku (2019) examined Business process reengineering and profitability in the Oil and Gas Industry in Nigeria: The mediating influence of operational performance. The objective of the study was to determine the effect of BPR implementation on the profitability of firms in the Nigerian oil and gas industry. The population of the study was 55,550 while the sample size was 422. The researchers made use of Confirmatory Factor Analysis (CFA). Result from the analysis showed that BPR components of organizational structure and Information Technology (IT) has positive and significant effects on the profitability of firms in the Nigerian oil and gas industry. The researchers recommended, among others that, management of the studied firms in the industry should adopt BPR as it is a vital tool necessary to improve corporate performance. This reviewed work differ from the present study in terms of scope of the study and method of data analysis. That is, the reviewed study focused on Oil and Gas Industry in Nigeria, while Confirmatory Factor Analysis and Structural Equation Modeling (SEM) were used as methods of data analysis.

Akam, Okeke, Kekeocha and Onuorah (2018) carried out a study on Business Process Reengineering Resources and the Performance of Quoted Brewing Firms in Nigeria. The objective of the study was to assess the effect of BPR resources on the performance of brewing firms in Nigeria. The researchers applied descriptive survey research design. The population of the study was 3500, while the sample size was 746. Copies of structured questionnaire was used in generating the required primary data. The primary data generated were analyzed using simple linear regression. Result from the analysis showed that the studied BPR resources have positive and significant effects on the performance of the quoted brewing firms as measured using employee satisfaction, team work and cooperation, and service quality. The researchers recommended that the quoted brewing firms and other allied manufacturing firms should endeavour to make use of the studied BPR resources appropriately in order to enhance their corporate performance. This reviewed study differ from the present study as it focused on BPR resources, while the present study focused on key BPR variables of Information Technology (IT) and top-level management commitment.

Ochoro (2018) examined Business Process Reengineering (BPR) and organizational performance: A study of East African Breweries Limited. The objective of the study, among others, was to assess the relationship between BPR and organizational performance of East African Breweries Limited. Case study analytical approach was used by the researcher. Out of five subsidiary brewing firms in the studied region, three was used as the sample size for the study. The needed data from the study were generated from both primary and secondary sources. The data generated for the study were analyzed using qualitative methods. Results from the analysis showed, among others that, BPR implementation positively improved the profitability of the studied brewing firms. The researcher recommended that BPR methods should be implemented and practiced in the studied brewing firms. This reviewed study differ from the present study as it focused on East African Breweries Limited and the use of content analysis.

METHODOLOGY

Survey research design was used in the study due to the aforementioned objectives. The population of the study were made up of 2,063 staffs from two brewing firms in the country, irrespective of their level. Using Taro Yamane sample size determination technique, 335 respondents were used as the sample size of the study. To determine the copies of the structured questionnaire that would be given to each brewing firm, proportional sampling technique was used, giving the researcher 127 and 208 respondents respectively. Structured questionnaire was used in generating the needed primary data from the respondents. The questionnaire was structured using 5-point Likert rating scale of Strongly Agree (SA) = 5 to Strongly Disagree (SD) = 1. With content approach to validity and test-retest method of reliability, which produced Cronbach alpha coefficients of 0.787 and 0.685 respectively, the structured questionnaire was deemed both valid and reliable for the purpose of administration. The generated primary data were analyzed using simple linear regression with the objective of casual effects between BPR variables used in the study and strategic response.

Furthermore, this study was conducted with three scopes in mind: conceptual, analytical/unit scope and geographical scope. In terms of the conceptual scope, the concept of BPR, proxies of BPR used in the study, the concept of strategic response, and BPR as a contemporary tool for strategic response were all considered. Moreover, the top-level managers in the studied brewing firms were considered as part of the analytical/unit scope. Under the geographical scope, brewing firms considered were firms that operate within the Nigerian brewery industry. Put differently, the study was carried out in Nigeria.

The study was without no limitations. Copies of structured questionnaire was used in eliciting the right responses from the respondents. Therefore, the outcome of this study is highly limited on the truthfulness of the responses made available by the sampled respondents. Equally, the two brewing firms selected for this study-Guinness Nig. Plc and Nigeria brewery Plc- were brewing firms that was quoted as at 2020 in the Nigerian Stock Exchange Market (NSE). More so, proxies of BPR used in the study were only limited to Information Technology (IT) infrastructure and Top-level manager's commitment.

DISCUSSION OF FINDINGS

Table 1: Effectof Information Technology (IT) infrastructure on the strategic response of selected brewing firms in the Nigerian brewing industry.

A:Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.644 [a]	.415	.411	1.642

B:Goodness of Fit [a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	250.533	1	250.532	92.965	.000 [b]
	Residual	353.032	333	2.695		
	Total	603.564	334			

C:Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	6.261	0.948		6.608	.000
	ITI	.613	0.064	.644	9.642	.000

Source: SPSS Computation (2022).

Tables 1 (A, B and C) shows the result of hypothesis one. Table A shows correlation co-efficient (R) with the value 0.644. By implication, it shows that there is a positive and significant relationship between Information Technology (IT) infrastructure and strategic response in the studied brewing firms in Nigeria. Relatedly, R^2 value of 0.415 showed that Information Technology (IT) infrastructure could explain 41.5% changes observable in strategic response. More so, Table B shows the goodness of fit result between the regressed variables. A look at the Table shows (f-statistics value=92.965; P<0.05). This implies that there is an excellent fit between the two variables being regressed. Equally, a look at Table C shows (βvalue=0.644; t-value =9.642; P< 0.05). This implies that, a unit change in Information Technology (IT) infrastructure would encourage the use of Information Technology (IT) infrastructure, as BPR variable, by 41.5%. This further strengthened the fact Information Technology (IT) infrastructure has positive and significant effect on strategic response in the studied brewing firms.

Table 2: Effect ofTop-level management commitment on the strategic response of selected brewing firms in the Nigerian brewing industry.

A:Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.580[a]	.338	.331	1.805

B:Goodness of Fit[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	215.774	1	215.774	66.252	.000[b]
	Residual	426.647	333	3.257		
	Total	642.421	334			

C:Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	7.039	1.042		6.757	.000
	TOP-MGT COM	.569	0.070	.580	8.140	.000

Source: SPSS Computation (2022).

Table 2 (Tables A, B and C) shows the result of hypothesis two. Looking at Table A (Model Summary), the correlation co-efficient (r) which depicts the relationship that exist between top-level management commitment is 0.580. This shows that there is a positive relationship between the two correlated variables. Equally, Table A has R^2 which shows changes in the dependent variable that is caused by the independent variable. From the Table, R^2value of 0**.**338 shows that the independent variable used in the model is able to explain 33.8% variation observable in strategic response. Furthermore, Table B shows result of goodness of fit between the regressed variables (f-statistics value=66.252,P< 0.05). This evidenced the fact that the regressed variables are significant and also exhibit goodness of fit between them. Relatedly, Table C shows the coefficients of the regressed variables. A look at the Table shows (β-value=0**.**580;**t**-value=8.140; P<0.05). Statistically, this result implies that top-level management commitment could explain 33.8% changes in strategic response.

CONCLUSION

The dynamic nature of the Nigerian brewery industry, changes in consumers' disposal income, expectations, tastes, recent insecurity concerns in the country and the entrance of regional brewing firms have heightened the competitive dynamisms among brewing firms in the Nigerian brewery industry. To survive and remain in such industry, BPR methodologies have increasingly become strategic as a means of survival in the competitive tussle that exist the Nigerian brewery industry. Careful application of information Technology (IT) infrastructure and unalloyed commitment of the top-level managers, as the findings revealed, has proven to be essential in successful implementation of BPR practices. Consequently, the researcher concludes that BPR is a massive contemporary tool that could serve as a strategic response in the studied brewing firms in the Nigerian Brewery industry.

RECOMMENDATIONS

On the basis of the aforementioned findings, it was recommended that: The studied brewing firms should invest reasonable in information Technology (IT) infrastructure and their employees should be trained. Accordingly the top-level managers should see themselves as co-implementors of the BPR mechanisms in the studied brewing firms as this could create a synergistic working atmosphere between the top-level managers and their subordinates, which could prove pivotal towards a successful implementation of BPR practices in the brewing firms.

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CHAPTER SIX

ASSESSMENT OF RELATIONSHIP MANAGEMENT STRATEGIES ON PERCEIVED ORGANIZATIONAL PERFORMANCE: A STUDY OF UNITED BANK FOR AFRICA (UBA) ABA, ABIA STATE, NIGERIA

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Abstract:
Relationship management, a PR tool has been identified as one of the new business strategies employed by organizations for building sustainable relationship with various publics. Today's global market is characterized by numerous changes like the 2008 global economic crisis that led to the exit of many banks across the world, cut-throat competition and customers' changing demands among others, causing organizations to rethink and remodel business strategies to ensure competitive advantage. The main aim of this study was to investigate the extent at which interpersonal communication and other relationship management strategies aids organizational performance using UBA Aba in Abia state as a case study. To achieve the objectives of the study, survey research design was adopted. The population of the study was the 100 staff of UBA in Aba, Abia state, while the sample was 80 staff selected using Taro Yamane formula. The source of data was questionnaire administration. The data collected were tested using simple regression analysis. The findings revealed that communication strategy, customer focus and customer service delivery have significant effect on the performance (market share, sales volume and market share) of UBA in Aba, Abia state.

Keywords: *Relationship management, Organizational performance, Interpersonal communication, customer focus, customer service delivery.*

INTRODUCTION

Lately in Nigeria, a radical revolution in terms of customer relationship is increasingly occurring in the banking sector of the economy. The Nigerian market is gradually evolving as a highly competitive market, most especially with the reformation that led to the re-capitalization of her financial institutions (the banking sector) from 89 legally operating banks to 25 consolidated banks by the Central Bank of Nigeria (CBN) in 2004 and presently to 21 banks in 2011. The Nigerian banking sector has witnessed many trends in the recent decades in the course of its development. These include competition where the high net-worth that he therefore had 100 and in local and long and hard and often enough that he and his colleagues are no longer find him even at Nwuneli man, bank failure, the CBN reformation, earlier and recent management philosophies among others. The somewhat 'unhealthy' competition that existed in the banking market, and which was generated by the relative ease of entry of banks into the market as a result of low capital base requirement necessitated some banks going into speculative activities and non-banking businesses which are not related to core banking functions.

According to Adeyemi (2007), this constituted a high risk to the health of the banking system and the result was the failure of some of the banks to meet up with their financial obligations. The exposure of some weaknesses of even some seemingly reliable banks, as well as the liquidation of the weakest among them seemed to have aroused fear and uncertainty about the banks' integrity among bank are online lander were not their will you do mainly at customers. Lemo (2005) noted that the Nigerian banking system was characterized by generally small-sized banks with very high overhead costs, low capital base averaging less than $10 million or N1.4 billion, and heavy reliance on government patronage (with 20% of industry deposits from government sources). There was therefore need for the CBN banking reforms which trimmed down the number of banks from 89 to 25 in 2010 and further to 21 in 2011. The reforms took the form of a recapitalization policy that raised the minimum capital requirement of banks from N2billion to N25 billion,

with the result that those banks that were not able to meet up with the minimum requirement either wound up, merged with others, or were acquired by financially stronger banks. This seemed to usher in the era of competition in the banking industry and each bank had to look for better strategies for survival.
Customer relationship management was the chain process to identify, create knowledge, build relationship and shape customer perceptions of the firm and its products solution The Sales Educators (2006). "A comprehensive strategy and process of acquiring, retaining, and partnering with selective customers to create superior value for the company and the customer" was one strategic definition of Customer relationship management offered by Parvatiyar and Sheth (2001).

Capabilities were the competencies of the organization. CRM capabilities based on technology and knowledge. Communication strategy management, customer relationship upgrading and customer win back capability were the components of customer relationship management capability (Aspara, 2011). Customer relationship management Capability was consists of four phases. First, Communication strategy management capability (CIMC) second, customer relationship upgrading capability (CRUC). Third, customer win-back capability (CWC) and last was (CKMC) Customer knowledge management capability. In current research only two Communication strategy management capability and customer relationship upgrading capability was be focused.

Communication strategy management, customer relationship upgrading and customer win back capability were the components of customer relationship management capability (Aspara, 2011). Organization possess the capabilities of communication strategy management and customer relation upgrading capabilities usually had the superior financial performance.

Everyone has different perception from customer relationship management strategies and because of this issue different definitions have been presented for this concept. Some authors consider customer relationship management as a revolted version of relationship marketing and define it as creation, development, and improvement of individual relationships with customers in order to maximize their total life cycle value. Another definition refers to customer relationship management as a technology that is aimed to create and maintain the individual relationships with profitable customers through appropriate use of the information and communication technologies (Ata & Toker, 2012). On the other hand, customer relationship management is a systemic managerial process for creating, maintaining, and developing relationships with customers in every position in order to maximize relationship value. Also customer relationship management refers to the participative and interactive relationship between business and its customers for acquiring a comprehensive view about customers and predicting and satisfying their needs and wants through efficient and effective efforts that are tangible for every customer.

Organizational performance refers to how well an organization achieves its market orientation and financial goals (Hellas, 2005). Prior studies have used specific measures of organizational performance by measuring both marketing and financial performance through several indicators criteria and taking into consideration factors that are associated with CRM activities. In this study organizational performance will be measured through the use of marketing performance and financial performance.

In marketing performance, the use of CRM practices by firms will increase customer loyalty and customer retention as consequences improving customer satisfaction. Other studies aim to capture the multi-faceted nature of organizational performance of customer loyalty, customer satisfaction and customer retention (Aspara, 2011). A recent study by Chuchuen and Chanvarasuth (2011) found that the solution of CRM is brought into many organizations and is gaining insights into the behavior of customers, helping business to understand the value of customers and make changes to the way organizations approach their relationships with customers. However, firms are more influenced by technological and organizational factors than environmental factors, where organizations are willing to adopt CRM. Thus, firms have the ability to perceive a greater relative advantage, a greater ability to experiment with CRM before practice, a greater top management support, and a greater organizational readiness. A larger size of firms is more likely to become adopters of CRM.
The CBN banking reformation made the Nigerian banking environment more volatile, sophisticated and

dynamic (Adeyemi, 2007). Today, with the emergence of competition in the banking industry at cut-throat level, and customer demands appearing to increase, even as service improves, the banking environment has become so volatile that the banker-customer relationship appears to be no more symbiotic but tilting in favor of the customer. Bank managements appear to have come to realize that there is only one person who is capable of firing everybody in the organization, from the managing director at the center to the cleaner at the service point, and that is the customer. This the customer can do by simply taking his money to another bank - the competitor. With this realization, the position of the customer appears to have taken a dramatic turn, and assumed an exalted level.

The customer has come to be known as the 'king', the 'boss' and the 'employer'. The need to satisfy the customer thus became inevitable to ensure survival as customer satisfaction is expected to ensure customer loyalty to the brand and improve business performance. In the bid to win the acceptance of the customer as a reliable brand, each bank appears to be looking for relational maintenance strategies that will lead to sustainable customer relationships, in order to remain relevant. The management pendulum thus tilted towards the evolution of relationship building and management and thus the aim of this study. The study aims to examine the extent to which the relationship management strategies improve bank performance and to determine the different communication strategies used by banks in achieving relationship management goals.

OBJECTIVES OF THE STUDY

The main objective of the study is to assess effect of relationship management strategies on organizational performance. However, the specific objectives are: to;

(i) assess the effect of communication on market share of UBA.
(ii) determine the effect of customer focus on sales volume of UBA.
(iii)assess the effect of customer service delivery on profitability of UBA.

SCOPE OF STUDY

Any major city in Nigeria where we have banks would have been chosen for this study, but a purposeful decision was taken to delimit this study to UBA Aba, with the full knowledge that there could be a replication of the study in other parts of the country which were not covered. UBA Aba has seven branches currently in operation and these serve as our scope for this study. Aba is a city in the southeast of Nigeria and the commercial center of Abia state. It is well known for its craftsmen and also the most populous city in the south east of Nigeria. Aba had an estimated population of 2,534,265 people. (2016, census).

This study is significant to banks because customers are viewed as important elements in organizational performance of banks. When the relationship with customers is properly managed, a bank may have a comparative advantage over others and business performance will be enhanced.

The study also contributes to literature because relationship management is an emerging concept in Nigeria and so only few literatures are available in the field. Findings from this study will therefore add to the available literature on the subject in Nigeria. It is also relevant for other service organizations outside banking that could be attracted to venture into relationship management.

The excellence theory is very relevant to this study because it explains that communication can be used to manage relationships between the organization and its publics. Relationship between customers and employees in Nigerian banks often involves interpersonal communication. It also emphasizes a two way symmetrical communication that characterizes interpersonal communication, as well as a symmetrical model of internal communication in an organization.

Boone (2001) observes that 'most managers and executives spend a huge portion of their budget on communication bandwidth and hardware without stopping to think about their own communication skills or the quality of communication in their organizations. She continues that “the act of communication is as important as the technologies we use to connect to each other” Even though a lot of technologies have been put in place to enhance service delivery, studies have proved that technology cannot replace the human element in service delivery and customer sophistication, and the gap, or you satisfaction as was earlier pointed out by Ledingham and Brunning, (2000).

In Patricia Sorce's (2000) survey, customers' responses showed that they did not like it when their calls were taken by answering machines. Similarly, experience has shown that in Nigerian banks, a lot of customers, especially the older generation, are averse to using the alternative delivery channel - the Automated Teller Machine (ATM) because they want to see and interact with people - human beings. They want to hear human voices, see human faces and feel human actions, not machines'.

METHODOLOGY

The survey research method was employed to generate quantitative data on relationship management strategies used by banks to achieve organizational performance. The sample for the research design consisted of customers drawn from the 7 branches of UBA in Aba metropolis. The population of study comprises all the customers that patronize the UBA branches in Aba Abia state.

For the purpose of this study population has been identified as the entire management staff of United bank for Africa all the branches in Abia State both permanent and temporary staff. The target population is 100 staff.

To ensure the determination of accurate sample size, the statistical formula derived by Taro Yamane (1964) was employed.

The formula states thus:

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

Where n = sample size

N = population of the study which is 100

e = margin of error (5%)

1 = constant

Therefore;

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

$$n = \frac{100}{1+100(0.05)^2}$$

$$n = \frac{100}{1 + 100\ (0.0025)}$$

$$n = \frac{100}{1 + 0.25}$$

$$n = 80$$

Data collected by the researcher for the study were presented using statistical tools used for data analysis.

To generate data from respondents, questionnaire instrument was used. Closed ended questions on a four -point scale were used to create the quest ionnaire. In addition, the questions are well - structured. The close ended includes; Strongly Agreed (SA) = 4, Agreed (A) = 3, Disagreed (D) = 2 and Strongly Disagreed (SD) =1 .

The descriptive statistic such as percentages, frequency distribution tables are used in analyzing study questions, while simple Regression Analysis was adopted to measure significantly the effect of the variables under study. The analysis was conducted using SPSS software version 22.

Model specification

$$MSit = \alpha 0 + \beta_1 COMit + + \varepsilon t \quad .. \quad .. \quad .. \quad .. \quad (1)$$

$$SVit = \alpha 0 + \beta_1 CFit + + \varepsilon t \quad .. \quad .. \quad .. \quad .. \quad (1)$$

$PROit = \alpha 0 + \beta_1 CSit + + \varepsilon t$ .. .. (1)

Where:

MS = market share

SV = sales volume

PRO = profitability

COM = communication

CF = customer focus

CS = customer service

DATA PRESENTATION, ANAL YSIS AND INTERPRETATION :

Figure One:

Age Distribution of Respondents

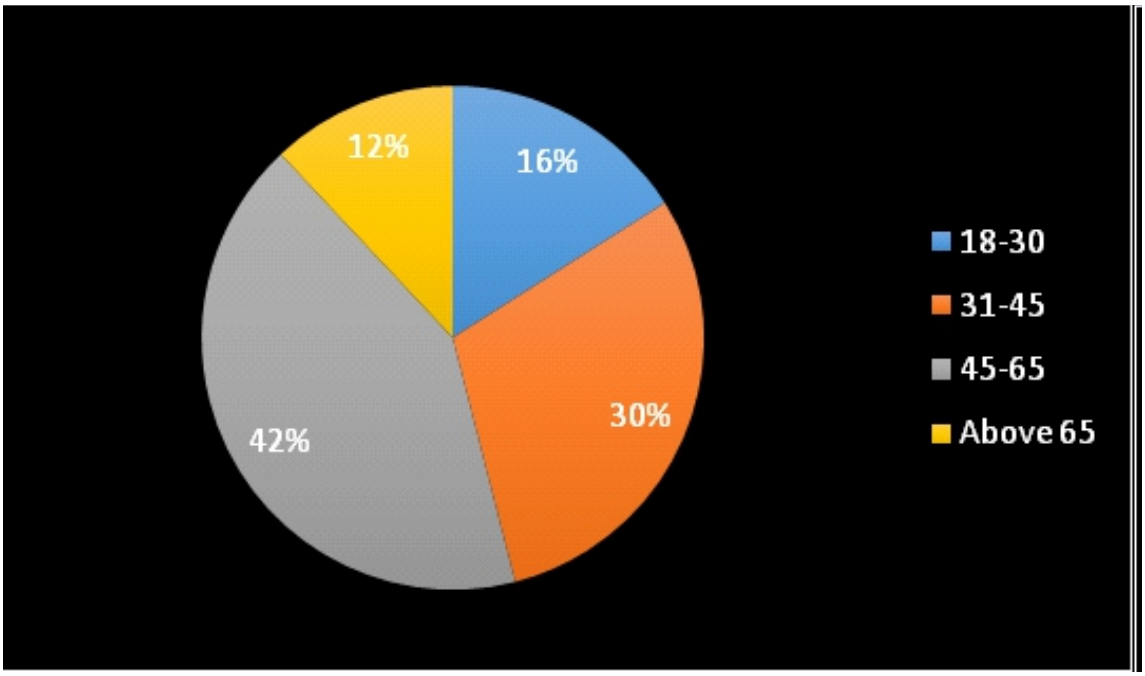


Figure Two:

Sex Distribution of Respondents

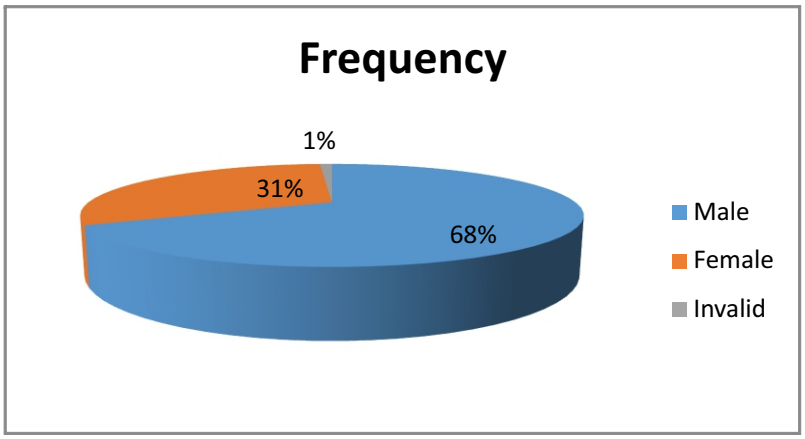


Figure three:
Occupational Distribution of Respondents

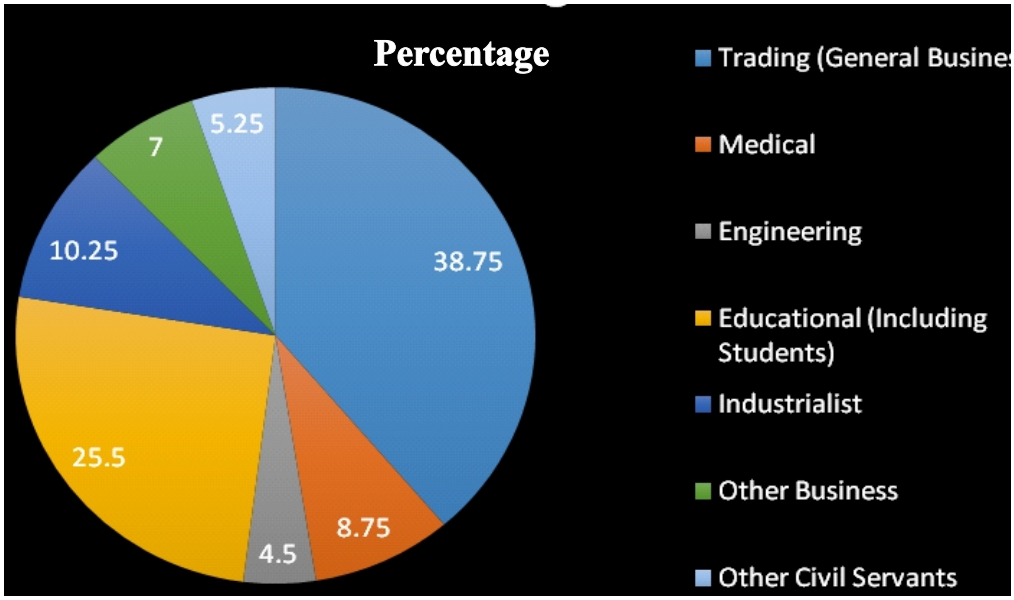
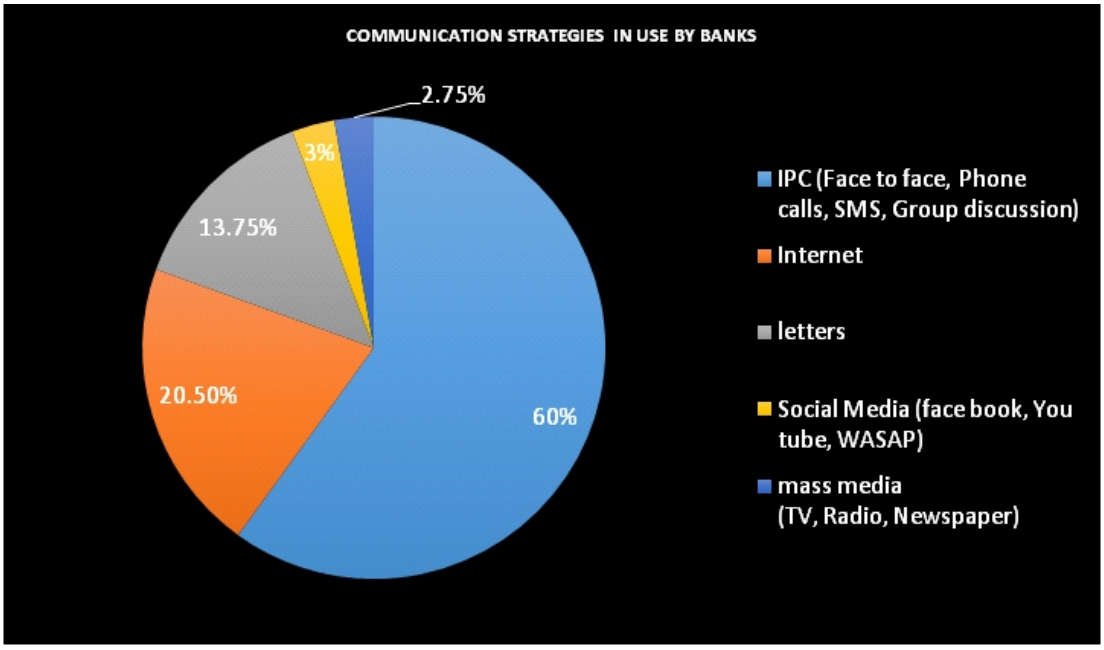


Figure four:
Communication Strategies in Use by Banks



Communication Strategies by Banks

Frequency	one-on-one	Internet	Letter	Mass media	Social media
Often	88%	15.75%	43%	1%	5%
Sometimes	12%	25%	20.75%	2.50%	8%
Not at all	0%	59.25	36.25%	96.50%	87%
Total	100%	100%	100%	100%	100%
	n = 400	n = 400	n = 400	n = 400	n = 400

Diagnostic test results

Table 4.2: Diagnostic test

TEST	TEST STAT	MODEL 1 (market share)	MODEL 2 (sales volume)	MODEL 3 (profitability)
Independence of residuals	Durbin Watson	1.620120 (DW)	0.482032 (DW)/ R^1 = 2.693522 (DW)	1.217695 (DW)
Linearity test	Ramsey Reset test	0.8098 (tau-P)	0.2022 (tau-P)	0.2872 (tau-P)
Serial autocorrelation	Breusch-Godfrey SLLM test	0.0008 (Prob)	0.0000 (Prob)	0.0000 (Prob)
Multicollinearity	Variance Inflation factor (VIF)	1.052654	1.052654	1.052654
Heteroscedasticity	Breusch-Pagan-Godfrey Test	0.1216 (Obs. Chi.Sq. Prob)	0.0043 (Obs. Chi.Sq. Prob)	0.0000 (Obs. Chi.Sq. Prob)

Source: E View result in appendix

From Table 4.2 above, the following diagnostic result is revealed:
Result for model 1 (market share) reveal a Durbin Watson statistics of 1.620120. This indicates that the set of data for the model variables has residuals that cannot influence the outcome of the linear regression. This is supported by Field (2009) who posited that a Durbin Watson statistic within the range of 1 to 3 is appropriate for a linear model. The Ramsey reset test with a probability value of 0.8098 further prove that there is no need to include the residuals in order to reset the linear model since the observations are free from auto correlation. The VIF statistics of less than 10 proves that the set of independent variables are free from multicolinearity issues. Thus the ordinary least square regression can be adopted for model 1 without reset to include residuals.

Result for model 2 (sales volume) reveal a Durbin Watson statistics of 0.482032. This indicates that the set of data for the model variables has residuals that can influence the outcome of the linear regression. As posited by Field (2009), a Durbin Watson statistic within the range of 1 to 3 is appropriate for a linear model. This is not the case with the study result. The Ramsey reset test with a probability value of 0.2022 further prove that there is no need to include the residuals in order to reset the linear model since the observations are free from auto correlation.

From the Breusch-Godfrey serial test, the result reveals a DW statistic of 2.693522 with a probability value of 0.000. This indicates that the inclusion of the 1st dependent variable residual corrects the auto correlation issue in the model. The VIF statistics of less than 10 for the model proves that the set of independent variables are free from multi collinearity issues. Thus the 1st residual (Breusch-Godfrey SLLM) ordinary least square regression is adopted for model 2 after reset to include 1st residual from the

dependent variable.

Result for model 3 (Profitability) reveal a Durbin Watson statistics of 1.217695. This indicates that the set of data for the model variables has residuals that cannot influence the outcome of the linear regression. This is supported by Field (2009) who posited that a Durbin Watson statistic within the range of 1 to 3 is appropriate for a linear model. The Ramsey reset test with a probability value of 0.2872 further prove that there is no need to include the residuals in order to reset the linear model since the observations are free from autocorrelation. The VIF statistics of less than 10 proves that the set of independent variables are free from multicolinearity issues. Thus the ordinary least square regression is adopted for model 3 without reset to include residuals.

Model Summary [b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.929[a]	.863	.857	.51058	.990

a. Predictors: (Constant), Communication strategy

b. Dependent Variable: Market share

ANOVA [a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	37.844	1	37.844	145.169	.000[b]
	Residual	5.996	78	.261		
	Total	43.840	79			

a. Dependent Variable: Market share

b. Predictors: (Constant), Communication strategy

TheF statistic with 21.071 has probability of 0.02% level of significance. Since the probability of the F statistics is below 5% level of significance, we conclude that customer focus has a significant effect on sales volume of UBA.

Model Summary [b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.816[a]	.666	.652	.63913	.504

a. Predictors: (Constant), CUSTOMER SERVICE DELIVERY

b. Dependent Variable: ORGANIZATIONAL PROFITABILITY

ANOVA [a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	18.765	1	18.765	45.936	.000[b]
	Residual	9.395	78	.408		
	Total	28.160	79			

a. Dependent Variable: ORGANIZATIONAL PROFITABILITY

b. Predictors: (Constant), CUSTOMER SERVICE DELIVERY

The F statistic with 45.936 has probability of 0.00% level of significance. Since the probability of the F statistics is below 5% level of significance, we therefore *conclude that* customer service delivery has a significant effect on profitability of UBA.

DISCUSSION OF FINDINGS:

The study found that:

In the preliminary analysis of data, 68 percent of the respondents were males while 31 percent were females, 88 percent of the respondents were between 18 and 65years of age, while 12 percent were above 65 years. Ninety percent of the females were between the age brackets of 18 and 45, while only 10 percent were 46 years and above; whereas 70 percent of the males were between 18 and 45 years, 30 percent were 46 years and above.

The occupational distribution of the respondents showed that 38.75 percent were engaged in general trading, 25.5% were in the education sector, students inclusive, 10.25 percent were industrialists, 8.75 percent were in the medical profession, seven percent were other civil servants, 5.25 percent were artisans and other professionals, and lastly 4.45 belonged to the engineering profession. This corroborates with the nature of the research area which are known to be business inclined, and so do not give themselves to much learning. The findings therefore represent the business oriented nature of the region.

Figure 4 reveals that more than half, that is 60 percent of the respondents affirmed that interpersonal communication or one-on-one interaction is one of the ways that banks communicate with them. While about one-fifth (20.75%) of them confirmed that banks do communicate with them through the Internet, 13.75 percent agreed that letter writing is used as a communication strategy by banks. Similarly, three percent and 2.5 percent respectively acknowledged the social and mass media as strategies used by banks to communicate with customers. From the data, it appears that in sampled bank branches interpersonal communication, the internet and letters are the most popularly used communication strategies in that order, while the mass media and the social media rank as the least popularly used.

Inferences drawn from the analyses were that communication strategy has a significant effect on market share of UBA in Abia State; customer focus has a significant effect on sales volume of UBA in Abia State and that customer service delivery has a significant effect on profitability of UBA in Abia State.

CONCLUSION.

The key conclusion from the findings of this study is that interpersonal communication occupies an important place in relationship management in Nigerian banks and that it is the dominant, most popularly used and most preferred communication strategy by both banks and their customers. The use of interpersonal communication by banks has fostered good relationships between banks and their customers, and is still improving. This supports the fact that relationship management goals have been achieved in Nigerian banks, since their customers confirm that they are ready to partner with them in selling their brands.

RECOMMENDATION.

Bank managements should accord interpersonal communication the importance it deserves in achieving relationship management goals, given the relationship level and the present nature of banking transaction. Although bank employees interact daily on on-on-one basis with customers, they seem to be oblivious of its implications on the relationship; otherwise the high level of rudeness among bank employees would not have been recorded. Greater importance seems to be accorded to service excellence by the employees, without appreciating the fact that service is rendered through employee-communication strategies.

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CHAPTER SEVEN

ADMINISTRATIVE CHALLENGES OF MULTICAMPUS UNIVERSITIES: CASE OF AKWA IBOM STATE UNIVERSITY

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Abstract:

Little is known among scholars regarding complex administrative challenges of multi-campus in Nigeria's university system. The central objective of this study was to fill these research and knowledge gaps by identifying and discussing some of the challenges. Drawing on the case analysis of Akwa Ibom State University, the article makes an original contribution. It builds on a qualitative approach, which includes interviews, review of existing secondary data and case analyses methodology. Firstly, the article assesses the administrative rigor between the main campus, which is at Ikot Akpaden, which controls and directs activities at Obio Akpa, the second campus of the university. Secondly, it analyzes administrative responses in terms of timelines and prompt response to issues and overall impacts on organizational efficiency. Findings show that administrative challenges are prevalent in the university such as communication, transportation, medical services, and coordination of university wide activities such as matriculation, convocation, sports and funding among others. In the alternative, based on the findings, the study made some recommendations and concludes that while multi-campus might be challenging, more administrative capacities are required to overcome the pressing complex administrative needs for efficiency.
Keywords; Multi-campus, Administration, Coordination, Efficiency, University System, Nigeria

INTRODUCTION

Multi campus has been in existence among some universities both in the developed and developing countries (Kavanagh & Taysom, 1999; Nel, 2006;Miller, 2013; Pinheiro & Berg,2017). One of the key drivers of the establishment of multi -campus university or satellite campuses is primarily for universities to further their missions, increase access and choice for students, and drive enrollment growth (Pinheiro & Berg, 2017).

In an elaborate discourse, Kerr (2001) defines multi-campus universities as higher education institutions with two or more campuses. Nicolson (2004) highlights that, in multi-campus universities, campuses are geographically separated from each other though coordinated into a single university system. According to some studies, scholarly interest in multi-campus universities is traced to at least the early 1970s (Creswell, Roskens, & Henry, 1985).

Recently, scholars have explored the various features and composition of multi-campus system. For instance, Creswell et al., (1985) contend that multi-campus universities are characterized by the coexistence of 'distinct communities' operating under a common management framework. Much of these empirical studies have shown that in many circumstances multi- campus is often necessitated by several factors such as geographical, economic, political or management capability .Such discourses highlight the importance of administrative efficiency and management in multi-campus among several departments and faculties. Bianchi (1999) reinforces coordination at the organizational level in the context of specific functions, activities and strategic integration.

Recent scholarship has also identified some of the challenges of multi campus system in the developed countries. For example, in the United States, Groenwald (2018)highlights that, there is declining enrollments in higher education in the United States (US), shrinking state funding; the challenge of the

value of education by the public , following rise in student debt and increase in the cost of tuition.

The understanding of administrative efficiency in multi-campus is essential for policy makers and researchers seeking for approaches to improve multi- campus system especially in the developing countries is important. Miller(2013)points out that remote campus locations became more autonomous out of necessity including questions of information sharing among campuses.

In this context, research on the problems of multi-campus system has highlighted the importance of intra-campus coordination, management and internal control mechanisms, which can guarantee- both internal and external stability and cohesion.

However, according to Nicolson (2004), multi- campus is meaningless when administrative capacities are either weak or the quality of their enforcement is poor". The quality of administrative as well as capacity is dependent on a number of factors, which among others include proper coordination ,funding, accountability etc. and importantly the degree to which such policies are enforced (Dahya*et al.*, 2008). This means that to ensure efficient administration in multi campus university, it is not only important that certain organizational policies are formulated but also that an efficient and capable administrative structures are put in place, to enforce laid down rules and policies to meet organizational objectives. Consequently, meeting these basic needs of the various campuses is important.

Deepened literature review showed scant scholarly articles on administrative challenges of multi-campus university in Africa. Multi campus are some of the most important contemporary administrative dynamics of Nigeria's university system, particularly in contexts characterized by increasing problems of communication, transportation, infrastructure, equitable funding of both campuses, power, ownership etc. In Nigeria, multi-campuses have been in existence and forms part of wider university administrative structure. However, how such pressing administrative needs such as coordination and harmonization of inter campus requirements are addressed to meet overall objectives of the university, remains in the margins of contemporary multi-campus debate.

Against this back drop, this paper seeks to fill this research and policy gap by highlighting some of the salient problems of administration in multi-campus system in Nigeria. Drawing on multiple case analyses from the Akwa Ibom State University ,which operates a dual campus system, the paper examines the specific problems of communication, transportation, infrastructure, equitable funding of both campuses, power, ownership etc. In particular, the paper identifies and analyzes how these salient problems pose constraint to administration in the process affect both inter and intra campus interaction and over all outcome in administrative performance of the institution.

The contributions and objectives of this study are in two folds. First, the study seeks to fill research and knowledge gaps on administrative constraints of multi campus system- a neglected research agenda in public university administrative system. Secondly, the paper shows how to overcome such problems and the constraints they pose to administrative efficiency in multi- campus contexts and further demonstrates how effective administration could be strengthened to meet the overall goals of multi-campus universities. While prior studies have examined aspects of multi university system (Leihy& Salazar, 2012; Pinheiro, et al.2016), the present study explores *another important aspect of administration of Nigeria's university system namely; challenges in the administration of multi- campus university*. The study shows that while multi campus system is context specific, efficiency is most likely to be guaranteed if the identified problems are adequately tackled. The rest of the article is organized as follows literature review, theoretical framework, methodology, discussions, conclusion and recommendations.

Multi- Campus System

The term campus implies a university site or ground where academic and administrative programmes take place, as Bianchi (1999) highlights, campus includes major coordination at the organizational level in terms of specific functions, activities and strategic integration, within a university system. Such perspective is useful in understanding the various positions and roles played within a university campus in the process of strengthening the management and administration of human and material resources as well as service delivery.

Other related studies have provided insight into the relevance of management staff in strengthening

organizational efficiency (Miller,2013; Groenwald,2018). For example, Mayed and Rammy (2023) posit that efficient administrative mechanism helps to reduce cost of administration irrespective of the multi-nature of the campus. Further, that adequate ownership helps check conflicting interests and responsive administration, thereby improving the over-all performance of the institution.

Recent literatures suggest that dual or multi-campus educational system is predominant in countries like the USA, Australia and South Africa and that one of the key relevance of multi-or dual campus is to understand capacity to organize or manage university educational system in complex settings studying (Kavanagh & Taysom, 1999; Nel, 2006). In a related study, Szutz, (1999)identifies the rising relevance of multi campus system as evidence from the USA suggests that about 80% of all higher education enrollments a decade ago were at multi campus universities.

Some studies have attempted to explore some of the reasons for the emergence of multi- campus system. Pin heiro et al., (2016) posit that multi campus university at times exist as a result of mergers involving legally independent and geographically separated institutions. While Groenwald (2018) reveal that multi campus is often informed by the need to promote higher education and generate revenue for universities Equally, some studies in the literature highlight that , multi-campus universities could spring up from new campuses (geographically spread) initiated by one-campus institution situated in a specific location (Leihy & Salazar, 2012; Pinheiro, Charles, & Jones, 2015). While Johnstone, (1999) argues that in some circumstances multi –campus university could merge as an initiative of the state. Thus, the reviewed literatures show the relevance as well as increasing need for multi campus system.

Multi-Campus Administration

The administration of multi campus is faced with complex challenges such as coordination, equity and efficiency(Nicolson,2004).The literature on administration of multi campus straddles a wide range of perspectives. Cindy Miller identifies administrative linkages between either dual or multiple campus system and argues that main campus units and extension/satellite units are linked as their various services and activities are consolidated to create a more efficient and streamlined experience for students. Similarly, in terms of administrative coherence, Groenwald(2018) highlights that although multi-campus systems have two or more campuses, all are all under one overarching (system-wide) authority. Whatever causal factor that may give rise to the emergence of multi-or dual campus university, Pinheiro & Berg (2017) contend, that the major rationale behind multi-campus universities is twofold; (a) to meet multiple objectives; and (b) to improve coordination under a single management structure. The increasing question of administration and management in dual or multi campus, led Lee & Bowen, (1971:9)to argue that multi-campus universities are, first and foremost, expected to enhance specialization, foster diversity and leverage coordination .

Several studies have focused on administrative features, structures and other organizational mechanisms to examine multi campus as well as their effects in the overall administrative performance of the University. According to Nicolson (2004, p. 350), the administration of multi-campus universities must undertake coordinative efforts to:

> (a) develop common goals among the various campuses, which often have their own history and distinctive profile; (b) pay attention to the needs of different and geographically separated student groups; (c) ensure that the curriculum is consistent throughout the entire system; (d) overcome the challenges related to physical distance, making personal encounters harder; and (e) ensure consistency in key support areas like information technology, accounting, library services, personnel policies, etc.

Multi campus operate a different organizational or administrative mechanism. These mechanisms help understand the processes of management or Control system in a multi campus university (Nicolson 2004). There are numerous mechanisms in place that govern or control the actions of both students and staff. Some of these mechanisms are internal and often an attribute of the peculiar campus structure on the University, for example, campuses that are not spacious will continue to adopt policies that could help them manage the population of students to avoid clash in lectures. Other factors could be external, such as the ways the

university responds to visitors and similar crowds visiting the university on academic events such as University games, convocation or national and /or international conferences.
Pinheiro & Berg (2017) highlight that diversity in this context denotes the various processes through which different campuses that made up a multi-campus university strive to achieve collective organizational goals, e.g. different types of degree programs, unified academic calendar and unity of purpose in university administrative and management system.

On its part, Specialization implies that each campus has the freedom to develop its own academic or administrative portfolio but within a unified and coordinated approach within the broader existing university system without competing directly with the other campuses. Coordination denotes the various processes through which multi-campus university organize programmes relate with each other ,share resources, promote and actualize synergies, including academic and administrative, which may not have been possible within a single-campus university system. Thus, coordination as a strand of dual university system helps to promote unity of purpose and the actualization of overall objective of a university.

Multicampus System and the Stakeholder Theory

Much of the academic research on internal and external relationships in multi-campus is based on stakeholder theory and it is derived from studies in various fields, such as sociology, economics, public administration, management, organization, political science etc.
Be it multi –or dual campus system both the governing council, students, academic and non-academic staff are all stakeholders. In other words, the central aim should be how to actualize efficiency and the fundamental objectives of the institution. Where- as several theories have been used to analyze the administration and management of multi- campus system such as stewardship theory, resource manager theory, legitimacy theory, etc. Stakeholder theory remains most suitable.

Originally formulated by Freeman (1984), stakeholder theory is also regarded as opposite to agency theory. It stipulates that to survive and grow, corporate organizations must create value for all relevant stakeholders not just a few such as the senior or management staff. In this context, everybody counts and must be considered and treated equitably for the organization to thrive and actualize organizational set goals and objectives. Thus, the university as an institution whether single, dual or multiple campus must strive to strike a balance between the interests of all relevant stakeholders. In this context; students, the Governing Council, academic and non -academic staff as well as visitors and the government, constitute the key stakeholders. Aunno et al (2017)elaborate on the need to .

create value for multi-stakeholder alliances, the aim is to actualize collaborative decision-making.
Further, stakeholder theory should be better at explaining the role corporate governance adopted by a given organization can play in collaborative response to administrative challenges by considering different constituents of an organization or a firm as well as the expected results (Coleman *et al.*, 2008).
Proponents of multiple campus examine the relevance of various academic interest groups including leaders, who promote academic activities (Nicolson, 2004; Groenwaild,2018). The argument is that the major stakeholders notably (students and employees) and external community(, industry, parents, the government) directly or indirectly interact with these campuses therefore there is need to effectively coordinate and harmonize social-political and economic interactions to meet the needs of various stakeholders. Groenwald (2018) contends that one of the key arguments for multi-campus is that where such campuses are established, it challenges higher education leaders. Therefore, it is argued, that it is imperative that management focus on the characteristics and contextual circumstances surrounding each of the individual campuses, in addition to the relationships between these and the system or central steering core (Clark, 1998). Through such collective process the views and demands of various stakeholders could be actualized ,which in effect results in collective administrative efficiency.

4.1 Study Area

Established in 2009, Akwa Ibom State University is a conventional, multi-campus institution. The main campus is located at Ikot Akpaden, Mkpa tEnin Local Government Area of Akwa Ibom State . It adjoins the confluence of Ikot Akpaden - Eastern Obolo road and Eket – Ikot Abasi highway. The next campus is located at Obio Akpa, Oruk Anam Local Government Area, along Abak – Ikot Okoro Road (AKSU,2023). The university has several directorates including the directorate of ICT. Administrative departments include Vice-Chancellor's Office, Registry, Bursary, University Library, Works Department, Health Services and Students' Affairs Division.

The university has the following faculties; Agriculture Sciences, Arts, Biological Science, Engineering, Social Sciences , Educational Sciences, Management Sciences and Physical Sciences (AKSU,2023). It is a public higher-education institution located in the urban setting of the small city of Ikot Akpad, Akwa Ibom. Officially recognized by the National Universities Commission of Nigeria, Akwa Ibom State University (AKSU) is a medium-sized (uni Rank enrollment range: 8,000-8,999 students) coeducational Nigerian higher education institution (AKSU,2023). The University offers courses and programs leading to officially recognized higher education degrees such as bachelor degrees in several areas of study. AKSU also provides several academic and non-academic facilities and services to students including a library, housing, sports facilities, financial aids and/or scholarships, study abroad and exchange programs, as well as administrative services(AKSU,2023).

In terms of organizational structure of the University, it shares same pattern with other universities in Nigeria. The administrative structure includes : the Governing Council of the University, University Senate and University Congregation (AKSU,2023). Particularly, one of the important reasons to study AKSU is the motto of the University, which reads; "Knowledge and Technology for Development". Thus, the study of the dynamics of "technology for development" in contexts associated with e-learning and teaching is important for relevant stakeholders including policy makers.

METHODOLOGY

The study adopted multiple case analyses methodology and direct interviews from a wide range of targeted participants drawn from AKSU students and non- academic staff members of the university. A semi-structured interview guide was developed, around a set of questions related to the issues of communication, transportation, infrastructure, equitable funding of both campuses, power supply, and ownership. Interviewees shed light on some of the problems of multi campus system. The interviews were thematically analyzed in line with each of the identified problems of multi-campus university system. The participants were mainly final year students and experienced non-academicstaff members who have worked for over ten years in the university and knowledgeable about the administrative challenges of the university.

Multi campus are some of the most important contemporary administrative dynamics of Nigeria's university system, particularly in contexts characterized by increasing problems of communication, transportation, infrastructure, equitable funding of both campuses, power, ownership etc. To explore our analysis, we have applied multiple case analyses design as an intensive study (Yin, 2014). Each case analysis provides a deepened understanding of the specific challenge of multi campus administration within the AKSU context. The study seeks to investigate challenges of multi campus administration and possible solutions.

DISCUSSION OF FINDINGS

Generally, the geographical location of multi-campus university constitutes administrative challenge. Such challenges include constraint in disseminating official information both for academic and non-academic staff and the students. The distant location from campus A to B or C has a major problem in the over- all coordination of teaching and learning. It also affects inter students relations as most students do not have clear knowledge of multi –campus dynamics[1] Students on campus indicate that one of the (many) drawbacks resulting from this somewhat scattered geographical or organizational arrangement was the lack of informal access (i.e. dropping by at one's office or corridor conversations)(Pinheiro & Berg ,2017)to the core members composing AKSU's senior management team. Likewise, it was reported by some that it is a challenging task moving from one geographic allocation to the other with poor communication of the knowledge regarding the presence or absence of the academic or non -academic staff one intends to visit. It is also challenging to engage in inter campus movement for lectures. Thus, eve when appointments are fixed, it is often difficult shuttling within such distant geographical locations another said. For example, a respondent said that, to have regular meetings at the separate campuses has been so challenging due to conflicting appointments, as well as constraints of distant geographical location[2].

There are various levels of communication in a multi campus university like in any corporate organization such as upward and downward communication channels i.e. communication from the university management to the students and vice versa. Also there is communication between the and among lecturers and to the students as well as communication among the students themselves. In the contemporary information communication technology era, effective communication has been a problem in AKSU. There

is absence of modern communication equipment such as the use of free internet services, new media or inter campus mobile telephone service. A respondent stated that due to poor communication net work administrative efficiency has been negatively impacted. You cannot coordinate multicampus with poor communication network. Another respondent stated that one of the major constraint to smooth coordination of activities is poor communication system in AKSU. Most of the participants in the interview maintained that they are supposed to have access to free internet service for both research and communication. Some stated that there is serious challenge to effective communication due to absence o fa harmonized communication mechanism where students can freely interact with the students or under go adequate computer based learning.

Another respondent said that she thinks with credible administration is needed for a results based multi campus system where transparency and effective communication channels should be in place. I think issues of poor communication could be addressed. Another student stated that the problem of communication in a multi campus is complex and runs across the departments and faculties as well as inn teaching and learning processes. A respondent said that there are more communicating infrastructure in the main campus compared to Obio Akpa campus since the administrative offices are situated there. A related data suggest that the central challenge for any leader is to maintain consistency of action throughout the organization and communicate the vision and strategy that exists in the organization across all levels of the organization regardless of organizational structure (Brown, 2013).Thus communication across every component of multi campus university is essential.

The long distance between both campuses has serious implications for effective transportation. Such problem has taken a huge toll on the students as the present economic hardship on Nigeria has made the cost of transportation to be high. Another respondent stated that at the administrative level, most non-academic staff are equally affected by the difficult is of multi-campus transportation especially the lower cadre staff such as mail runners and messengers who engage in very challenging tasks of inter campus shuttle under poor transport system[8] A respondent stated that emphasis should be placed on improving the transport system at AKSU building on strict internal rules for all students, as a sort of welfare and improvement on social services by the state Government and top management of the administration. Another respondent stated that poor transportation has accounted for lateness to lasses and over all poor performance of the students as the ongoing economic hardship in Nigeria has made inter campus transportation very capital intensive.

Available data show that the quality of transportation has been poor All in all, students are exposed to the hardship of poor transport system. As is the case across most multi campuses university in Nigeria government should be proactive and respond to some of these pressing problems to improve the quality of education at the university level.

Regarding infrastructure among , the campuses, faculties and various departments, respondents show that there is infrastructural decay among the campuses. Another respondent pointed out that infrastructural preference are given to the administrative campus where the office of the Vice Chancellor and other top administrators of the university is located, which does not make room for equitable infrastructural development of the campuses[11] Another respondent stated that the main campus enjoys considerable level of infrastructural development than Obio Akpa campus , but these could be harmonized with the strategic priorities for inclusive infrastructural development in AKSU as a whole[12].In recent a recent study, infrastructure has been discussed as a major challenge of multi-campus system(Groenwald,2018).

Funding has been a major problem in Nigeria's university system .Multi-campus universities are not left out. In the context of AKSU respondents highlighted some of the core problems of funding .A respondent stated that the allocation of funds to AKSU, by the state government has been a challenge, while some infrastructures are undertaken, the much needed funds to meet some of the basic daily administrative needs of the institution is not met such as internet services, issues of e-administration or e-learning and adequate funding for research grants and specific academic research centres which could carry independent research programmes and promote collegiality within and outside the campus. Another respondent pointed out that adequate funding is needed to harmonize educational growth and development of the campuses, stressing that there are lapses in instructional materials in line with 21st century university system. emphasizing the need to improve and equip the laboratories for science students and the need to operate a functional library

system in line with contemporary international university standards[14].A number of studies have identified the challenges of funding of multi campus in the developing countries of the Global South.
It is evident that, some more financial problems that require funding abound as a respondent pointed out the need to quip the class room with new instructional materials among the various campuses. If all basic instructional materials are provided for the various faculties, educational development would be meaningfully impacted
AKSU has had long-term funding challenge across the campuses and requires regular and periodic funding to address several core educational challenges of the institution such as provision of basic amenities including power generation as most times the campuses experience epileptic power supply or long term power outage ,which undermines effective teaching and learning across the university A recent data made similar finding that following liberalism multi university has been proliferated as largely entrepreneurial systems with minimal transformation(Munene,2014). Similarly, Groenwald(2018) in her study, showed that lack of funding increasingly undermines the quality of academic outcome.

Some administrators height the persistent problem of ownership, which some attributed to weak leadership as an explanatory factor. On the questions of the impact of ownership crises in AKSU, one of the senior non- academic staff stated: In my opinion, there is always this internal contention of ownership between the campuses, which is of no relevance. This is traced to the inception of merging the campuses as one university. There has to be a form of management, which can create that [sense of] collective or harmonized ownership where a sense of inclusiveness and belonging could be fostered. This view has been corroborated in a number of recent qualitative data. For instance, Miller (2013)argued that ownership is essential for the future of multiple campus system. While Groenwald (2018) identified similar challenges as lack of autonomy in decision-making, which increasingly undermine ownership.

CONCLUSION

The study and its findings suggest that, despite the educational potentials of multi-campus system, AKSU's administrative capacity to manage and coordinate such education system has not been very effective, with the evidence of complex problems of communication, transportation, infrastructure, equitable funding of both campuses, power supply, ownership

These problems indicate the complex interplay of geographic allocation, economic and political concerns, and the question of meeting the over- all administrative and educational needs and expectations of stakeholders across in the university system. Thus, drawing on the theoretical relevance of stakeholder framework, the findings provide answers to the objectives of the study and in particular, point to some key new research agenda. First, that, multi-campus university system requires effective organizational structure to be able to meet core administrative demands . Second, that there are various contextual problems peculiar to different multi –campus universities given their varying realties such as geographical location, funding, size or population etc. Thus, each campus in a multi-campus university – must evolve some level of transformation to meet the pressing peculiar educational and administrative challenges in line with demands of the 21st century educational system such as technology based learning and ICT revolution such distinct educational trajectory, will positively impact teaching, research and learning.

AKSU as the study shows has potentials to transform to an ideal citadel of learning if the identified problems could be resolved beyond simply considering the geographic allocation as a constraint .
Further, AKSU has the potential to transform to a model university , based on its combined features of centralized management in relations to a high degree of mutually inter related campus system , i.e. improved academic and administrative coordination among the campuses.
Above all, AKSU offers all (or most courses) in Nigeria's university educational system within a relatively small campus .In addition, the university has centralized rules for coordinating student Affairs ,which have been effective, thus concerted efforts and new policy response are needed to overcome the identified challenges.

In all, data from our interviews and existing studies point out that there is need for the development of new teaching and research activities both at the faculty and departmental levels as there is high tendency for improved educational quality.

Despite the proliferation of multi-campus universities all over the world, and particularly within Nigeria , our case analyses suggest serious administrative challenges ranging from ineffective communication, poor coordination, funding, poor power supply, geographical constraints or location among others. Thus, these problems have implications for administrative capacity, which underpins multi campus university educational system.

On the basis of evidence gleaned from our reviewed literature, a number of core administrative challenges, which deserve further research and policy attention are discernible as discussed. Our case analysis points –out such salient challenges suggesting administrative complexity and lapses in multi- campus universities. The persistence of such challenges as funding has serious implications for the ways in which multi-campus university administrative system should be coordinated. Essentially, our case evidence shows the importance of heuristic analysis to comprehend the fundamental complexity inherent in multi-campus universities, particularly in the context of divergent administrative challenges, which pose constraints to organizational efficiency.

The problems identified are not peculiar to Akwa Ibom state university rather a major challenge to most multi campus universities in Nigeria. It is the position of this study that policymakers and other stakeholders that are interested in improving the administrative efficiency of multi campus universities in Nigeria will pursue further policy responses in this direction. Specifically, the present study appeals to researchers, to take into account the emerging changes in the 21st century university system and bridge educational gaps and challenges posed by multi campus administrative complexities, which are of importance for inclusive and sustainable educational development. Multiple benefits of scale, expanded access, and efficiencies can be derived in multi-campus educational institutions if adequate measures are taken to overcome the various administrative challenges.

RECOMMENDATIONS

Based on our findings and the evidence of complex administrative challenges in multi ple campus system, the following recommendations could be useful;

1. There is need to overcome the barrier posed by geographical location by improving the level of intercampus interaction. In the era globalization geography is no longer a barrier what is required is improved information communication system, improved transport system to overcome the constraints of distant geographical location. Government should provide available means of transportation and mobile communication for students to alleviate their sufferings as well the constraints posed by distant geographical location. Groenwald(2018) recommends the adoption of suitable approaches to enhance such as establishing system-wide goals and strategies; technology to facilitate knowledge management, communication and consistent policies.
2. Government should improve on the level of inter camps communication network there by providing adequate and user friendly communication system across the campus to ease the burden of high cost of communication, which exert financial pressure on the students. Becker (2001)suggests the need for managerial strategies, and their effectiveness to overcome organizational administrative challenges.
3. The long distance between both campuses serious implications for effective transportation. Both management and the government should provide more transportation service to alleviate the sufferings of the students. Such transportation system will help the students to check the challenges of present economic hardship in Nigeria
4. Infrastructure: The concerns raised about infrastructural decay in multi campus system have been a perennial challenge. Thus, without putting basic infrastructure in place multi campus will not operate effective. This is one of the major administrative challenges of multi campus system. Groenwald (2018) highlights the need to build the appropriate infrastructure and adopt adequate infrastructural developmental processes.
5. Provision of adequate Funding: Funding is necessary to meet the pressing needs of multi campus university. without funding the very essence of education will be defeated. Thus, policy makers and the government should devote more funds to the educational sector and particular to multi campus system with more complex administrative and management challenges.

6. Government and all stakeholders much adopt more inclusive and people based policies to encourage Ownership. It is only when ownership is fostered that multi campus system will function properly and the core administrative deficits could be met through selflessness and commitment where basic incentives are provided. Thus, government should incentivize multi campus administration to strengthen collaboration and ownership, Groenwald(2018) suggests the need for a system-wide committees or councils and a central office to provide support and consistency for both students, staff and visitors.

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CHAPTER EIGHT

THE IMPERATIVENESS OF GOOD GOVERNANCE TO SUSTAINABLE DEVELOPMENT IN SUB- SAHARAN AFRICA

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Abstract:
Attaining sustainable development has become central to policy makers of developing countries. This study was set to examine the influence of good governance on sustainable development in West African countries from 2005 to 2021. The major objective was to examine the effect of some good governance dimensions such as quality of budget and financial management on poverty. It adopted the differenced General Moment of Method technique of analysis. Findings showed that quality budget and financial management has insignificant potentials to increase poverty in sub- Saharan Africa. However, further outcome indicated that building human resources and policy on social inclusion has the ability to alleviate poverty in the region. The study recommended dynamic policy issues to improve on human resources building and policy on social inclusion.
Keywords: Good governance, sustainable development; sub-saharan Africa.

INTRODUCTION

Achieving sustainable development has remained a major focus of many if not all developing countries of the world with so much focus on poverty reduction. The UN 17 development goals for sustainable development- no poverty, zero hunger, good health and well-being, quality education, gender inequality clean water and sanitation, affordable and clean energy, reduced inequality etc. has therefore become the developmental rung for developing economies.

Although several dimensions of economic development subsist, its ultimate goal is to move the people up the social ladder thus; the broad aim of development is poverty reduction, hence, the foremost UN sustainable development goal. With the World Bank's new poverty from $1.90 per day to $2.15, a person from the US is said to poor if they live below $24.55 while in Ethiopia poverty line is ten times at $2.04 (Hasell, 2022).Whereas several leaders and managers of developing countries are committed to achieving sustainable development, a major challenge has been to identify the best strategies to be adopted to forestall sustainable development. For instance, specific sector development strategies such as financial sector development Haan, Plenenger, and Sturm (2021); ICT development, Ofori, Osei and Alagidede (2022);globalization Rahim *et al.* (2014) foreign direct investment Anetor, Esho and Verhoef (2020) seem not have yielded the desired outcomes over time. Attaining sustainable development in black Africa therefore, calls for subtleties in both management and leadership at all levels. Evidently, economic, political and social trends points to good governance as the best strategy to attaining sustainable development. Coccia (2019), Breunig and Majeed (2019), Kotschy and Sunde (2017), and Acemoglu *et al*. (2005) argued that good governance and efficient institutions are perquisites for economic development of countries. Other studies such as Sacks and Levi, (2010) have documented several relationships between good governance and development. Advocates of good governance agenda Dellepiane-Avellaneda (2010), Holmberg, Rothstein and Nasiritousi, (2009) argue that countries practicing good governance adhere to institutional rules and efficiently manage the resources to enhance standard of living.

This present study is set to expand literature on good governance as a veritable tool for achieving sustainable development in black Africa. To this end, the background research question it is set to address is: To what extent do quality of budget and financial management, business regulatory environment, building of human resources, policy on social inclusion and transparency and accountability affect sustainable development in black Africa. Previous studies in this direction have considered rule of law, government efficiency, voice and accountability, government regulatory quality and political stability ignoring the enlisted novel dimensions of governance. Also very essential is that no study currently to the best of our knowledge is directed to study these novel variables in black Africa countries. The objective of this present study therefore is to examine the imperativeness of good governance to sustainable development in black African countries.

In addition to contributing to extant literature, this study provides a current view of the subject matter from 2015 to 2021. Second, it examines the impact of novel variables such as quality of budget and finance management, human resource building, social inclusion and business regulatory environment on development in black Africa. Third, the method of analysis provides a collective outcome of the governance on development in Sub-Saharan Africa. Lastly, the outcome will provide effective policy actions that will enthrone sustainable development in Africa.

Conceptually, the Brundtland Commission explained sustainable development as a type of development with the sustainability to meet needs of the present without compromising the ability of the future generation to meet their own needs (Brundtland, 1987). They further explained sustainable development to entail development without running out the current level of resources so as to leave enough for future generations. By extension, sustainable development covers human, economic, social and environmental development. It further entails equality, environmental protection, and conservation of natural resources and stability of economic growth. To this study, sustainable development is stabilizing tomorrow's economy with today's investment.

UNDP (1997) explained governance as the exercise of economic, political and administrative authority to manage a country's affairs at all levels. It comprises mechanisms, processes and institutions through which citizens and groups articulate their interests, exercise their legal rights, meet their obligations and mediate their differences. In 1997, Chopra defined good governance as a system of governance that is able to unambiguously identify the basic values of the society where values are economic, political and socio-cultural issues including human rights. Good governance is a type of government related to political values and implies government within a democratic political culture and with efficient administration plus the right policies, particularly in the economic sphere (Smith, 2007). In the views of Ogundiya (2010), governance is the process that is employed to achieve the noble end of the state. This present study conceptualizes good governance as concerted and cohesive administrative dynamics designed to transform economic, political, social and cultural behavior to drive development.

The theory of sustainable development is viewed from three dimensions- economic, social and environmental or ecological sustainability (Elkington, 1994; OECD, 2000; Dréo, 2006; Brooks, 2013). *Economic sustainability in development theory* originated with Hicks. In his classic work Value and Capital, Hicks defined income as the amount one can consume during a period and still be as well off at the end of the period. Economic sustainability therefore implies a system of production that satisfies present consumption levels without compromising future needs. The 'sustainability' that economic sustainability seeks is the 'sustainability' of the economic system itself (Basiago, 1999). *Social sustainability in development theory* encompasses notions of equity, empowerment, accessibility, participation, sharing, cultural identity, and institutional stability. It seeks to preserve the environment through economic growth and the alleviation of poverty. This theory of social organization identifies a negative linkage between sustained colonization, sustained poverty levels, and sustained natural resource exploitation. *Environmental sustainability in development theory* involves ecosystem integrity, carrying capacity and biodiversity. It requires that natural capital be maintained as a source of economic inputs and as a sink for wastes. Resources must be harvested no faster than they can be regenerated. Wastes must be emitted no faster than they can be assimilated by the environment (Kahn, 1995)

Network theory of governance was propounded by Gerda Falkner and expounded by March (1989) Rhodes (1997). The thrust of the theory include approaches that investigate patterns of interest intermediation and public-private cooperation in the making and implementation of public policies. Their common concern is on how actors and agencies come to form networks, what holds them together, what determines their choices and how they influence political decisions. *North's theory of political economy* expresses concern on the idea of policy makers seeking to sustain policy choices that are economically indefensible and unsustainable or vehement in resisting reform measures. The theory is focused know why policy makers make such policy choices, why technically sound governance policies succeed in certain environments but fail in others.

Empirically, several studies have examined the link between good governance and development. These studies have used variables such as inequality, poverty, health etc. to proxy for development. Olakunle (2019) studied good governance and national development in Nigeria. Findings of the survey *reveals that democracy and good governance provide an enabling environment for development to take place, and that the role of political leadership in realizing all of this is critical.* Christopher and Vaz(2019)

examined the impact of good governance on multidimensional poverty of 71 countries using hierarchical models and survey data results show that good governance is associated with reduced horizontal inequalities. They further found evidence of a beneficial effect of good governance for middle-income countries but not for low income countries. Mario (2021) sought to see how good governance of institutions can reduce poverty in society for supporting a sustainable economic development. The study was carried on 91 countries employing a regression analysis to find that a good governance of institutions supports a reduction of poverty and income inequality in society. It further shows that the critical role of good governance for reducing inequality and poverty has a higher effect in countries with stable economies than emerging and fragile economies. Tajpor, Hosseini and Salamzadeh (2020) investigated the effect of innovation components on organisational performance: case of the governorate of Golestan Province. The study was descriptive employing structural equation modelling technique. Findings show that service innovation, administrative process innovation and technological process innovation have a significant impact on organisational performance. The study of Kwon and Kim (2014) focused on poverty reduction and good governance and found that good governance does not lead to poverty reduction in less developed countries. Singh (2020) considered institutional quality and poverty reduction in BRICS. The study used Fully Modified Ordinary Least Squared and Dumitrescu–Hurlin causality tests. The study employed institutional m government effectiveness, political stability and absence of violence, control of corruption, voice and accountability, regulatory quality, and rule of law as proxies for governance. The outcome of the research shows that rule of law is the significant governance condition that directly helps in poverty reduction in BRICS countries. It however revealed that other governance conditions affect poverty rates via income and distribution effects. Ofori, Osei and Alagidede (2022) focused on inclusive growth in Sub-Saharan Africa, exploring the interaction between ICT diffusion, and financial development from1980 to 2019 adopting the GMM technique of analysis. Findings include ICT skills, access and usage induce inclusive growth in SSA, and the effects of ICT skills, access and usage are enhanced in the presence of financial development. Haan, Plenenger, and Sturm (2021) studied financial development and poverty gap in 84 countries from 1975 to 2014. Result shows that financial development does not have a direct effect on the poverty gap.

The theoretical underpin of this study is the network theory of good governance. It advocates for intermediation and public-private cooperation in the making and implementation of public policies. Its interest is on how actors and agencies come to form networks, what holds them together, what determines their choices and how they influence political decisions to influence economic development. Relying on this understanding we hypothesis that development is a function of good governance.

SUSTAINABLE DEV = f (good governance).

Our study decomposes good governance into four dimensions namely: quality budget and financial management, transparency, accountability and corruption, business regulatory environment, build of human resource and policy on social inclusion. Our study also adopted poverty (an essential dimension of economic development) as a proxy for sustainable development. Introducing these variables into our hypothetical model, we present our functional model as follows:

POVT =*f* (QBFM, TCAO, BURE BUHR, PSIN)……..1

where;

Povt = poverty

Qbfm = quality of budget and financial management

Taco = transparency accountability and corruption

Bure = business regulatory environment

Buhr = building of human resources

Psin = policy on social inclusion

Equation 1 is transformed into its mathematical and econometric forms as follows:

$$Povt_t = b_0 + b_1 QBFM_t + b_2 TACO_t + b_3 BURE_t + b_4 BUHR_t + b_5 PSIN_t +$$

To care of endogeneity we present the differenced GMM method thereby introducing the lag of the independent variable in equation 4 below:

$$Povt_t = b_0 + p_1 Povt_t + b_1 QBFM_t + b_2 TACO_t + b_3 BURE_t + b_4 BUHR_t + b_5 PSIN_t + \mu_t \ldots\ldots\ldots\ldots\ldots 4$$

We expect that : $P_1<0$, b_1, b_2, b_3, b_4, $b_5>0$

METHODS

The focus of this study is on the relationship between good governance and sustainable development proxied by poverty in 29 black African countries. The choice of countries and period is due to availability of data.

Table1: Description and sources of Data

Variable	Description	Source
POVT	Share of population below poverty line of $1.90 per day	Our world in data (OWID)
PSIN	policies for social inclusion/equity cluster average (1=low to 6=high)	WDI
QBFM	quality of budgetary and financial management rating (1=low to 6=high)	WDI
TACO	transparency, accountability, and corruption in the public sector rating (1=low to 6=high)	WDI
BURE	Business regulatory environment rating (1=low to 6=high)	WDI
BUHR	building human resources rating (1=low to 6=high)	WDI

Author's construction. Note: OWID and WDI denotesOur world in Data and World Development Index respectively. Countries studied are: Benin, Burkina Faso, Cape Verde, Burundi, Cameroon, Chad, Congo Rep, Cote d' Ivoire, Congo Dem, Ethiopia, The Gambia, Ghana, Guinea, Guinea Bissau, Kenya, Madagascar, Malawi, Mali, Mozambique, Niger, Nigeria, Rwanda, Senegal, Sao Tome, Sierra Leone, Tanzania, Togo, Zambia and Zimbabwe

Analyses

To achieve the objectives of the study and provide support to empirical literature as well as providing new insight to the link between poverty and good governance, the study employs the General Method of Moments estimation of Arellano and Bonds of (1991). The choice of this technique is supported by the micro nature of panel dataset (N>T) and its ability to address endogeneity problem in the model. Moreover, economic development by nature is a dynamic process, hence, robust and comprehensive empirical estimates can only arise from the application of a robust dynamic model which the GMM represents (Boukhatem, 2016). We are further compelled to adopt the GMM because both the GLS and the fixed effects techniques produce inconsistent outcomes amidst dynamic and endogenous regressors (Arellano & Bond, 1991; Boukhatem, 2016).

Pre estimation techniques: Considering the characteristics of our dataset, N>T (micro study) the need for unit root, cointegration and cross dependency does not arise. Following prior studies, this study will rely on the difference-GGM technique of Arellano & Bond (1991) and not the system GMM. The decision to adopt any of the two is premised on the theoretical exposition of the GMM methods. The dynamic panel is estimated to obtain the lagged value of the dependent variable employing the pooled mean group, the fixed effect and the differenced GMM regression values. While the lagged value of the pooled group regression serves as the upper bound value, the fixed effect value serves as the lower bound value. If the lagged value of the differenced regression is lower than the lower bound value then system GMM is preferred otherwise the differenced GMM takes preeminence.

Results

Table 1 Descriptive Statistics

Panel A	**Descriptive Statistics**					
Statistic	POVT	QBFM	TACO	BURE	BUHR	PSIN
Mean	38.485	3.182	2.992	3.232	3.555	3.274
Std. dev	25.31	1.853	0.686	0.503	0.559	0.474
Skewness	0.137	13.884	2.509	-0.209	-0.410	-0.242
Kurtosis	2.110	216.584	21.840	2.320	2.649	2.550
J. Bera	9.821	525745.1	4308.318	7.215	9.022	4.963
Panel B	**Correlation**					
POVT	1					
QBFM	-0.163	1	-	-	-	-
TACO	-0.350	0.113	1	-	-	-
BURE	-0.297	0.144	0.402	1	-	-
BUHR	-0.311	0.232	0.424	0.495	1	-
PSIN	-0.359	0.231	0.497	0.552	0.762	1

Author's regression output using E views 10

Except for poverty, all other variable are not widely dispersed. The low variability as shown by the standard deviation means that the data set clusters around its mean suggesting that the data set is appropriate for estimation. However, the high value of both skewness and kurtosis and the JB statistics suggest that the data set is not normally distributed. The condition is due to the data generating process of a cross sectional data. From the correlation panel, we see that all explanatory variables are inversely correlated with poverty. This is reveals that this model is devoid of a collinearity condition.

Table 2 The System and Differenced GMM selection criteria

Estimation Criterion	Value	Remark
Pooled OLS	0.822005	Upper bounds
Fixed effect	0.949799	Lower bounds
Differenced GMM	0.961574	Preferred

Author's regression output using Eviews 10

The differenced GMM value is greater than the lower bounds criterion; hence, this study will rely on the GMM estimates to explain the effect of good governance on sustainable development.

Table 2 Differenced GMM outcome with Poverty as dependent variable

Variables	Coeff	Std error	t-Stat	Prob. Val.
POVT(-1)	0.962	0.238	4.041	0.001
QBFM	1.474	2.674	0.551	0.582
TACO	4.907	4.751	1.033	0.303
BURE	4.332	3.467	1.250	0.213
BUHR	-0.819	3.539	-0.232	0.817
PSIN	-7.292	3.837	-1.901	***0.059
Cross-section fixed (first differences)				
J-statistic	4.767			
Prob(J-statistic)	0.906			

Author's regression output using Eviews 10 Note: *** denotes significant at 10 %

The differenced GMM outcome showed that poverty reinforces itself, thus poverty in the previous period exerted a significant and direct influence in the current year. Meanwhile policy on social inclusion had a significant and indirect influence on poverty at 10 % level of significance. Although building human resource reduced poverty, its influence was insignificant. Further results showed that quality budgeting and financial management, transparency and corruption, and business regulatory environment wielded an insignificant and positive influence on poverty. This outcome supports the findings of Dwumfour (2020) and Kwon and Kim(2014) that reported a less performing effect of public sector policies on management and institutions in sub-Sahara Africa and less developed countries. The low J-statistic and its high probability value is informative. It confirms the absence of over identification and the consistency of the model.

DISCUSSION

The significant and positive influence of poverty in the current period means that incidence of poverty in the previous period contributed to the present menace. It showed that a unit increase in poverty in the last period had the capacity to increase poverty in this present period by as much as 96.2 %. This could be due to poor implementation of poverty alleviation programs and policies in black African countries. The significant and negative influence of policy on social inclusion on poverty reduction may be attributed to the recent advocacy across the globe on the need for countries to integrate social inclusion especially financial inclusion into development strategy. The insignificant contribution of human resource development to

poverty reduction in black Africa may be as a result of inadequate funding of education and other human resource development programs. The positive influence of transparency and accountability on poverty may be due to lack of appropriate reward to corruption and governments' tolerance for corruption. Reason why regulation of business environment does not support poverty reduction may be attributed to corruption of public regulators and the quest by the private players to violet regulations.

CONCLUSION AND RECOMMENDATIONS

This study considered the influence of good governance on poverty reduction paying particular attention to quality budget and financial management, policy on social inclusion and building human resources which previous studies have ignored. The study concludes that quality of budget and financial management, transparency accountability and corruption, and business regulatory environment in black Africa have not contributed to poverty reduction rather have increased it. We however, found building of human resources and social inclusion as veritable tool of poverty reduction. We therefore recommend dynamic policies that will improve human development such as technical based school curriculum, and adequate funding of educational programs. On social inclusion, we recommend genuine inclusive policies in the area of politics. In line with this, we advocate for the elimination of election rigging, the introduction of independent candidacy during elections, the use of rule of law by successive governments etc.

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CHAPTER NINE

INNOVATIVE MANAGEMENT AND VIOLENT CONFLICTS RESOLUTION IN NIGERIA: PERCEPTIONAL APPROACH.

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Abstract:
In Nigeria, conflict developments have been treated by relevant federal and state authorities as a security problem to be brutally contained or suppressed. In the process, the root cause of the problem remained unresolved, risking a resurgence in a later date. The objective of this study was to explore how innovative management can be utilize in solving violent conflicts in Nigeria. The study adopted survey instrument in collecting data. The findings of the study suggest that government sees conflict situation from a narrow security angle where troops are deployed to areas of conflict kept the peace for some time and violence or conflict broke out soon after. The study further showed that government responses have most often resulted in a "win-lose" outcome for parties involved which often generate bitterness on the part of the "losers" and result in a vicious cycle of protracted crisis and "violence trap". Based on this, the study recommended the use of new management partners such as Non-governmental Organization (NGO), Community Based Organization (CBO), Conflict Resolution Stakeholders Network (CRSN), Academic Associate Peace Work (APPW) as well experts in the field of conflict management across Nigerian Universities in the Management/settlement of conflict in Nigeria.

Keywords: Innovative management, Violent, Conflict, Resolution, Nigeria.

INTRODUCTION

In recent times, there has been enormous violent conflicts which have threatened Nigeria as a nation. The threats come from both organized cross-border and trans-border crimes and home-grown criminal gangs and groups. These violent conflicts manifest in the form of terrorism and terrorist insurgency, especially in the North East geopolitical zone; military and armed ethnic militia in the Niger Delta region; the existence of separatist groups and secessionist agitation, especially in the South East and South West geopolitical zones; the recurrent and intractable farmers/herders conflicts, especially in the North central zone and other parts of the country: rural banditry and cattle rustling in the North West zone; and armed robbery and kidnapping in the North and South West geopolitical zones (Ogbonnaya, 2019).

Aside from the above-mentioned conflicts, there has also been an upsurge with alarming sophistication in armed robbery, kidnapping and cultism across the country especially with their transnational nature which presents a fundamental challenge to government and its security agencies on how to effectively tackle them.

It is worth mentioning that there is no human society that is completely free from the social phenomenon of conflict. Why, it is because, as human beings aggregates into communities, they cannot but interact with one another in their drive for social, political, cultural and economic fulfilment. As humans interact in a social setting, disagreements and misunderstandings often engendered by incomprehensible communication. When disagreements and understanding are not constructively and productively managed, they could snowball into some more fundamental social frictions with far-reaching implications for the social order of the society (Gambo, 2019).

Conflict is inevitable in human society. No wonder Mary and Engel (1948) contended that the history of all hitherto existing societies is the history of class struggle. Lending support to this, Hon-Won (2011) opines that conflict dates back from the beginning of human history and will probably never end as long as human beings occupy the surface of the planet earth. Conflict is therefore the underlying factor behind the dynamic character of any society. This is so because in the process of interaction, individuals,

groups, or corporate entities may experience social friction, especially when they are pursuing interest that are obviously incompatible (Gambo, 2019).

However, conflict, depending on how it expresses itself and is responded to, could sometimes inflict considerably social, emotional, psychological and economic pains on the society, especially the violent variant of it. Violent conflict negates the development of any society aspirations, it undermines effective communication, weakens group cohesion and identity, and break down the foundation of societal harmony and stability. The aforementioned negative impact of violent conflicts underscores the imperative of taking all necessary measures to checkmate the outbreak of violent conflict in any human society considering its immediate challenges generated and in most cases it engenders complex humanitarian energy as in Nigeria. When conflict takes a violent form, it can be carefully managed and transformed to yield positive result especially with the application of innovative management in proffering lasting solution.

Around the globe including Nigeria, there are a number of conflict management and resolution mechanisms in settling conflicts of any kind such as negotiation, good offices, enquiry, arbitration, judicial settlement, conciliation, mediation, problem-solving workshop and second-track diplomacy, the use of brute force such as (police, army of occupation etc. (Hon-Won,. 2000, Gambo, 2019).

The aforementioned mechanisms are in various ways, effective in the management and resolution of conflicts. Traditionally, they are classified into judicial and non-judicial means of managing and resolving conflicts. It is believe that the judicial method of settling conflicts is good, because parties in conflict are always encouraged to go for non-judiciary or alternative dispute – resolution since it has the capacity to produce win-win outcomes as against win-loss. It is equally good to point out that all the above mentioned methods are not mutually exclusive as different techniques can be applied in a complimentary manner.

However, this paper argues that it is now time to adopt an innovative management which is a more practical approach in managing violent conflicts in Nigeria which is the use of independent or expert cum professional in conflict management and resolution. The question is, is it possible to imbibe an innovative management by engaging experts and professional in solving violence conflict in Nigeria? This study is out to examine this. The main objective of this study is to examine innovative management and settlement of violent conflicts in Nigeria. The specific objective is to determine the extent to which the use of professionals or experts as innovative management can help in resolving violent conflicts in Nigeria.

Conceptual Explications

Innovative management refers to introducing something new, which in practice means things like coming up with ideas, developing, prioritizing and implementing them, as well as putting them into practice. This may take the form of launching a new products, or by introducing new internal processes. By this, it can be deduce that innovation management is a process of coming up with and introducing new things in one way or the other (Nieminen, 2018).

Innovation management entails the process of managing an organization's innovation procedure, starting at the initial stage of ideation, to its final stage of successful implementation. It embraces the decisions, activities and practices of devising, and implementing an innovation strategy. Innovation management is a structural process of generating, capturing, discussing and improving, organizing, evaluating and prioritizing valuable insight or alternative thinking that would otherwise not have emerged through normal processes (Gareen, 2018).

On the other hand, conflict is normal, essential and in fact desirable for any society, but when its assumes a pathological state, it adverse consequences can inflict serious damages on individual live and property as well as threaten the corporate existence of communities, nations, continents and the world at large. The present situation in Nigeria speaks volume on how far conflict can destroy human lives and inflict social, economic, political and psychological misery on those who remain alive (Gyong, 2007).

According to World Bank (2018), violent conflicts take place against a background of domestic grievances, particularly a breakdown in the prevailing social contrast. These conflicts have been exploited by extremist group, and have drawn in regional and global power, who may influence or support.

It is a common idea that the nature, intensity, and frequency of conflicts have evolved in recent times, moving away from wars fought directly between states to various forms of internal or interstate violence, such as insurgencies, guerilla wars, terrorism, organized and large scale criminal violence, and protests (Krause, 2016).

Alemika (1998) sees conflict as representing antagonistic interest between two or more opposing forces or groups. On this strength, it can be deduce that conflict is the struggle for dominance or control of one person or group by the other in such a way as to subjugate or even eliminate the opponent. Conflict is, in fact, a design aimed at resolving divergent dualism. It is a way of achieving some kind of unity even if it be through the annihilation of one of the antagonistic parties (Gyong, 2007).

Commenting on the types of conflicts, Rahim (2018) identified six (6) types of conflicts thus: content conflict, this occurs when individual disagree about how to deal with a certain issue. This can be a good thing as it has the potential to stimulate discussion and increase motivation; relationship conflict, this occur when individual disagree about one another. This relational conflicts decreases performance, loyalty, satisfaction and commitment, and causes individual to be irritable, negative and suspicious; process conflict, this denotes disagreement over the group approach to the task, its methods, and its group process. Task conflict, this is related to disagreement in view point and opinion about a particular task in group setting; Affective conflict, this is an emotional conflict develop from interpersonal incompatibilities and disputes. It often produces suspicion, distrust, and hostility; cognitive conflict happens during tasks and comes from a different in perspective and judgement. It is a positive tension that promote good group work.

From the foregoing we can deduce that conflict is inevitable because it can originate in individual and group reactions to situations of scarce resources, to division of function within society; and to differentiation power and resultant competition or limited supplies of goods, status, valued roles and power-as-an-end-in-itself (Abubakar, 2009).

Although this study is Nigeria as a case specific, but suffice to say that conflicts exists in all countries and at every level of society. It is regarded as a necessary part of human existence. However, when conflict becomes violent or degenerates to outright war, it becomes a problem not just to the nation or continent, but to the entire world (Agbalajobi, 2010 and Nwogwugwu, 2015). So the existence of conflict is not the problem, but the management and or resolution of conflict and peace building process in any given nation. No wonder, this endeavor is out to see how the use of experts or professional as a paradigm shift can engender peaceful resolution of conflict especially violent types in Nigeria.

MATERIALS AND METHODS

This work adopts survey method as the design of this study. Survey design method was chosen because it enabled the researcher elicit responses from the respondents through the use of questionnaire instrument to examine the use of innovative management namely experts or professionals in solving violent conflict in Nigeria. The study also drawn data from secondary sources namely: internet, books, journals, periodicals and various records of conciliation, mediation, arbitrations etc.

The population of the study was 206.1 million (World Bank Data Organization, 2020). The sample size was 300. Stratified sampling technique was used in selecting (12) twelve states from the (6) six geo-political zones in Nigeria namely: North Central, North West, North East, South-South, South East and South West, while simple random sampling was used in selecting(25) twenty-five respondents disproportionately from the (12) twelve states.

Result and Discussion

Table 1: Questionnaire Administered and Returned

S/N	Geopolitical Zone/States	No. of Questionnaire Sent Out	No. of Questionnaire Return	Percentage Return
1	**North Central**			
	Nasarawa	25	19	6
	Benue	25	20	7
2	**North West**			
	Katsina	25	18	6
	Zamfara	25	12	4
3	**North East**			
	Yobe	25	22	7
	Adamawa	25	21	7
4	**South-South**			
	Bayelsa	25	24	8
	AkwaIbom	25	22	7
5	**South East**			
	Imo	25	23	8
	Ebonyi	25	20	7
6	**South West**			
	Ekiti	25	18	6
	Oyo	25	25	8
	Total	**300**	**244**	**81**

Source: Field Survey, 2022

Table 1 shows the breakdown of the copies of questionnaire sent out, returned and percentage of returned from different states in the six geopolitical zones of Nigeria. Out of 300 questionnaires sent out, 244 were returned showing 81% compliance.

Personal Data of Respondents

Table 2: Gender Distribution of Respondents

Gender	Frequency	Percentage
Male	169	69
Female	75	31
Total	**244**	**100**

Source: Field Survey, 2022

Table 2 shows that out of 244 respondents 169 respondents representing 69% were males while 75 respondents representing 31% were female. Hence, more of the respondents were males.

Table 3: Age of Respondents

Age (Years)	Frequency	Percentage
21 – 30 years	19	8
31 – 40 years	56	23
41-50 years	70	29
51 years and above	99	40
Total	**244**	**100**

Source: Field Survey, 2022

Table 3, shows that 19 respondent representing 8% were between the age of 21 – 30 years, 56 respondents representing 23% were between the age of 31 – 40 years, 70 respondent representing 29% were between the age of 41 – 50 years, while 99 respondents representing 40% were 51 years and above. This show s that significant number of respondents were from 51 years and above i.e. people that are knowledgeable in conflict management or resolution.

Table 4: Marital Status of Respondents

Marital Status	Frequency	Percentage
Married	113	46
Single	60	25
Divorce	36	15
Widow	10	4
Widower	10	4
Total	**244**	**100**

Source: Field Survey, 2022

Table 4 shows that 113 respondents representing 46% were married, 60 respondents, representing 25% were single, 36 respondents representing 15% were divorced, 10 respondents representing 4% were widows while 10 respondents representing 4% were widowers. This implies that the majority of the respondents were married.

Table 5: Educational Qualification of Respondents

Qualification	Frequency	Percentage
FSLC	13	5
WAEC/GCE	27	11
OND/NEC	46	19
HND/B.Sc.	52	21
M.Sc.	69	28
Ph.D.	37	15
Total	**244**	**100**

Source: Field Survey, 2022

Table 5 shows that 13 respondents representing 50% had primary education (FSLC), 27 respondents representing 11% had WAEC/GCE, 52 respondents representing 28% had HND/B.Sc., 69 respondents representing 28% had M.Sc. while 37 respondents representing 15% ar e Ph.D holders. This means that most of the respondents were M.Sc. holders who truly understand the implication and the essence of the research.

Table 6: Official Status of Respondents

Official Status	Frequency	Percentage
Academia	89	37
Expert in peace resolution	67	27
Government officials	48	20
Political leaders	40	16
Total	**244**	**100**

Source: Field Survey, 2022

Table 6 indicates that out of 244 respondents, 37% were academia, 27% were experts in peace/conflicts resolution, 20% were government offic ials, while 16% were political leaders,hence, majority of the respondents were academics.

Table 7: Opinion on whether there is significant relationship between the use of experts or professionals as innovative management in settling violents conflicts in Nigeria

Geopolitical Zone	Strongly agree	Agree	Disagree	Strongly disagree	Total
North central	13	9	7	10	39
North west	11	12	5	2	30
North east	19	5	16	3	43
South-south	24	20	2	0	46
South east	8	4	13	18	43
South west	29	14	0	0	43
Total	**104**	**64**	**43**	**33**	**244**

Source: Field Survey, 2022

Table 8: Chi-square (χ^2) Computed Table

Variables	Fo	Fe	Fo-Fe	$Fo-Fe^2$	Total
Strongly Agree	104	61	51	2,601	43.0
Agree	64	61	3	9	0.14
Disagree	43	61	-18	324	5.31
Strongly Disagree	33	61	-28	784	13.0
Total	**244**	**244**			**61.45**

Calculation of degree of freedom (df) = (r – d) (c – v)

= (5-1) (4-1)
= 4 x 3 = 12df

The critical va lue of chi -square (χ^2) from 12 degree of freedom at 5 % 0 level of significant is 21.026.

Since the calculated chi-square (^{2}) value of 61.45 is greater than the table value of 21.026, it is concluded that there is significant relationship between the uses of experts/professionals as innovative management to resolve violent conflict in Nigeria.

This finding suggest that there exists a significant relationship between the use of experts or professionals as innovative management in solving violent conflicts in Nigeria. This is supported by the current trend of public-private partnership, where experts or professional organization in the field of conflict management can partner with the government in settling dispute independently. The application of this innovation as paradigm shift from the convention way where government or parties appointed by the government are saddled with such responsibilities without proffering lasting solution. The application of innovative management as a paradigm shift will promote assertive strategies as against aggressive as well as passive strategies in conflict settlement. Assertive strategies in conflict resolution results in a win-winsituation which leads to a true resolution of conflict, whereas, the aggressive strategies lead to a win-lose situation, while passive strategies always result in a lose-lose outcome where neither party gets the result they want.

The findings of this study strongly support the use of mediation as one of the conflict management and resolution mechanisms. Mediation is one of the specific means of settlement of conflicts or disputes between two conflicting parties. Unlike negotiation, mediation involves the use of a mutually trusted and neutral third party which should be a professional or experts in the field. The use of professional to mediate or settle conflicts will ensure strict compliance of the principles of mediation namely: impartiality, confidentiality, self-determination – where disputants do not feel a sense of powerlessness in the process, and principle of empowerment and education, which seeks to deepen the capacity and skills of parties to deal with similar challenges in the future by themselves without the involvement of the third party. In the whole, it can be said that mediation process is both capacity and skill enhancement of disputants which can be effectively handled by professionals or experts in the field or area of conflict management or resolution.

CONCLUSION AND RECOMMENDATIONS

Conflicts is widely acknowledged as the catalyst of any society and, by implication, it is the harbinger of development. But suffice to say that in bringing about change in any society, resorting to force or violent is neither necessary nor inevitable, because once conflict assumes violent form, it becomes extremely negative, destructive and dysfunctional. This is in tandem with the assertion by Koffi Annan (2005) "that if states are fragile, the people will not enjoy the security, development and justice that are their right" (Ho-won, 2011, Gambo, 2019).

The truth is that, it is more strenuous and demanding to resolve violent conflicts than non-violent ones. This is true in Nigeria. The country is synonymous with violent conflicts here and there. The existence of violent conflicts has dampened the developmental aspiration of the country, it weakens our group cohesion and identity and above all, it has break down our foundation of societal harmony and stability, hence the urgent need to find appropriate mechanism in solving these conflicts once and for all. This study through its finding concludes that although there has been various method in trying to settle violent conflicts in Nigeria including Alternative Dispute Resolution among others, but in view of the current trend coupled with the era of public-private partnership, it is believe that there should be a paradigm shift from the conventional ways of handling conflicts of any form and embrace an innovative/pragmatic approach which is the use of experts and professionals.

To enhance effective settlement of violent conflicts in Nigeria, the following recommendations are proffered:

1. That professionals and experts should be used in settling conflicts of any kind in Nigeria.
2. That there should be a legal backing towards this direction.
3. That National Universities Commission should strengthen curriculum in peace and conflict resolution to meet this new innovation of conflict management/settlement.
4. That government should upgrade the existing Peace and Conflict Resolution Centre to a degree awarding institution.
5. That there should be well recognized and registered professional bodies whose duty is to provide additional skills to such professionals/experts to enable them meet new challenges in their chosen profession.

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CHAPTER TEN

INNOVATIVE LAND PROPERTY INFORMATION MANAGEMENT SYSTEM AND SUSTAINABLE DEVELOPMENT: JOHN EBIYE HEAVEN HOUSING ESTATE, UYO, AKWA IBOM STATE, NIGERIA EXAMPLE

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Abstract:

This study was conducted in the John Ebiye Heaven Housing Estate, named after the former Military Administrator of Akwa Ibom State, Admiral John Ebiye and designed for medium income workers and constructed in 1997. The Estate is located in Uyo Capital City, Akwa Ibom State, Nigeria. The study made use of interview of twenty-two randomly selected households in addition to the existing archived data generated by a researcher in 2005 to demonstrate an innovative land property information management system. The variables of the study included ownership, use, vehicle ownership, plot size and building size on the 100 plots and buildings in the Estate. Data on these variables were uploaded into the Geographic Information system (GIS) database management system and then synchronized with the geo-referenced digital layout plan of the Estate. Applying the GIS specialized operations, a dynamic system where information on each plot and building of the Estate can be accessed and retrieved with a click of computer button has been developed. The land property information system developed in this study brings about digital land related information system that guarantees quicker and easier global access. It also enhances globalization of efficient and effective management of any land property in the State and makes land property transactions versatile and sustainable.

Key words: *Innovative management; Land Property; Land information management; John Ebiye; Uyo; Akwa Ibom State; Nigeria.*

INTRODUCTION

As population grew, land became an increasing scarce resource and various types of rights to use the land also developed. Traditionally, land transfer becomes a legal binding agreement upon the delivery of the transfer price oran oral agreement (Chowedhary, 2000). However, it became increasingly necessary to develop systems, which would clarify ownership and minimize disputes. Three major land registration systems gradually evolved, namely: Private Conveyance System; Deeds Registration System and Title Registration System (Nuakhawe et, al. 1992). The private conveyance system involves the passage of original conveyancing documents from buyer to seller. This conveyances system, according to Chigbo (2013) has become anachronistic and should be jettisoned and replaced with the globalizing trend of title registration which facilitates conveyancing and affords guarantee to title being acquired by purchasers,

In the deed registration system, the transfer document (the deed) itself is registered. The deed does not prove the ownership and the claim of ownership has to be traced back either by lawyers or the land registration authority. In the title system, the certificate itself is the proof of ownership. This system was developed in the United Kingdom and is being practiced in Nigeria. Over the years, it has become increasingly challenging to obtain information regarding land parcels in our society. This is largely due to lack of a versatile land information system. As a result, there are preponderances of land related conflicts and legal battles especially in high density human settlements. Akwa Ibom state is one such high density settlement in Nigeria. With the population of 5,482,177 (NPC, 2016) living a land area of 7,249 square kilometers, the State ranks among the Nigerians States with very high population density with about 576 persons per square kilometers. With growth rate of 3.5%, land will continue to be a resource object for struggle and competition. To avoid much struggle and conflicts, some of which may be violent, effective land information management system is quite necessary. Such a system must offer ample tools for the measurement and recording of the boundaries of parcels and the registration of all rights related to each

parcel. More importantly, such a system must ensure quick and easy access to the stored land information. In this study, geographic information system (GIS) is used to demonstrate such a system.

The ability of urban administrators to manage the growth in every human settlement in the state is dependent on availability of and easy and quick access to adequate spatial or land information. This is needed for planning, land development, infrastructure and services, environmental protection and tenure security. Unfortunately, this basic information on land property is still in short supply in Akwa Ibom State. Any existing land property information in the State are at present in analogue forms and are very difficult to access and retrieve. It is therefore the aim of this study to develop a contemporary land property information system that guarantees quicker and easier universal access.

Study Location

John Ebiye Housing Estate was selected for the study. It was selected because of the availability of relevant data sets needed for the study. The estate is located along Sir Udo Udoma Avenue (Ring Road II), Uyo Capital City of Akwa Ibom State. The Estate was designed for medium income workers. It was developed in 1997 by the then Military Administrator of Akwa Ibom State, Admiral John Ebiye. It is therefore named after that Military Officer. There are a total of 100 dwelling units in the Estate in addition to service units such the Police Post, Water Station, Nursery/Primary School, Health Centre and Fire Station (see Fig.1).

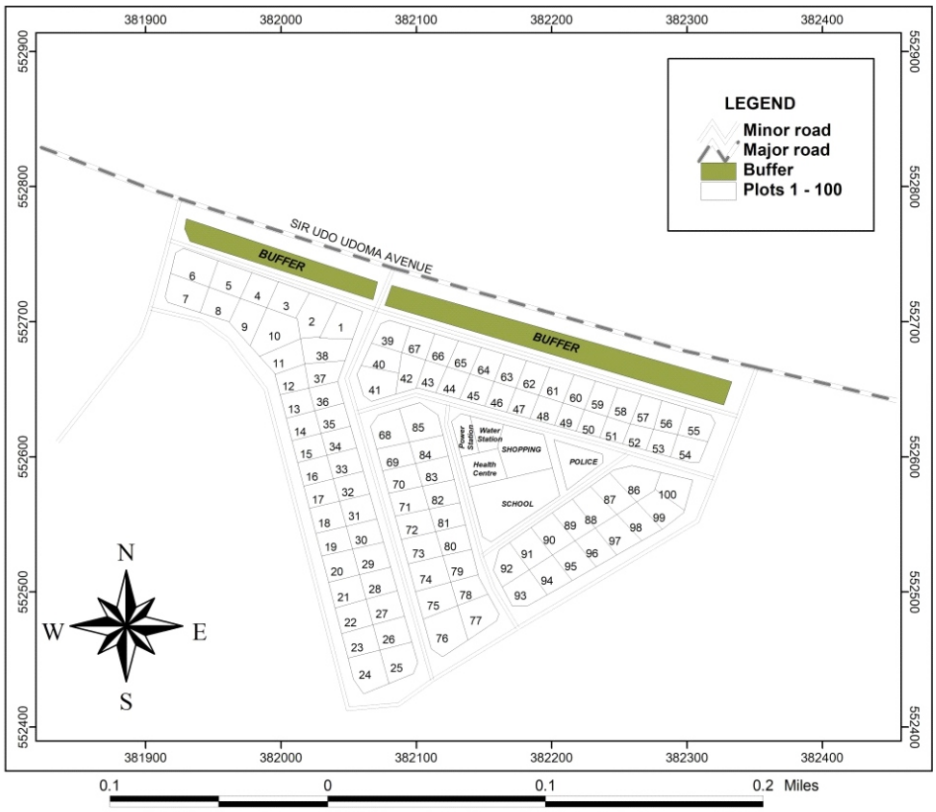


Fig. 1: The Layout of John Ebiye Housing Estate, Uyo, Akwa Ibom State, Nigeria

Importance of Land Information System

Cadastral information in developing countries is an essential element to expedite virtually all forms of development (Gandhi, 2000). According to him, 50%ofall World Bank Urban projects in developing countries have encountered additional costs and/or substantial delays due to inadequate cadastral information largely because of absence of proper cadastral information system.

Another importance of land information system is indicated by researches in some rural areas in Thailand. They suggest that the market value of untitled land of the same quality and size is between 40-80 % of the land value of titled land (Panagueton, 1998). Since 2003, Chimithipaison et al has been calling for new models of establishing tenure security to deal with certain poverty in cities in the developing countries. The researchers presented a diversified approach to land registration based on some key topics including; registering, and managing public and common land resources; establishment of basic information accessible to the general public (Chimithipaison, 2003).

Earlier in 2002, the urgent need for land information and land tenure security was forcefully expressed by Dr. Anna Kajimuto Tinaijuba, Executive Director, United Nations Human Settlements Programme (UN-HABITAT). In her keynote address to the XXII congress of International Federation of Surveyors (FIG) 2002, she argued that the ability of cities and other human settlements to manage their growth is very much dependent on availability of and access to adequate spatial or land information for planning, land development, infrastructure and services, environmental protection and tenure security. She called for simpler, more cost effective and accessible survey and land information technologies and processes as aid to more effective planning, development and management of towns and cities. The Director mentioned different levels of application of land data namely Level 1. This is the individual property information level and level 2 which is the land information needed for effective planning, project implementation, slum upgrading and management of towns and cities. It is expected that the need for land information at level 2 may be to a large extent be met through clever use of census data and future support to the statistical censuses and surveys. The resulting data will facilitate establishment of level 1 property data in two ways:

(i) Serving as housing information and tenure indicators for use in physical planning, urban management, etc and

(ii) Serving as input to development of a land registration system with different models depending on the status of the legal – institutional framework, the specific land tenure situation, and the needs in an area.

From the foregoing, it can be seen that censuses of population and housing is an important source of data for land information system. Therefore as the National Population Commission(NPC) is currently preparing for a fresh round of census in Nigeria, there is need for the commission to make provision for housing questionnaire section that include questions related to land and property information. Location is a common link between population data and land data which is in growing demand stimulated by the technological advances. The use of Geographic Information System (GIS) allows for integration of all types of relevant data in a common reference system. The current news about Akwa Ibom State government receiving aerial mapping crew and survey aircraft for Akwa GIS project is in deed very good news. When completed, and implemented, the land transaction processes will be better, as it will help in making work faster in terms of searches, approvals, and other related matters" (TEAM, 2021).This study is therefore a demonstration of the actual application of GIS to link existing population data with the available land data, store and process them into a form where information on each land parcel can be accessed and retrieved with a click of computer button.

MATERIALS AND METHODS

The study made use of interview involving twenty-two (22) randomly selected households in addition to the existing archived data generated by a researcher in 2005. The variables of the study included ownership, use, vehicle ownership, plot size and building size on the 100 plots and buildings in the Estate. Data on these variables were uploaded into the Geographic Information system (GIS) database management system and then synchronized with the geo-referenced digital layout plan of the Estate.

Most of the data sets existed in analogue forms and were transformed to digits using the computer Key Board and Scanner. The layout plan of the Estate for example was scanned and imported into ILWIS, 3.2 Academic software environments as a raster image. The raster image was then geo-referenced using geographic TIE-point coordinate approach in the ILWIS environment. The geo-referenced raster image was thereafter exported to the Arc View 3.2 Extensions environment, where the rest of the study tasks were done. The process of transforming the analogue layoutplan to a digital plan in the Geographic Information System (GIS) involved creating vector objects from the raster straight off the computer screen using digitizing cursor (Daniel, 2020). The process involved following steps and the objects were classified according to their topological dimension such as Point – 0 dimension; Line – 1 dimension; Area – 2 dimension:

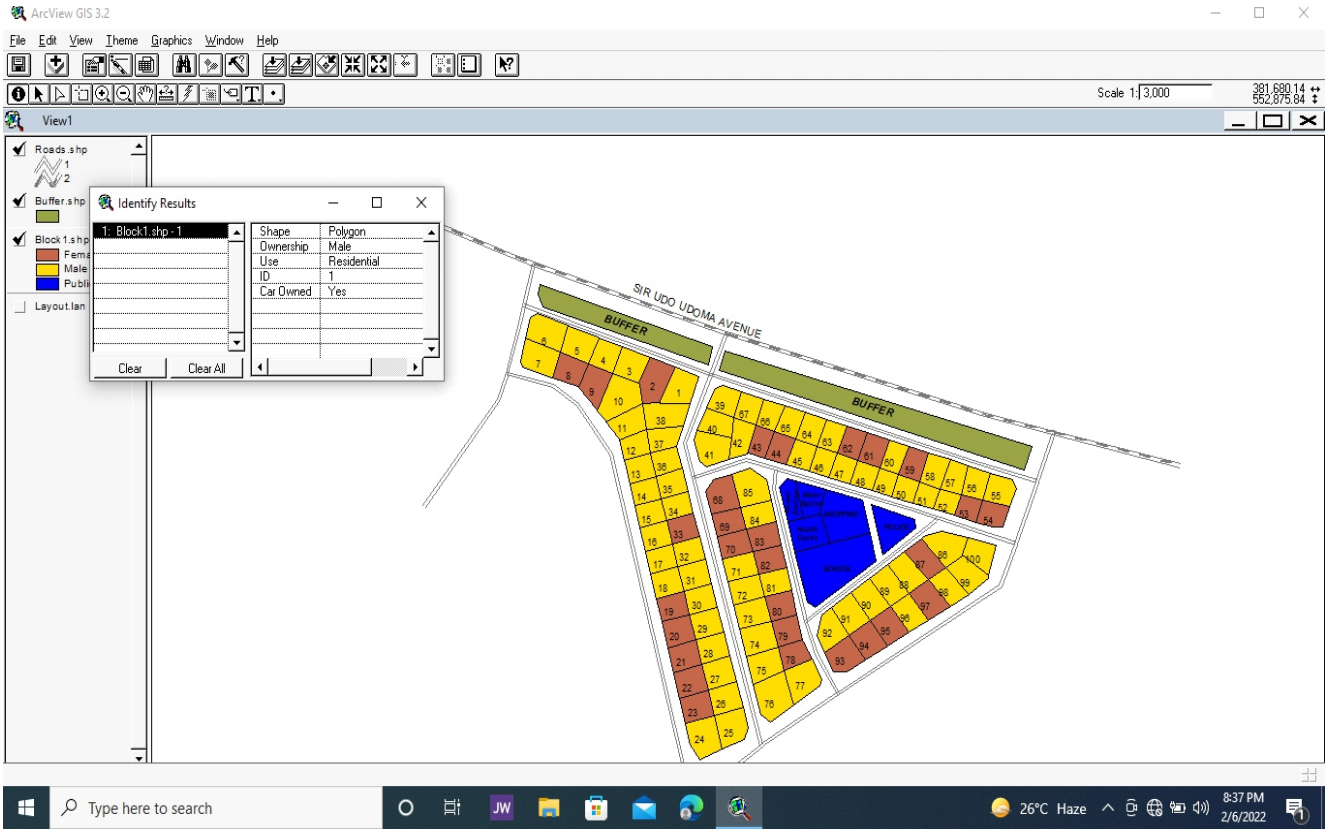
1. Head-up screen digitizing
2. Creation of feature themes
3. Creation of attribute tables
4. Adding of data fields etc

RESULTS AND DISCUSSION OF FINDINGS

The study has developed a digital plan for the Ebiye Housing Estate as model for any urban and rural settlement in the State. The database system developed has provided not only quick and easy access to the individual land parcels in the Estate, but also update status for the sustainable management of the human settlement. Three information indices were used in demonstrating this innovative property information management system namely;

(i) Ownership

(ii) Type of Use



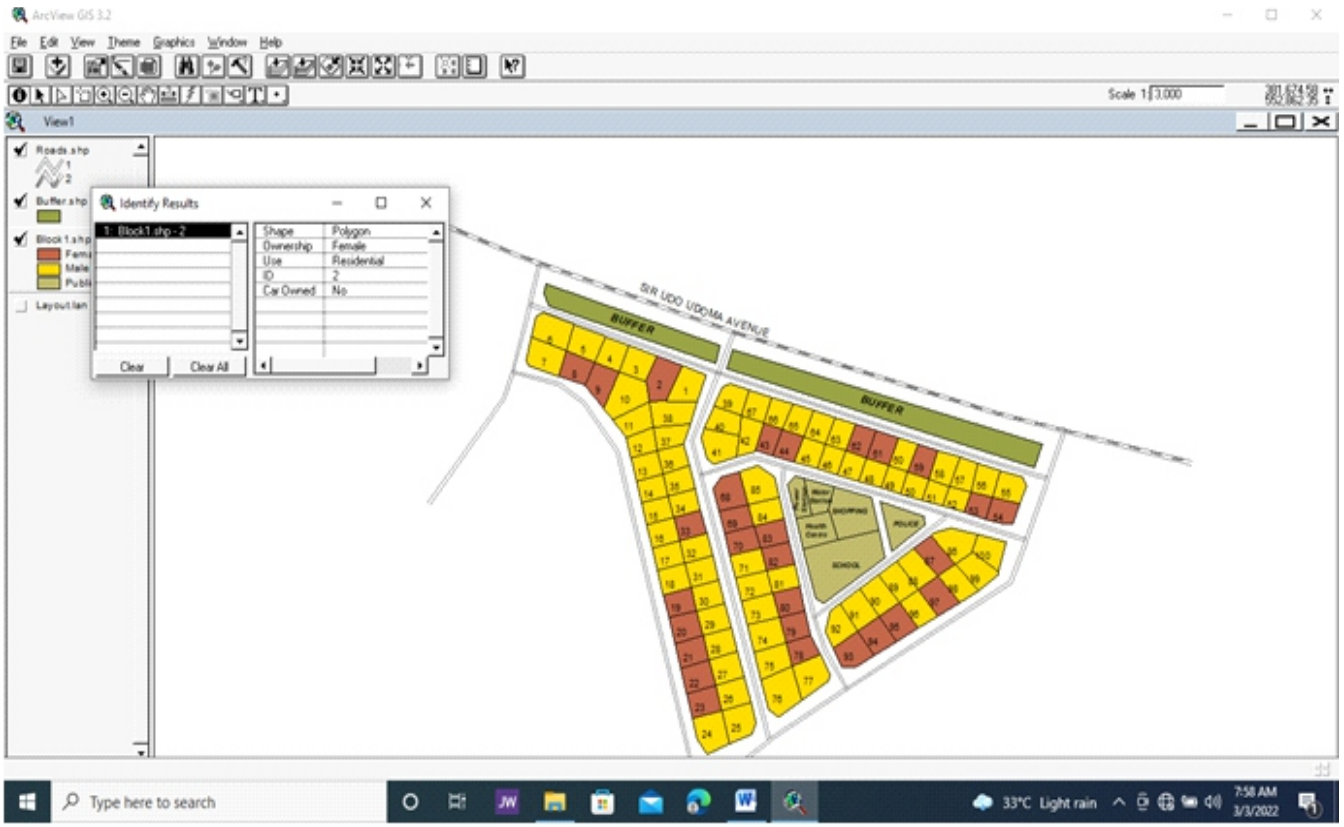


Fig. 2: John Ebiye Housing Estate: Showing information on Plots No.1 and No. 2 respectively with a click of computer button(Source: Author's ingenuity, 2023).

In this increasingly complex and dynamic society with abundance of data and information, the system developed in this study will enable governments and private property managers to synchronies information on ownership, parcels, occupier, rent etc with information on land in a systematic, rational and efficient manner. By so doing it can serve as a very effective decision support system. It can also be used for determining tax assessments or for land uses as the size, shape and nature of individual land holdings have been measured. Moreover, since the economic uses of land have been recorded for appraisal of land values, the system provides a useful base for conveyance, transfer, sale, lease or mortgage of the land for sustainable development purposes.

It should be noted that no improvement to the land can be made without acquiring rights to the land. These rights cannot be acquired until ownership is ascertained. The system developed in this study makes it easier to ascertain this fact and can be accessible anywhere in the world, since the coordinates of the plots are linked with the global azimuth. The system is simple but very effective, it is less expensive and the locally available skilled manpower can be trained locally to set up and manage it sustainably in both the public and private sectors in the real estate business.

Conclusion and Recommendations

The land property information management system developed in this study when adopted will transform the land management system in Akwa Ibom State and brings about a universally accessible land information system that will facilitate land related transactions. Land is the most valuable possession of mankind. Without land, there can be no country, no state, no local government area, no clan, no village, no family and any individual without land related identity has no real identity. Effective land information is of particular importance to developing any settlement. We are in dire need of effective land information system to prevent wastage of our scarce land resource. The land information system developed in this study fills that need.

RECOMMENDATIONS

Akwa Ibom State property Development Company is the agency responsible for the management of John Ebiye Housing Estate and some other State owned Estates. It is therefore recommended in this study that the land information management system model hereby developed be embraced by the property company. Other land management related agencies such as Uyo Capital City Development Authority; Ministry of Lands and Water Resources should also embrace this model by establishing geographic information systems units/departments equipped with trained GIS personnel and the basic GIS equipment and tools. The function of this department/unit shall begin with the conversion of the existing land information/data from their present analogue/hard forms to digital/tactile forms. Next, new land property data/information should be captured and generated in digital forms using appropriate devices and tools. This change will no doubt involve reasonable financial obligations, nevertheless, the expenses incurred for improving the cadastral system would in actual fact be paid off by the better information to support better land policies and the increased revenue that will accrue from the improved land use and management system.

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CHAPTER ELEVEN

LAND USE CHANGE AND DRIVERS IN THE NORTH EAST REGION OF AKWA IBOM STATE, NIGERIA

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Abstract:
The study assessed land use change in North East Region of Akwa Ibom State, Nigeria. Landsat imageries of 1986, 2002 and 2018 were used for the study. GIS and remote sensing analysis have revealed that the study area has witnessed rapid changes in land use with agricultural related land uses declining while built up areas have increased. Between 1986 and 2018, built up area experienced the only positive change of 96.84%, while other land uses experienced decreased values – farmland (19.95%), Secondary forest (24.77%) and swamp forest (51.66%).The drivers of the changes include population growth, household size, income of farmers, sources of funding for agriculture, where farm produce are sold, farm expenditure, land transformation, land value, land ownership, access road to farms, source of fertilizers, land size and development on land. These drivers contribute greatly to the land use changes in the study areas and in the process impact negatively on agriculture. There is the need for a comprehensive agricultural policy so as to reduce negative consequences of the drivers on food security.
Keywords: Land-Use Change, Drivers, Akwa Ibom State, Nigeria.

INTRODUCTION

Land use is never stable, but it is constantly changing in response to dynamic interaction between drivers and feedback from land-use change to these drivers. Land use change, as one of the main driving forces of global land use dynamics, is central to the sustainable development debate. Land use changes lead to land cover conversion, the complete replacement of one cover type by another or land cover modification which are more subtle changes that affect the character of the land cover without changing its overall classification (Arshad and Shahab, 2013). Land use and land cover dynamics are global issues of concern. Nannen (2013) in studying land use dynamics focused on two general aspects of land-use change: how gradually it occurs and how often. Gradualness and frequency of change are two aspects of land-use dynamics that can relatively easily be observed and recognized.

There exists a relationship between land use dynamics and man – made environmental degradation in most parts of the world. These have great impact on food security as land being a factor of production is critical to agricultural production generally. The importance of land as it relates to agricultural production is expressed in term of availability, accessibility, accessibility, quantity and quality. In Nigeria , accessibility and quality factors stand out as major of determine of agricultural productivity. The accessibility of most agriculture land in the country depends largely on land tenure system and the extent of competition by non –agricultural lands in the country depends largely on land tenure system and the extent of competition by non – agricultural land use (Obasola, 2013).

Understanding factors that drive land-use/cover change and its impact in general is important for modeling, predicting environmental change and help respond to the change in most positive way to benefit the people (Tilahun and Teferi, 2015). Different parts of the world have different push factors and their consequences. Musa (2008) concludes that combining GIS and remote sensing techniques offer both visualizing capabilities and extraction of statistical data needed for decision making hence proving to b very attractive to policy makers.

According to Lambin et al (2001), people's response to economic opportunities rather than population and poverty alone constitute the major underlying causes of land cover change globally. This

lead to the conclusion that global forces are the determinants of land use change as they increase and also weaken the local factors.

In recent years , a combination of Geographic Information System (GIS) and Remote sensing have been utilised in the analysis of land use change. The availability of remotely sensed data has provided a rapid variety of spectral, temporal, and spatial resolution images utilized in detecting changes on the surface of the earth at a faster and cheaper cost than traditional ground survey methods. Satellite remotely sensed data had been employed as inputs for generating land use/land cover maps. The LULC maps help in monitoring change dynamics by comparing multi-temporal land cover distributions. The data provides the scientific basis for land use planning, management, and policy formation (**Auwalu, et al 2020)**.

According to Deng *et al.* (2013) LUCD can be subdivided into three modules, namely economic module, vegetation change module, agent based module. The economic module is capable of estimating the demand of land use changes in economic activities maximizing economic utility. A computable general equilibrium (CGE) modelling framework is introduced and an approach to introduce land as a production factor into the economic module is proposed. The vegetation change driven module provides the probability of vegetation change driven by climate change. The agroecological zone (AEZ) model is supposed to be optimal option for constructing the vegetation change module. The agent based module identifies whether the land use change demand and vegetation change can be realized and provides the land use change simulation results which are the underlying surfaces needed. By importing the simulation results of climate change and providing the simulation result of land use change, the LUCD model would be compatible. Land system is geographically complex, which is composed of natural factors, human land use activities, and other impact factors. Land use change simulation is a prediction of when, where, why and how land use pattern changes. However studies on land use change processes are often challenged by the complex and unexpected human activities and natural constraints. Land use change emerges from the interactions among various components of the coupled human landscape system and feeds back to the subsequent development of these interaction. The concept of land use land change dynamics is important to this study as it forms a foundation for the examination of land use change in the study area.

The aim of the study is to assess the drivers of landuse change in North East of Akwa Ibom State. This aim was pursued through the following objectives:

i. To classify Landsat satellite imageries between 1986 to 2018 in the study area
ii. To analyze a transition matrix from 1986 to 2018
iii. To identify drivers of land use change

MATERIALS AND METHODS

Four Local Governmnt Areas (LGA) of Akwa Ibom State constitute the study area. These are Ini, Ikono, Ibiono and Itu (Figure 1). It is located between latitude $4^{0}32^{1}$N and $5^{0}53^{1}$N longitude $7^{0}25^{1}$E and $8^{0}25^{1}$E.

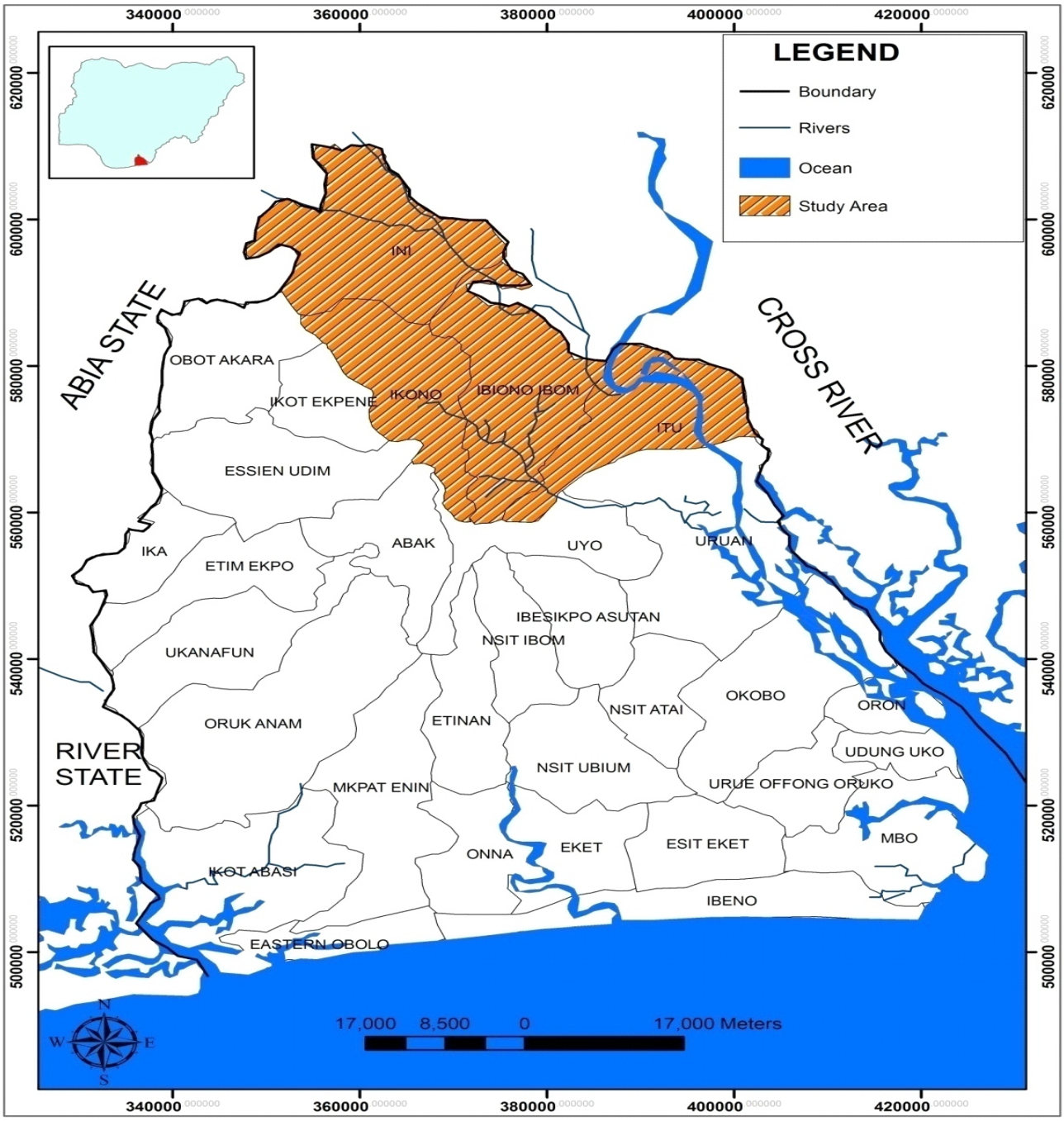

Fig. 1: Akwa Ibom State showing study

Landsat satellite imageries from United States Geological Surveys (USGS) of 3 time periods (1986, 2002 and 2018) were used to assess land use changes in the study area. The various bands of each imagery were layer stacked for clear feature identification using Erdas imagine. Supervised classication was used to classify the land use class of the imageries. The area for each class were generated in Arcmap environment and change analysis carried out by computing areal and percentage changes between the time periods. A table showing areas (in km2) and percentage change of each land cover were generated.

Table 1: Changes in land use / cover classes 1986 - 2018

Class Name	1986 Area in km^2	2002 Area in km^2	2018 Area in km^2	Change b/w 1986 & 2002		Change b/w 2002 & 2018		Change b/w 1986 & 2018	
				km^2	%	km^2	%	km^2	%
Water Body	17.2 (1.4%)	16 (1.3 %)	16 (1.3 %)	-1.2	0.09	0	0	-1.2	0.09
Swamp Forest	33.1 (2.7%)	17.2 (1.4 %)	16 (1.3 %)	-15.9	48.03	-1.2	0.08	-17.1	51.66
Secondary forest	425.8 (34.7%)	402.5 (30.8 %)	320.3 (26.1 %)	-23.3	5.47	-82.2	20.42	-105.5	24.77
Farmland	516.7 (42.1%)	511.7 (41.7 %)	413.5 (33.69 %)	-5	0.1	-98.1	19.17	-103.1	19.95
Built-up	234.4 (19.1%)	279.8 (22.8 %)	461.4 (37.6 %)	45.4	19.37	181.6	64.9	227	96.84
Total	1227.2 (100%)	1227.2 (100%)	1227.2 (100%)						

Table 2: Transition matrix from 1986 to 2018 (in km^2)

To 2018 / From1986	WATERBODIES	SWAMP FOREST	SECONDARY FOREST	FARMLAND	BUILTUP
WATERBODIES	0				
SWAMP FOREST		0	53	20	
SECONDARY FOREST		40	0	185	132
FARMLAND			95	0	305
BUILTUP					0

A total of 400 questionnaires were distributed in the 4 LGAs using systematic random methods in 60 villages. Socio-economic characteristic of respondents were extracted, compiled and presented in a table. Information on the divers of land use change were equally extracted and presented in a table.

ANALYSES

Land cover change analysis

Figures 2, 3, and 4 show the land use cover maps of study area. The analysis which is summarized in Table 1 shows total areal coverage of 1227.2 km2 with 5 land use classes – water body, swamp forest, farmland and built up area. In 1986, farmland had the largest coverage of 516.7 km^2 (42.1%), followed by Secondary forest with 425.8 km2 (34.7%). By 2002, the two dominant land use had decreased to 41.7 % and 30.8 % respectively and in 2018 to 33.69 % and 26.1 % respectively. Swamp forests equally decreased from 2.7% in 1986 to 17.2% in 2002 an to 16% in 2018. Built up area experienced an increase from 19.1% in 1986 to 22.8 % and 37.6%in 2002 and 2018 respectively. This means that increase in land use was found only in built up area while areas (apart from water bodies) experienced decrease in land use.

Incidentally, the decrease were experienced in agric – related land uses of farmland, swamp forest an secondary forest. Further details found in Table 1 shows that built up area experienced the highest positive of change of 96.84% between 1986 and 2018. Figure 5 and Table 2 show the Point - by - point change detection and the Zero order matrix. The table shows the direction of change in land use classes. From 1986 to 2018, secondary forest changed to swamp forest by 40km^2, farmland changed to secondary forest by 95km^2, swamp forest changed to secondary by 53km^2, swamp forest changed to farmland by 20km^2, secondary forest changed to farmland by 185km^2, farmland changed to built-up by 305km^2, while secondary forest changed to built up by 132km^2.

Socio-economic characteristics of respondents

The demographic information of the respondents are displayed in Table 3 indicating that majority of the respondents (54.25%) were between the ages of 36-45, hence the population is matured and participate actively in farming. In the area of education, 86.75% of the study participants have a form of formal education. This shows that they understood the questions posed to them in the study. Also, about 70.5% of the study population were strictly farmers an had a rural population which is dependent on agriculture. The respondents were mostly married (72%) and Christians (95%). The numbers of children in the families were mostly between 2-3 (53.25%) which is in line with the National Child policy of families having four children. Almost half (46.75%) of the respondents earned between 20,000 and 50,000 which is in line with the national minimum wage despite being low

Drivers of land use change

Drivers of land use change were assessed using 10 parameters and the results presented in Table 4. With a landmass of 697.4km2 and total population of 992,014 the population density of the study area varies between 285 to 400 persons per km2 (Inyang, 2010). According to NPC (2006), the population growth rate here is 3% hence the landmass is under intense pressure for competing demands hence adversely impacting food production. Traditionally, subsistence agriculture exist here hence farmers continually engage in intense cultivation.

Household size is another driver of land use change assessed in the study. The analysis shows that 57% of the respondents have household size of 5 and above. This indicates that some of the households are large, therefore the increase in size can lead to the conversion of agricultural lands into other uses such as residential land uses in other to accommodate the large family sizes. It agrees with the work of Ituen et al (2007) where households were occupied by seven people and above.

Table3– Demographic characteristics of respondents

VARIABLES	NUMBER	PERCENTAGE
AGE		
18-25	17	4.25
26-35	46	11.5
36-45	217	54.25
>45	110	27.5
EDUCATIONAL STATUS		
No formal education	53	13.25
Primary	126	31.5
Secondary	113	28.25
Tertiary	108	27
OCCUPATION		
Farmer	282	70.5
Trader	68	17
Public servant	50	12.5
Others	-	-
MARITAL STATUS		
Single	57	14.25
Married	288	72
Divorced	43	10.75
Widow/widower	12	3
RELIGION		
Christian	380	95
Muslim	-	-
Traditional	12	3
Others	8	2
MONTHLY INCOME		
<₦20,000	62	15.5
₦ 20,000 - ₦ 50,000	187	46.75
₦ 51,000 - ₦ 100,000	96	24
>#100,000	55	13.75

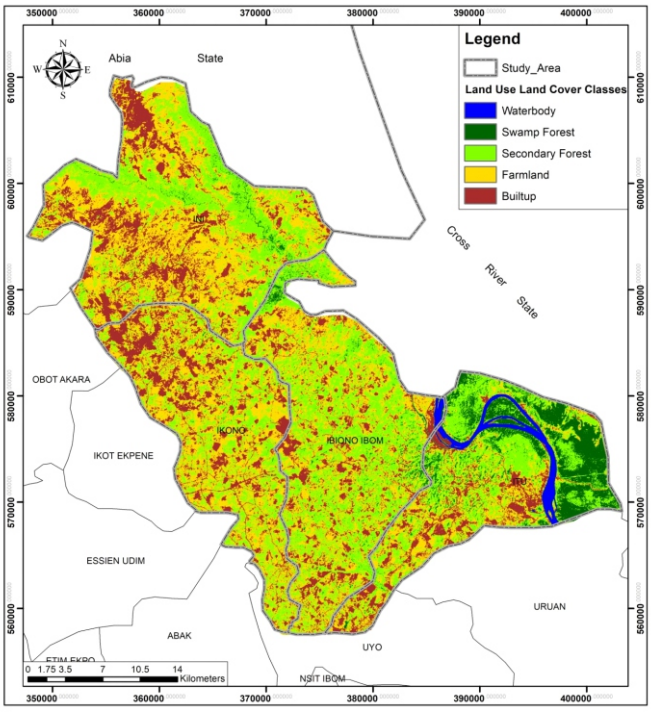

Fig.2: Land use cover map - 1986

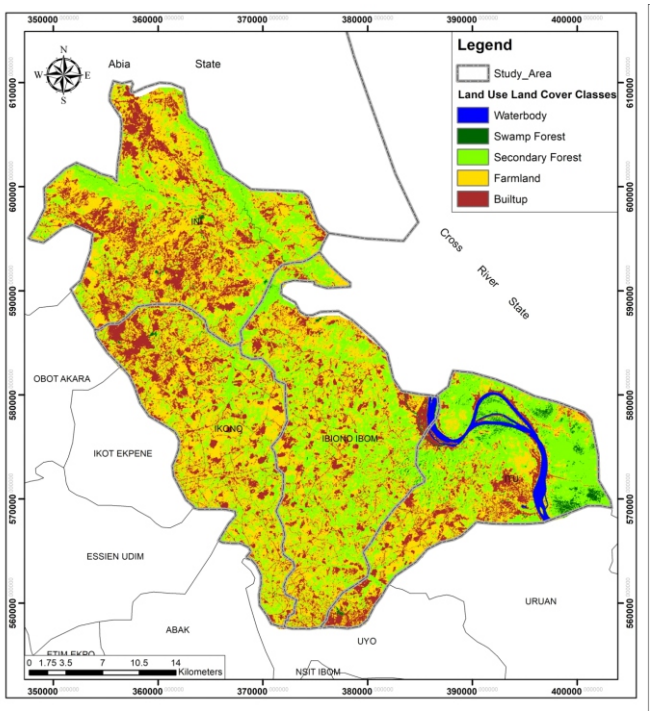

Fig.3: Land use cover map - 2002

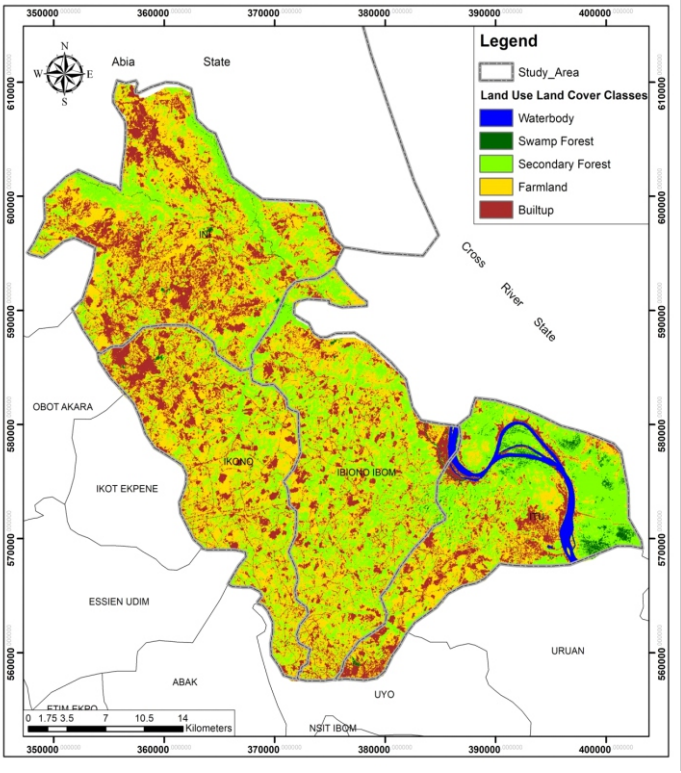

Fig.4: Land use cover map - 2018

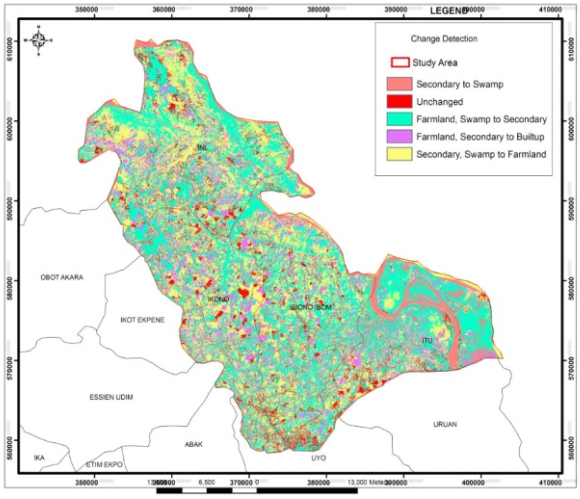

Fig.5: Chang by change point

Land value, land holding/ownership and funds for agriculture are related components of land use use drivers. The table shows that 70% of land here have value of N 100,000 and above – amounts far beyond the reach of rural dwellers. The cost of land is a factor for farmers who want to go into large scale farming or those who want to increase the size of their farmland and inadvertently lead to increase or decrease in the production of food. 84.5% of the land fall under the category of family and personal ownership. This implies that most of the farmers were small scale farmers as most personal or family lands are usually broken into fragments as a result of the death of the head of the family, leading to land fragmentation, leading to shortage in food production. The study also revealed that community owned lands are small and almost non existent. As for funds for agriculture, 65% depend on personal income and family, while cooperative (9%) and bank (9%) are the other sources. This indicates that agriculture is not seen as viable commercial venture hence land can easily be converted to other ventures.

Another important driver is where farm produce are sold. Only 6% of the produce here are sold outside the state. The rest are sold in the state capital Uyo (39%), in the villages (33.75%), and within the LGA's. These imply the subsistence nature of agriculture whereby the crops produced are barely enough for local consumption. Land transformation (before and after 2002) constitutes another grouping of drivers of land use change. Agriculture is seen here to be the great source of land transformation – 76% before and 71% after 2002. This shows a gradual decline of agriculture as a source of livelihood. This ultimately affects land use change.

Source of fertilizer is another driver of land use change. The most attractive sources are market (40.25%) and manure (31.5%). These constitute privately sources of fertilizer procurement when compared to government (22.26%) and NGO (0%). These imply that agriculture and subsequent output are not attractive enough to attract investment in the study area. Added to this , 69 % of respondents agree that lands have been affected by one form of development or the other. Development occurring on a piece of land inadvertently reduces land for farming activities, reduce the amount of food produced and negatively affect food security.

Table 4: Land use drivers

S/N	Components		LGAs				
			Ini	Ikono	Ibiono	Itu	Total
1.	Population	2006	99,196	131,904	189,640	127,033	547,773
		2014	129,469	172,052	246,443	167,065	715,029
		2018	246,704 (24.87%)	224,612 (22.64%)	315,919 (31.85%)	193,301 (19.49%)	992,014 (100%)
2.	Household size	<3	12	10	22	23	67 (17%)
		3 - 4	21	23	34	29	107 (27%)
		5 - 6	28	38	45	19	130 (33%)
		>6	38	20	30	8	96 (24%)
			99	91	131	79	400 (100%)
3.	Land value	< ₦20,000	8	12	9	2	31 (8%)
		₦21,000 - 50,000	13	9	9	6	37 (9%)
		₦51,000 – 100,000	13	12	15	14	54(14%)
		>₦100,000	65	58	98	57	278 (70%)
			99	91	131	79	400 (100%)
4.	Land holding / ownership	Family	49	52	50	39	190 (47.5%)
		Personal	33	23	63	29	148 (37%)
		Communal	10	13	16	8	47(11.75%)
		Tenant	7	3	2	3	15 (3.75%)
			99	91	131	79	400 (100%)
5.	Funds for agriculture	Personal income	42	38	55	28	163 (40.75%)
		Family	25	18	32	23	98 (24.5%)
		Bank	6	8	14	8	36 (9%)
		Coop	26	27	30	20	103 (3.25%)
			99	91	131	79	400 (100%)
6.	Destination of farm produce	Uyo	38	35	55	28	156 (39%)
		Village	34	33	42	26	135 (33.75%)
		Within LGA	23	20	27	15	85 (21.25%)
		Outside state	4	3	7	10	24 (6%)
			99	91	131	79	400 (100%)
7.	Land transformation (before 2002)	Agriculture	80	74	93	55	302 (76%)
		Business	8	6	10	8	32 (8%)
		Education	2	0	3	1	6 (1.5%)
		Others	7	8	15	10	40 (10%)
		None	2	3	10	5	20 (5%)
			99	91	131	79	400 (100%)

8.	Land transformation (after 2002)	Agriculture	73	70	89	51	283 (71%)
		Business	13	8	14	10	45 (11.25%
		Education	1	1	3	1	6 (1.5%)
		Others	11	10	18	14	53 (13.25%)
		None	1	2	7	3	18 (4.5%)
			99	91	131	79	400 (100%)
9	Source of fertilizer	Market	46	43	61	35	185 (40.25%)
		Government	28	20	28	13	89 (22.26%)
		Manure	25	28	42	31	126 (31.5%)
		NGO	0	0	0	0	0 (0%)
			99	91	131	79	400 (100%)
10	Land size and development	Yes	69	70	95	42	276 (70%)
		No	30	21	36	37	124 (30%)
			99	91	131	79	400

CONCLUSION AND RECOMMENDATION

GIS and remote sensing analysis have revealed that the study area has witnessed rapid changes in land use with agricultural related land uses declining while built up areas have increased. The drivers of the change analysed include population growth, household size, income of farmers, sources of funding for agriculture, where farm produce are sold, farm expenditure, land transformation, land value, land ownership, access road to farms, source of fertilizers, land size and development on land. These drivers contribute greatly to the land use changes in the study areas and in the process impact negatively on agriculture. There is the need for a comprehensive agricultural policy so as to reduce negative consequences of the drivers on food security.

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CHAPTER TWELVE

LAND COVER VARIATION AND URBAN RUNOFF DYNAMICS IN UYO CAPITAL CITY, AKWA IBOM STATE, NIGERIA

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Abstract:
The rapid urbanization of Uyo over the last two decades has led to significant changes in land use patterns and increased flooding and damage to means of livelihood in Uyo City. This study employed a survey design approach involving the collection of qualitative and quantitative data geared towards examining rainfall runoff relationship in view of land cover variation in Uyo City. Remote sensing data for the years 2003, 2013, and 2023, were used to track the changes in land cover and precipitation patterns over time. Sentinel 2A satellite imagery (spatial resolution 10 m) was utilized for the generation of the land cover map with emphasis on trend variation in green coverage by employing a contextual NDVI (normalized difference vegetation index) time-series classification approach. The land cover classes considered were built-up area, farmland, low vegetation, high vegetation, and water. The result show that built-up area increased from 39.23 km² to 155.03 km², farmlands decreased from 67.4 km² to 50.13 km² while vegetation area also decreased from 80.14 km² to 41.01 km² for the review period. The results also indicated a strong correlation between rainfall amount and runoff. Years with higher mean rainfall, such as 2012 and 2021, coincided with elevated runoff rates depicting a combined trend that mirrors the builtup area trend over the two decades. These results underscore the potential benefits of implementing blue-green infrastructure (BGI) for sustainable urban drainage management in Uyo Capital City.

Keywords: Flooding, Runoff, Rainfall, Landcover, NDVI, BGI

INTRODUCTION

Urbanization and land use change have significant impacts on the hydrology and water quality of urban areas. The combination of infrequent rainfall storms and an increase in impervious surfaces in highly urbanized areas produced a strong alteration of the water balance from its natural conditions leaving the urban environment with less capacity to absorb water from precipitation. Precipitation, evapotranspiration, infiltration, and runoff are key components of the natural water balance. In highly urbanized scenarios, due to vegetated surfaces being replaced by impermeable ones, such as concrete, and bitumen, the water balance is upset and only a little amount of precipitation is infiltrated and or evaporates (Raimondi et al., 2022; Davis and Tapia, 2016).

Mustafa et al. (2005) indicated that land use activities have increased over time and have resulted in an increase in peak flow and reduced time for peak flow generation for the current period as against the previous period of low land use change. On another hand, Rongrong and Guishan, (2007) in support simulated two flood events under five land cover scenarios that indicated the descending order of swelling time was woodland, shrub, grassland, arable land, and built-up land. This is clearly indicative of the fact that land use/land cover can be used to mitigate runoff leading to flooding, a position later acknowledged by Liu et al. (2014) and Hounkpè et al. (2019).

Waghwala and Agnihotri (2019) concluded that the frequency of flood events increases with the increasing total land cover change in a catchment and this tendency is clearly distinguishable but there is no difference in the frequency of flood events as far as the type of land cover change (accelerating or decelerating runoff) is concerned. On another hand, basin-scale runoff changes reflect the comprehensive impact of various environmental variables including climate and vegetation. Among them, vegetation plays an important role in the process of runoff generation and is one of the key links affecting the hydrological cycle (Yu et al., 2022, and Hounkpè et al., 2019). This position is further encouraged by runoff ratios and extreme flow indexes being higher in more urbanized catchments, for instance, catchments with long-term data (>40 years) showed significantly increasing runoff ratios and slopes in double-mass curves. A case study is that of the Yanhe River Basin, this research builds a BPG model to evaluate the sensitivity coefficient of runoff to vegetation change, and quantitatively reveals the contribution of vegetation to runoff change. The results showed that the runoff in the Yanhe River Basin decreased significantly from 1982 to 2018, and a mutation point occurred in 1999. After that, the runoff decreased by 29.88% and the NDVI increased by 15.30% (Mukhtar et al., 2020; Choi et al., 2016; Offiong et al., 2014; Waghwala and Agnihotri, 2019; Yu et al., 2022).

The accelerated haphazard urban growth of most cities is adding to the problem of their flood vulnerability. Land use issues like decreased natural areas, loss of water bodies, choking of river/streams, and uncontrolled multiplication of built-up areas, has supported an increased flood discharge that has resulted in a wide variety of flow and has been identified as a contributory factor to flooding risk in cities (Gupta and Nair, 2010; Iqbal, 2010; Barredo and Engelen, 2010; Waghwala and Agnihotri, 2019).

In Uyo Capital City, the landuse/landcover changes could be attributed to changes in economic structure, urbanization through infrastructure development, and population growth. Normalized difference vegetation index (NDVI) analysis shows a trend of decreasing vegetation in Uyo, which suggests that changes in economic structure represent a key driver of vegetation loss (Essien, and Cyrus, 2019; Nse et al., 2020).

Between 1986 and 2018, vegetation declined from 278km^2 to 219km^2, wetlands declined from 20 km^2 to 17 km^2, barren land declined from 33km^2 to 25km^2 while built-up areas increased from 69 km^2 to 139 km^2. There were significant transitions in land cover, for instance, 78km^2 of vegetation and 14km^2 of barren land were converted to the built-up area over 32 years. The main observed land cover change trends occurred after 2000, mainly from forest to crop land and built-up. All of these have resulted in a higher-than-expected runoff in the capital city (Ekpo, et al., 2021; Offiong et al., 2014; Nse et al., 2020; Njungbwen et al., 2010; Essien and Cyrus, 2019; Nsiegbe et al., 2022).

As a result, when a period of heavy rainfall coincides with sudden increases in surface water runoff the city's drainage system becomes overloaded and overworked leaving water to pool in troughs and depressions. This results in the flooding of the urban space. In Uyo city, the troughs and depressions that often face flooding are typified by the mechanic village and Abak road axis, Urua Ekpa, Faith Tabernacle, Udo Ette Street, Ikpa Road and Afaha Ube. Others are Aka Etinan, Atan road, IBB Road, Aka Itiam, and Afaha Ikot Obio Nkan, Ukana Offot, Udotung Ubo Street, Effiong Eno Street, Nkemba Street, Nwaniba road, Etim Okon Usanga Streets. Mission Road, Anua Market, and Nsukara by Lucky Filling Station. Other areas include the new flood frontiers springing-up in areas such as the Shelter Afrique extension by Nung Ette, Ekpiri Nsukarra, Mbiabong, and Osong Ama extension where locals are erecting buildings indiscriminately even on natural waterways (Nsiegbeet al., 2021; Nsiegbeet al., 2022; Abraham et al., 2022; Mbina and Edem, 2015).

A greater percentage of the local populace in these areas identified as prone to flooding are yearly exposed to loss of properties and in certain cases, lives are lost too. Businesses and livelihoods are often lost too to floods. Schools and religious places are not left out as they get closed too when a flood comes. Properties in such areas have been known to lose value and rental so low that some landlords have abandoned their properties to the flood. They consistently face life threatening scenarios that greatly affect sustainable. Unfortunately, with the increasing rate of urbanization and climate change issues, the water balance between vegetated areas and paved surfaces will continue to see disruption in such a manner that runoff will always exceed existing drainage facilities resulting in urban flooding.

Successive governments have introduced different urban drainage projects such as the Nkemba underground tunnel, the pipe jacking drainage system and the recently commissioned Nigerian Erosion and Watershed Management Project (NEWMAP) IBB flood control project, yet Uyo capital city witnesses flooding every year. In other places, policy makers are gradually looking away from reliance on grey infrastructure to move the runoff away from the city centre but employ sustainable ways of utilizing resource such that a replica of the natural process and balance existing pre-development in the city are achieved via promoting the adoption of a sustainable urban drainage system (SUDS) in the form of BGI both at the neighborhood and household levels. It has been widely recognized that such pockets of residual green space provide valuable features to mitigate human impacts and enhance the general quality of life in the urban environment. Several success stories about the use of BGI in stormwater control mostly abound mostly in the global north. This work was borne out of the need to assess the effect of land cover change on the rainfall- runoff dynamics in Uyo city.

Objectives of the study: The study set out to assess land cover variation in Uyo capital city in the last two decades and also examine the relationship between landcover and runoff in Uyo Capital City.

Study Area

Uyo, the capital city of Akwa Ibom State is in the coastal South-eastern part of Nigeria. Uyo capital city lies between latitudes 04˚ 52' and 05˚ 02' North and longitude 07˚47' and 08˚ 03' East (Figure 1). It was delineated by Uyo Capital City Development Authority Law as an area within a 10-kilometer radius with an epicentre at the Ibom connection (UCCDA, 2020). Over the years, Uyo capital city has experienced a steady increase in population.

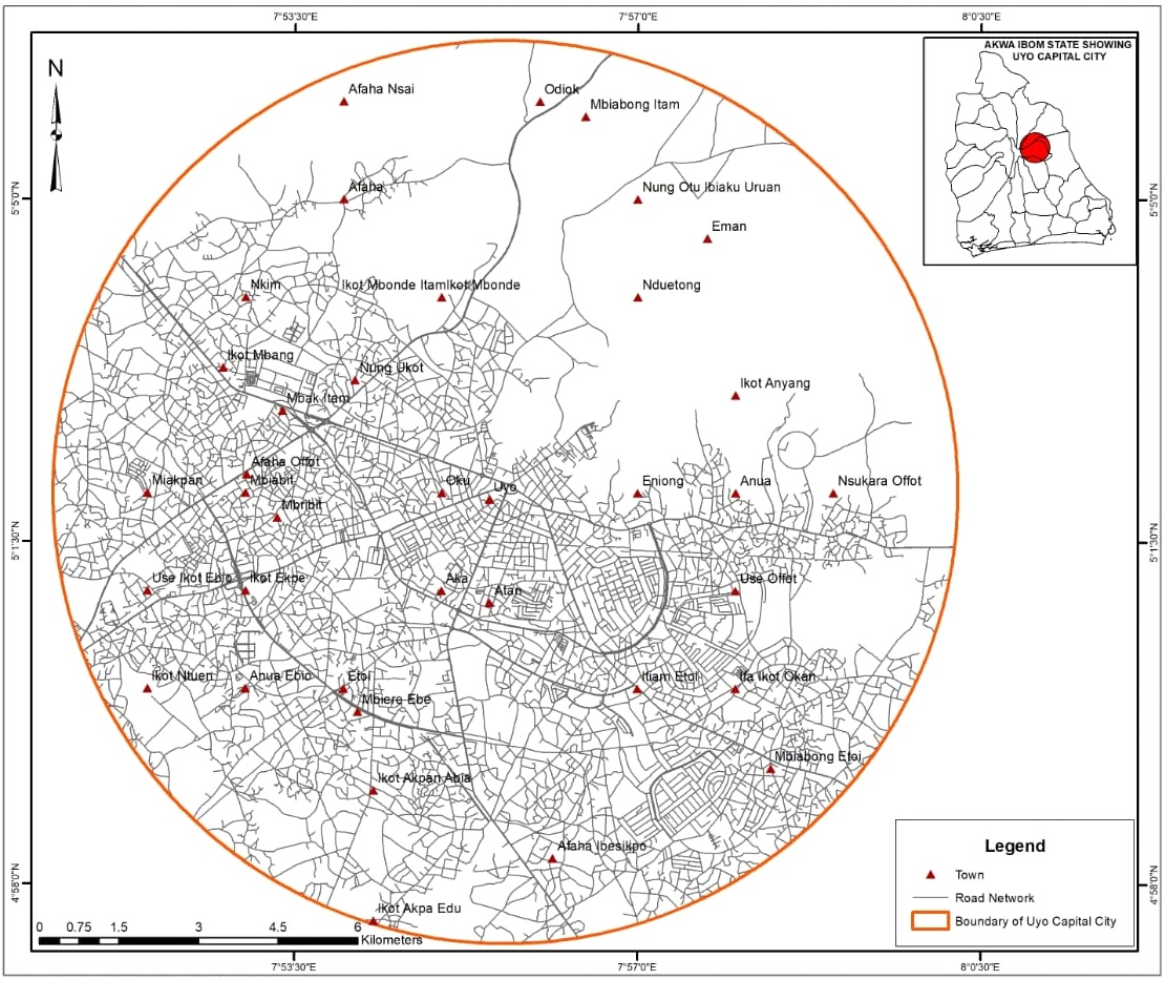

Figure 1.1: Location map of Uyo Capital City.
Source: Uyo Capital City Development Authority (UCCDA, 2020).

The population of Uyo capital city according to NPC (2006) is 554,906. The city is believed to be on a rapid increase as more people come into the city. Projecting with a 3.4 % Akwa Ibom State growth rate, extrapolating, the population in 2022 will be about 916,278.

Temperature regimes of Uyo correspond with that of the tropical humid climate and range between 26.20C and 350C with a mean annual temperature of 28.40C. The weather is almost wet all year round with annual rainfall in Uyo capital city ranging from 1612.7mm to 3831.0mm. Relative humidity in the catchment area varies between 70% and 80%, while July has the highest value, and January records the lowest. (Udosen 2017; Oyegoke and Oyebande, 2008, NiMet, 2021).

Urban land use includes built-up areas for various purposes. This, however, covers over 75% of the Capital City and therefore suggests a clustered or high concentration of human population in the area (Ituen*et al*., 2014). Intensive urban development has rendered the surface impervious to infiltration thereby increasing the volume of surface runoff. Flooding has been a major problem affecting most parts of the study area (Ituen *et al*., 2014).

MATERIALS AND METHODS

This study employed a Survey design approach involving the collection of qualitative and quantitative data geared towards achieving the set objectives. Data required for denudation was obtained from NIMET (Nigerian metrological Agency) and the remote sensing data was acquired from United States Geological Services(USGS).

Sentinel 2A satellite imagery (spatial resolution 10 m) was utilized for the generation of the land cover map with emphasis on trend variation in green coverage by employing a contextual NDVI (normalized difference vegetation index) time-series classification approach. The procedure for classification includes: Acquisition of Landsat image, image restoration, image enhancements and image classification. Digital image restoration and enhancement in the form of a high pass filter was therefore used to enhance the edges of the image and 'sharpen' it.

Band combination was done using the Erdas IMAGINE GIS software. All relevant bands such as band 7 and 4 were included within the maximum allowed bands.
Rainfall data was cleaned by summing the annual rainfall for each decade and deduce a mean that was incorporated in the data for analysis.

RESULTS

Landcover variation in Uyo capital city between 2003 and 2023: The assessment of the effect of land cover variation on the runoff in the study area begins with the analysis of land use land cover distribution. The static land use land cover distribution for each study year as derived from the maps are presented in the table below:

Table 1: The Land Use Classes

Land Use/Land Cover Categories	2003		2013		2023	
	Area (Sqkm)	Area (%)	Area (Sqkm)	Area (%)	Area (Sqkm)	Area (%)
Builtup Area	39.23	12.29	88.22	27.64	155.03	48.57
Farmlands	67.4	21.12	58.81	18.43	50.13	15.71
Light **Vegetation**	129.2	40.47	102.40	32.08	71.0	22.25
Heavy **Vegetation**	80.14	25.11	67.64	21.19	41.01	12.85
Water	3.2	1.0	2.1	0.68	2.0	0.63

Table 2: Rainfall statistics by decades

Rainfall	1992-2001 (mm)	2002- 2011 (mm)	2012-2022 (mm)
Mean	161	227	251
Maximum	546	929	929
Minimum	0	0	0

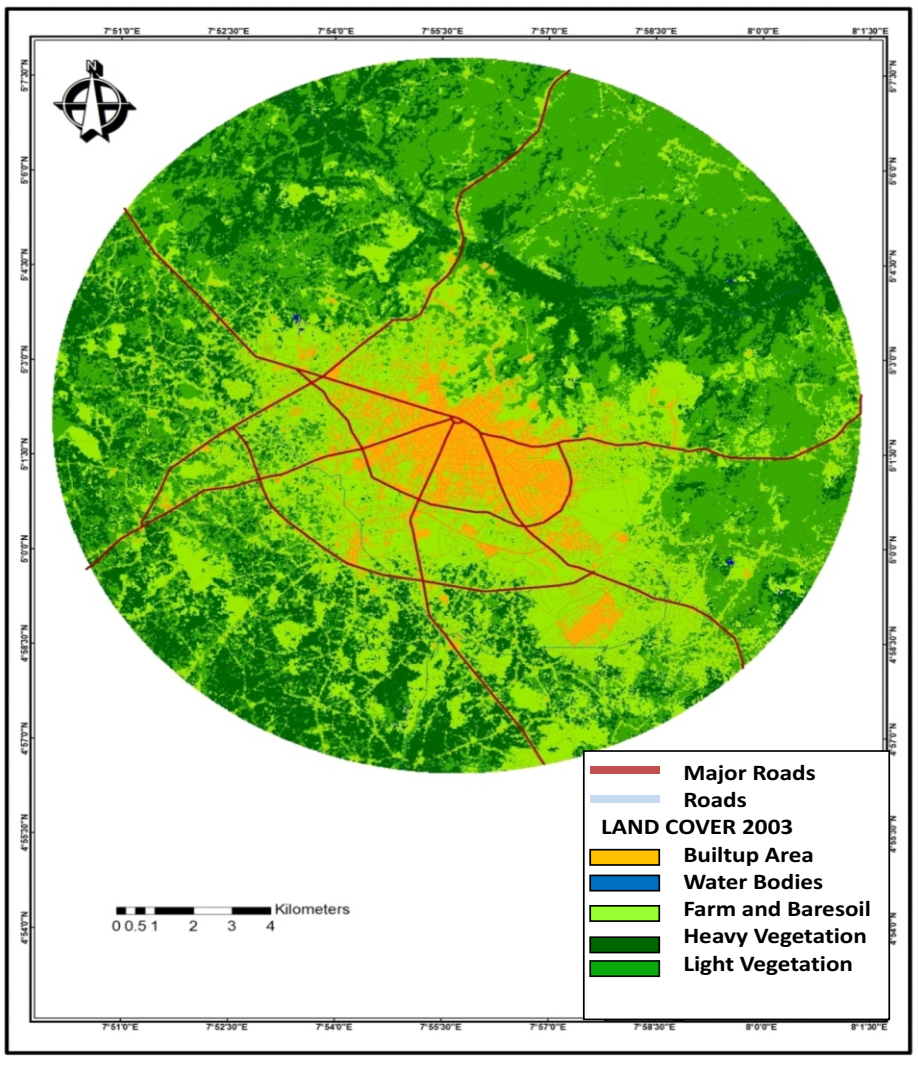

Figure 4.1: Land Use Detection of Uyo Capital City 2003.

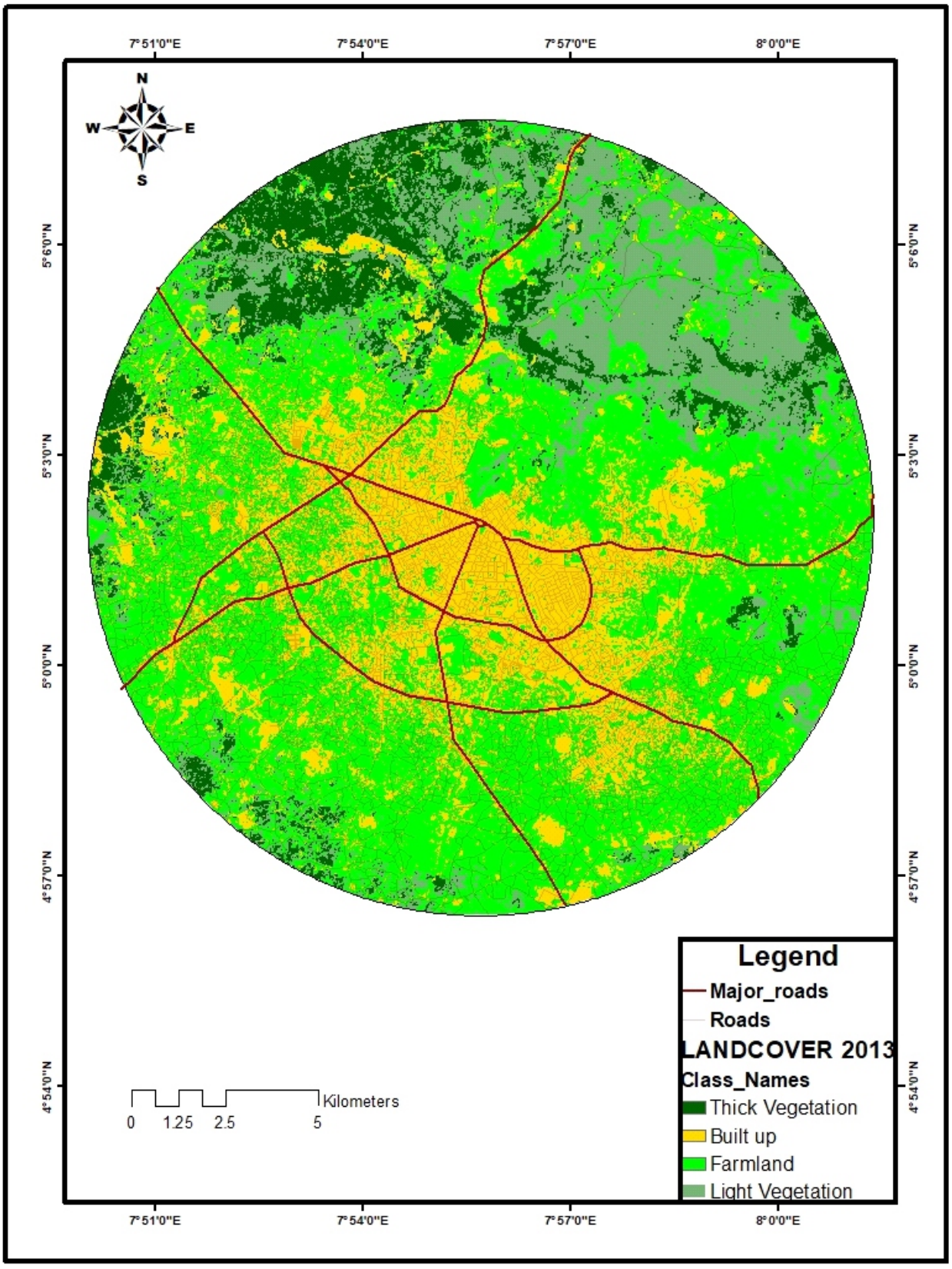

Figure 4.2: Land Use Detection of Uyo Capital City 2013.

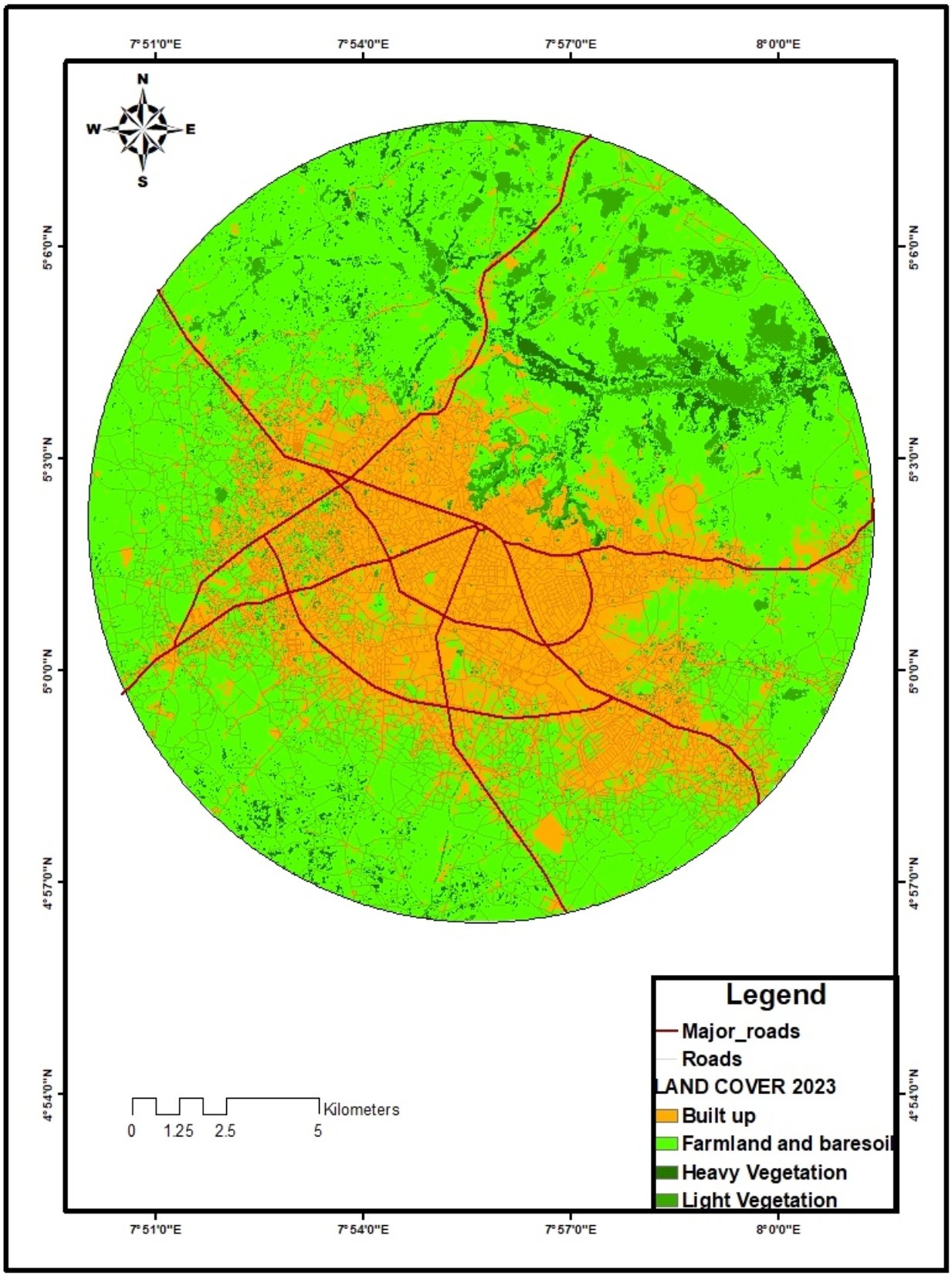

Figure 4.3: Land Use Detection of Uyo Capital City 2023

According to Table 1, the estimated land use classes considered after classification include: Built-up areas, farmlands, light vegetation, heavy vegetation, and water bodies.

(a) Built-up Areas: Uyo built-up area in 2003 was 39.23km^2 which translates to 12.29% of the study area, in 2013 the built-up area grew to 88.22km^2 which eventually increased to 27.64% while in 2023 the area of built-up has grown to about 155.03km^2 translating to about 48.57% of the city area.

(b) Farmlands: Farmlands in association with bare soil within the study area in 2003 stood at about 67.4km^2 which constituted 21.12% of the land use, ten years after in 2013 it growth rate dwindled to 58.81km^2 translating to 18.43% of land use, while in 2023 farmlands shrank to 50.13km^2 which translates to 15.71% of the city growth. This eventually goes to show that agricultural activities over the thirty-year period had decreased at the rate of about 6% rate.

(c) Light Vegetation Areas: Light Vegetation zones in 2003 within the study area stood at about 129.2km^2 which constituted 40.47 of the land use, ten years after in 2013 it growth rate also dwindled to 102.40km^2 translating to 32.08% of land use, while in 2023 light vegetation further shrank to 71.0km^2 which translates to 22.25% of the city growth. This eventually goes to show that light vegetation was seriously encroached within the period under consideration.

(d) Heavy Vegetation: Heavy Vegetation zones are zones with the most limited encroachment in the period under consideration. Within the interval of time under consideration, the heavy vegetation zone within the study area reduced drastically from 80.14km^2 which is about 25.11% of land use within the study area in 2003 to 67.64km^2 averaging 21.19% of land use within the study area all the way down to 41.01km^2 which translate to 12.85%. the bottom-line is that vegetation encroachment has been going on in an alarming rate in the thirty years under consideration.

(e) Water Bodies: The water bodies within the study area just like the farmlands and vegetation land use parameters have been shrinking proportionally since 2003. Initially, 3.2km^2 was the area occupied by water which was approximately 1.0% of the land use in 2003. In 2013, 2.1km^2 translating to about 0.68% of the landuse while in 2023 the water area becomes 2.0km^2 translating to 0.63% of landuse in the study area.

Relationship between landcover and runoff in Uyo Capital City: The previous section has shown the builtup area has seen huge expansion from 2003 to 2023 raising from the 2003 figure of 39.23 km^2 to 155.02 km^2 in 2023—an astounding increase of approximately 294.95%. This urbanization surge calls for careful examination of its environmental implications.On the other hand, for rainfall, the year 2012 stands out with a remarkable 385.60 mm of rainfall,an increase of approximately 149.57% compared to the lowest recorded rainfall of 143.62 mm in 2018.This pronounced contrast accentuates the inherent variability in precipitation distribution and underlines the significance of short-term meteorological trends within the dataset.

Table 3. Mean Rainfall, Runoff and Builtup data for study area.

Year	Mean Rainfall (mm)	Runoff (m^3/s)	Builtup (km^2)
2003	176	108.5597	39.23
2004	230.6333333	158.5687	44.129
2005	207.0666667	136.7653	49.028
2006	222.5583333	151.0648	53.927
2007	184.225	115.9566	58.826
2008	374.8833333	296.1837	63.725
2009	159.3083333	93.73896	68.624
2010	201	131.204	73.523
2011	329.1833333	252.0544	78.422
2012	385.6	306.5786	83.321
2013	350.4	272.4984	88.22
2014	325.5416667	248.5539	95.642
2015	277.5333333	202.6905	103.064
2016	194.4833333	125.2569	110.486
2017	159.3083333	93.73896	117.908
2018	143.6166667	80.08487	125.33
2019	201	131.204	132.752
2020	329.1833333	252.0544	140.174
2021	385.375	306.3602	147.596
2022	148.2666667	84.09916	155.018

The result for runoff shows that there is a correlation with the rainfall trends. Years with higher mean rainfall, such as 2012 and 2021, coincide with elevated runoff rates, reaching up to 306.58 m3/s. This logical alignment is indicative of the direct influence of rainfall on the hydrological processes, particularly urban runoff.

Running these data in Table 3. through PowerBi visualization software, the output in Figure 4.4 clearly shows the interrelationships described above. The dotted lines are the trend line for the rainfall runoff relationship which also is almost a parallel to the builtup area trend line in light blue.

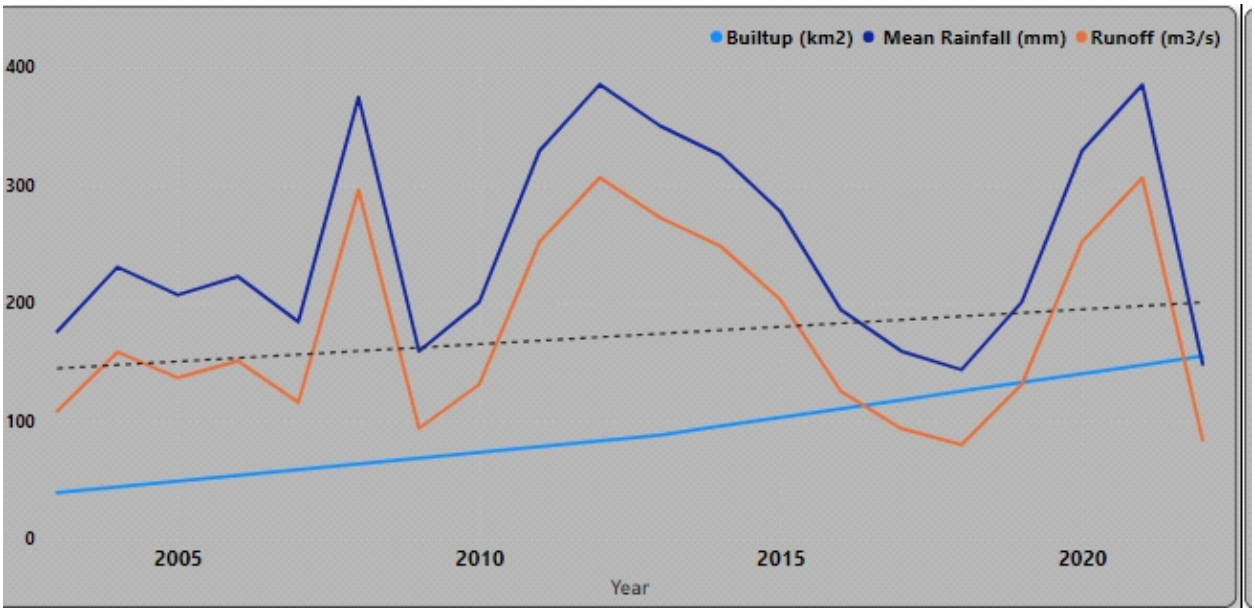

Figure 4.4: PowerBi visualization of Builtup, Mean rainfall and Runoff trend for Uyo City

DISCUSSION AND SUMMARY OF FINDINGS

The research findings reveal that there have been significant changes in landcover in Uyo over the past three decades. The city has experienced rapid urbanization, resulting in the conversion of agricultural land and natural areas into residential and commercial zones. The data indicates that the area of residential land use has increased dramatically, with a corresponding decrease in agricultural and natural land use

One of the significant changes in land use observed in Uyo is the rapid expansion of housing societies and commercial areas. The city's population has grown at a considerable rate, and the demand for housing and commercial spaces has increased. This has resulted in the conversion of agricultural land and natural areas into residential and commercial zones, leading to a decline in green spaces and biodiversity. Another critical finding is the increase in transportation and infrastructure development in Uyo over the past two decades. The construction of ring roads and flyovers has resulted in the conversion of natural areas and agricultural land, causing environmental degradation and loss of ecological services

Overall, the research shows that the land use in Uyo has undergone significant changes over the past three decades due to rapid urbanization and population growth. These changes have had a substantial impact on the environment and ecological services in Uyo Capital city. The loss of vegetations, for example, can increase the risk of landslides, soil erosion, and flooding, while the loss of farmlands can impact food security and livelihoods. Additionally, the increase in built-up areas can contribute to the urban heat island effect exacerbating the effects of climate change.

The land cover variations in a study area for three different time periods (2003, 2013, and 2023), have significant implications for runoff and rainfall patterns in the study area, which can have important environmental consequences. The increase in built-up areas from 39.23 km^2 in 2003 to 155.03 km^2 in 2023 has led to a significant reduction in pervious land cover and an increase in impervious surfaces. This change has likely increased surface runoff, which can result in flash floods, erosion, and sedimentation. Additionally, the expansion of built-up areas can lead to the fragmentation of green spaces, which can reduce the infiltration capacity of the landscape, leading to a decrease in groundwater recharge

The decrease in farmland areas from 67.4km^2 in 2003 to 50.13 km^2 in 2023 is also a significant concern. Farmland areas are typically characterized by high infiltration capacities, which can help mitigate the impacts of runoff on the hydrological system. The reduction in farmland areas can lead to an increase in runoff and a decrease in infiltration, which can exacerbate the impacts of flash floods and erosion in the study area.

The decline in vegetation areas, both low and high, is also of concern. Vegetations play a crucial role in regulating the hydrological cycle and maintaining a balance in water availability. The reduction in vegetation areas can lead to a reduction in evapotranspiration and interception, which can further exacerbate the impacts of surface runoff on the hydrological system.

The increase in rainfall observed over the study period can be both a positive and negative factor. The positive aspect is that it can provide increased water resources for various purposes such as irrigation and domestic use. However, the negative aspect is that it can increase the frequency and intensity of floods, erosion landslides and other hydrological hazard. It can also lead to increased sedimentation and nutrient loading.

Overall, the land cover changes observed in the study area have significant implications for the hydrological cycle and rainfall patterns. The increase in built-up areas and the decrease in vegetation and farmland areas can result in an increase in surface runoff, which can exacerbate the impacts of flooding and erosion. Therefore, there is a need to develop sustainable land use practices that promote the retention and infiltration of water in the study area. This can be achieved through the development of green infrastructure, such as rain gardens, green roofs, and permeable pavements, which can enhance infiltration and reduce the impacts of runoff on the hydrological system. Additionally, the management of vegetation and farmland areas should be prioritized to ensure their preservation and the maintenance of their ecological functions in the study area

CONCLUSION

In line with the findings of the study, it is essential to examine the underlying drivers of these land cover changes. These drivers may include population growth, urbanization, changes in land use policies, and economic development. By identifying these drivers, policymakers and stakeholders can develop strategies to mitigate the negative impacts of land cover change while promoting sustainable development. One strategy that can be employed is the use of remote sensing and geographic information system (GIS) tools to monitor and assess land cover changes. These tools can provide valuable information on the extent and rate of land cover change, as well as the drivers of change. Such information can be used to develop land use policies that balance economic development with environmental conservation.

Another strategy is the promotion of sustainable land use practices that enhance ecosystem services and promote environmental sustainability. This can include the restoration of degraded ecosystems, the promotion of agroforestry, and the use of green infrastructure such as green roofs, biorention ponds, rain barrels, and permeable pavements in built-up areas.

In conclusion, the findings suggest that there have been significant changes in land cover in Uyo Capital city over the past three decades, with a marked increase in built-up areas and a corresponding decrease in vegetation and farmland areas. It is essential to identify the underlying drivers of these changes and develop strategies to mitigate the negative impacts of land cover change while promoting sustainable development

RECOMMENDATIONS

In line with the conclusions, it is essential to adopt sustainable land use policies that prioritize environmental conservation and reduce the risk of flooding. This can include measures such as-

1. Promoting green infrastructure, such as green roofs and walls, to increase the absorption of rainwater in built-up areas as well as implementing zoning regulations that restrict the conversion of vegetation and agricultural land into built-up areas

2. Encouraging the restoration and preservation of wetlands and other natural water retention areas.

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CHAPTER THIRTEEN

LAND USE CHANGE DYNAMICS AND LIVELIHOOD IN IKPA RIVER BASIN, AKWA IBOM STATE, NIGERIA

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Abstract:
This work assessed land use change dynamics and its impact on the livelihood of the inhabitants in the Ikpa River Basin from 1986-2018. To achieve this, Landsat images of 1986, 2003 and 2018 were employed to investigate the changes in land use, using remote sensing and Geographic Information system (GIS) and processed using unsupervised classification algorithm in Erdas Imagine9.2 and post classification in order to detect changes in ArcGIS 9.2 environment with field verifications. The field survey was carried out from selected 20 villages in the study area, as well as structured questionnaire administered using systematic random sampling. Also, information from personal interviews, and direct observation gave details of the land use changes on livelihood of the inhabitants. The result revealed that there were significant land use changes occurring in the area, especially areas covered with Compound Farmland and Built-Up area. Tremendous reduction was found in the area of Open Water, Swamp Forest and Bush Fallow due to land use activities such as agriculture, lumbering, road construction and population expansion. The impact of land use changes on livelihood contributed significantly to more residential buildings, improved comfort, eased movements and commerce, and improved health. But food availability, and insecurity were found to negatively affect livelihood of the inhabitants. In view of these findings, the study concludes that since there are forest and attractive terrain in part of the interior area of the basin, conservation efforts should aim at developing and promoting nature tourism and leisure in the area. This will provide employment for the youths and function as a way of diversifying livelihoods, as well as ensure proper sustainable land use in the area.

Keywords: Land use, change dynamics, livelihood, correlation model and Ikpa Basin.

INTRODUCTION

The recent decades have witnessed environmental challenges all over the world with catastrophic consequences. These include; desertification, soil erosion, climate change and biodiversity loss, which are caused mainly by antropogenetic activities. Human activities on land has grown rapidly, and seriously altering forest cover. These alterations trigger the decline in natural resources and impact negatively on environment, and are also one of the leading causes of climate change and global warming as a result of the increased concentration of greenhouse gases in the atmosphere as farmlands and forests are converted to built-up areas. For example, industrialization has encouraged the concentration of human population within the urban areas (urbanization) and the depopulation of rural areas, accompanied by the intensification of agriculture in the most productive lands and the abandonment of marginal lands(FAO, 2015).

Land is the major natural resource where economic, social, infrastructure and other human activities are undertaken for their wellbeing. The exploitation of land for these various purposes is termed *land use* ,and consist entalteration of the original land cover type which is known as *land cover change*, a vital component in environmental management in the 21st century. Thus when land is transformed from a primary forest to a farm and to built-up, the loss of forest species within the deforested areas is immediate leading to nutrient and biodiversity loss. Land use changes has been conceptualized that it drivers could be attributed to different perceptions, ideologies, practices and land use policy changes at different spatial and temporal scales. These impacts either directly or indirectly have dealt massively on the livelihood assets used by the

people to derive their means of living and thereby resulting in alternative means of livelihood for sustenance (Lambin *et al*., 2003;Tilumanywa, 2013).

A means to survive does not just refer to livelihood but it encompasses all attributes of resource use and sustainability to enhance the living standard of people. Daramola (2017),stated that a livelihood comprises the capabilities, assets, (including both material and social resources) and activities required for a means of living and also a framework for understanding the complex mix of issues that affect people to determine their wellbeing or povertystatus. An assessment of land use impact on local people depends not only on its direct costs and benefit such as profits and jobs generated but on how these relate to the various household needs. While the livelihoods approach is general, the technique is useful in identifying potentials linkages between land use and other livelihood activities. However, it is an important concept for assessing socioeconomic factors of land use, social vital development, infrastructural activities, through accessibility of roads and water electricity (Kateiya *et al*., 2021).

Livelihood activities are carried out within an individual's natural, social and physical environment and dealing with livelihood diversification, which many scholars have worked on the land-use change in various countries in their respective areas. For instance,(Kamwi *et al*., 2015),assessed the impacts of land use changes to rural livelihoods in the Zambezi region of northern Namibia using only focused group discussions. The study revealed that hundreds of the residents of the Zambezi derive direct benefits from selling of timber, firewood and other (opportunistic sale of fish and reeds) for livelihood coping strategies and thereafter concludes that the changes in coping strategies influenced by a variety of factors have led to the diminished use of natural resources. Obi and Ituen (2017*)* assessed timescale changes in suitability units of arable land in Akwa Ibom State, Nigeria using satellite imageries and population data. The study revealed that deforestation accounted for 8.5% increases in arable land use while losses in 8.5% arable land translated to gains in urban land use and concludes that the availability ratio of arable land in 2036 will be 0.00487 ha per person with resultant food insufficiency, escalating erosion and pollution. Also, Anukwu, Wilcox and Akadi (2018) assessed wetland-based livelihood on environmental quality in Akwa Ibom State using field survey. The study showed that most of the residents derive their livelihood heavily from the proceeds of socioeconomic activities not minding the condition of the environment, and concludes that seminars be organised at community levels to inculcate good land use practices to promote wetland sustainability.

Taking into consideration the above studies, land use dynamics has a great impact on the livelihood of the inhabitant of the area in Ikpa river Basin, as studies with regards to this area is few. Ikpa basin which is an ecosystem offers goods and services to the surrounding environment. Although, the interior areas are largely rural and the main economic activities of the people are predominantly farming, population keeps growing and development spans into these rural areas. Due to these changes, a good number of people have taken to alternative means of survival as they involve in small scale businesses such as poultry and piggery farming, trading, motorcyclist and occasional jobs. Very few others engage in sand dredging, fishing hunting, oil palm processing, and wine tapping and non-timber activities such as basket weaving due to the availability of these resources thereby boosting their livelihood (Okon *et al*., 2018, 2022). Therefore, understanding the interactions between land use and livelihood activities are crucial to monitor and evaluate especially the factors that drive current land use dynamic son livelihood in Ikpa River Basin of Akwa Ibom State. This will provide information on the status of land use and impact on livelihood of the inhabitants.

The study made use of the concept of land use transition and sustainable livelihood concept. Land use change according to Eric *et al*. , (2003) can be understood using this concept of complex adaptive systems, and transitions. Therefore, land use change is a spatial property observed at the scale of landscape. It is the sum of many small, local scale changes in land allocation that reinforce or cancel each other (Lambin*et al*. , 2003).Alelign*et al*., (2011),noted that land use associated with human environments have related characteristics to those governed by mechanisms and processes similar to those of the complex adaptive social and biological systems. The exact future of the behavior of coupled human environment systems is often unpredictable because it is emergent rather than predetermined. Hence, further research for more information will reveals a larger aspect of land use change, in a range of human environment conditions. Applicable also is the concept of Sustainable livelihood because livelihood analysis is the methodology which is used to analyze the impact that different forms of land use might be used as a tool to improve standard of living. For instance, Ellis (2004) defined livelihood as it comprises of the assets (natural, physical, human, financial and social capital), the activities and the access to these (mediated by institutions

and social relations) that together the living gained by an individual or people in different places. Likewise, Kalaba (2010; **Ndavi*et al*., 2016**), also calls this assets, poverty reducing factor simply because they have been used by individuals, households and communities as means to end rural poverty and attain better livelihoods. This approach holds that not all individuals and households will experience the same positive and negative impacts. Therefore, applying a concept of livelihood enables the assessment of the impacts of land use potentials and initiatives on the different livelihood strategies and households in a particular area such as Ikpa River Basin communities. This study is mainly aimed at assessing land use change on livelihood of the inhabitants from 1986 to 2018. This was guided by specific objectives such as; mapping the land use of the area using (Remote Sensing (RS) and Geographic Information System (GIS) fromthe period of 1986 to 2018 and examining its impacts on livelihood.

Study Area

The Ikpa River Basin lies within Ikono, Ibiono Ibom, Itu, Uruan and Uyo LGA, (Figure 1),which forms part of the major tributary of the cross river state. It lies between latitudes 5°03^{1}.801^{II} and 5°16^{1}49.129^{II} north of the Equator and longitude 7°46^{1}34.9^{II} and 8°3^{1}11.9^{II}, East of Greenwich Meridian. It has a dendritic, pear-shaped with a natural river and a homogenous geologic formation that occupies a total land area of 358.92km^{2}. The climate of the area lies within the tropical zone similar to that of Akwa Ibom State and Nigeria having both rainy and dry seasons, as the rainy period lasts from April to November with its peak in June/July. The relief of the basin varies from one location to another as its geology is underlain by coastal plains sands of tertiary

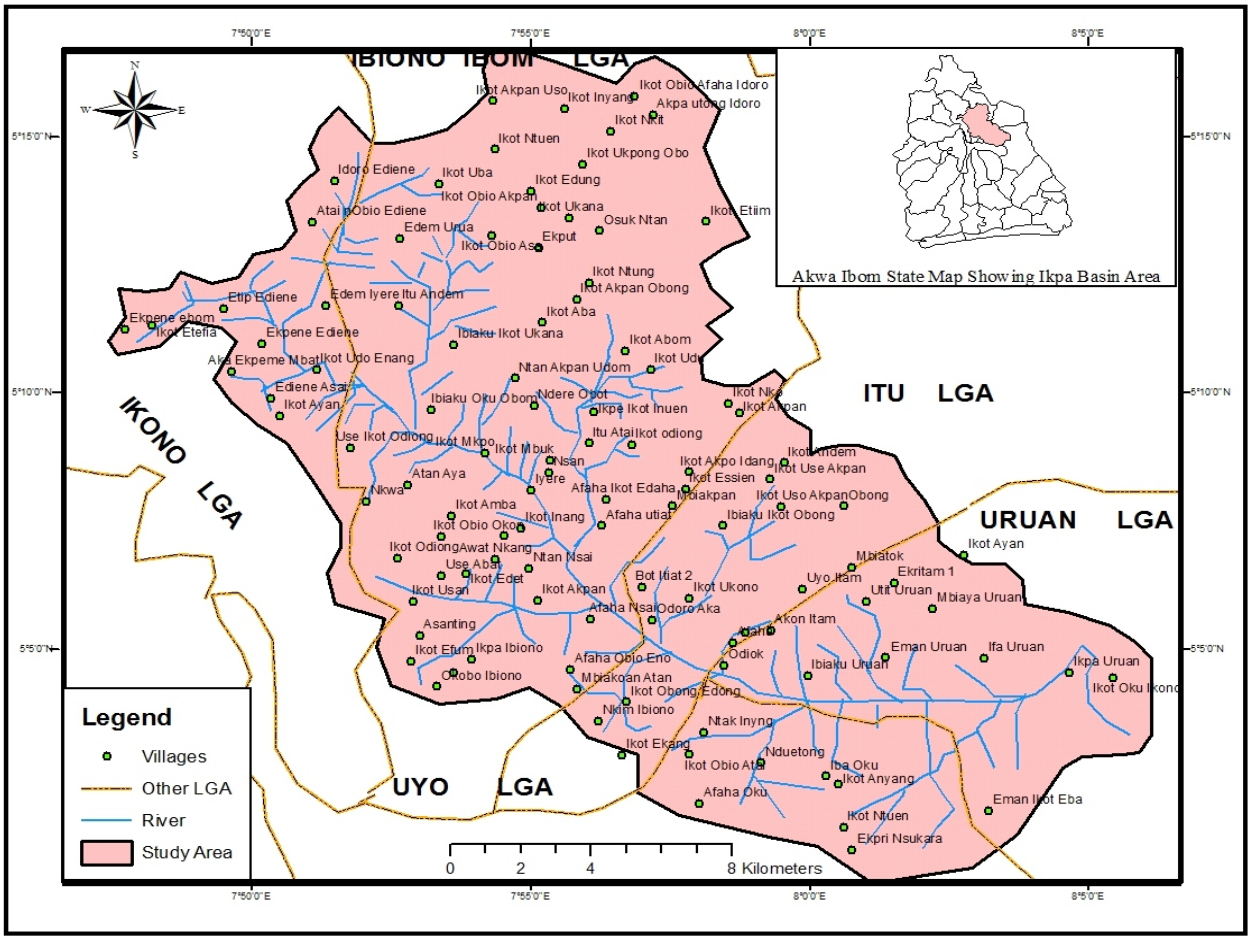

Figure 1: Ikpa Basin Area Map

Source: Ministry of Lands and Town Planning, AkwaIbom State.

MATERIALS AND METHODS

(a) Image acquisition and Processing:

Landsat images of 1986, 2003, and 2018 were acquired and used for the study from the United State Geological Survey (USGS)with a resolution of 30m by 30m. With the aid of ERDAS Imagine 9.2 software, the different bands of the satellite images for each year of study were layer-stacked to ensure that the datasets were ready for additional processing and analysis. These satellite images were processed using an unsupervised classification algorithm and post-classification techniques in ArcGIS9.2. Image classification for pattern recognition was used to identify each pixel position concerning the land use and vegetation. The steps involved in image processing include the definition of the five land uses namely, (Open Water, Swamp Forest, Compound Farmland, Bush Fallow, and Built-Up). Data enhancement aided in easy identification of pixels of land use for visual interpretation. The calculation of the land use change for the analysis of changes in hectares, percentage, trend, and rate of change from 1986 and 2018 was performed. For accuracy and image validation, the 1986 classified image was compared with that of the land use and vegetation map published by the CRBDA in 1986. Furthermore, a field check was undertaken on the 2003 and 2018 classified images. These methods proved very reliable in generating valid land use cover categories for the study. For the data captured in GIS, the maps were obtained in analogue format and converted to an image data source in ArcGIS 9.2 software for georeferencing and digitization. It was necessary to re-project the digitized features to a common projection and coordinate system.

(b) Field Survey

In addition, field survey was done in the study area **using structured questionnaires, and interviews with community leaders, family heads, farmers and individuals who had lived for about 30 years in the area.** Information on infrastructures, **size of farm holding, type of agriculture, nature of agriculture, and extent of wood extraction were obtained. Data collected were analysed using SPSS**. The livelihood indicators were corresponding questions derived from drivers and were analyzed using overall averages to obtain a single variable. The overall results were analyzed **and presented as tables, charts, and percentages.**

RESULTS AND DISCUSSION.

a. Land Use Change Inventory

Table 1: Shows the land use - class inventory for the period under review.

Table 1: Land use/cover class inventory (1986-2018)

					1986 - 2003			2003 - 2018		
S/N	Classes	1986(Km^2)	2003(km^2)	2018(km^2)	Change (km^2)	Change(%)	Change/ yr (km^2)	Change (km^2)	Change (%)	Change/ yr (km^2)
1	Open water	40.4	37.1	34.84	-4.32	-5.51	-0.25	-2.26	-6.79	-0.15
2	Compound farmland	64.14	80.65	82.08	16.5	21.04	0.97	1.43	3.11	0.09
3	Built up	54.24	63.88	85.67	34.46	43.95	2.02	21.79	47.32	1.45
4	Swamp forest	102.28	94.86	84.21	-7.41	-9.45	-0.44	-10.65	-23.13	-0.71
5	Bush fallow	97.75	82.03	72.12	-15.72	-20.05	-0.92	-9.91	-21.52	-0.66
	Total	**358.92**	**358.82**	**358.92**	**78.41**	**100**		**46.04**	**100**	

Source: Field data, (2019)

From the table, there was a 5.64 % decrease in Open Water with a 0.17 sq. km annual rate of change, which means that the land use subsequently decreased due to the expansion of roads and bridges built across the river. Other changes observed were; an 18.10% increase in Compound Farmland at 0.55 sq. km, an annual rate of change, and a 31.91% increase in Built-up at the annual rate of 0.98 sq. km. The significant increase in compound farmland and built-up areas exceptionally shows rapid population and road expansion and its associated commercial activities.

This tremendous increase has affected the natural ecosystem of the basin area thereby threatening biodiversity, food security, health, lives, and properties of the inhabitant in the study. There was an 18.29% decrease in Swamp Forest with an annual rate of change of 0.56 sq. km. This implies that the decrease in the swamp forest results from continuous deforestation of the area, a trending issue in the environment in the 21st century.

This is due to the exploitation of trees for logging, building, and construction, firewood, and charcoal selling in the study. These, as obtained from the questionnaire occur on daily/monthly bases which

have contributed to environmental degradation. Another decrease was experienced in the area covered by bush fallow. Also, a 26.02% decrease was observed in the area of Bush fallow with a 0.80 sq. km rate of annual change. The decrease results from the clearing of forests for agricultural expansion, construction of new roads in rural area, as well as family increase (more mouths to feed) resulting in its shrinkage every year. In summary, the classes show significant land use changes happening in the area, especially areas covered by Open Water, Compound Farmland, and Built-Up. Those classes have gained significantly from Swamp Forest and Bush Fallow. The same is revealed by the satellite images, as driver of such land use transformation. Thus, this inventory will assist to curb the massively land use in the area guided by proper measures for sustainable land practices. The images for the periods under review are well presented as Figure 2(1986), Figure 3(2003) and Figure 4(2018).

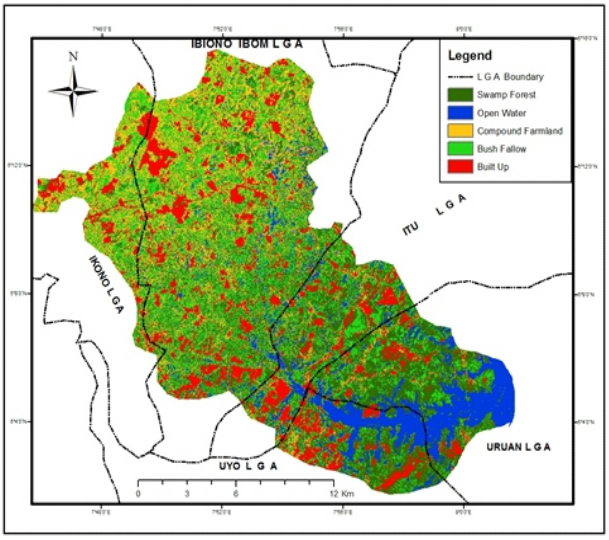

Figure 2: Land Use Status of 1986

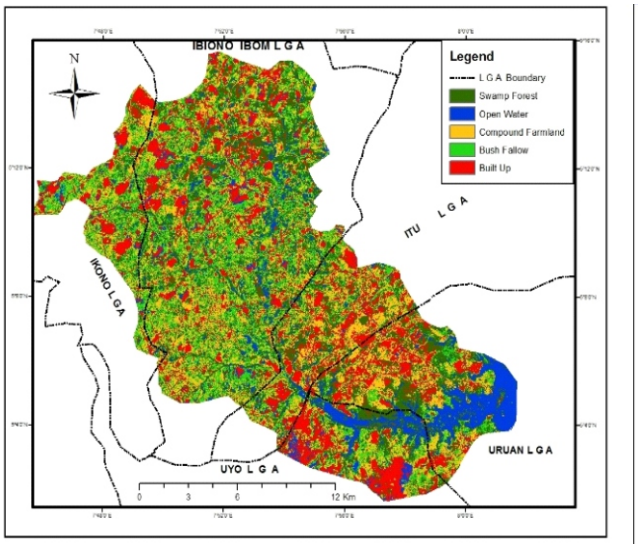

Figure 3: Land Use Status of 2003

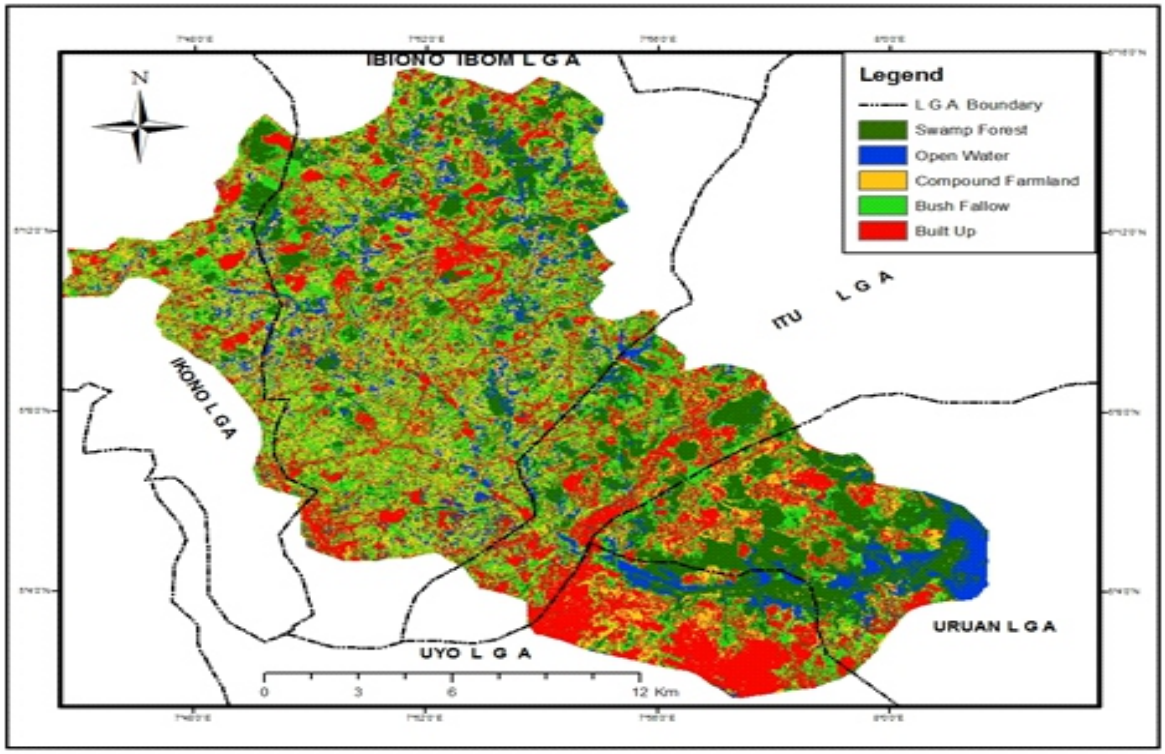

Figure 4: Land Use Status of 2018

a. Impact of Land Use Change on Livelihood

Based on the survey, eight livelihood parameters were considered. These included: food and house availability, ease of movement and commerce, health condition, communication, security, income and educational levels. Important results of the livelihood survey are presented and discussed in details.

1. Food Availability: Food is an important necessity for survival and is critical to the livelihood of the people. Also, agriculture being the major force of land use change has much impact on the availability of food

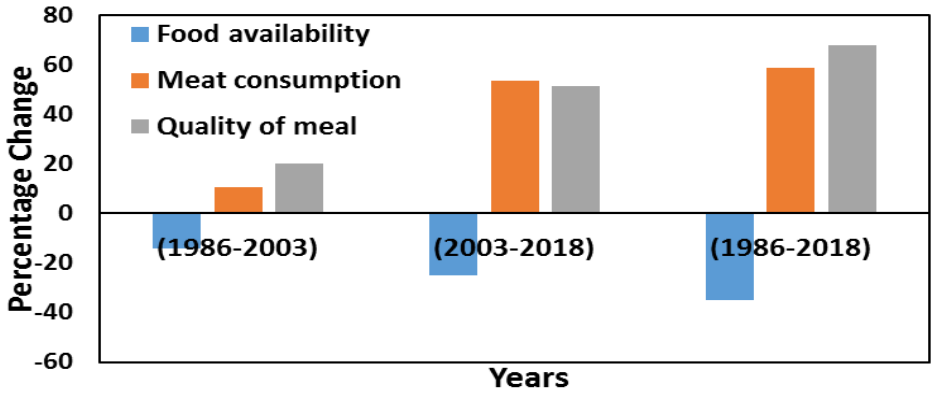

Figure 5:Food availability

Source: Field data (2019)

Figure 5 shows a decrease in the availability of food but an increased quality of meal and meat consumption for the range of the study period. There was a 14% decrease in food production from the period of 1986 to 2003, with a further reduction by 25% from 2003 to 2018. These reductions agree with the large percentage decrease in the size of the bush fallow in the satellite imagery (Table 4.1). This implies that the decrease in the size of farmland has led to the reduction in food production in the area. The reduction in agricultural lands was observed around Uyo, Itu and Uruan with close proximity to the urban centres. However, these areas have witnessed large scale infrastructural development which in turn provides income for inhabitant to purchase ready-made foods. On the other hand, people in other LGAs like Ibiono Ibom and Ikono have used some of the farmlands to raised livestock for consumption and income to buy alternative foods. This agrees with the findings of Mubarak *et al.,* (2014) that farming was the predominant activity in the suburb, but many had a secondary source of livelihood, most especially those that that their farmlands have been affected.

2. House Availability: Housing is a major component, as far as livelihood is concerned, as it provides shelter for the people. The increase in built-up (housing inclusive), which was observed in the satellite images (Table 1), agreed with the significant increase in housing facilities in the survey. These have provided many homes for the inhabitants, as shown in the livelihood survey in figure 6.

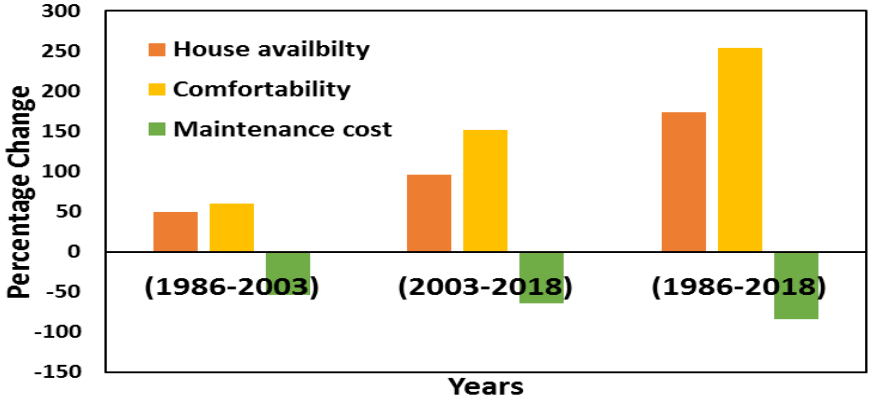

Figure 6: House availability

Source: Field data (2019)

Figure 6 has also shown the increase in the comfortability of these homes as a result of the improvement in the quality of the houses. People have gradually moved from mud-thatched houses to sophisticated concrete-zinc homes. Also shown is a significant reduction in the cost of maintenance of the houses in terms of resources and time. The people therefore save the resources that would have been used for house maintenance for other purposes, such as food and health care services. The free time is also used for leisure. Therefore, these have significantly improved the livelihood of the inhabitants of the area.This agrees with Naab (2012), who reported that urban encroachment has therefore led to the inaccessibility of land, land fragmentation, loss of land fertility, among many others

3. **Ease of Movement and Commerce:** The ease of movement was also considered as a prerequisite for livelihood condition of the people in the study area.

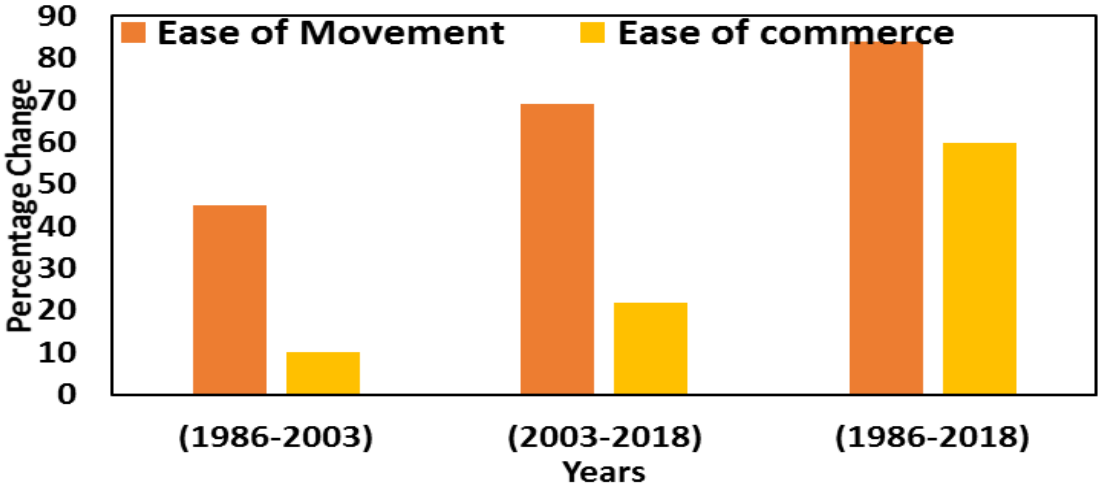

Figure 7:Ease of movement/commerce
Source: Field data (2019)

Figure 7 expresses the increased number of roads and commerce in the area. There was an increase of 45% change from 1986 to 2003, with a further increase of 70% from 2003 and 2018, and a total of 84% increase for the 32 years' study period. The increase was attributed to road development of the area especially from 2003 to 2018. The ease of movement has encouraged travelling within the states. Movement to work places, churches, schools, health centres and market has been improved by this ease. Also, the ease of commerce has resulted in the increase number of market around the area. Itshows a significant increase of 60% of commerce in the 32 years' period as compared with 10% in the 17 years' period. These increase has assisted in the transportation of bulky and perishable goods, buyers can access different quantity and quality of goods in the market area. Above all, the ease of commerce enhances daily and weekly marketing from nearby urban centres.

4. **Health Condition:** As generally known; health is wealth. This implies that with sound health, meaningful activities could be undertaken by anyone considering as livelihood components.

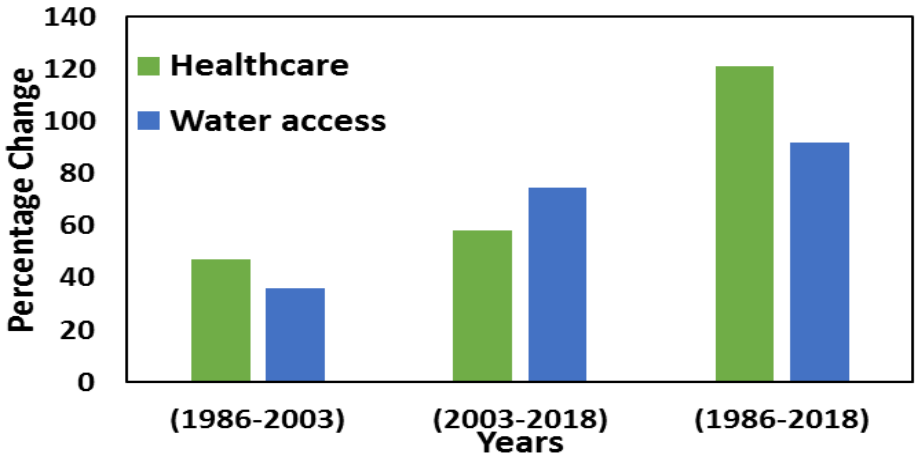

Figure 8: Health and water
Source: Field data (2019)

Figure 8 describes the state of health of the people in the area. There was a 47% increase in health condition from 1986-2003. This was further increased by 57% change and an overall total of 121% increase of the 32 years of study. The increase in the number of health facilities has improved the health condition of the people in the area. With this health facilities, the number of diseases, and death cases have been curbed. Also, the increase in health status was attributed to the increase in literacy level. These were aided by innovation information spread across through televisions, community health personnel and churches. With these, awareness on the quality of meal for children, pregnant women, and adults were spread especially information concerning some killer diseases such as malaria, Lassa fever and typhoid. With this improvement, the access to water has also increased with a total of 92% in the area. These have provided clean and suitable water for cooking, washing, bathing, irrigation etc. The increase in water access has also prevented against water borne diseases such as cholera, dysentery and diarrhoea. Through this improvement, the mortality rate in the area has reduced. Finally, the quality of meal, housing and food has improved the health condition of the people in the area.

5. Educational Level: Education is an important development characteristic, as it helps in the understanding and interaction of the environment, and a very critical parameter of livelihood framework.

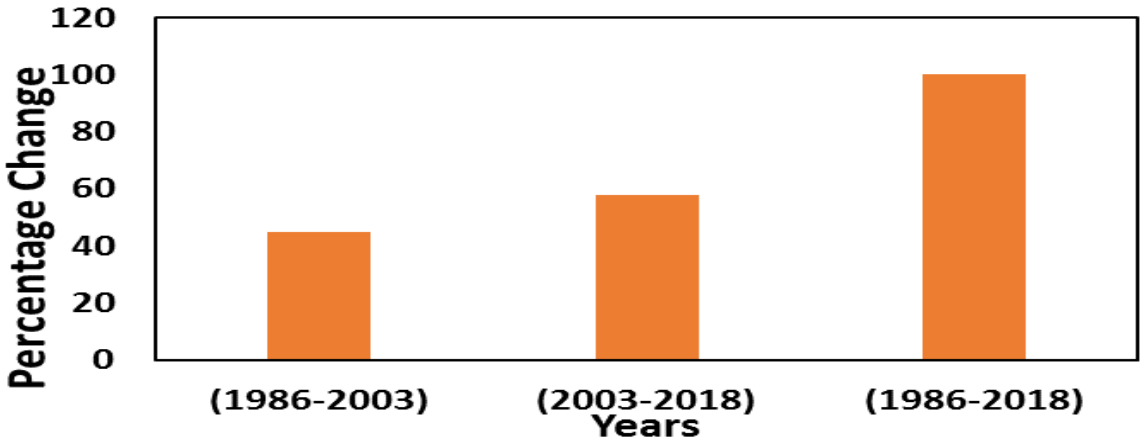

Figure 9:Educational level
Source: Field data (2019)

Figure 9 presents the survey of the literacy level of the people of the study area. The plot shows a 99% increase in the literacy level of the people within the 32 years' study period. This increase can be attributed to the changes in a number of land use drivers such as improved school built up (Table4.1), improved transportation facilities which aids the easy movement to and fro the schools, and expanded housing infrastructures has brought in many non-indigenes to the area whose medium of communication is lingua franca.The evidence of the improved literacy level has manifested in many areas. The people are now well enlightened and informed, they run functional small and medium scale enterprises, use modern facilities such as mobile phones and Automated Teller Machine (ATM). Therefore, these changes in the land use have significantly improved the literacy level of the people.

6. Employment/Income Level: The employment status of the people has increased owing to availability of infrastructures.The development has provided job opportunities in health sector, teachers in schools, and builders in the area. The employment has helped gain income to buy food, pay rents, buy drugs, cloths, and pay fees and transport.Although, the availability of these infrastructures helped create jobs, but the carrying capacity is not enough to sustain the population, as such, making farming as an occupation to be of the increasing side in the area. Also, the availability of forest and large land area for agriculture provided jobs in the sector of agriculture, lumbering and hunting. But with increasing expansion of infrastructures, farm size and forest area have decreased leading to extinction and loss of animals. With this effect, the people took to motorcyclist, artisan, poultry farming, snail rearing, and trading and other small scale businesses to support their means of livelihood in the area. This agrees with the findings of Okon*et al*.,2022 who reported that socio-economic activities have affected most farmers as land fragmentation within the urban land use increases the index of livelihoodvulnerability of people in the suburban area.

7. Communication: Communication a cardinal component of livelihood was also assessed. According to the survey, the increased road networks, the surge in housing, increased industrialization have attracted a large population to the communities. These have attracted communication facilities for mobile telephoning, internet space, radio, satellite television stations. The people of these communities now use mobile phones to communicates effectively with their loved ones within an outside the communities. Such communications bring joy, excitement, satisfaction, fulfilment and hope to the people. Therefore, the changes in land use drivers have enhanced the level of communication of the people and improved their livelihood.

8. Security Level: Security, a state of protection from fear, hostile forces, anxiety and harm, is one of the vital component of livelihood that was considered in this study. The infrastructural expansion has brought many people of differs cultures and religions to the communities. As a result, the crime rate in these areas has increased. Some of the cases include arm-robbery, kidnaping and farmers-herders' clashes. The high level of insecurity is also linked to unemployment as many farm holdings have been taken over by built-up, leaving the poor farmers with no means of livelihood. As a result, the jobless youths alternatively resort to various crimes. Many people now live in fear and are reluctant to go about their daily routines in some cases. They are equally afraid of strolling at night let alone gathering at community squares for folktales which hitherto was an integral part of the people' life. However, the ease of communication and movement have greatly enhanced the fight against these crimes. Security personnel response swiftly to distress call, crimes are reported on both main stream and social media. But generally, the changes in these land use drivers have significantly increased the level of insecurity in the area.

(I) Impact of Land Use Change on Livelihood

Multiple correlation analysis was used to measure the contribution of independents variables LUC1 (1986-2003) and LUC2 (2003-2018) which covers Open water, Swamp forest, Bush fallow, Compound farmland and Built up) acting together in explaining the variation in a single dependent variable Y (livelihood).

Table 2: Correlation summary

Correlations				
		Livelihood	LUC 1 (1986-2003)	LUC 2 (2003-2018)
Pearson Correlation	Livelihood	1.000	.841	-.709
	LUC 1 (1986-2003)	.841	1.000	-.414
	LUC 2 (2003-2018)	-.709	-.414	1.000
Sig. (1-tailed)	Livelihood	.	.037	.090
	LUC 1 (1986-2003)	.037	.	.244
	LUC 2 (2003-2018)	.090	.244	.

Source: Field data (2019)

Table 2presents the correlation between the independent variables (LUC1 and LUC2) on the dependent variable (livelihood). The results show that a strong positive correlation of (0.841) between LUC1 and Livelihood is statistically significant (p =0.037) at 0.05 level of significant. While the correlation between LUC2 and livelihood shows a negative correlation of (0.709) which was statistically insignificant. This means that as land use classes increases, the livelihood of the people also increases.

CONCLUSION

Based on the result obtained and their analyses, it is concluded that the Ikpa basin area has various resources generating attributes, including fertile land and natural vegetation. However, there is land use change in the area owing to population expansion and socio-economic factors to meet people's livelihood needs. Although, improved housing quality, comfortability, ease of movement and other social structure shows positive influence on livelihood over the years in the area, decreased food availability, land fragmentation, and land degradation have impacted negatively on food production, insecurity and to some extent, joblessness. The outcome of the study indicates that the changes are on a faster rate and if the related agencies is not taking advantage of the availability of remote sensing data and GIS technology in understanding land use change and the associated forces in the study area, then the trend is likely to continue. Since the study has provided site-specific land use change information, it can assist planning authorities and decision makers in land use planning and can feed into future scenario modelling and effect policy changes.

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CHAPTER FOURTEEN

SAND MINING AND ENVIRONMENTAL DEGRADATION: TOWARDS INNOVATIVE RESOURCE EXPLOITATION IN AKWA IBOM STATE

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Abstract:
This study examined sand mining and environmental degradation in relation to the utilization of innovative sand exploitation techniques. In an attempt to achieve the objectives of this study, the degree of utilization of innovative sand exploitation techniques, the effects of various sand exploitation methods on the environment, and the difference in environmental degradation of communities in Akwa Ibom State based on sand exploitation methods were assessed. A descriptive survey research design was used for the study.Purposive sampling technique was used to select 5 Local Government Area for the study based on areas endowed with sand resources. A total of 483 households were randomly selected for the study from 25 villages in the 5 Local Government Areas which are Uyo, Ibiono Ibom, Etinan, Abak and Eket. Data for the study was obtained from survey using the questionnaire. A total of 483 copies of questionnaire were administered to the sand miners and households in the sampled villages. The data collected from the respondents were analyzed using frequency and simple percentage. Findings from the study revealed that the degree of utilization of innovative sand mining techniques in Akwa Ibom State is low. This is evident by the fact that sustainable sand exploitation strategies of land restoration and reclamation are not fully implemented in Akwa Ibom State. The result also indicated that mechanical method of sand excavation causes serious environmental degradation like landslides, deforestation, flooding changes in water quality, pollution and destruction of existing roads and ecosystem especially when scientific mining operation guidelines are not followed. The t-test analysis to test the difference in environmental degradation based on the sand exploitation methods indicated that the computed t (20.62) is greater than the critical t-value (1.96), therefore there is a significant difference in environmental degradation of communities in Akwa Ibom State as a result of the use of innovative sand exploitation techniques in some communities. It was concluded that mechanical method of sand mining must be followed by innovative processes of land reclamation after use so as to reduce environmental degradation. It was recommended that Ministry of Environment should monitor mining activities to ensure strict adherence to scientific mining operation for sustainable land use.

Keywords: Sand mining, Environmental Degradation, Innovative, Resource Exploitation.

INTRODUCTION

Sand mining is the process of excavating or digging up of sand from water, shallow sea, in stream or in river bed and even on land surface for different uses. Human exploitation of sand resources is a topical issue recently due to the high rate of the occurrence and the effect on the environment. Overtime natural resources notably solid and non-solid components have supported the realization of various livelihood potentials in temperate and tropical regions. In Sub-Saharan Africa in general and Nigeria in particular, sand aggregate exploitation in subsistence and commercial scales are concentrated in coastal basins (Ladlow, 2015).

Sand resources are mined globally and these have resulted in serious environmental degradation especially in Nigeria and Akwa Ibom State in particular. However, there is a growing concern on environmental degradation occasioned by the exploitation and exhaustibility of sand resources in beaches and fresh water ecosystems lately. Many people have resorted to the trade of sand so as to earn a living. People derive socio-economic livelihoods from sand mining to ensure survival from the natural resources available and accessible to them (Andrea, 2012).

Danigo (2001) observed that every sand mining operation is accompanied with one form of environmental degradation or the other, ranging from underground and surface water pollution to atmospheric pollution, aquatic disturbance, wildlife displacement, destruction of biodiversity and causing quite a number of plants and animals to either extinct or become endangered species as well as the degradation of terrains and topographic displacement of ecosystems and general forms of environmental devastation.

Environment is everything that surrounds us including the pool of resources man uses to satisfy his daily needs. Thus, the need to re-examine the man-earth relationship becomes crucial and the attempt to understand, manage and control as adequately as possible all our environmental resources in order to minimize related environmental hazards of waste and pollution . This will help to reduce the devastating degradation that affect our world negatively. Sand mining is a major cause of environmental degradation. Sand mining can occur in coastal and inland environment. Sand mining is therefore a permanent lowering of some hectares of land into an unproductive portion across the globe especially sand excavation can be done manually or mechanically with the use of machines like dredgers and bulldozers as innovative ways in resource exploitation which also help in land reclamation especially when a bulldozer and other modern equipment are employed. Atejioye and Odeyani (2018) noted that once the overburden has been removed, the sand is excavated and depending on the geological formation, blasting method of excavation may be used to make the sand containing materials more amenable for excavation. Often large-scale excavation involves heavy-duty equipment such as rubber-tyre front end loader excavator or bulldozers.

Globally, innovative resource exploitation methods have been adopted to check environmental degradation due to resource exploitation. Austin (2002) in his assessment of sand mining in Malaysia asserted that no matter the method of sand mining used, man in his persistent effort to satisfy his insatiable demand for sand resource, has mostly exploited the land without regard to feasible consequences, leading to loss of agricultural land and dismantling of natural ecosystems.

In recent years, dredging method is used in sand excavation and it is an innovation in sand mining. Other innovative ideas are mechanical way of sand exploitation, and Satellite Remote Sensing Techniques have been developed, which have proven to be of immense value for preparing accurate land use cover maps and monitoring changes at regular intervals of time. Weng (2002) used the Integration of Remote Sensing (IRS), Geographic Information System (GIS) to detect land use change in the Zhujiang Delta of China and indicated that such integration was an effective approach for analyzing the direction, rate and spatial pattern of land use change. Sand mining is more often than not associated with land use/land cover change as it changes the natural landscape that had existed before excavation of solid minerals including sand. The adoption of innovative sand mining techniques have helped to check incidences of ravaging environmental degradation with application of modern equipment such as tractors, bulldozers, dredgers, to mention but a few. Although these innovative techniques have dealt more serious blows on the environment than it was anticipated when the land was not reclaimed after use. However, unlike the outdated diving or digging methods of strip mining that usually leave numerous open pits that eventually causes severe degradation and coastal/bank erosion in the water and gully erosion, deforestation and landslides on land. The obvious advantage of innovative sand mining technique is the ability to excavate the land/water evenly and also has the potentials to refill the areas where sand had been excavated, by moving sand and other debris from nearby environment to ensure that no open pit is left unfilled.

It is necessary to adopt innovative ways in sand extraction to ensure sustainability. Innovation is defined as making something new. Therefore, innovative sand mining involves the use of improved technology, machines and new methods in sand extraction to reduce the negative effect. Besides, minimization of the negative effects of sand-and-gravel mining requires innovative ideas and adhering to the government rules and regulations, made to guide the various activities of sand excavation in Nigeria. Nurhasan and Saputra (2018) described mining as a process of extraction of valuable minerals or other geological materials from the earth, usually form an ore body, vein, seam, reef or placer deposit. These deposits form mineral resources which are of economic importance to man. The Environmental Conservation Department (2000) highlighted three methods of sand mining as mechanical, hydraulic dredging and manual methods.

According to Environmental Conservation Department (2000), sustainable sand mining involves bar skimming or scraping of top portion of the bar deposits as far as river sand mining is concerned. Sustainable sand mining on land involves reclamation of the land after mining activities. Wet pit mining in the river which involves mining below the water level of a perennial channel for a long period will result in coastal/bank erosion as the river flows over the river bank. Scientific sand mining of considering duration, quantity and sediment replenishment capacity for large rivers should be considered. Abdulazeez (2019) noted that unscientific mining has caused degradation of land, accompanied by subsistence and consequential mine fires and disturbance of the water table leading to topographic disorder, severe ecological imbalance and damage to land use patterns in an around mining regions.

Mechanical method involving the use of bulldozers and dredgers in sand excavation, instead of using shovel and bucket which was a traditional method, has a negative impact on the environment. This method in sand mining has caused degradation of farmlands, coastal erosion and flooding, open pits and landslides in most areas where sand mining occurs. Attah (2014) reported on the study of the effect of sand dredging activities on agricultural land in Agrarian communities of Ogun State, Nigeria. The study revealed that dredging of sand near agricultural lands has affected the livelihood activities of the rural people in Nigeria. Dredging on farmlands and fallowed agricultural lands has impacted negatively on soil structure, aquatic lives, widening river depth/width, vegetation, thus causing environmental degradation UNEP (2022) maintained that excessive in stream mining lowers the stream bottom, which may lead to bank erosion. Removing sand from riverbeds and coastlines can also threaten biodiversity by destroying nesting and breeding habitats and reducing protection of some aquatic and terrestrial plants and animals. According to the Indian Ministry of Environment (2016), sand mining will have little or no negative impact on the environment if sand is excavated from a large river or stream than on a smaller river or stream. Excavation of sand above the water table causes less changes to the water than extracting of sand below the deepest part of the water channel.

Sand exploitation has been going on for sometimes now in Akwa Ibom State. People seem to be excavating sand without considering the effects on the environment. Innovative resource exploitation methods and regulations are not taken into consideration in terms of regulations on land use and reclamation after use and the innovative ways of managing environmental degradation. The study seeks to assess sand mining and environmental degradation towards innovativere resource exploitation in Akwa Ibom State.

Consequently, the aim of the study was to assess sand mining and environmental degradation towards innovative resource exploitation in Akwa Ibom State. The objectives of the study were specifically to examine the difference in environmental degradation of communities in Akwa Ibom State based on sand exploitation methods; to determine the effects of various sand exploitation methods on the environment and to assess the degree of utilization of innovative sand exploitation techniques

The Study Area

This study was carried out in Akwa Ibom State and the area was carefully chosen because the numerous sand mining activities and the associated land degradation doting the area. Akwa Ibom State was created on 23rd September, 1987 from former Cross River State and it is made up of three geo-political zone (senatorial district) which are North-East Geopolitical Zone (Uyo Senatorial District) North-West Geopolitical Zone (Ikot Ekpene Senatorial District) and South-West Geopolitical Zone (Eket Senatorial District). There are 31 Local Government Area in Akwa Ibom State with Uyo as the State Capital. These include Itu, Uruan, Etinan, Uyo, Eket and Abak. Uyo Senatorial District has 9 Local Government Areas, Eket Senatorial District has 12 Local Government Areas, Ikot Ekpene Senatorial District has 10 Local Government Areas. Akwa Ibom State is located in the South-South region of Nigeria. It is one of the third generation States and oil producing state blessed with abundant of natural resources like crude oil, gravel, granite and sand resources, and oil palm trees.

Akwa Ibom State has a population of 3,920,208 persons (NPC, 2006). Akwa Ibom State is located in the Niger Delta region of Nigeria with a total landmass of 6,900 square kilometres. Lying between latitude 4°55'E and 5°55'N of the equator and between longitudes 7°52'E and 8°54'E of the greenwich meridian. Akwa Ibom State is bounded on the North by Abia State and on the South by the Bight of Biafra and Atlantic Ocean. On the East by the Cross River State and on the West by Abia State

and Rivers State respectively. The State falls under tropical rain forest and has the third largest wetlands in the world. The occupations of the people are mainly farming, trading, fishing and mining.

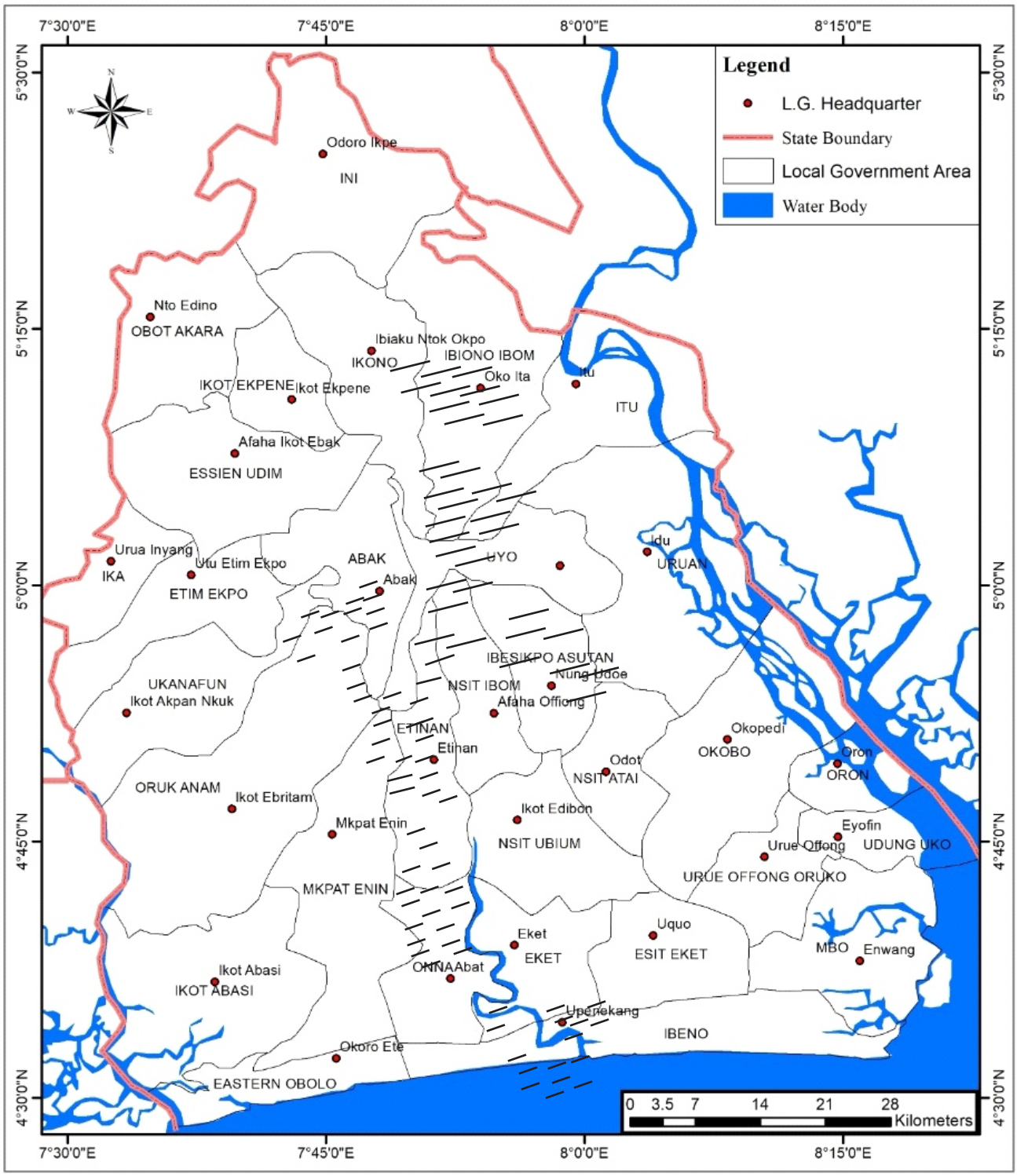

Figure 2.0 Map of Akwa Ibom State showing sampled Local Government Areas under study

MATERIALS AND METHODS

The research design for this study is descriptive survey design. The research focuses on exploitation of natural resources-basically sand, whose consistent exploitation has led to environmental degradation especially with lack of innovative resource exploitation. The data was obtained through a survey to show the methods/technology adopted in sand mining and effects within the study area. A questionnaire was used to obtain data for the study. The population of the study comprised 928,284 households in 20664 villages in the 31 Local Government in Akwa Ibom State. Purposive Sampling Technique (PST) was adopted to select 5 Local Government Area for the study based on areas with sand resources and where sand exploitation occurs. The systematic random sampling technique was used in selecting 483 households drawn from 5 Local Government Area of Akwa Ibom chosen for the study. 25 villages in all were purposely selected for the study from Ibiono Ibom, Uyo, Etinan, Abak, Eket Local Government Areas.

Table 3:2 Sampling Frame for the Study

S/N	LGA	Sampled Villages	2023 Projected Population	2023 Projected number of Households	Sampled number of Households
1	Abak	ItungAbak	1529	218	3
2	Abak	Ibagwa	2152	307	4
3	Abak	AbakUsungIdim	1402	200	3
4	Abak	EdemIdim Manta	32705	4672	47
5	Abak	Ata Ediene	7046	1006	11
6	Eket	AfahaAtai	23456	3350	35
7	Eket	Ikot Use Ekong	12246	1750	18
8	Eket	AfahaEket	9199	1171	13
9	Eket	Ikot Abasi	4276	610	7
10	Eket	IkotEb1ok	13299	1899	19
11	Etinan	IkotEbiyak	7814	1114	12
12	Etinan	IkotEkang	9254	1322	14
13	Etinan	NdonUtim	14526	2075	22
14	Etinan	EkpeneUkpa	25250	3607	36
15	Etinan	NkanaIman	12450	1778	19
16	Uyo	EkpriNsukara	22468	3209	32
17	Uyo	IkotAyan	4214	602	7
18	Uyo	IkotNtuen	6622	946	10
19	Uyo	IkotOkoidio	12356	1765	18
20	Uyo	MbakEtoi	32900	4700	47
21	IbionoIbom	Aka Ididep	25227	3603	36
22	IbionoIbom	OkpotoIdidep	8420	1202	13
23	IbionoIbom	AfahaObioEno	17920	2560	26
24	IbionoIbom	Mbiabam	21559	3079	31
25	IbionoIbom	AfahaNsai	35227	5032	50
Total	**5**	**25**	**363,517**	**51777**	**533**

Source: Researcher's Field Work (2023)

Data for this study was obtained from survey using the questionnaire as the instrument for data collection. The questionnaire sought information from households and sand miners in sand mining areas in Akwa Ibom State on sand mining and environmental degradation towards innovative resource exploitation. Descriptive and inferential statistics involving percentage and independent t-test were used for analysis. The effects of manual, mechanical and dredging methods on inland and stream mining was determined by simple percentage. Independent t-test was used to find the difference in environmental degradation based on mining methods.

Results and Discussion

Table 4.1: Independent t -test Analysis Showing the Difference in Environmental Degradation of Communities in Akwa Ibom State based on Sand Exploitation Methods

(N = 480)

Agreement of respondents on environmental degradation	N	$\bar{x}$	SD	t-cal	t-crit	Decision
Mechanical method	220	27.5	2.52			
				20.62	1.96	Significant
Manual method	260	22.7	2.56			

*Significant at 0.05 alpha level, df = 478

Table 4.2: Simple Percentage Showing the Effects of Various Sand Exploitation Methods on the Environment in Akwa Ibom State

S/N	Items	Agree		Disagree	
		Frequency	Percentage	Frequency	Percentage
1.	Sand mining results in deforestation	238	49.6%	242	50.4%
2.	It changes the landscape of an area	271	56%	209	44%
3.	It causes flooding	204	43%	276	57%
4.	It leads to destruction of existing roads	219	46%	261	54%
5.	Sand exploitation induced bed degradation	252	53%	228	47%
6.	Sand mining causes reduction of the water quality	265	55%	215	45%
7.	Sand exploitation causes air and noise pollution	249	52%	231	48%
8.	Sand mining destroys flora and fauna in rivers	213	44%	267	56%

Table 4.3: Simple Percentage Showing Degree of Utilization of Innovative Sand Exploitation Techniques in Akwa Ibom State

S/N	Items	Agree		Disagree	
		Frequency	Percentage	Frequency	Percentage
	In my community:				
1.	Sand exploitation is done on land by bulldozers	218	45%	262	55%
2.	Dredgers are used mechanically on land and in water	208	43%	272	57%
3.	People exploit sand using shovel and bucket	380	79%	100	21%
4.	Tractors and tippers are used but excavation is with shovels	480	100%	0	0
5.	Deep dredged pits are filled after mining with sediments (reclamation)	122	25%	358	75%
6.	Streams are allowed to recover by cessation of mining activities for a certain period of time	185	38.5%	295	61.5%
7.	Dredgers are used to scrap the top portion of the bar deposits	128	27%	352	73%
8.	Trucks and tippers carrying sand always cover the sand resources with tarpaulin to reduce air pollution	208	43%	272	57%

The study discovered that there is significant difference in environmental degradation of communities in Akwa Ibom State based on sand exploitation methods. This conclusion was based on the t-test analysis. The calculated t (20.62) was greater than the critical t value of 1.96 at df of 478 and 0.05 level of significance under two tailed test.

Analysis also showed that communities that are using both mechanical and manual methods agreed mostly on all the effects of sand exploitation on the environment. Communities with strip sand mining method mostly disagreed on the following: deforestation 50%, flooding (57%), destruction of roads (54%), destruction of flora and fauna (56%) while communities with mechanical methods mostly agreed on those areas.

The result of findings on the degree of utilization of innovative sand exploitation techniques in Akwa Ibom State based on data analysis revealed that 218 (45%) respondents agreed that in their communities, sand exploitation is done on land using bulldozers. On the other hand, 262 (55%) respondents were of the view that sand exploitation is done manually using shovels. All the respondents agreed that mostly shovel is used in sand mining although tractors and tippers are used for the supplies. 208 respondents (43%) agreed on the use of dredger in their communities while 272 (57%) disagreed meaning strip mining of sand is applicable. The result indicated that the degree of utilization of innovative sand mining techniques is low in Akwa Ibom State. It is also revealed that sustainable strategies for land reclamation are not implemented as only 25% (122 respondents) agreed that deep dredged pits are filled after sand mining.

Plate 4.1: Mechanical Excavation of Sand at Ikot Ayan, Uyo

Plate 4.2: A Gully Erosion Site at Okpoto Ididep, Ibiono Ibom

Plate 4.3: A Land Reclamation Site at Ntuen Offot, Uyo

SUMMARY OF FINDINGS

Findings in Table 4.1 revealed that there is a significant difference in environmental degradation of communities in Akwa Ibom State based on sand exploitation methods. Communities with mechanical methods that do not adopt sustainable mining policies experience flooding, coastal and river erosion, landslides, bad roads and gully erosion because innovative sand mining policies are not used. Communities with only strip sand mining are affected differently especially in the areas of bed degradation, gully erosion and reduction of water quality. Danigo (2001) observed that every mining operation is accompanied by one form of environmental degradation or the other. Every community in Akwa Ibom State is affected differently based on sand exploitation method adopted and level of compliance to the innovative sand mining policies.

Findings from Table 4.2 revealed that mechanical sand exploitation method causes severe threat to the environment if not properly managed by the ministry of Environment. The serious damages arising from mechanical sand exploitation methods include deforestation, landslides, flooding, widening of the river banks, air and dust pollution and coastal and river erosion. Also, the destruction of existing roads due to tippers and truck driving operations. Innovative sand mining for sustainable development should be strictly adhered to by sand miners. Policies of land reclamation after use, covering the tipper after loading, mining on large river or stream should be adopted. These ways will help to reduce environmental degradation.

Table 4.3 revealed that there is a low degree of utilization of innovative sand exploitation techniques in Akwa Ibom State. Most communities are still using strip mining methods in sand excavation. Government has not effectively monitored the implementation of policies on sustainable resource exploitation in Akwa Ibom State. The Ministry of Environment through Environmental Impact Assessment and other agencies has not been able to effectively supervise illegal sand exploitation to ensure that: sands are not mined from smaller streams, sand mining is only done on the top layer of the water table, the streams

are allowed to recover by ceasation of mining activities for a certain period of time, and above all deep dredged pits are filled after mining with sediments from top soil of another location. Findings also revealed that there is a high degree of strip sand mining in Akwa Ibom State. Abdulazeez (2019), observed that unscientific sand mining has caused degradation of land, accompanied by the disturbance of the water table leading to topographic disorder and damage to land use.

CONCLUSION AND RECOMMENDATIONS

Based on the findings from the study, innovative sand exploitation techniques are not utilized at a high degree in some communities as most communities are still using strip sand mining method. The extraction of sand from seas, rivers, beaches and quarries has an impact on the environment and its surrounding communities especially when sand mining is done in a very large scale using mechanical equipment like excavator, bulldozer, or hydraulic dredger. The increasing demand for sand resources has resulted in the increase in the volume of sand aggregate mined in Akwa Ibom State. Construction industries are using mechanical method to exploit sand resources resulting in environmental degradation that is characterized by bed degradation, landslides, flooding, pollution, destruction of roads and coastal and river erosion. Strip mining is commonly used in Akwa Ibom State and has also impacted negatively on the environment causing bed degradation of streams, changes in the landscape of an area, changes in the colour and quality of water and gully erosion.

It was concluded that mechanical method of sand exploitation although it causes environmental degradation is the best and innovative way for sustainable sand mining especially when government policies on land reclamation and restoration are followed. This scientific approach in sand mining gives room for the refilling of the sand pits with earth sediments using heavy duty equipment which is impossible when strip mining method is used. Therefore, there is a significant difference in environmental degradation of communities in Akwa Ibom State. Communities where sand resources are exploited mechanically without innovative management systems to restore the land after mining operations suffer a significant damage on the environment.

The following recommendations were made based on the findings from the study:

(1) Sand mining should be done in a way that limits environmental damage during exploitation and restores the land after mining operation
(2) Sand excavation should be done only in the large rivers or streams and the excavation of sand should be carried out above the water table.
(3) Government should create effective policies and guidelines for sustainable extraction of sand from river and land and also check and prosecute illegal sand miners.
(4) Government should encourage scientific research on the discovery of innovative solutions that will be a sustainable substitute for sand resources in the construction of roads and buildings using recycled plastic, wood and earth to produce an alternative to sand resources.
(5) Ministry of environment to monitor strict adherence to government policies and regulations on scientific sand mining for sustainable land tenure maintenance.
(6) Government should make policy to check continuous dredging and encourage uniform dredging over the entire width of the river.

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CHAPTER FIFTEEN

BIODIVERSITY MANAGEMENT AND CONSERVATION OF OBOT NDOM FOREST RESERVE, INI LOCAL GOVERNMENT AREA OF AKWA IBOM STATE, NIGERIA

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Abstract:
The conservation of Obot Ndom was studied with the understanding that the biodiversity of forest reserve can be threatened by the communities living around. Hence the composition of the reserve for both plants and mammals was conducted using transects survey, nine plots with measurement of 25m^2 for each was carried out. Also, to determine the threats to the forest biodiversity, the activities that can constitute threats, were examined using structured questionnaire, interview and observation methods. A total of 96 respondents were drawn from households of the three families who donated the land for the reserve. The respondents from the community were purposively selected from amongst village head, youth leader, farmers, hunters, chiefs, forest guards and others that are direct custodians of the forest reserve. However, those selected were not below the age of 31 years. Data were collected based on the threats to biodiversity, composition of the reserve and socio-demographic of the people. Data were analysed using descriptive statistics. The major plant and animal composition and the threats identified during the study were expressed using tables. It is recommended that because of the serious degradation of the reserve indigenous trees should be planted to regenerate the reserve. Findings revealed that there are still more than 60 different species of plants and 18 species of mammals that can be found in the reserve. Also, farming among others constitute a major threat to the reserve. It is recommended that the conservation of the reserve be intensified to save what is left of it from further degradation.

INTRODUCTION

Biodiversity is the greatest treasure given to mankind (Sido-Holm 2021). The most unique feature of the earth is the existence of life and the most extraordinary feature of life is in its diversity According to Hamilton (2005), biodiversity diversity is a widely used term in ecological and natural resources management. The Convention on Biological Diversity (CBD)(1992), defined biodiversity as the variability among living organisms from all sources including inter alia, terrestrial, marine and other aquatic eco-systems and the ecological complexes of which they are part, these include diversity within species, between species and ecosystems. This is perhaps the most acceptable definition for biodiversity and it is contained in the CBD of the United Nations Convention on Biodiversity (Gaston and Spicer, 2004).

More than half of the biodiversity habitable surface of the earth has been significantly

affected by human activity. Human activities have greatly reduced the biological diversity of the world in various ways: Habitat lost by altering land for agriculture, grazing livestock, draining wetland, dredging rivers, deforestation, air pollution, soil and water pollution through indiscriminate use of chemical compounds such as herbicides, pesticides and insecticides have greatly affected biodiversity (Ejeta and Bekele, 2017). Nigeria is blessed with rich ecological potentials necessary for human development and transformation but presently threatened with decline in quality and quantity at an alarming rate due to over exploitation and misuse. Biodiversity is seriously under the threat of extinction from climate change, economic development, land use changes for agriculture, invasive species, pollution,deforestation, hunting, road and residential constructions, (Anwadike, 2020). Furthermore, Jacob *et al* (2013) opined that there is a prediction that an unbated continuation of the tropical forest destruction will result in the loss of about three-quarter of original forest cover by the turn of the next century.

Habitat destruction also termed habitat loss and habitat reduction is the process by which a natural habitat becomes incapable of supporting its native species. The biodiversity that previously inhabited the site are displaced or dead thereby reducing species abundance. Habitat destruction is the predominant factor leading to biodiversity loss in the anthropocene (Chase *et al,* 2020). According to Ukpong (2020), habitat destruction occurs when there is increased encroachment into wild areas by human activities in the form of road construction and extraction of resources. Despite the enormous value and benefits from biodiversity, the threats to species and the ecosystems are increasing at an alarming rate and almost all threats are as a result of the mismanagement of the ecological biodiversity by human beings. As human population increases so does the pressure on the ecosystems.

Various concerns are raised by environmental advocates and agencies with regards to the threats posed on many of the world's ecosystems. According to the International Union for the Conservation of Nature (IUCN, 2021) there are more than 134,400 species on the IUCN Red List with more than 37,000 species threatened with extinction including 41% amphibians, 34% of conifer, 33% of reef building corals, 26% of animals and 14% of birds. Many biologists think we are currently going through the 6th mass extinction in history. The decline of biodiversity is one of the most urgent problems facing humanity (IUCN, 2021).

Global targets have been set by the Convention on Biological Diversity (CBD) to significantly reduce the current pace of biodiversity loss (Goethem and Zanden, 2021). The United Nations Development Programmes (UNDP), United Nations Environmental Programme (UNEP), Global Environmental Facility (GEF) and Biodiversity Support Programme (BPSP), to mention but a few, have a mandate to provide assistance to nations on biodiversity planning as they develop and implement their national strategies, plans programmes and policies (Diaz, 2002).

Hope for halting and reversing the ongoing global biodiversity crisis is largely pinned on protected areas (Cazalis*et*al 2020). Forest reserve is defined as any geographical space that is recognised as protected area, dedicated and managed to achieve long term conservation of nature, they are expected to buffer ecosystem and species population against some of the most destructive impacts of human activities, particularly those of habitat loss or degradation and over-exploitation of wildlife. Forest Reserve refers to forest that has been accorded a certain level of protection against unauthorised usage by individuals and group of people. Such reserves are usually protected under the laws of the particular country where they are located. In the colonial days many parts of Nigeria were protected and designated as forest reserves. Also, before the coming of the colonial masters, indigenous people had areas that were preserved and protected (Imasuen*et al 2013)*.Forest reserves have numerous advantages ranging from economic to ecological in various areas of the globe. Recently, there have been increased anthropogenic activities in the forest reserves for subsistence, commercial and ecological purposes (Ngwembe*et al,* 2022). Among the protected areas created and gazetted in Nigeria is the Forest Reserve Obot Ndom.

Akwa Ibom State belongs to the tropical rainforest and its original form is made up of forests that are rich in floristic composition ranging from trees, shrubs, climbers and herbs. This gives rise to stratification of the forest, whereby plant lifeforms are arranged in layers. The stratification includes the upper layer, the middle layer and the understorey (Etuk*et al*, 2020). Adewumi*et al*, (2022) found 17 mammal species in Ini Local Government Area. However, most of the forests have been replaced by secondary forests due to the human interference The biodiversity of both flora and fauna are very important for human wellbeing especially in the rural communities and needs to be sustainably conserved for optimum production. Hence, the study examined the distribution and threats to Obot Ndom Forest Reserve. The main objective of the study was to e**xamine thedistribution of biodiversitycommonlyencountered in the study area and to assess the threats to biodiversity in the areawith the view of sustainable management and conservation.**

Biodiversity distribution is constantly changing over different scales due to the different scales turnover of biological units across all spatial and temporal scales The distribution of biodiversity in noy uniform throughout the world but shows a rather uneven distribution throughoutthe world, so that species diversity decreases as we move away from the equator (Gizachew,2021), Akwa Ibom State where Obot Ndom Forest Reserve is located, around the equator, it is a hotspot rich in both plants and animals distributed across the reserve.

Poverty remains a big threat to biodiversity conservation in the rural communities of Nigerians who reside in the rural communities which habour a large chunk of its biodiversityareextremely poor,biodiversity becomes their resort. Nigeria has a high population of poor people, the official poverty rate stood at 10.5%, estimated 87 million people living on less than $1.90 a day (Imarhiagbe and Egboduku, 2019; Ukpong, 2020). It may be difficult for the rural poor to explore alternatives livelihood therefore, in order to ensure proper conservation of biodiversity in the reserve, the level of poverty needs to be addressed, even in the rural communities.

Population is recognised as an indirect driver of biodiversity loss, human demands for food, fresh watermedicine among others. Growing population is a major challenge to biodiversity conservation. People utilise biodiversity to take care of their basic needs and desire, as population increases, demand and exploitation of biodiversity also increase. It is becoming difficult to maintain a balance and proper use of biodiversity with growing population (Nelson *et al.,* 2021).

Illegal wildlife trade is one of the key threats to global biodiversity loss and it belongs to the categories of transnational crime posing a security challenge to law enforcement authorities globally. Trade in wildlife parts and products are mainly determined by market demand and utilisation in pharmaceuticals, foods, pets, clothing, trophies, bracelets, religious amulets and traditional chieftaincy regalia (Omifolaji and Luan, 2020). Nigeria is not only a source of wildlife products but also a major transit country for wildlife shipment. For example, the January 2021 seizure at the Apapa Port by the Nigeria Customs Service of 20 feet container containing the remains of various endangered species (Okorondu, 202l). The value of international trade on wildlife resources such as pangolin scales and elephant tusk have resulted in the increase of the list of wildlife species that are threatened with extinction from the unsustainable trade and overexploitation (Omifolaji and Luan, 2020; Okorondu, 2021).

The overexploitation of biodiversity is a common trend in Nigeria including Akwa Ibom State, as a result of poverty, poor pricing of biodiversity resources, unlimited access to biological resources, regarded communal resources, illegal wildlife poaching and trade, also the failures of government intervention programmes. Nowadays, fruits such as pear, mango, and oranges are sold wholesale on the trees to buyers who harvest them in an unsustainable manner (Phil-Eze,20).

As far back as 18th century many naturalists including Charles Dawns and Augustin Decandolie observed the phenomenon of non-native species. These were defined as species outside of their bioregion which can possibly threaten native ones. The father of Invasion Biology, Charles Elton defined biological invasion as ecological explosions meaning the enormous increase in number of some organisms in newly invaded ranges (Gentili, *et al*, 2021). A combination of colonial rule, rapid economic development and increasing global trade exchanges across continents and boarders have had a key role in human mediated movement of species and have led to the subsequent establishment of non-native species in new regions outside their natural range (Gentili *et al.,* 2021). Invasive species have attracted much attention because of their economic costs and because they may reduce native biodiversity. Invasive plant is said to have threatened the effectiveness of agricultural and natural systems throughout the world, because a small fraction of introduced species becomes invasive. The impacts of invasive species depend on their biological attributes, the environmental characteristics of invaded ecosystem and the biotic interactions with the receptive community (Ogbemudia, *et al.,* 2015).

One of the most commonly known causes of agricultural growth in developing countries in the last few decades is the increasing demand for food, fuel, fibre induced by growth in the size of human population (Perring and Halkos, 2015; Dudley and Alexander, 2017). More mouths to feed, means more people to farm and more land to cultivate. Specifically, where traditional land tenure and resources access regimes prevail and where credit markets are poorly developed, increasing demand for food can only be met by land clearing. Agricultural expansion at the expense of the species habitat has been an essential human survival strategy. Moreover, majority of the rural poor in developing nations still make a living from the exploitation of biodiversity mostly in agricultural systems (Perring and Halkos, (2015).

Study Area;

The research was carried out in Obot Ndom Forest Reserve which has an area of 2.59km^2, gazetted along with Stubbs Creek and OguItu forest reserves,situatedin the tropical rain forest of Ini Local Government Area, Akwa Ibom State (Nelson *et al* 2018). The Local Government Area lies between latitudes 5°20'and 5°31'and longitude 7°38'and 7°53'E (Adewumi*et al* 2022)-. It isboundedby Ikono, ObotAkara Local Government Areas and Arochukwu in Abia State (Akwa Ibom State Government,2012).The topography of the land is flat and undulating with some areas having very high altitudes. The mean annual temperature of the area is between 20°C and 29°C. The study area is characterised by two seasons, rainy season and dry season. The rainy season starts from February to March and lasts till the middle of November. The period marked by the little dry season and occurring four weeks in August, sometimes referred to as August Break. The dry season is always occurring between the month of November to the month of February. Annual rainfall ranges from 2000mm -3000mm. The people of Ini are predominantly peasant and cash crop farmers. The major crops produced are cocoa, rice,oil palm, cassava, cocoyam, plantain and banana (Tiku and Odo, 2012).

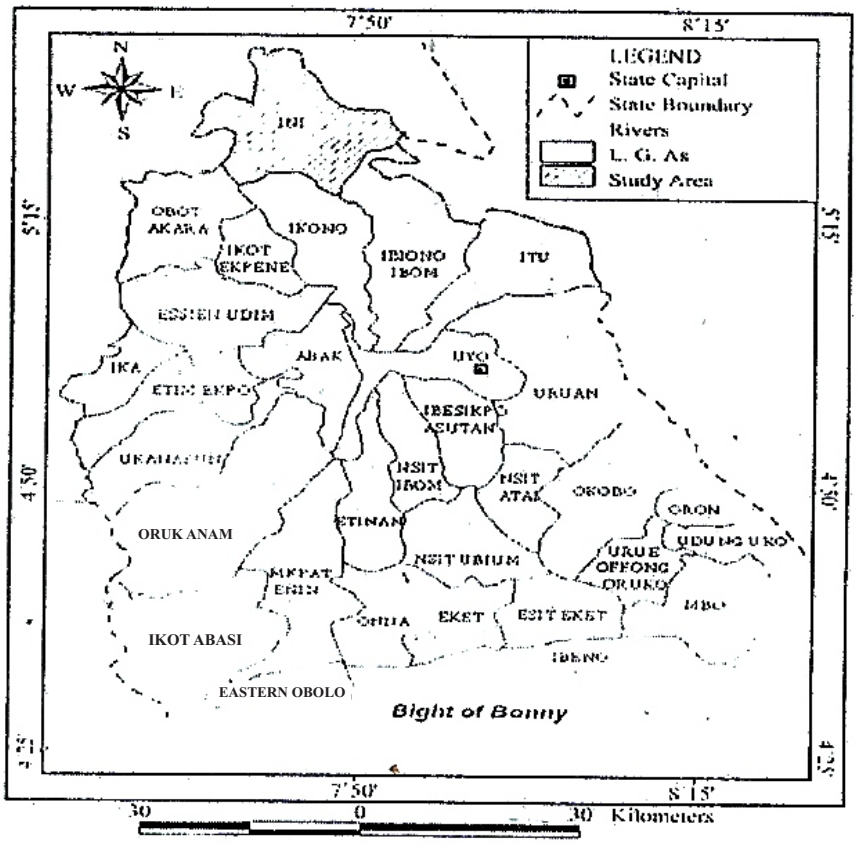

Figure 1 Map of Akwa Ibom state showing the study area. Source: Office of Surveyor-General, Akwa Ibom State.

MATERIALS AND METHODS

Multi-stage sampling procedure was employed for this study. First stage, Obot Ndom Forest Reserve was purposively chosen from among the three forest reserves in Akwa Ibom State (1st Stage), Stage two was the use of snowballing method to select 96 respondents from the three major families that make up Obot Ndom Community. Preference was given to the village head, youth leader, farmers, hunters, fuelwood gatherers, medicinal, non-timber gatherers and forest guards from the Forestry Division of the Ministry of Environment Akwa Ibom State and structured questionnaire was administered to the 96 respondents to gather information.Also, for the distribution of both flora and fauna, transect survey of 45m^2 was laid parallel to the forest entrance and five quadrats measuring 25m^{2}was located on the transects. The data was analysed using descriptive statistics.

RESULTS AND DISCUSSION

Diversity and the distribution of plants in Obot Ndom Forest Reserve: The diversity and distribution of plants species play an important role in the function and delivery of the ecosystem services. Table 1 revealed the different plants species that were identified during the study.

Table 1; Major Plants Identified in Obot Ndom Forest Reserve

S/No.	Botanical Name	Vernacular Name	English Name	Species Structure
1.	*Allanblackia floribunda*	UdiaEbiong		Tree
2.	*Brachystegiaeurycoma*	Okung	Achi	Tree
3.	*Tectornagrandis*		Teak	Tree
4.	*Coelocaryonpreussi*	Uno Idim	-	Tree
5.	*Sacoglottisgabonensis*	Edat	-	Tree
6.	*Pentaclethramacrophylla*	Ukana	African oil bean	Tree
7.	*Diplanziumsammantii*	NyamaIdim		Ferm
8.	*Naucleadiderrichii*	Opepe	African peach	Tree
9.	*Napolionavangelii*	EtoNduoduoho		Shrub
10.	*Cola millenil*	EkpamfetEkpo		Shrub
11.	*Bambusavulgans*	Nyayaha	Forest bamboo	Shrub
12.	*Costusafer*	Mbritem	Bush cane	Shrub
13.	*Voacanyaafricana*	Mmongeba	Milk tree	Shrub
14.	*Anthonotamacrophylla*	Nya		Tree
15.	*Milletiathonongii*	Isara		Shrub
16.	*Macarangabarteri*	Akpap	African thorn tree	Tree
17.	*Maesobotryabarteri*	Nyatet	Squirrel cherry	Tree
18.	*Alchorneacordifolia*	Mbom	Christmas bush	Shrub
19.	*Balphianitida*	Afuo	Canewood	Shrub
20.	*Monodoramyristica*	Enwun	African nutmeg	Tree

21.	*Coulaedulis*	Ekom	African walnut	Tree
22.	*Boerhaviaerecta*	Okponkoron	Hogweed	Shrub
23.	*Monodoraspp*	Enwun	Afrciannutgmeg	Tree
24.	*Xylopiaaethiopica*	Ata	Guinea pepper	Tree
25.	*Lonchocarpusgriffoneanus*	Ududu		Shrub
26.	*Anthocleistadjalonensi*	Ibu		Shrub
27.	*laporteaestuans*	Ntan	Stinging flower	Shrub
28.	*Musangacecropioides*	Uno	Corkwood/ umbrella tree	Tree
29.	*Imperatacylindricum*	Nsai	Spear grass	Grass
30.	*Daclyladeniabarteri*	Ukan	Monkey fruit	Shrub
31.	*Cola argentea*	Ndiya		Tree
32.	*Dracaena arborea*	Okono	Dragon tree	Tree
33.	*Voacanga Africana*	Mmongebaebot	Milk bush	Shrub
34.	*Emilia coccinea*	Utimense	Tassel flower	Shrub
35.	*Albizziaenglis*	Ubam		Tree
36.	*Theobroma cacao*	Coco	Cocoa	Tree
37.	*Cyrtospermasenegalense*	Nyorotong		Shrub
38.	*Brachystegiaspp*	Ukpaototong		Tree
39.	*Icacinatrichantha*	EfikIsong	false yam	Shrub
40.	*Maniophytonfulvum*	Ekonikon	Grasso nut	Shrub
41.	*Eliaesisguineesis*	Eyop	Palm tree	Tree
42.	*Invingiagabonensis*	Uyo	Bush mango	Tree
43.	*Microdesmispuberula*	Ntabit		Shrub
44.	*Ficulisexasperater*	Ukuok	Sand paper tree	Tree

45.	*Combretumracemosum*	Asaka		Tree
46.	*Carpobolialutea*	Ikpafin	Cattle stick	Shrub
47.	*Gnetum Africana*	Afang	African salad	Climber
48.	*Discoreabulbifera*	Edomo	Aerial yam	Climber
49.	*Pterocarpusspp*	Mkpa		Tree
50.	*Cola millenil*	Ekpamfetekpo		Shrub
51.	*Dacryodesedulis*	Eben	pear	Tree
52.	*Mucunaurens*	Ibaba	velvet bean	Climber
53.	*Sacoglottisgabonensis*	Edat		
54.	*Tetrapleuratetraptera*	Uyayak		Climber
55.	*Discoreaestuans*	Edomo	Aerial yam	Climber
56.	*Uapacaspp*	Nkpenek		Tree
57.	*Homalimracemosum*	OfongIdim		Tree
58.	*Mammea Africana*	Edeng		Tree
59.	*Blighiasapida*	Oto		Tree
60.	*Gongronemalatifolium*	Otasi		Climber
61.	*Treculia Africana*	Adian	African breadfruit	Tree
62.	*PhylanthusAmarus*	Oyomokisoa mankedem	Woman egg	Shrub
63.	*Pileamuscoss*	Nditop	Artillery plant	Climber
64.	*Ptercocarpussantalinoides*	mkpatInyang	water side canewood	Tree
65.	*Bryophllumpinnatum*	Ndodop	Life plant	Shrub
66.	*Thaumatococcusdaniellii*	Nkongaya	Wrapping leave	Shrub
67.	*Caladium bicolor*	Ikponekpo	Elephant ears	Shrub

Source: Field Survey, 2023

The plants identified to be the dominant floral species in the reserve, closely followed by25 shrubs, seven climbers among others Etukudo (2000) and Etuk (2020) work were used to reconcile the local names of plants with their botanical names. It was observed during the study, that the sizes of trees were not merchandisable because their girths of the trees were small. The reserve though highly depleted but can still be considered as hotspot for biodiversity.

The animal species that are still encountered by the hunters in the study area: Table 2 shows the major animals that were identified in Obot Ndom Forest Reserve, ranging from small to big animals.

Table 2: Major Animals Identifiedin the Reserve

S/No.	Botanical Name	English Name	Vernacular Name
1.	*Thronomysswinderianus*	Grass-cutter	Ine
2.	*Civettictiscivetta*	African civet	EbuaIkot
3.	*Crossarchusobscurus*	Dwarf Mongoose	Nkukwa
4.	*Hippotragusequilinus*	Antelope	Edop
5.	*Atherurusafricanus*	Porcupine	Ebiong
6.	*Funiscillrus spp.*	Squirrel	Adua
7.	*Potamochoerusporcus*	Bush pig	Edi ikot
8.	*Galagoidesdemidovii*	Dwarf galago	Nte-eboh
9.	*Hyemoschusaquaticus*	Chevrotain	Esoh
10.	*Tragelaphus scriptus*	Bush buck	Okoyo
11.	*Cricetomysgambianus*	Rabbit	Oyot
12.	*Philantombamontiola*	Blue duiker	Aso
13.	*Genettapeonsis*	King genet	Atan
14.	*Cercopitheusspp*	Putty nose monkey	ebok
15.	*Ceropithecusmona*	Mona monkey	ebok
16.	*Synceruscaffer*	Buffalo	Mporo
17.	*Rattusrattus*	Rat	Ekpu
18.	*Potamochoerus*	Bush pig	Edi ikot

Table 3 indicates the names of mammals that were in existence in the forest but have long ceased to be seen for over 30 years.

Table 3: Extinct animals

S/No.	Botanical Name	English Name	Vernacular Name
1.	*Cervidae spp.*	Deer	
2.	*Loxodonta Africana*	Elephant	Enin
3.	*Giraffaperalta*	Giraffe	
4.	*Macropus spp.*	Kangaroo	
5.	*Panthera pardus*	Leopard	
6.	*Pantheraleo*	Lion	Ekpe
7.	*Pan troglodytes*	Chimpanzee	Idiok

The data as indicated in table 3 and 4 show 18 animals that are still available and seven that have become extinct. The data were obtained from hunters, observations of footprints and dungs produced by the animals. Except for the discovery of the existence of buffalo, the finding is similar to Adewumi*et al* (2022) who reported 17 mammal species and the disappearance of some species in Ini Local Government Area.

Fig. 2: Bridge that links the community to the reserve.

Fig. 3: Swampy Area in the reserve.

Fig. 5: The farming in the Heart of the Reserve

Fig. 6: Bush Pig killed by one of the Hunters.

The pictures show the various points within the catchment of the reserve, some of the activities are responsible for the degradation of the forest.

Threats to Biodiversity Conservation: The gender of the respondents was predominately male, as males are majorly the custodian of forests, 92% of the respondents were male while 8% were female. The age distribution of the respondents reveals that the respondents between the ages of 41-50 accounted for the largest (50%), next to this category are those between the ages of 31-40 years, 51 and above 32% and 18% respectively. This is an indication that the activities in the forest are mostly done by the people within the age grade of 41-50 years.Individual highest level of education attained to some degree determines the kind of socio-economic activities someone can engage in (Aderibige and Gbadamosi, 2018). The study revealed that those with tertiary education accounted for the least percentage of the respondents with 4%, while those with secondary education were next 32%. About 39% and 25% of the respondents had primary education and non-formal educationrespectively. According to Suleman and Wasonga (2021), opined that the more educated a person is the more likely to support biodiversity conservation. Occupational activity in the study area is very important as this determines the activities and threats to biodiversity in the community of study. The major occupation of the respondents is farming, 64% of the respondents are farmers, whose activities contribute to the degradation of the reserve, closely followed by traders 26%, 7% and 3% of the respondents are hunters and unemployed respectively.

Table 3 indicates the threats to biodiversity which are a common phenomenon in the rural areas because the people depend on forest to meet their essential needs.

Table 3: Threats to Biodiversity

Threats to Biodiversity	Respondents	Percentage
Agricultural land for cultivation	46	48%
Over exploitation	10	10%
Fuelwood gathering	7	7%
Wildlife hunting	5	5%
Invasive species	2	3%
Logging in the forest	8	8%
Population Increase	3	3%
Climate Change	1	1%
Poverty	8	8%
Medicinal/non-timber plants collection	6	6%
Total	96	100%

Source: Field Survey 2023

The Table 3 shows information gathered from the respondents concerning the threats to biodiversity in the reserve. Agricultural land for cultivation is a major threat to the forest biodiversity conservation. This is in line with the study done by Adewumi*et al* (2022) whose investigation revealed that the people in the study area are predominantly farmers. Moreover, it can be seen from the table that over exploitation, wildlife hunting, logging, fuelwood gathering and poverty are the major threats to biodiversity conservation in the reserve. People also depend on medicinal plants to take care of their medical issues. These activities constitute threats to biodiversity conservation and need to be addressed to save the reserve from further degradation.

CONCLUSION AND RECOMMENDATIONS

Generally, it is a fact that forest reserves play role important in the conservation of biodiversity, protected areas globally are the cornerstone for biodiversity conservation. But in Nigeria and particularly in Akwa Ibom State conservation approachesare weak and limited. However, because of the composition and distribution ofplants and animals that still exist in the reserve, the reserve needs urgent and proper conservation policies and implementation strategies to save what is left of the reserve.The various threats to the existence of the reserveneed to be addressed, all the stakeholders, ranging from the state government to the non-governmental organization and people in the community should project a novel method that will help in managing and conserving the reserve. The degraded parts of the reserve should be regenerated by planting indigenous trees.

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CHAPTER SIXTEEN

THE USE OF RECOMMENDER SYSTEMS AS AN INNOVATIVE APPROACH TO SUSTAINABLE EDUCATIONAL DEVELOPMENT IN AKWA IBOM STATE

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Abstract:
Following secondary school, prospective university candidates select their degree programs based on their parents' wishes or courses chosen for them by their parents. Some opt for courses under peer pressure or to align with their friends' choices. Others simply pick a random course due to the unavailability of their preferred program at nearby universities. This research paper centered on a machine-learning solution to address these issues. Specifically, this study concentrated on utilizing the Recommendation system as an innovative approach to tackle this Educational Management problem in Nigeria. The Recommender system aims to recommend or suggest the students' preferred degree programs. Data encompassing various features were collected from undergraduates at different higher institutions in Nigeria. A Collaborative-based filtering approach was employed to develop a Recommender system that recommends a degree program for students seeking admission into a university. The model, once implemented, can be deployed as a web-based application. Furthermore, this research can facilitate the Joint Admission and Matriculation Board and higher education institutions in Nigeria in providing degree program recommendations as feedback to students seeking University admission.
Keywords: Recommender Engines, Recommender Systems, Collaborative based filtering.

INTRODUCTION

The process of selecting a degree program in Nigeria is often influenced by external factors, rather than the student's interests or aspirations. Students may find themselves choosing fields of study based on peer pressure, parental influence, family socioeconomic background, or the lack of access to their preferred program in nearby universities (Alshaikh et al.,2021).Consequently, this decision can lead to a significant misalignment between the student's genuine interests and their chosen course of study. This misalignment, in turn, can have a profound impact on their motivation, academic performance, and overall satisfaction with their educational journeyThe consequences of selecting an inappropriate degree program can extend far beyond the initial decision. Students who are not passionate about their chosen field often struggle to maintain motivation. This lack of enthusiasm can result in poor academic performance, impacting their grades and potentially delaying their graduation. Moreover, the overall quality of their educational experience may be compromised, as they are unlikely to find satisfaction in studying a subject, they lack interest in.(Alshaikh et al, 2021; Wiswall & Zafar, 2014).

In recent years, recommendation systems have emerged as a promising technological solution to this issue. Recommendation systems, which analyze user behavior and provide personalized suggestions, have been widely adopted in various fields, from e-commerce to entertainment. In the realm of education, these systems can play a crucial role in guiding students to make informed decisions about their degree program selection. By harnessing data-driven algorithms, these systems aim to empower students with tailored recommendations that align with their preferences and career aspirations. (Afoudi et al., 2021). Recommendation systems operate based on three primary approaches: collaborative filtering, content-

based filtering, and hybrid systems. Collaborative filtering relies on user behavior and preferences, while content-based filtering analyzes the characteristics of items to make recommendations. Hybrid systems combine elements of both methods to provide more accurate and diverse suggestions. These approaches can be adapted to the education sector to offer personalized guidance to students. (Yassine et al., 2021; Riyahi, &Sohrabi, 2020; Khan et al.,2020).

In an educational context, recommendation systems can take into account several key factors when providing suggestions to students.(Alqahtani, & Rajpoot,2021). These factors include the student's interests, learning style, career goals, and academic performance. By considering these elements, recommendation systems can propose degree programs that match student's passions, cater to their preferred learning styles, align with their career ambitions, and suit their academic abilities.

The integration of recommendation systems in education offers a range of benefits.(Wang et al., 2018). Firstly, it provides students with personalized guidance, ensuring that their chosen degree programs are in harmony with their interests and long-term objectives. This personalization also extends to improving learning outcomes and engagement, as students are more likely to excel in programs that align with their learning styles and preferences. Furthermore, it facilitates increased access to a diverse array of educational resources and degree programs, making it easier for students to explore their options. It can also lead to time and cost savings by reducing the likelihood of students switching majors during their academic journey. Finally, pursuing a degree program in line with one's career goals can significantly enhance job prospects and career satisfaction for graduates. The integration of recommendation systems in the Nigerian education system holds the potential to revolutionize the way students choose their degree programs. By combining technology, data analysis, and personalized guidance, this innovative approach aims to empower students to make more informed and fulfilling educational choices. It is a step towards reducing the mismatch between student interests and degree programs, thus enhancing academic success, career prospects, and overall satisfaction in the educational journey.(Khan, et al 2020).

This personalized approach to education has the potential, to improve learning outcomes and make education more accessible to a larger population. This research seeks to utilize a recommendation system as an innovative approach to guide students in making more informed decisions concerning their university degree program selection. The current educational management system in Nigeria faces a significant problem where students often choose degree programs based on external influences rather than their interests and aspirations. This results in a mismatch between students' preferences and their chosen courses, leading to lower motivation, academic performance, and overall satisfaction. To address this issue, this research paper proposes the use of a Recommender System based on Collaborative Filtering. By gathering data from undergraduates in Nigerian universities and leveraging data-driven algorithms, the Recommender Engine aims to provide personalized recommendations for degree programs to students seeking admission. Implementing such a system can empower students to make informed decisions aligned with their interests, improve the admission process, and enhance educational outcomes in Nigeria This paper focuses on developing a collaborative filtering-based recommender system that utilizes data collected from undergraduates in different universities in Nigeria. The proposed solution is relevant in Nigeria, where University admission processes are centralized through the Joint Admissions and Matriculation Board (JAMB). The recommender systems if adopted, would provide degree program recommendations as feedback to students seeking admission into the university. This feedback would enable students to make informed decisions regarding their preferred degree programs leading to increased satisfaction and better academic performance.

Related Work

Several studies have explored the use of machine learning algorithms to address educational management problems. In particular, recent works have focused on the development of recommender systems for personalized education. For instance, in a study byLiu et al. (2021), a hybrid recommender was proposed for online course recommendations based on both content-based and collaborative filtering techniques. In a study by Chen et al. (2020), a deep-learning-based recommender system was proposed for personalized course recommendations in higher education. A study by Wang et al. (2019), investigated the use of recommender systems for online education, which was found to improve students' engagement and satisfaction. Another study bySingh et al. (2020), explored the use of hybrid recommendation systems for

personalized learning, which was found to improve students' performance and reduce dropout rates.

In Nigeria, there has been limited research on the use of recommendation systems in education. However, a study by Akinbobola et al. (2019),examined the use of a collaborative filtering algorithm to recommend e-learning resources to students in a Nigerian university. The study found the algorithm was effective in improving student satisfaction and engagement.

From the review of related works on recommendation systems, it is observed that there has not been much research work on using recommendation systems' collaborative filtering to recommend students' preferred degree programs in Nigeria. Therefore, the purpose of this study is the use recommendation systems as an innovative means for personalized degree program recommendations to students seeking university admissions in Nigeria.

METHODOLOGY

Data gathering: This proposed solution involves the collection of data from undergraduates in different higher institutions of learning across Nigerian universities. This data encompasses various features, including students' preferences, academic performance, career aspirations, and demographic information. Leveraging a collaborative filtering approach, we aim to design a recommended system that considers the preferences and characteristics of similar students to generate personalized recommendations for degree programs using the Scikit Learn library in Python programming language.

Collaborative Filtering: Collaborative filtering leverages the power of the community to provide recommendations. Collaborative filters are one of the most popular recommender models used in the industry and have found huge success for companies like Amazon. Collaborative filtering recommends new items to users based on their interests and the preferences of other similar users. (Rounak, 2018; Agrawal,2021)Collaborative filtering is employed in this research as a method to predict and recommend courses based on the interests and academic profiles of users. The fundamental concept behind collaborative filtering as used in this research is that if an aspirant A shares similar academic attributes with an undergraduate B, it is more likely that aspirant A will choose the same course as undergraduate B.

The rationale for Collaborative Filtering: The utilization of collaborative filtering in this study allows for a comparison and matching process between academic and demographic details of JAMB aspirant and their undergraduate counterparts. By Identifying the undergraduate with the most similar profile to an aspirant, it becomes reasonable to recommend the program the undergraduate is studying. This recommendation system is based on the assumption that if an undergraduate with a highly similar profile was able to successfully navigate through JAMB, post UTME, secure admission, and pursue that particular course, the same outcome is feasible for the aspirant.

The methodology involves matching and comparing the details of an aspirant wi th the details provided by the undergraduate who filled out our form. The undergraduate details are treated as a vector with a dimension of $(M \times N)$ where M represents the number of respondents to the form and N is the number of features that will guide our recommendations. For instance, the vector in the example below has a dimension of (4×11), where 4 is the number of undergraduates who filled the form and 11 is the number of features.

Mathematics	English Language	Chemistry	Biology	Physics	jamb_mathematics	jamb_english	jamb_chemistry	jamb_biology	jamb_physics	course
4.0	4.0	3.0	5.0	4.0	71	65	81	0.0	79	Mechanical Engineering
3.0	3.0	3.0	3.0	2.0	48	64	50	0.0	52	Library science and information technology
2.0	2.0	1.0	2.0	2.0	60	72	65	0.0	72	Physics Education
2.0	3.0	3.0	1.0	2.0	50	70	58	0.0	53	Computer science

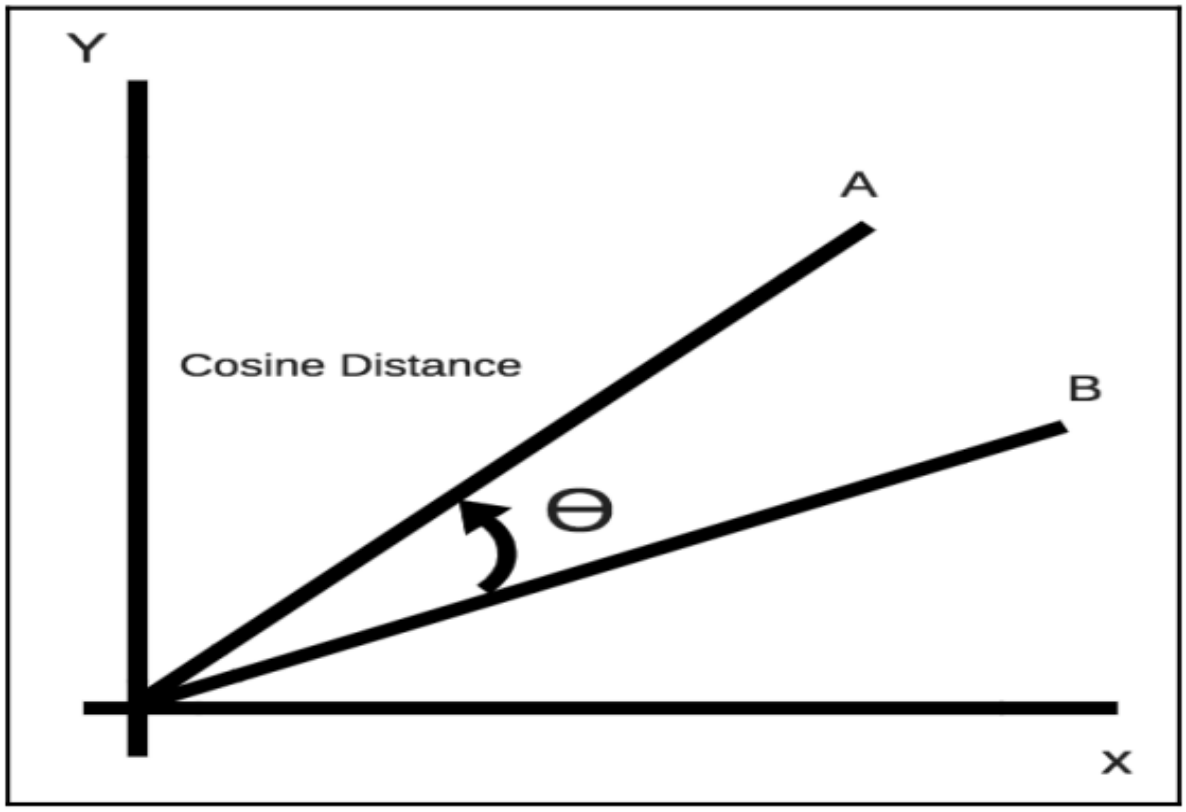
Figure I

We then collect the details of an aspirant we wish to recommend and treat it as a vector of dimension (1 x 10). The aspirant's dimension is $(N-1)$ because it excludes the course feature since this is what we are recommending. This is illustrated with the following table:

Mathematics	English Language	Chemistry	Biology	Physics	jamb_mathematics	jamb_english	jamb_chemistry	jamb_biology	jamb_physics
1.0	4.0	3.0	3.0	4.0	79	64	74	0.0	68

Figure II

Cosine Similarity : The co sine similarity score computes the cosine of the angle between two vectors in an n -dimensional space. When the cosine is 1 or very close to 1, the vectors are exactly similar. On the other hand, a cosine score of -1 denotes that the two vectors are exactl y dissimilar to each other.



Mathematically, the cosine similarity is defined as follows:

$$cosine(x, y) = \frac{x.y^T}{||x||.||y||}$$

Computing the similarity between the aspirant and every undergraduate we obtained the following results:

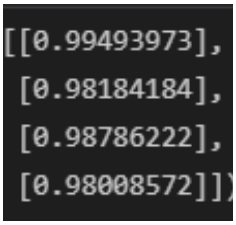


Figure III

DISCUSSION OF FINDINGS

In Figure III, we present the cosine similarity scores of the undergraduates as a basis for our recommendation system. The cosine similarity scores serve as a quantitative measure of similarity between the aspirant and each undergraduate's profile. A higher similarity score indicates a stronger resemblance in academic preferences and interests. Upon a closer examination of the scores, it becomes evident that the entry in the first row holds the highest cosine similarity score in comparison to the other undergraduates. This finding suggests that the undergraduate student pursuing Mechanical Engineering exhibits the greatest degree of similarity to the aspirant in question.The significance of this high cosine similarity score cannot be understated. It points to a substantial alignment between the academic preferences and interests of the aspiring student and the undergraduate Mechanical Engineering student. This alignment may be indicative of a shared interest in course content, career prospects, or other factors that influence the choice of major. As a result, Mechanical Engineering emerges as the most promising and suitable degree program to recommend to the aspirant based on this similarity assessment.

Moreover, it is important to acknowledge that the recommendation process is not solely based on similarity scores. While a high cosine similarity score suggests alignment, other factors can come into play when recommending a degree program. These additional factors might include the aspirant's personal goals, academic performance, and specific career aspirations, all of which should be taken into account when making a comprehensive recommendation. To further enhance the robustness of the recommendation system, one could consider the incorporation of more extensive data sources and attributes. For instance, by integrating data on the aspirant's past academic achievements, extracurricular activities, and preferences, the recommendation system can generate even more precise and personalized suggestions. Additionally, feedback from students who have previously received recommendations can be valuable in refining the system over time.

In conclusion, the results of our analysis, as represented by the cosine similarity scores, indicate that the undergraduate student majoring in Mechanical Engineering bears the closest resemblance to the aspirant in terms of academic preferences. This observation underscores the potential suitability of Mechanical Engineering as a recommended degree program for the aspiring student. However, it is imperative to recognize that the recommendation process is multi-faceted, incorporating additional factors beyond similarity scores to ensure a well-rounded and personalized degree program suggestion. The integration of more extensive data sources and feedback mechanisms can further enhance the robustness and effectiveness of the recommendation system, ultimately assisting students in making informed and fulfilling academic choices.

CONCLUSION

This study was on the use of recommender systems to help university admission seekers in Nigeria make informed decisions regarding their course of study. The use of recommender systems as an innovative approach to sustainable development in Nigeria has the potential to address some of the challenges facing the educational sector in Nigeria. The personalized approach to education that recommendation systems provide can improve learning outcomes, and increase student engagement and motivation. This study reviewed in this paper also provides evidence of the effectiveness of recommendation systems in education and suggests that further research is needed to explore their full potential in the Nigerian educational system.

Computing the similarity between the aspirant and every undergraduate we obtained the following results:

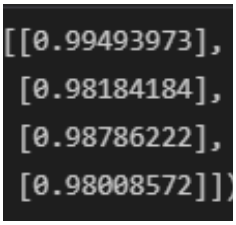


Figure III

DISCUSSION OF FINDINGS

In Figure III, we present the cosine similarity scores of the undergraduates as a basis for our recommendation system. The cosine similarity scores serve as a quantitative measure of similarity between the aspirant and each undergraduate's profile. A higher similarity score indicates a stronger resemblance in academic preferences and interests. Upon a closer examination of the scores, it becomes evident that the entry in the first row holds the highest cosine similarity score in comparison to the other undergraduates. This finding suggests that the undergraduate student pursuing Mechanical Engineering exhibits the greatest degree of similarity to the aspirant in question.The significance of this high cosine similarity score cannot be understated. It points to a substantial alignment between the academic preferences and interests of the aspiring student and the undergraduate Mechanical Engineering student. This alignment may be indicative of a shared interest in course content, career prospects, or other factors that influence the choice of major. As a result, Mechanical Engineering emerges as the most promising and suitable degree program to recommend to the aspirant based on this similarity assessment.

Moreover, it is important to acknowledge that the recommendation process is not solely based on similarity scores. While a high cosine similarity score suggests alignment, other factors can come into play when recommending a degree program. These additional factors might include the aspirant's personal goals, academic performance, and specific career aspirations, all of which should be taken into account when making a comprehensive recommendation. To further enhance the robustness of the recommendation system, one could consider the incorporation of more extensive data sources and attributes. For instance, by integrating data on the aspirant's past academic achievements, extracurricular activities, and preferences, the recommendation system can generate even more precise and personalized suggestions. Additionally, feedback from students who have previously received recommendations can be valuable in refining the system over time.

In conclusion, the results of our analysis, as represented by the cosine similarity scores, indicate that the undergraduate student majoring in Mechanical Engineering bears the closest resemblance to the aspirant in terms of academic preferences. This observation underscores the potential suitability of Mechanical Engineering as a recommended degree program for the aspiring student. However, it is imperative to recognize that the recommendation process is multi-faceted, incorporating additional factors beyond similarity scores to ensure a well-rounded and personalized degree program suggestion. The integration of more extensive data sources and feedback mechanisms can further enhance the robustness and effectiveness of the recommendation system, ultimately assisting students in making informed and fulfilling academic choices.

CONCLUSION

This study was on the use of recommender systems to help university admission seekers in Nigeria make informed decisions regarding their course of study. The use of recommender systems as an innovative approach to sustainable development in Nigeria has the potential to address some of the challenges facing the educational sector in Nigeria. The personalized approach to education that recommendation systems provide can improve learning outcomes, and increase student engagement and motivation. This study reviewed in this paper also provides evidence of the effectiveness of recommendation systems in education and suggests that further research is needed to explore their full potential in the Nigerian educational system.

RECOMMENDATIONS

Based on this research, the following recommendations were made:

1. Implementation of a Web-Based Recommender Application: The proposed Recommender Engine should be developed into a user-friendly web-based application. This would make it easily accessible to students seeking admission into universities in Nigeria, allowing them to input their preferences and receive personalized degree program recommendations. The application should be designed to provide clear and concise recommendations, taking into account factors such as academic performance, career aspirations, and demographic information.

2. Collaboration with Educational Institutions and JAMB: To ensure the widespread adoption and effectiveness of the Recommender Engine, collaboration with educational institutions and the Joint Admission and Matriculation Board (JAMB) is crucial. Cooperation with universities would facilitate the collection of comprehensive and up-to-date data from undergraduates, improving the accuracy of the recommendations. Additionally, working closely with JAMB would enable the integration of the Recommender Engine into the centralized admission process, providing degree program recommendations as feedback to students during the application and admission stages.

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CHAPTER SEVENTEEN

THE MEDIA AND INNOVATIVE MANAGEMENT SYSTEMS FOR SUSTAINABLE DEVELOPMENT IN THE 21ST CENTURY

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Abstract:
The goal of this paper was to examine the extent to which the media can contribute to innovative management systems for sustainable development in the 21st century. The paper explains three ways in which the mass media can be of help to an organization. It also pinpoints the extent to which unethical media practices have hindered innovations and progress in organizations.
Keywords: The media, innovative management systems, sustainable development, 21st century.

INTRODUCTION

Every human organization, be it social, political or economic is set up for the purpose of achieving a certain goal or objective (Udoh, 2019), and the media must be appreciated for the changes (and or innovations) they have brought to bear in human organizations in the 21st century. These changes are not limited to the sciences and technologies alone, they include management.

As these waves of changes blow, the media is looked upon for new ideas to incorporate them with the older ones to put the management on the right footing. The roles of the media in the above endeavour need not to be overemphasized.

Organizations grow because of new ideas garnered by its management. And new ideas or innovations are brought to the knowledge of the management of an organization, through research and the media which include print and electronics. The print media include books, magazines, newspapers and journals, while the electronic media include television, radio and the internet. Therefore, the role of the media here is that of education. Those in the management cadre of the organization are informed through the media (books, magazines, newspapers, journals, films and the internet) about current issues that could help shape their thinking and upgrade their skills in the organization, thereby enhancing new innovations and productivity in the organization.

The media are the most important channels for the propagation of new management skills, ideas, culture and options. Most opinions, especially on management, are formed when people read or listen to managerial opinions on radio or television or read from the papers. The media can influence those in management to a large extent, creating awareness of new innovations (Hasan, 2013).

Innovative Management System: Innovative Management System is simply a guiding framework for all types of organizations that want to strategically strengthen their capacities and/or innovation capabilities. Innovation is imperative for organizations because they must imbibe new skills to enhance their productivities or output and also expand. For many organizations, especially business organizations, innovation, which is threshold competence or gray area skills, are vital for successes (Etokebe, 2012). For an organization to develop it is to be inserted with innovation. Innovation in the organization's management requires that the organization develops the ability to think beyond its own boundaries and limitations.

Mass Media: Mass media are the vehicles through which messages or information get to a larger audience. Mass media comprises of the television, radio, newspapers, magazines and the internet. Mass media is subdivided into two: the print media and the electronic media.

Sustainable Development: This is simply a positive development that endures and gives impetus for further development. Sustainable development has been defined in many ways, but the most frequently quoted definition is from "Our Common Future", also known as the Brundtland Report, which states that "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

The Roles of the Mass Media in an Organizaiton: Generally, the role played by the mass media in every facet of the society cannot be underrated. The mass media educate, inform, mobilize and entertain. In terms of education role of the mass media, Thompson and Umoh (2001) assert that;

> *The first information experience the public ever has on any proposed government programme is through the mass media… Government usually organized and holds (sic) press conferences with mass media personnel who in turn disseminates same to the public through news stories.*

The public relies on the news media as the main source of information and the basis on which they form their opinions. The mass media also mobilize the population and constantly make the people to be aware of the happenings in their environments. They also mobilized the public towards government programmes, through serialized feature stories in newspapers, opinion articles in newspapers and magazines, internet or radio and television programmes and live shows.

The information role of the mass media includes news reports in newspapers, radio, television, internet etc, public announcement in both electronic and print, and most recently the introduction of social media (the internet). The mass media survey and report the performances and activities of those in authority and indicate flaws in their policies and progranmes.

The Mass Media and Organization: X-raying the Role of the Media in Innovative Management: Besides the primary roles of the mass media as mentioned above, the mass media, and other forms of communication technology, also have enormous influence in how organizations are run around the world, by helping to shape opinions and underlying sentiment that could slow the pace of productivities in organizations. Newspapers, TV and radio are all important sources of basic information about other places and organizations, and this can itself help to engender understanding if presented in a fair, even-handled and non-inflammatory way.

The media is also an important accountability mechanism; it raises important issues that might otherwise never be publicly debated or addressed in an organization. The internet has radically changed the way in which people communicate and connect with each other in an organization – the boss/subordinate relations is enhanced for good delivery, especially if such relationship is handled well.

The media can have innovative roles in breaking down conflict within an organization. Other media initiatives have been successful at increasing the inclusion of previously marginalized staff/people in an organization by providing them with a means of expressing their views. Positive results have also emanated from the creation of channels through which older, familiar binary disputes can be broken down and re-imagined in ways that highlight common interests that transcend warring boundaries.

The media also makes specialized communication to organizations (depending on the goals of such organizations) in order to bring about a desired behavioural change among staff for efficient productivities. The mass media act as watchdogs for both the society and the management of an organization. According to Hasan (2013) surveillance in this regard involves seeking out and then transmitting information about the society and all other relevant elements in order to help both the society and organization to attain sustainable development in the 21st century. The mass media serve as the eyes and ears of the management of an organization.

The mass media informs an organization about an emerging innovation that could help such organization to achieve much in this 21st century. Apart from informing, the mass media also educate an organization on how best to adapt or apply the new skills/innovation. Organizations are made up of people who perform specialized functions that result in the production of goods and services geared towards the accomplishment of the organizational objectives/goals (Udoh, 2019). By this, a wide range of resources are used; for example human resources material, plants, machines, technology, money etc. Therefore, it becomes necessary that the officers (management) who are charged with the responsibilities of giving effective and efficient use of the above resources must be kept abreast with the current innovations and skills and must also keep a complete, accurate and up-to-date record of facts, events and activities of the organization. These can never be possible if the mass media do not rise to the occasion. It is the media that inform the

officers (management) of an organization about the current state of things vis-à-vis managerial skills, ideas and innovations.

An organization and its management team require the input of the mass media for three basic purposes:

i. References

ii. Awareness

iii. Advancement

i. References: An organization uses the knowledge it acquired from the press as a reference point. Knowledge acquired from mass media sources serve as a pointer and educate.

ii. Awareness: In terms of awareness, knowledge gotten from the media creates awareness as to what had happened, what is happening, and what is going to happen. It leads to proper understanding of issues involved. Awareness will make it possible for the management to be well informed of what to do to protect and or defend himself or the organization on a given matter.

iii. Advancement: accumulation of knowledge through the mass media helps an organization and its management team, whether public or private, to make precise calculations of what information is to be used in relation to the subject matter or to advance the organization and enhance efficient productivity. Discoveries are tools for advancement which help an organization to gain control of its environment. At this juncture, it is pertinent to submit that media practitioners are people who bring about changes, newest discoveries and ideas into the modern world.

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Unethical Media and their Effect on Management and Development in the 21st Century: Playing a great role in the paradox of development are the mass media. There is a complex but demanding relationship between the media and the social system in relation to organization and its management. Thus, the mass media must not only lie open the available options or ideas for an organization to adopt or choose from, but must do so in accordance with the ethics and principles of media practice. Media ethics revolve around truthfulness, accuracy, objectivity, impartiality, decency and maintenance of editorial independence by media practitioners in the course of media practice.

Judicious and or religious adherence to the media ethics confers credibility to a media organization and the media at this point would have achieved their gate-keeping and correctional roles. Unethical media practices complicate or even destroy an organization and by extension, the socio-political and socio-economic systems of the society which also affect the organization and its management, thereby hampering its progress and innovations.

Unethical media practitioners are those who allowed themselves to be induced and turned to tools of destruction. This set of media practitioners churn out "information" that destroy an organization. They receive money for hatchet jobs against the management and the entire organization by enemies of the organization.

CONCLUSION

The mass media have a role to play in an organization. They keep the management abreast of happenings around that affect the organization and the society at large. The mass media educate the management and pinpoint various innovative strategies to them that, if adopted, could move the organization to a greater height.

However, unethical media practices destroy an organization and hinder productivities and innovations. Thus, the goal of this paper was to show the roles that the mass media can play to enhance innovative management systems in the 21st century. The paper has succeeded in doing so, and has pointed out the negative effects of unethical media practices for an organization.

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CHAPTER EIGHTEEN

IMPACT OF EDUCATION, HEALTH EXPENDITURE ON ECONOMIC GROWTH AND DEVELOPMENT IN NIGERIA

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Abstract:
The study empirically examined the impact of Education and Health Expenditure on the economic growth and development in Nigeria. Relevant data were sourced from the Central Bank of Nigeria statistical Bulletin. To achieve the objectives of the study, the Johansen co-integration technique, the error correction model for analysis, and the Granger causality technique were employed to test the direction of causality between the dependent and the independent variables. The Johansen co-integration results disclosed that the estimated coefficients of education and health expenditures have a long-run significant impact on economic growth in Nigeria. The error correction model result indicated that while health expenditure has a positive significant effect on economic growth, education expenditure has an insignificant impact on economic growth in Nigeria within the period under study. Also, the causality test posit a unidirectional causality as it runs from education Expenditure to economic growth, and from health expenditure to economic growth. This study therefore recommends the need to sustain economic growth in Nigeria through increase budgetary allocation to education and health sector to boost human capital skills needed to drive knowledge-based economy. Also, government will need to establish special agencies with the responsibility of improving the skills and capabilities of human capital development across all educational levels of the federation in order to sustain growth in the long run.
Keywords: Education & Health, Economic Growth & Development, Nigeria

INTRODUCTION

Economic growth is attained through the productive use of all resources, including labor, this result in greater per capita income and improvement in people's average standard of living (World bank, 2004). It has also been argued that meaningful human development depends on policy choices including access to income and employment opportunities, educational and health care services as well as clean and safe physical environment. Human capital theory suggests that the society and individuals derives economic benefits from investments in people (Oluwatobi and Ogunrinola, 2011). Education and health play a central role in economic development (Dauda, 2004). They play a central role in development process. No country has successfully achieved continuous growth without significant investment in human capital (Adelowokan, 2012). The effect of government expenditure spending on human capital development is still an unsolved issue both empirically and theoretically. Quite recently the wealth of a nation is now being measured in terms of human capital and not the stock of physical capital only, as an independent factor of production required to accomplish high and sustainable labor productivity.

Economic development theorists, especially the neo-classicalist are of the opinion the development in human resources generally has a significant impact on economic growth and development. They opined that the quality and quantity of labor determine production (Okoro 2015). Welfare, being an important indicator for growth and development as given by the Human Development Index (HDI) has identified education and health as one of its measures. Education, good health and longevity are also fundamental inputs for productivity assistance affordable for all the population of countries. Stagnation has been noticed in many developing countries both in health and education expenditure per capita and economic development, Doucouliagos (1997) has noted human capital as a source to motivate workers, boost up their commitment and create expenditure in research and development (R&D) and eventually pave way for the generation of new knowledge for the economy and society at large.

Despite the seemingly low percentage which the health and education sectors are allocated annually, large sums of money for spending are still made available for these sectors. Yet the results shown have been quite disappointing. Nigeria, acknowledged as the most populous country in African is blessed with vast human material resources. Yet, poverty as at 2010 was given to be approximately 69.1% (Nasiru and Usman 2012) while the human poverty index stood at 46.0%). Similarly, approximately 64.4% of Nigerians live below income poverty line of U.S$1.25 a day. Similarly, Menizibeya(2011) labeled Nigeria as one of the most poverty entrapped economies in the world with poor human welfare status. These results thus show that the growth in social expenditure is yet to be reflected on citizen's welfare. Menizibeya (2018) retreated in his work as read in (Menixibeya 2011) that in 2010, out of the approximately 163 million Nigerians, 53.8% constitute economic active group compared to an average annual increase from 52.2% in 1980-2001 to 53.7% in 2001-2018. This statistics indicates that the evidence of the deplorable state of Health and Education is made known with poor and degenerated educational facilities, low ranking, mass graduation with low prerequisite skill, incessant strikes, and brain drains, poor medical service and facility, high infant mortality, low life expectancy and the increased rate of travelling for better medical service. This situation now calls to question the government position in making these all important sectors the pivotal for economic growth and development in the country and this can be done by considering the government's contribution to input and not just the outputs measured in terms of life expectancy and literacy rates and their contribution to growth.

The main objective of the paper is to examine the impact of government education and health expenditure on economic growth in Nigeria. The specific objectives include:

i. To determine the impact of government health expenditure on Gross Domestic product in Nigeria
ii. To examine the impact of government education expenditure on Gross Domestic Product in Nigeria
iii. To investigate the causal relationship existing between health expenditure and Gross Domestic Product in Nigeria
iv. To investigate the causal relationship existing between education expenditure and Gross Domestic Product in Nigeria

Concept of Public Expenditure: Public expenditure consists of expenditure by central government, state governments and local authorities (such as municipalities and public corporations), with central government accounting for the major portion of such expenditure. The government is required to maintain good roads, bridges, defense activities, canals and harbors, to protect trade, to maintain the coinage and to provide social security, education and religious instruction. There are different classifications of government expenditure. There is consumption expenditure and investment expenditure. Government investment expenditures are government capital expenditure made to obtain capital goods such as expenditure on defense, education, health, transportation 9road, railways and airports). Government consumption expenditures are mostly expenditure on recurrent activities and services; that is, expenditure made to meet up with the day to day running of government business.

Government expenditure is also classified as capital expenditure and recurrent expenditure. Government capital expenditure is the money spend on goods that are classified as investment goods. This means spending on things that last for a period of time. This may include investment in schools, hospitals, power sector, telecommunication and road construction. Capital expenditure is the part of the government spending that goes into the creation of assets like schools, colleges, hospitals, roads, bridges, dams, railway lines, airport and seaports. Capital expenditure also covers the acquisition of equipment and machinery by the government, including those for defense purpose. Capital expenditure also includes investment by the government that yields profits or dividend in future. On the other hand, government recurrent expenditure refers to a type of spending that does not result in acquiring fixed assets in a country or business. They are all the regular payments and expenses used to maintain and run a country. It also refers to all fees, exclusive of capital forms of payment. Included in government recurrent expenditure are salaries and wages, employee allowances, operational cost like water bills, electricity, accommodation, travelling, telephone, cost of maintaining equipment, and installation and funds used in covering costs of compulsory obligations.

Public Recurrent Expenditure on Health and Education: This include all payments other than for capital assets to the education and health sectors. These include wages and salaries, employer contributions, interest payments.

Capital Expenditure on Health and Education: These are government payments for acquisition of fixed capital assets, stock, land or intangible assets on health care and education. A good example would be building of schools and hospitals. However, it is important to note that much donor-funded "capital" expenditure, through referring to projects, includes spending on non-capital payments.

Economic Growth and Development: Historically, the study of economic growth can be traced back to 1776, when Adam Smith published the wealth of nations. Since then, both classical and neo-classical economists including David Ricardo, Karl Marx, Schumpter and J. M. Keynes have all made outstanding contributions to the study of economic growth. Today, economists and politicians from both rich and poor countries of different ideological shades has shown much interest and attention to the importance of economic growth.

Economic growth and development are sometimes used interchangeably by there is a fundamental distinction between them. Economic growth is defined informs of increase in nations output of goods and services as measured by Gross Domestic Product (GDP). Kuznets (1971) defined a country's economic growth as a "long term rise in capacity to supply increasing diverse economic goods to its population. This growing capacity is based on advancing technology and ideological adjustment that it demands". Economic growth, therefore, encompasses growth, structural and institutional changes and the essential elements that make up life such as education, health, nutrition and a better environment, that is human and development indices. Development, on the other hand, is an important process in every human society and it has remained the goal of every society at all times. Development is growth coupled with social justice.

Human Capital Theory: Human capital theory (Woodhall, 1997; Becker, 1993) rest on the assumption that formal education is highly instrumental and necessary to improve the productive capacity of a population. In short, human capital theorists argue that an educated increases the productive population. Human capital theory emphasizes that education increases the productivity and efficiency of workers by increasing the level of cognitive stock of economically productive human capability, which is a product of innate abilities and investment in human beings. The provision of formal education is seen as an investment in human capital, which proponents of the theory have considered as equally or even more worthwhile than that of physical capital (Woodhall, 1997). Human capital theory concludes that investment in human capital will lead to greater economic output.

Theories of Economic Growth

The Classical Approach : Adam Smith laid emphasis on increasing returns from investment as a source of economic growth. He focused on foreign trade to widen the market and raise productivity of trading countries. Trade enables a country to buy goods from abroad at a lower cost as compared to which they can produce in the home country. In modern growth theory, Lucas has strongly emphasized the role of increasing returns through direct foreign investment which encourages learning by doing through knowledge capital.

The Neoclassical Approach: The neoclassical approach to economic growth has been divided into two sections; the first section is the competitive model of Walrasian equilibrium where markets play a very crucial role in allocation the resources effectively. To secure the optimal allocation of inputs and outputs, markets for labor, finance and capital have been used. This type of competitive paradigm was used by Solow to develop a growth model. The second section of the neoclassical mode assumes that technology is given. Solow used the interpretation that technology in the production function is superficial. The point that R&D investment and human capital through learning by doing were not explicitly recognized. The neoclassical growth model developed by Solow fails to explain the fact of actual growth behaviour. This failure is caused due to the model's prediction per capita output approaches a steady state path along which it grows at a rate that is given. This means that the long-term rate of national growth is determined outside the model and is independent of preferences and most aspects of the production function and policy measures.

Empirical Issues: The relevance of investments on education and health in the development process of an economy for sustained growth and development is increasing in a frightening rate. Education and health at all levels have been identified to contribute to economic growth of any nation. It is worth-

ability to produce a literate, disciplined, flexible labor force vis-à-vis high-quality education. Investing in health offers high return in terms of economic growth. This means that increasing expenditure on health services do not only have a larger impact on poverty per naira spent, but also enhance growth in human productivity. This is because as more people get good health, they will carry out their duties for better productivity which will enhance economic growth.

Adehola (2014) employed econometrics method to conduct regime analysis of the relationship between public investment in human capital and economic growth in Nigeria for the period (1961-20121). The findings established the fact that federal and states.

Todaro (1977) assert that development is reduction or elimination of poverty, inequality and unemployment within the context of a growing economy. Pearce Warford (1993) defined economic development as achieving a set of social goals. Since social goals are bound to change over time, economic development is likely to experience some extent of process. He identified two sets of changes combination which could occur in any economic developmental process. These changes are advance in utility; a major factor contributing to advance in wellbeing in real income per capital and advance in the realms of educations, health and general quality of life.

Goulot (1971) argued that economic development involves advance in skills, knowledge, capacity and choice. The shift of factor of production from low productive to more productive activities will certainly increase total output through, an increase in the economic efficiency of the system. This form of economic growth is of a great important to a developing economy like Nigeria. For instance, labor can be removed from agriculture without any reduction in the volume of agricultural production and shifted to industry, with a resultant net gain.

Oluwatobi and Ogunrinola (2011) used augmented slow model relationship between human capital development and economic growth in Nigeria between. Findings from the study reveals that there exists a positive relationship between government recurrent expenditure on human capital development and the level of real output, while capital expenditure is negatively related to the level of real output. The study recommends appropriate channeling of the nation's capital expenditure on education and health to promote economic growth.

METHODOLOGY

The research design employed in this study is the ex-post facto and econometric method. An ex-post facto design is a quasi-experimental study that examines how independent variables present in the study affect the dependent variable. This study makes use of annual secondary data for the period 1981-2020. The data used were sourced from the publication of central Bank of Nigeria (CBN) statistical bulletin and World Bank Development Indicator (WDI-online).

The technique of data analysis used in this study includes the unit root test, cointegration test, error correction model (ECM), causality test and ordinary least squares (OLS) method of estimation.

Model Specification: The model is anchored on the Human Capital Theory (HCT). The theory concludes that investment in human capital will lead to greater economic outputs. The model of this study is built based on the determinants of economics growth specified in economic theory.

The functional form of this model is given as

RGDP = F (RHX, REX, LITR, LER) ---------- (1)

Where;

RGDP = Real Gross Domestic Product (proxy for economic growth)

RHX = Expenditure on Health (a proxy for health expenditure)

REX = Expenditure on Education (a proxy for expenditure on education)

LITR = Literacy Rate (a proxy for the outcome of government expenditure on education)

LER = Life Expectancy Rate (a proxy for the outcome of government expenditure on health).

When equation (1) is expressed in mathematical form, it becomes;

$RGDP = a_0 + a_1RHEX + a_2REX + a_3LITR + a_4LER$ ---------- (2)

Where;

a_0 is the intercept of the model

$a_1 - a_4$ is the slope of the regression or the behavioral parameters

The econometric form of the above equation is given as;

$RGDP = a_0 + a_1RHEX + a_2REX + a_3LITR + a_4LER + Ut$ ---------- (2)

Where;

Ut is stochastic error terms for the model which capture unexplained influences on Real Gross Domestic Product (RGDP) that are not included in the model.

On apriori expectation; a_0 to a_4>0

RESULTS AND DISCUSSION

Due to the stochastic trend process associated with most time series data, it is important that these series are tested for the presence of unit root or stationary. The unit root (or stationary) test was conducted using Augmented Di ckey Fuller (ADF) test. The result of the ADF test is shown in the table below;

Table 4.2 Unit Root Test Result

Variables	ADF Statistical @ level	Critical value 5 percent	ADF statistical @ first differences	Critical value 5 percent	Order of integration
RGDP	-1.770165	-2.945842	-11.5576	-2.45842	**1(1)**
RHEX	-3.957647	-2.943427	-6.429540	-2.948404	**1(1)**
REX	-1.312356	-2.943427	-6.860522	2.945842	**1(1)**
LER	-1.073973	2.943427	-3.122941	-2.948404	**1(1)**
LITR	-2.017126	-2.943427	-5.164910	-2.945842	**1(1)**

Source: Authors Computation Using E-Views 10 Outputs

The unit root (or stationarity) test was conduct using Augmeted Deckey Fuller (ADF) test. The result of the ADF test shows that education expenditure, literacy rate, RGDP and Health Expenditure were stationary at first difference 1(1).

Co-integrations Test : The variables were subjected to co -integration test to determine whether they are co -integrated (i.e. whether there is a long -run relationship between them). Both Trace value and Maximum Eigen values indicate one co -integrating equation at 5 percent level of significant. This is shown in the table below.

Table 4.3 Co-integration Test Result:
Date: 02/04/22 Time: 13:40
Sample (adjusted): 3:39
Included observations: 37 after adjustments
Trend assumption: Linear deterministic trend
Series: RGDP RHEX REX LER LITR
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None*	0.848331	170.9364	69.81889	0.0000
At most 1*	0.690172	101.1524	47.85613	0.0000
At most 2*	0.595433	57.79810	29.79707	0.0000
At most 3*	0.460070	24.31535	15.49471	0.0018
At most*	0.040032	1.511637	3.841466	0.2189

Trace test indicates 4 cointegratingeqn(s) at the 0.05 level
*denotes decision at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None*	0.848331	69.78400	33.87687	0.0000
At most 1*	0.690172	43.35428	27.58434	0.0002
At most 2*	0.595433	33.48274	21.13162	0.0006
At most 3*	0.460070	22.80372	14.26460	0.0018
At most*	0.040032	1.511637	3.841466	0.2189

Max-eigenvalue test indicates 4 cointegratingeqn(s) at the 0.05 level
*denotes decision at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values
Source: Author "Computation Using E-View 10 Outputs.

The result of in table 4.3 shows that the trace value and maximum Eigen value indicate four co -integrating equation at 5 percent level of significant. This is shown the value of the co -integrating likehood ratio compared with 5 percent critical value. Hence, the variables are co-integrated which implies that there is a long run relationship between the variables in the model.

Errors Correction Model Result (ECM): Since the variables in the model are co -integrated, there is need to capture the speed of adjustment in the model, hence, the next step is to estimate the short-run dynamic within the error correction model (ECM) in order to capture the speed of adjustment to equilibrium in the case of any shock in any of the independent variable of the models. The error correction model result is presented in the table below

Table 4.4 Error Correction Model (ECM) Result
Dependent Variable: D(RGDP)
Method: Least Squares
Date: 02/04/22 Time: 22:48
Sample (adjusted): 4:40
Included observations: 37 after adjustments

Variable	Coefficient	Std. error	t-Statistic	Prob.
D(RHEX(-1)	1430.311	346.0336	4.133446	0.0003
D(REX(-1))	-13.17276	10.26603	-1.283140	0.2090
D(LER(-1))	-0.237867	2.888120	-0.082360	0.9349
D(LITR(-1))	-13.43360	54.32692	-0.247273	0.8063
ECM(-1)	-0.158944	0.068399	2.323789	0.0269
R-squared	0.200622	Mean dependent var		1470.436
Adjusted R - squared	0.071691	S.D. dependent var		1522.965
S.E. of regression	1467.359	Akaike info criterion		17.56771
Sum squared resid	66747379	Schwarz criterion		17.82894
Log likelihood	-319.0026	Hanna-Quinn criter		17.65980
F-statistic	1.556035	Durbin-Watson stat		1.051845
Prob(F-statistic)	0.201654			

Source: Authors "Computation Using E-Views 10 Output

The Error correction term in the model met the required conditions. Negative sign and statistical significance of the error correction coefficients are necessary conditions for any disequilibrium to be corrected. In light of this, the coefficient of ECM (-1) in the model is -0.158944. the coefficient indicated that the speed of adjustment between the short-run dynamics and the long run equilibrium in the first model is 1.5%. Thus, ECM will adequately act to correct any deviations of the short run dynamics to its long-run equilibrium annually in the model.

Ordinary Least Square

Table 4.5 Ordinary Least Square (OLS) Result

Dependent Variable: D(RGDP)
Method: Least Squares
Date: 02/04/22 Time: 22:48
1:39

Sample (adjusted):
Included observations: 39 after adjustments

Variable	Coefficient	Std. error	t-Statistic	Prob.
C	34830.03	2634.693	13.21977	0.0000
RHEX	10.46305	47.49770	0.220285	0.8270
REX	54.52577	29.36778	1.856653	0.0720
LER	-5.930695	3.369067	-1.760337	0.0873
LITR	310.9221	53.50982	5.810562	0.0000

R-squared	0.952548	Mean dependent var	34692.46
Adjusted R-squared	0.946965	S.D. dependent var	20240.02
S.E. of regression	4661.126	Akaike info criterion	19.85111
Sum squared resid	7.39E+08	Schwarz criterion	20.06439
Log likelihood	-382.0967	Hanna-Quinn criter	19.92763
F-statistic	170.6281	Durbin-Watson stat	0.481329
Prob(F-statistic)	0.000000		

Source: Authors "Computation Using E-Views 10 Output

From the Regression Analysis Computed with the aid of E -veiw 10 by prediction equation of the dependent and independent variables is presented below;

LRGDP = 34830.03 + 10.46305RHEX + 54.52577REX – 5.930695LER + 310.9221LITR

The value of the intercept is -3.200654. This shows that economic gr owth (proxied by RGDP) will increase by N34830.03 billion in the absence of the independent :

Therefore T-tab = $T_{0.25(40-5)} = T_{0.025(35)}$
Using student T-test table;
T-tabulated = 2.042

Table 4.6 Summary for student T -test

Variable	T-calculated	T-tabulated	Decision rule	Conclusion
RHEX	0.220285	±2.042	Accept H_0	Not significant
REX	1.856653	±2.042	Accept H_0	Not significant
LER	-1.760337	±2.042	Accept H_0	Not significant
LITR	5.810562	±2.042	Reject H_0	Significant

Source: Authors "Computation Using E-Views 10 Output

F-test: The F-statistics test the overall significance of the model. The F -statistics calculated value of 20.53117 is greater than the critical value of 2.92 at 5 percent level of significance. It means that the explanatory variables have joint impact on the dependent variable.

Decision Rule

Reject H_0 if F-calculated>F-tabulated, otherwiseaccept.

Thus, F-tabulated = F (k-1)(n-1)
= level of significance = 0.05
N = sample size = 40
K = number of parameters = 5
DF = V_1/V_2

Where;

DF = Degree of Freedom
$V_1 = K - 1 = 5 - 1 = 4$
$V_2 = N - k = 40 - 5 = 35$

Using F-Distribution table;

F-Tabulated = 2.04

F-Calculated = 170.6281

Based on our decision rule, since F -cal>F-tal (i.e. 170.6281>2.33) we conclude that the variables used in the model are statistically significant.

Coefficient of Determination (R^2): The coefficient of determination value (R^2) which shows the explanatory power of the model is 0.952548 shows that the model has a good fit. It implies that about 95 percent of the total variation in the dependent variable is explained by the independent variables. The remaining 5 percent can be acco unted for by the error term, that is, all other explanatory variables not captured in the model. Based on the analysis we conclude that there is a positive autocorrelation in the model.

4.2.1 Granger causality test

Table 4.8 Granger causality test result

Pairwise Granger Causality Tests
Date: 02/04/00 Time: 23:05
Sample: 1 41
Lags: 1

Null hypothesis	Obs	F-Statistic	Prob.
RHEX does not Granger cause RGDP	40	18.4238	0.0001
RGDP does not Granger cause RHEX		11.1196	0.0020
REX does not Granger cause RGDP	40	9.24486	0.0043
RGDP does not Granger cause REX		8.89243	0.0050
REX does not Granger cause RHEX	40	6.77280	0.0132
RHEX does not Granger cause REX		1.70282	0.2000

Source: Authors computation using E-views 10

From the Granger causality treat result above, there exist a bidirectional causality between RHEX and RGDP since their probability values are less than 0.05 percent level of significance. This implies that health expenditure Granger cause economic growth and Vice-versa. The result also shows that there exist a bidding relationship between REX and RGDP implying that education expenditure causes economic growth and vice-versa.

As observed in the result above, there is a unidirectional relationship between REX and RHEX as causality runs from education expenditure to health expenditure, however health expenditure does not Granger cause education expenditure. Therefore we conclude that government expenditure on education has no significant impact on economic growth in the period under study. There also existsa bidirectional causality between education expenditure and economic growth in Nigeria since their probability values are less than the chosen 5% level of significance.

CONCLUSION AND RECOMMENDATIONS

The study examines the impact of government education expenditure and government health expenditure on economic growth in Nigeria from 1981 to 2021. The study adopts the unit root test, co-integration, error correction method (ECM), causality test, Normality test and Ordinary Least Square (OLS) test methods. The data used for this study was tested using Augmented Dickey-Fuller to ascertain that stationarity of the variables. All the variables were found stationary at first difference. The result of the co-integration test indicates four co-integrating equation at 5 percent significant level with assumption of linear deterministic trend in the data. This is shown by the value of the co-integrating likelihood ratio compared with 5 percent critical value. Hence, the variable were co-integrated which implies that there is a long run relationship between RHEX, REX, LITR, LER and RGDP.

The error correction term in the model met the required conditions. Negative sign and statistical significance of the error correction coefficients are necessary conditions model is -0.158944. The coefficient indicated that the speed of adjustment between the short-run dynamics and the long run equilibrium in the first model is 1.6%. Thus, ECM will adequately act to correct any deviations of the short run dynamics to its long-run equilibrium annually in the mode.

The Granger causality test was carried out to test the direction of causality among the variable and the result revealed that there exist bidirectional causality between RHEX and RGDP since their probability values are less than 0.05 percent level of significance. This implies that health expenditure Granger cause economic growth and Vice-versa. The result also shows that there exist a bidirectional relationship between REX and RGDP implying that education expenditure causes economic growth and vice-versa. As observed in the result above, there is a unidirectional relationship between REX and RHEX as causality runs from education expenditure to health expenditure; however, health expenditure does not Granger cause education expenditure.

The ordinary least square (OLS) techniques was employed to determine the relative impact of government expenditure on health and education in Nigeria and the result revealed that government expenditure health and education conform to the apriori expectation but are statistically not significant in explaining the changes in the dependent variable. Life expectancy rate has a negative impact on economic growth and this does not conform to apriori expectation. However, litaeracy rate conform to the apriori since it was positively signed. In order to achieved the objectives of this study, the hypothesis stated in chapter one was brought into test using the probability values obtained in the ordinary least square result to test hypothesis one and two while using the probability result obtained from the granger causality result to test hypothesis three and four. The result revealed that;

1. Government health expenditure has an insignificant impact on economic growth in Nigeria.
2. Government expenditure on education has no significant impact on economic growth in the period under study.
3. There is bidirectional causality between health expenditure and economic growth.
4. There exist a bidirectional causality between education expenditure and economic growth in Nigeria.

The R^2 in the model shows the goodness of fit indicating that government expenditure on health

and education account for 95 percent changes in economic growth in Nigeria. The F-test shows that the explanatory variables used in the study were statistical insignificant in explaining the change in Economic growth. The Durbin-Watson result revealed that the test there is no auto correlation in our model. Jarque-Bera test was used to test for the normality of the data. The result revealed that the error terms are normally distributed. Hence, we have a good model.

CONCLUSION

Empirical analysis from this study revealed that government expenditure on health and education has a positive relationship on economic growth and Nigeria. However, their impacts are not felt in the economy significantly. Consequently, the outcomes of the health sector proxy by live expectancy rate on Nigerians also showed insignificant effect on economic growth, while LITR showed a positive significant effect on economic growth (GDP). Conclusively, the study revealed that government expenditure on health and education are key economic drivers, hence should not be neglected.

POLICY RECOMMENDATIONS

Considering the observed nature of the effect of government expenditure on health and education (and their outcome) on economic growth in Nigeria, the following strategic policy options are proffered as follows:

i. It is also logical for the government to increase its expenditure on existing health and education infrastructure as this will foster economic growth. This policy will lead to a reduction in the deplorable state and standard of the education and health sector. This may also lead to a reduction in the capital flight due to Nigerians seeking better health and education facilities abroad, as there would be availability improved of health and education services in Nigeria.

ii. Government's expenditure on education should also be increased so as to improve the level of literacy rate in Nigeria (this is because private investment in education cannot boost literacy rate as much as public investment would because of the profit motive). This is advisable due to the significant effect that literacy rate indicated on economic growth.

iii. The federal government should also increase their annual allocation to the health sector so as to improve the overall life expectancy of Nigerians. This policy recommendation is in contrast with the result obtained from our analysis but it is necessary that in order for Nigeria to move from one level of economic growth to another, until development is attained i.e. demographic transition, it becomes necessary to have a sustained increased life expectancy leading to an increase in public confidence thus the increase in life expectancy would not cause population to increase as expected.

iv. Government financial allocations to various sectors of the economy should also be well monitored in order to prevent the transfer of public funds to private accounts of government officials i.e. corruption practices. The inappropriate/misguided contract awarding process might be one of the major causes of insignificant effect of capital expenditure of health and education in promoting economic growth in Nigeria (both in the short and long-run). Thus, the federal government should carefully monitor the contract awarding process of capital projects especially in the areas of provision of infrastructural facilities like, modern hospitals, schools and sophisticated equipment's, in order to prevent over estimation of execution cost which over the years has characterized the Nigerian economy. This may bring about significant impact of government's capital expenditure on health and education on economic growth. Hence, if all these policies are put in place, the chances of achieving the improvement in the health and education sector with the aim of achieving sustained economic growth would be met in less than no time.

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APPENDIX

Data presentation

Year	RGDP (₦ Billion)	RHEX (₦ Billion)	REX (₦ Billion)	LITR (%)	LER (%)
1981	19,748.53	0.08	0.17	89.39	3.40
1982	18,404.96	0.10	0.19	85.93	4.31
1983	16,394.39	0.08	0.16	75.76	4.53
1984	16,211.49	0.10	0.20	58.96	4.76
1985	17,170.08	0.13	0.26	46.4	5
1986	17,180.55	0.13	0.26	54.95	5.25
1987	17,730.34	0.04	0.23	50.05	5.49
1988	19,030.69	0.42	1.46	47.75	6.73
1989	19,395.96	0.58	3.01	52.49	7.49
1990	21,680.20	0.50	2.40	53.12	8.29
1991	21,757.90	0.62	1.26	48.4	9.89
1992	22,765.55	0.15	0.29	43.77	25.38
1993	22,799.69	3.02	11.50	36.58	51.13
1994	21,897.47	2.09	7.38	42.07	42.97
1995	21,881.56	3.32	9.75	37.21	49.65
1996	22,799.69	3.02	11.50	36.58	51.13
1997	23,469.34	3.89	14.85	38.42	55.38
1998	24,075.15	4.74	13.59	40.55	90.78
1999	24,251.78	16.64	43.61	38.28	104.15
2000	25,430.42	15.22	57.96	34.05	205.95
2001	26,935.32	24.52	39.88	30.04	260.17
2002	31,064.27	40.62	80.53	26.77	273.22
2003	33,346.62	33.27	64.78	28.37	300.57
2004	36,431.37	34.20	76.53	26.06	336.66
2005	38,777.01	55.66	82.80	24.97	383.82
2006	41,126.68	62.26	119.02	26.17	437.57
2007	43,837.39	81.91	150.78	20.18	491.61
2008	46,802.76	98.22	163.98	18.86	580.59

2009	50,564.26	90.20	137.12	21.12	694.1
2010	55,469.35	99.10	170.80	16.82	826.67
2011	58,180.35	231.80	335.80	15.68	1,110.72
2012	60,670.05	197.90	348.40	14.21	1,252.72
2013	63,942.85	179.99	390.42	14.17	1,549.93
2014	67,977.46	195.98	343.76	15.08	1,804.40
2015	69,780.69	257.70	325.19	14.83	2,116.35
2016	68,652.43	200.82	339.28	14.72	2,445.95
2017	69,205.69	245.19	403.96	14.72	2,590.86
2018	70,536.35	296.44	465.30	19.01	2,734.53
2019	72,094.09	388.37	593.33	19.81	2,969.32
2020	70,800.54	369.35	593.44	20.91	3,978.08

Source: (i) CBN Statistical bulletin 2020
(ii) World Bank Development Indicator (WDI-online)

CHAPTER NINETEEN

CONTROLLED COMMUNICATIONS AND CONSUMER RESPONSES FOR GSM BRANDS IN THE TELECOMMUNICATIONS INDUSTRY IN THE SOUTH-SOUTH ZONE, NIGERIA.

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Abstract:
Intense competition among telecommunication companies for more market share has led to these companies resorting to marketing communications as a viable strategy to attract greater patronage from consumers. This formed the basis for this study carried out to examine the effect of controlled communications(advertising, sales promotion and personal selling) on consumer responses(customer preference for GSM brands, consumer brand attitude and GSM brand re-use intention) in the telecommunications industry in the South-South Geopolitical Zone of Nigeria. A survey of 355 active subscribers of MTN, Globacom, Airtel and 9Mobile Companies was carried out in three states (Akwa Ibom, Rivers and Delta states) in the South-South Zone of Nigeria. These respondents were randomly selected using the cap and draw method. Analysis using multiple regressions and ANOVA showed statistically significant and positive effects of the independent variables (advertising, sales promotion and personal selling) on customer preference for GSM brands; consumer brand attitude; and brand re-use intention (dependent variables) of consumers of telecommunications services in the South-South Geopolitical Zone of Nigeria. The recommendation was that MTN Nigeria, Globacom, Airtel and 9MobileNigeria Telecommunication Companies should continuously capture advertising, personal selling and sales promotion tools as their communication strategy tools for effective planning and implementation of their communication programmes.

Key Words: Controlled communications, consumer responses, advertising, personal selling, sales promotion, customer preference, consumer brand attitude and brand re-use intention.

INTRODUCTION

The current decade has witnessed a tremendous growth in service marketing literature. This has necessitated a shift from manufacturing-based economy to a service-oriented economy. Also, this development has had serious attractions for all business sectors- public, private, profit and non-profit. The telecommunication sector has been a major player in the current trend of service marketing popularity. Telecommunication firms in Nigeria have witnessed a tremendous level of acceptance and patronage since the inception of mobile and internet service provision in Nigeria in the early 20th century (Mfon, 2021).

The current growth and worldwide development of the internet is an impetus to the growth of telecommunication in Nigeria as well as other countries. Communication has been made easy as people across geographical and territorial boundaries can relate with ease. On the back of this ease in communication, businesses have also ridden and expanded within and without local communities. Thus, the importance of telecommunication cannot be overemphasized.

Among the various telecommunication networks, the Global System Mobile (GSM) is the most popular. The system provides communications services which are "essentially deeds or benefits that are offered by one party to another that are intangible and do not result in the ownership of anything" (Zeithaml & Bitner, 2000). These services are characterized by "heterogeneity, intangibility, inseparability and perishability". These features make service marketing different from tangible goods marketing and also pose challenges to their understanding and marketing, thus necessitating the adoption of different approaches to the marketing

of services.
Researchers, in their efforts to understand the connectedness of communication and consumer responses have researched into these areas. For instance, researchers have established a relationship between consumer response and gift promotions when there is high brand equity and a great fit between the stimulated product and the gift (Montaner, Chenatony & Buil, 2011). Also, relationships have been established between consumer response and corporate environmental advertising especially where there existed favourable feelings about the advertiser's environmental concerns (Davis, 1994). Where consumers felt positive about corporate environmental concerns, they were more significantly likely to react confidently to advertising, the advertised message, the promoter and the advertiser's products.

Other researchers have related consumer responses to service-brand communications in the banking sector in many countries and cities of the universe (Vazifehdust & Norouzi, 2011). But to date, researches in this aspect with specific orientation to telecommunication businesses in Nigeria, nonetheless the South-South region, are scanty. Based on this premise, this study was undertaken in order to fill the knowledge and literature gap by investigating the effect of controlled communications on consumer responses in telecommunication industry in the South-South Geopolitical Region of Nigeria. The aimed at determining the effect of controlled communications (advertising, sales promotion and personal selling) on customer preference for GSM brands in the telecommunication industry in the South-South Zone, Nigeria; ascertaining the effect of controlled communications (advertising, sales promotion and personal selling) on consumer brand attitude in the telecommunication industry in the South-South Zone, Nigeria and establishing the effect of controlled communications (advertising, sales promotion and personal selling)on GSM brand re-use intention in the telecommunication industry in the South-South Zone, Nigeria.

Controlled Communication and Consumer Responses: information about telecommunication network is communicated to consumers through many avenues including advertising, sales promotion, personal selling, point-of-sale, public relations, publicity and word-of mouth. Grace and O'Cass (2005) determined that issues associated with publicizing of services remain at the forefront of current research studies. Arguably, controlled communications such as advertising, sales promotion and personal selling in marketing of services are important tools used to communicate the service. Although the goal of any controlled communications tool such as advertising is to communicate information to consumers, it is the significance of the messages to the consumers that is paramount. Therefore, the more positive reaction the consumer has towards the service, the more liable the communications will be effective in conveying relevant meanings about the brand. Subsequently, the consumer's attitude or emotional state in the direction of the controlled communications eventually influences their reaction to the brand (Grace & O'Cass 2005).

Cundiff and Still (1971) however, succinctly described the tools to controlled communication as promotional strategy. He further defined promotional strategy as “a controlled integrated programme of communication methods and materials designed to present a company and its services to prospective customers, to communicate need-satisfying attributes of products, to facilitate sales and thus, contribute long-run profit performance”. The tools of promotion include; advertising, sales promotion, personal selling and public relations.

The goal of any marketing communication is to persuade the consumer to do something, usually to purchase a product. If brand communication is to attract and communicate to target audience in a way that produces the desired result, service marketers must first understand their audiences' desires, wants and intents. They must therefore, acquaint themselves with consumers' ways of thinking, with those factors that motivate them, and with the environment in which they live (Wells, Burnett& Moriarty,2005).
Consumer response has been significant to the telecommunication industry. It reveals the reasons behind the success or failure of a service. Consumer response is defined by Hilderbrand, Demotta, Sen and Valenzuela (2016), as the positive or negative feedback an organization gets about its product, services or business ethics. A consumer response may likely be sought out by the organization or initiated by a consumer.

Consumer response is viewed as a factor in the overall quality improvement of a product or service. For example, telemarketers solicit responses from telecommunication service customers by asking series of

questions about the products and the services rendered. Once the information is collected, the organization then sends it to the sales people, advert managers and relevant departments. The information is important to the organization as well as the consumer. The organization can improve on the services through the information collected, while the customer has the opportunity to voice his opinion about the service and compel the organization to act accordingly (Hilderbrand *et al* 2016).

Advertising: Advertising plays a very important role for an organisation's quest to associate with its actual and potential customers. Advertising also serves as an important medium through which customers gain much information as regards to products or services in making informed decisions. According to Ayeni(2007), advertising is a communication process, a marketing process, an economic and social process or an information process, a public relation and persuasion process based on the area of assimilation. Embedded in this definition, is confirmed that, all an organisation stands for is brought together and achieved through advertising.

Advertising is paid-for communication directed to more than one person, with a deliberate effort to inform or change behaviour (Olalekan, Babatunde & Ishola, 2015). Wells *et al*. (2005) argued that although advertising has a greater ability to reach a larger number of people simultaneously than do the other elements, it has a lesser ability to prompt immediate behavioural change. Furthermore, the contact between the advertiser and the audience is indirect and it takes a longer period of time to deliver information, change attitudes and create a rapport or trust between two parties. Thus, it is an arbitrated form of communication from a particular source, aimed at persuading the receiver to take some action, now or in the future (Richards & Curran, 2013).

Among the functions of advertising as listed by Smith (1987) include, creating awareness, enhancing freedom of choice, making selling a much cheaper operation than personal selling, promoting freedom of expression, creating economic buoyancy and, increasing employment level.
The objective of advertising is partly dictated by the nature of the product's life cycle or its state of performance.

Personal selling: Personal selling refers to face-to-face contact between the seller and a potential customer. The purpose is to create both immediate sales and repeat transaction. There are several different types of personal selling, including sales calls at the place of business by a field representative (field sales), assistance at an outlet by a sales clerk (retail selling) and calls by a representative who goes to consumers' homes (door-to-door selling). Personal selling is most important for companies that sell products requiring explanation, demonstration and services. However, services that require personal selling tend to be priced higher (Wells*et al,*2005). .

Selling is probably the most seasoned calling on the planet. The individuals who do the selling pass by numerous names: sales reps, salespeople, account executives, sales consultants, sales engineers, agents, district managers and marketing representatives (Engel, Blackwell & Miniard, 2003).Personal selling or merchandising is a very vital function of production. It employs all razzle-dazzle of audio-visual technology and the power of person to person communication to market products, especially customer products. Personal selling has its greatest impact on consumers as they move from the awareness level close to the actual exchange. Personal selling involves sales people, and is often the key to a company's success.

Sales promotion: Sales promotion is another effective tool of communication. It is used in marketing campaigns. It consists of several tools that the marketer uses as incentives on short term basis to incite the consumers or middlemen/agents to make quicker and more demand for the product/services (Brown, Cron & Leigh, 1993). Sales promotion operates on a temporary basis to add value to either the product or other promotional tools of the organization. It helps to persuade the consumer to buy a particular product/service (Baker & Cameron, 1996).
The tools for sales promotion include samples, coupons, cash refunds, price-off, premium prizes, patronage rewards, free trials, warranties, term-promotions, cross promotion, etc. These are usually aimed at the final consumers. Those that are targeted at the middlemen include price off, advertising, display allowances and

free goods. Sales promotion directed at business and sales-force include trade shows and convention, contests for sales reps and specialty advertising. Profit and non-profit organizations can avail themselves of the use of these tools.

Customer Preference: Service providers need to understand how consumers choose and evaluate their services (Grace & O'Cass, 2005). Customers cannot settle on decisions and evaluate benefits in a similar way they do to physical products, as services have interesting attributes and are high in experience quality. In this manner, customers think that it is progressively hard to survey services when contrasted with physical products. Several studies (e.g., Kotler, 1998; Zeithaml, Berry, Leonard and Parasuraman, 2003) propose that the principal attributes that make a service administration not the same as physical merchandise are: "intangibility, variability, inseparability, perishability and lack of ownership".

As indicated by Novemsky, Dhar, Schwarz and Simonson (2007), customer preferences are considered as "positive motivation which is expressed by the emotional compatibility towards a product, service or organization. Preferences can be induced by the features related with the material embodiment of the merchandise (shape, size, print, taste, shading, consistency, bundle, and so on.); components alluding to the label name, user instructions that go with the item; and the statue granted to the individual owning and utilizing that specific item. Although a scarcely clear concept, Voicu (2015) found that the consumer preference can be measured effectively, and that its study can provide a more thorough understanding on the choices consumers make when they decide to select a particular service marketer as against the other, or even when they decide to continue the relationship with the marketer.

Brand attitude: Brand attitude as defined by Low and Lamb (2000; 352), is "the consumer's overall evaluation of a brand whether good or bad". It reveals the meaning consumers associate with toward a brand which ultimately affects their buying behaviour (Low & Lamb, 2000). This implies that positive brand attitudes are important for the long term success and growth of a brand.

Yi and Suh (2005), noted that consumers' experience with the service, brand image and communication tools are strong determinants of brand attitude which subsequently influences brand loyalty. The feeling consumers have toward a service can trigger intention to purchase and re-use the item. Consequently, when the user or customer is satisfied with a service, there is the chance for the customer to create an attachment to the service. Grace and O'Cass (2005), opined that the attitude of a consumer to a brand emanates from customer satisfaction and ultimately from the consumer brand association and brand communication.

Brand re-use intention: The intention to re-use is defined as a "precise need to continue a relationship Individuals decide themselves and independently when and with which branded telecommunication network they want to use (Yang, Kim, & Yoo 2013). Hence, marketers have already bridged the gap of capturing the consumer's interest as soon as they connect to the network. In the context of telecommunications network, re-use intention seems to be important to predict behavioural outcomes, assuming that frequent use strengthens the brand relationship by enhancing brand attitudes (Berger &Mitchell, 1989). Generally, re-use intention refers to the intention raised by consumers to maintain regular contact with the same network (e.g., Cronin, Brady & Hult 2000).

MATERIALS AND METHODS

The researchers adopted the survey research design for the study. A total population of 24,751262, being the number of registered active voice subscribers of MTN, Globacom, Airtel and 9Mobile in the South-South Geopolitical Zone of Nigeria as at June 2019 (from www.ncc.gov.ng and www.businessday.ng), was used. A sample size of 400 respondents was determined using the Taro Yamen sampling formula. For the purpose of obtaining an adequate representative sample of

respondents needed for the study, a multi stage stratified, simple random and convenient sampling approaches were applied to draw samples. The first stage involved stratifying the zone into three pairs of states based on their geographical contiguity and cultural affiliation as follows:

(a) Akwa Ibom/Cross River

(b) Rivers/Bayelsa

(c) Edo/Delta

Through shuffling and picking, one state was randomly selected from each pair of states and this yielded a total of three states namely; Akwa Ibom, Rivers and Delta in the second stage. The third stage involved a stratification of each state based on the senatorial districts. Thereafter, in each senatorial district of each state, two churches (one orthodox and one protestant) were conveniently chosen to provide a central location and a cluster of people from where subjects would be drawn. This was done in order to enable the researcher have easy access to a cluster of people who would be members of the chosen sample.

The last stage of the sampling involved a selection of a proportionate sample of respondents based on the number of subscribers in each state. Thus, a sample size of 400 respondents was drawn from this procedure. Data was sourced primarily using a self-structured questionnaire. This instrument titled "Controlled communications and Consumer Responses Questionnaire (SBCRQ), was divided into three parts, sections A, B and C. While the A section drew out biometrics of respondents, sections B and C were tailored towards the independent and dependent variables.

Professors of Test and Measurement in the Faculty of Education ascertained the validity of the instrument. They ensured that the coverage, ideas and items in the instrument were appropriate. The reliability of the instrument was assured using Cronbach Alpha to obtain a test-retest reliability coefficient of 0.773 from scores of two tests administered at a two week interval to 50 respondents. The coefficient proved that the consistency of the items was high and fit for use.

Using Regression Analysis and ANOVA at 0.05 level of significance and SPSS package was used to generate the results. Model specification for the analysis was;

$Y = f(X_1, X_2, X_3)$

$Y=\beta_0+ \beta_1X_1+\beta_2X_2+\beta_3X_3+ e_i$

Where;

Y = Dependent variables (Customer preferen ce, Brand Attitude and Brand Re-use intention)

X_1 = Advertising

X_2 =Sales promotion

X_3 =Personal selling

β_0 = Intercept

β_1 - β_3 = Parameters estimate

e_i = error term (0.05%)

Biometrics of Respondents

Table 1: Distribution of respondents according to sex

Characteristics of Respondents	Frequency	Percentage
Gender		
Male	164	46.2
Female	191	53.8
Total	**355**	**100**
Age		
Below 25 years	104	29.3
26 – 45 years	156	43.9
46 and above years	95	26.8
Total	**355**	**100**
Education		
No formal education	8	2.3
FSLC	16	4.5
SSCE/Equivalent	45	12.7
OND/NCE	97	27.3
B.Sc/B.ED/BA	116	32.7
M.Sc/M.ED/MBA	64	18.0
Ph.D	9	2.5
Total	**355**	**100**

From Table 1, 53.8% of the respondents were female s while the malesaccounted for 46.2% of the sample. Also, 43.9% of the respondents fell within 25 – 45years age bracket. This was followed by 29.3% and 26.8% of the respondents who were below 25years , and above 45years respectively. In terms of education, findings from Table 1 indicate that,32.7% of the respondents claim to be holders of either B.Sc, B.Ed or BA. This was f ollowed by 27.3% and 18.0% of the respondents who claimed to be holders of OND/NCE and M.Sc/M.ed/MBA respectively. Those with SSE or its equivalent made up 12.7%, FSLC 4.5%, Ph.D 2.5% while 2.3% had no formal education.

2: Model summary of m ultiple regression analysis of controlled communications (advertising, sales promotion and personal selling) on customer preference

Variable	Parameters	Coefficient	Std error	
Constant	β_0	0.940	0.312	3.013***
Advertising (X_1)	β_1	0.268	0.051	5.247***
Sales promotion (X_2)	β_2	0.340	0.063	5.435***
Personal selling (X_3)	β_3	0.138	0.068	2.029**
R-Square (R^2)		0.561		
Adjusted R – Square (R^{-2})		0.556		
F – Statistics		81.494		
F – Probability		0.000		
Durbin-Watson stat		1.983		

***, **, and * denotes significance of coefficient at 1%, 5%, and 10% level respectively

Source: Field Survey, 2019 (SPSS Version 20)

The coefficient of advertising (X_1) was statistically significant at 1% level with a positive sign, implying that advertisinghas a significant effect on brand attitude among customers of telecom firms. By implication, a unit increase in advertising leads to 3.457units increase in brand attitude among customers. The result agrees with findings of Bertrand, Karlan, Mullainathan, Shafirand Zinman (2010), who posited that the content incorporated in an advertisement can significantly influence consumer attitude development towards a brand. That is, if an advertisement induces certain feelings of the target audience, it increases brand likeability and contributes positively to the formation of positive brand attitude, regardless of whether the product is a high-involvement or low-involvement purchase.

The coefficient of sales promotion (X_2) was statistically significant at 1% level with a positive sign, implying that sales promotion has a significant effect on brand attitude among customers of telecom firms. Thus, a unit increase in number of sales promotion leads to increase in brand attitude among customers by 10.390 units. This signifies that development of critical promotional strategies such as 'drop age in the air time rates', free SMS, free credit and small top ups significantly build positive brand attitude. The aim of such strategies is not only to beat the competition and retain customers, it is also to trigger new customers by offering attractive packages.

The measurement of personal selling (X_3) was statistically significant at 1% level with a positive sign, implying that personal selling has positive and significant effect on brand attitude for telecommunication firms. Consequently, a unit increase in personal sellingefforts leads to increase in brand attitude among customers by 9.759 units.Hence, personal selling helps to draw attention of the target market with its benefits identified. Personal selling strategies also help to bring existing and potential customers to a state of relative awareness of the organization's products and consequently, a state of product adoption.

The coefficient of multiple determination (R^2) was 0.726 which implies that 72.6% variation in brand attitude was explained by the independent variables included in the model (advertising, sales promotion, personal selling) while 27.4% were explained by the stochastic variable. Very high f-stat value of 309.356 was observed from the analysis. The f-prob value of 0.000 wasobserved from the analysis which is less than 0.05 (95% degree of freedom) in absolute terms, indicating that the estimated regression model adopted in this study is statistically significant at 5% significant level. Hence, we conclude that, controlled communications (advertising, sales promotion and personal selling) do significantly affect consumer attitude towards GSM brands.

Table 4: Model summary of multiple regression analysis of controlled communications (advertising, sales promotion and personal selling) on brand re-use intention

Variable	Parameters	Coefficient	Std error	Tcal – value
Constant	β_0	0.126	0.096	1.309
Advertising (X_1)	β_1	0.250	0.071	3.523***
Sales promotion (X_2)	β_2	0.470	0.050	9.320***
Personal selling (X_3)	β_3	0.242	0.053	4.563***
R-Square (R^2)		0.854		
Adjusted R – Square (R^{-2})		0.852		
F – Statistics		681.739		
F – Probability		0.000		

***, **, and * denotes significance of coefficient at 1%, 5%, and 10% level respectively

Source: Field Survey, 2019 (SPSS Version 20)

From the results, the coefficient of advertising (X_1)was statistically significant and positively related to brand re-use intention at 1percent level. This implies that, brand re-use intention is an increasing function of advertising carried out by the studied firms. Thus, a unit increase in advertising leads to increase in brand re-use intention of subscribers by 0.250 units. The result aligns with the findings of Asto-Sunu and Sudarmawan (2018), who analyzed "the influence of advertisement towards brand choice: An exploration from initial attitude of consumers". The result revealed that advertisement has an influence on attitude towards brand and changes the consumer's decision in choosing brands.

The estimated value of sales promotion (X_2)was statistically significant at 1 percent level. Hence, use of sales promotion tactics help telecommunication firms operating in South-South Nigeria to build brand re-use intentions among customers. Thus one can, in effect, say that sales promotion has significant effect on brand re-use intention. The result of this study is in tandem with the findings of Onyango, BwisaandOdhiambo (2017) who studied sales promotion and consumer brand preference and re-use intention for mobile phone services in Kenya.The result was that there is a positive linear relationship between sales promotion and consumer brand preference and re-use intention for mobile phone services in Kenya.

The estimated value of personal selling (X_3)was statistically significant and positively related to brand re-use intention at 1percent level. From the result, brand re-use intention is an increasing function of personal selling. This implies that, 1 percent increase in personal selling leads to 24.2 percent increase in brand re-use intention among customers of telecommunication firms in South-South Nigeria. The result agrees with Stimuli Response Theory which states that, physical interaction between seller and buyer is a source of stimulus to accept market offerings at a value. Personal selling approach sets formula and opportunity for customers to use particular brands repeatedly.

The (R^2) coefficient of multiple determinations was 0.854 which implies that, 85.4% variation in the dependent variable was explained by changes in the independent variables while 14.6% were unexplained by the stochastic variable. This implies that, the independent variables (advertising, sales promotion and personal selling) accounted for85.4 percent variations in the dependent variable (brand re-use intention) while 14.6 percent was explained by the stochastic variable. F-stat value was 681.739 with F-prob. value of 0.000 which is less than 0.05 indicating a goodness of fit of the regression model adopted in this study which is statistically significant at 5% probability level. Thus, controlled communications (advertising, sales promotion and personal selling) do significantly, determine consumers brand re-use intention.

DISCUSSION OF FINDINGS

Controlled Communications and Customer Preference

Advertising (X_1) was statistically significant and positively related to customer preference for GSM brands at 1 percent level. The result agrees with the findings of Ehrenberg, Barnard, Kennedy and Bloom (2002); Shimp, (2007) who asserted that, with increase in advertisement, consumer preference is an increasing function of advertising. And to publicize these brands on offer, telecom firms employ the use of advertising to create awareness, educate customers on distinct features and benefits, and facilitate the creation of positive brand images. More so, sales promotion was statistically significant and positively related to customer preference at 1 percent level. Thus, effective sales promotional packages are believed to be key in the approach of wining and maintaining customers, especially in the ever competitive telecommunication sector in Nigeria.

Personal selling was statistically significant and positively related to customer preference for GSM brands at 5% significant level. This implies that, adoption of personal selling approach has significant effect on customer preference for particular telecommunications firms. This is because, personal selling as a business strategy, helps sales representatives of a company to explain to their clients/customers how well the products/services can satisfy their needs. Thus, controlled communications - advertising, sales promotion and personal selling, have significant effects on customer preference. This shows that advertising, sales promotion and personal selling are increasingly important in communicating in concrete language the

virtues and benefits of telecommunications companies and are therefore, suitable for eliciting appropriate responses from consumers.

Controlled Communications and Brand Attitude

The result in Table 3 shows that, advertising was statistically significant at 1% level with a positive sign, implying that advertising has significant effect on brand attitude among customers of telecom firms. The result agrees with findings of Bertrand*et al*, (2010) who posited that the content incorporated in an advertisement can significantly influence consumer attitude development towards a brand. That is, if an advertisement induces certain feelings of the target audience, it increases brand likeability and contributes positively to the formation of positive brand attitude, regardless of whether the product is a high-involvement or low-involvement purchase. Sales promotion has significant effect on brand attitude among customers of telecom firms. This signifies that, development of critical promotion strategies such as drop age in the air time rates, free SMS, free credit and small top ups significantly build positive brand attitude. The aim of such strategies is not only to beat the competition and retain the customers; it also triggers the new customers by offering the attractive packages.Personal selling has positive and significant effect on brand attitude for telecommunications firms. On the whole, these three independent variables have a significant effect on brand attitude.

Controlled Communication and Brand Re-use Intention

Advertising was statistically significant and positively related to brand re-use intention at 1percent level as seen in Table 4. This implies that, brand re-use intention is an increasing function of advertising carried out by the studied firms. The result aligns with the findings of Asto-Sunu and Sudarmawan (2018) who analyzed the influence of advertisement towards brand choice: An exploration from initial attitude of consumers. The result revealed that advertisement has an influence on attitude towards brand and changes the consumer's decision in choosing brands. Sales promotion has significant effect on brand re-use intention. The result of this study is in tandem with the findings of Onyango, Bwisaand Odhiambo (2017) who studied sales promotion and re-use intention for mobile phone services in Kenya and realized that, there was a positive linear relationship between sales promotion and re-use intention for mobile phone services in Kenya. Personal selling was statistically significant and positively related to brand re-use intention at 1percent level. The result agrees with Stimuli Response Theory which states that, physical interaction between seller and buyer is a source of stimulus to accept the market offering at a value. Personal selling approach set formula and opportunity for customers to re-use particular brand repeatedly.

CONCLUSION

The findings of this study have shown the importance of controlled communications on consumer responses in terms of preference, attitude and re-use intention. The identification of brand benefits of the branded products and effective communication of same in very concrete language will help management to elicit expected responses from target markets. It is very important to understand brand attitude dimensionsfrom customers' point of view, and whether these image dimensions are parallel to their perceptions, expectations, needs and goals. Knowing this may assist managers to develop a controlled communications strategy based on consumers' perceptions and meanings of the product.

Finally, in order to create successful customer responses, marketing managers should be more devoted tobuilding brand image, customers' satisfaction and brand loyalty as part of their branding strategy and be able to effectively communicate these to consumers. By maintaining and strengthening the brand images and values, it will hopefully communicate and then position the brand positively in the minds of consumers.

RECOMMENDATIONS

Based on the findings and conclusion drawn in this research, the following recommendations were made:

1. Telecommunication firms shouldprovide accurate, trustworthy information and honest advertising to gain customer's trust and build positive customer brand attitude.
2. There is need for the studied firms to continually build their controlled communication system around integrity, credibility and humanities in order to enhance their companies'reputation and customers' trust.

3. The studied firms should continually aim at using their controlled communications structures to create positive brand images in the minds' of target audience, raise consumer brand expectations or directly induce customer preference
4. There is need to evaluate how specific communications avenues influence specific consumer responses. This will help the studied firms to channel their resources effectively in order to achieve positive consumer responses.

SUGGESTIONS FOR FURTHER RESEARCH

Further research to be conducted on controlled communications should be done in other service industries like the educational sector, hospitality and tourism, etc. This will help to examine the influence of controlled communications on the responses of their consumers. Additionally, further studies can focus on drawing respondents from both the studied organizations and the customers.

Although this study makes significant contributions to both academia and practice, the research has its limitations;the restriction to only the south-south geopolitical zone. Most significantly, the study can be strengthened by increasing participants in other geopolitical zones. In addition, further studies should be a comparative analysis of brand communications of different telecommunication companies within and outside South-South Nigeria. Finally, the present study did not examine factors affecting controlled communications. Thus, future studies should focus on these antecedents and their potential effects on consumer responses.

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CHAPTER TWENTY

INNOVATIVE MANAGEMENT SYSTEMS AND SUSTAINABLE ECONOMIC DEVELOPMENT IN THE 21ST CENTURY: CHALLENGES AND POLICY OPTIONS FOR NIGERIA

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Abstract:
Since the birth of the 21st century, which coincides with a surge in innovative management systems, attempts by developing countries to advance, manage, control, regulate or mitigate businesses to achieve sustainable economic development seem not to yield the expected results. This paper, therefore, examined the bottlenecks associated with attempts to achieve sustainable economic development in Nigeria in an era of innovative management systems. The study adopted the exegetical research approach and derived relevant data from secondary shreds of evidence, particularly textbooks, journal articles, periodical publications from the central bank as well as annual reports from international business and financial organisations. Leaning on applicable management and economic theories, the paper noted that though innovative management processes have, in recent years, been potent drivers of organisational vibrancy and economic growth, Nigeria as a country is yet to engage in appreciable levels of innovative effort. As a result, sustainable economic development has been constrained by several factors, including lack of formation in the competitive market, high cost of production, lack of incentive for businessmen and organisations to satisfy customer needs, government intervention in economic-related activities etc. While the Nigerian market system has the potential to create, produce and distribute new products to meet and satisfy the increasing human need, rapid innovation and application of innovative management systems is a desideratum. Therefore, people, business organisations and leadership must deploy new ideas, new methods and new structures for innovation to achieve sustainable economic growth and profitability.

Keywords: Innovation, creativity, innovative management systems, sustainable economic development, business organisation.

INTRODUCTION

Over the past decades, creativity, innovation and economic growth, among other factors, have been the fundamental basis of competitiveness for firms, regions and nations all over the world. One of the early writers, Joseph A. Schumpeter (cited in Forsman &Temel, 2011, p. 641) describes 'innovation' widely as "new or improved products, production techniques, organization structures, the discovery of new markets and theinput of new factors". From the standpoint of West and Farr (1990, p. 9), innovation has to do with "theintentional introduction and application within a job, work team or organization of ideas, processes, products or procedures which are new". From the above explanation, it is decipherable that innovation encompasses two major stages:First, the development of ideas; and second, the implementation of the ideas. Thus, innovation involves both the generation and implementation of ideas at the organizational level (Dauw, 1969; Oldham & Cummings, 1996; Kanter, 1983; Mumford & Gustafson, 1988; Unsworth& Clegg, 2001; Unsworth& Parker, 2003).

As Ahmed and Shepherd (2010, p. 4) have noted, "Innovation has become a defining feature of human society and a veritable source of advancement and development.It is especially important in the emergence of the knowledge society, in which the creation and commercialisation of new knowledge underpin both national and firm-level success. For firms, for instance, it is believed that companies must meet the increasing needs and demands of society. As a consequence, most companies arenow producing to cater

for social needs, as well as consumer preferences. However, the challenge these firms face is to find ways to incorporate an awareness of socio-political issues into their strategic decision-making processes for sustainability (Beardsley et al., 2007).
In the current phase of contemporary globalisation, innovation has been identified as a key driver of national, regional and global economies (Sternberg & Arndt, 2001). These involve the following: (i) a convergence of tastes and product preferences that allows development and offers a standard product or service worldwide; (ii) integrating, purchasing, manufacturing and marketing of goods and services on a global scale to achieve economies of scale; (iii) organisations with global operations, global cultures and global mindsets; and (iv) markets and industries dominated by a few large players (Ohmae, 2000; Ahmed & Shepherd, 2010; Dickson, 2021).
Interestingly, Western countries, particularly the United States, Japan and parts of Europe are leaders on the ladder of economic development because these nations and their firms continuously innovate and properly manage to sustain the economy. These countries are into product innovation, which is both technology and marketing-driven. Other strategies include process innovation, that is, the change in the conduct of a firm's organisational activities; strategic innovation – which often involves either a significant adaptive shift in the organisation's current business model or adoption of a new business model; social innovation – caused by the movement of people across the globe leading to shifts in needs, tastes and aspirations; political innovation – that encompasses legislation, institutional reform, social direction and governance; and philosophical innovation - which impacts profoundly on society and the way it manages and conducts itself and guides society by advancing knowledge and also by defining what is right and what is wrong and so on.
Despite these well-thought-out plans of action that have been beneficial to America and most European countries over decades as well as ideas that have stimulated researchers to develop innovationtypologies resting on two common criteria - the degree of newness and the degree of difference, some developing countries of the global South are lagging in strategies to promote innovation activities that are effective for sustainable economic development. Consequently, notwithstanding its growing application by policy-makers in many developing countries, considerable obfuscation exists on what innovation might mean in everyday life, and its applicability to solving the problems associated with underdevelopment (Oyelaran-Oyeyinka & Rasiah, 2009).

This paper, therefore, interrogated the problems connected with the emerging innovative management systems in fostering sustainable economic development and suggested policy options for Nigeria as one of the fast-developing economies.

Conceptual clarification
Innovation and development or sustainable economic development are unarguably interrelated concepts. The former refers to evolving or starting new ways of doing things by mixing up ideas and/or combining technologies; the latter refers to changing people's conditions by removing various types of socioeconomic, political and natural constraints (Papaioannou, 2014). This inter-relationship has traditionally been explained and approached in the context of formal sector or socio-economic activities. However, since the inception of the current era or millennium, the world has witnessed a growing body of activities that demonstrates technological innovation in the formal sector, on the one hand, and identifies emerging models for the creation of products and services in the informal sector, on the other (Cozzens et al. 2005; Srinivas&Sutz, 2008).

Flowing from the above, Drucker (1985) sees innovation as a specific tool of entrepreneurs, how they exploit changes as an opportunity, while Tushman and Nadler (1996) define innovation as the creation of any product, service or process which is new to the business unit. These imply that innovation comprises two major interrelated parts: First, the generation of an idea or invention; and second, the fruitful commercialisation of that invention/idea. However, Porter (1990) argues that the process of innovation is embedded within the national or regional context. As such, it cannot be treated solely from an individual or firm level.

From the multiplicity of meanings, Ahmed and Shepherd (2010, p. 5) note that innovation has several characteristics, namely, *Innovation as creation (invention)* – the use of resources (people, time and money) to invent or develop a new product, service, new way of doing things, new way of thinking about things; *Innovation as diffusion and learning* – with emphasis on the process of acquiring, supporting or using a

product, service or ideas; *Innovation as an event* - focusing on a discrete event, such as the development of a single product, service, idea or decision; *Innovation as a trajectory* - a situation where a single act of innovation can facilitate or yield growth from the original source; *Innovation as change (incremental or radical)* – a situation where innovation engenders change; *Innovation as a (firm-level) process* - innovation as a series of activities that are carried out by a firm to lead to the production of an outcome; and *Innovation as a context* - this view sees innovation as an act beyond the confines of an individual or firm.

Therefore, innovation may be seen as a value-adding process and as an outcome. As an outcome, it embodies the 'value-added' in products, services, thoughts and behaviours (Ahmed & Shepherd, 2010). In a related development, innovation management systems or what Benraouane and Harrington (2021, p. xxviii) call'governance' is "a system designed to align goals, allocate resources, and assign decision-making authority for innovation, across the company, and with external parties". It is a guiding framework for all types of companies and organizations that may want to strengthen their innovation capabilities or a checklist based on a systems approach, of what the organization should consider implementing given its overall innovation ambitions and abilities (Karlson, 2019).

According to these authorities, the key elements of an innovation management system are structured in key areas. These are: First, *context* - tracking external issues and trends such as user preferences, and technology developments as well as identifying opportunities and challenges that can trigger innovation activities; second, *leadership* – management must perform based on the context of the firm; third, *planning* - innovation objectives, organizational structures, and innovation portfolios should be established based on the direction set by top management and the identified opportunities and risks; fourth, *support* – putting in place the support necessary for innovation activities, e.g. competent people, tools and strategies, financial and other resources, etc.; fifth, *operations* - established in line with the strategies and objectives of the companies.

Generally, sustainable development is a global ethic for human survival and well-being, which is to serve as a model for global change and human progress (Kopfmuller. 2015). It is concerned with the limits nature presents to humans and the potential for increasing human material development (Redclift, 1987; Barrow, 1995). Specifically, sustainable economic development focuses on recovering economic and environmental volatility which has become the new normal in the present era. The concept is designed to addressthe challenges of unique economic assets and to provide reasonable real-world benefits. Therefore, sustainable economic development is a practical and implementable toolkit that tailors strategies to work for local people, businesses, and institutions. Its framework identifies the specific needs of the people and untapped opportunities, using these to lift them out of poverty and bolster economic and environmental resilience. These solutions are designed to raise incomes and decrease household costs by increasing resource efficiencies, production of new goods and services, improving access to jobs and services, and creating new employment opportunities (Centre for Neighbourhood Technology, 2019).

Although many management and economic theories explain the subject under study, behavioural theories, process theories and creative economic theories provide the frame for analysing the present research. This is due largely to the fact that the two theories focus attention on the influence of organisational mechanisms and processes in the production of creative outcomes.Behavioural theories are predicated on the belief that creativity and innovationarethe outcome ofcertain types of actions and activities (Amabile, 1997). The behavioural view tries to elicitcertain types of behavioural outcomes through the construction and deployment of mechanisms of creative behaviour reinforcements, such as rewards, setting expectations, andcommunications.Process theories of creativity posit creativity as a highly complex multi-level multi-facetedphenomenon, which relies on individuals' capabilities and capacities as well as organisational conditions and opportunities (Kao, 1989). Thus, creativity and innovation occur through the interplay ofthe individual, the task and the organisation.

In building a creative organisation, three areas need attention. The first is education and the development of creative skills. People mustbe trained and educated to be creative. They must be equipped with an understanding ofcreativity and problem-solving tools, in addition to the basic training for their jobs. Thesecond is an application of creativity competence to solve real business problems. There is littlepoint in equipping individuals with tools if they are not going to be used. People mustbe set (empowered) to solve

real problems. Third, the company must diagnose itself and itsorganisational environment to define opportunities for creative performance. This means itmust collect and process information about trends in the both domestic and external environment (Gundry et al., 1994).
In a similar vein, Richard Caves, John Howkins and Charles Landry theorized on the relationship between creativity, innovation and economic development. In his part, Caves (2002) posits that the link between these variables generates new approaches to business processes, and the demand-supply chain and covers both economic and social indicators of the country's development. In the view of Howkins (2007), neither creativity nor economy is new, but what is new is the nature of the relationship between them and the way the two are bound to create a special value and wealth for the development of a nation. Therefore, creativity and innovation are keys to a nation's development through the rapid growth of industries (Landry, 2000; Levickaitė, 2011).

Overview of the Challenges

Innovative management practices are essential for promoting long-term economic expansion. These systems can improve efficiency, encourage responsible resource utilisation, and foster competition. They are frequently driven by technological advancements and changing business paradigms. They do, however, also have their share of difficulties. The following are some of the main issues with innovative management methods and their effects on long-term economic growth: First, there is opposition from stakeholders and employees. This opposition may prevent new technology or procedures from being adopted. When implementing innovations, Kotter's (1996) organisational change model emphasises the significance of resolving opposition and fostering a feeling of urgency. Second, it can be expensive and resource-intensive to develop and execute novel management systems. Companies may have trouble allocating enough resources to remain competitive on the financial and human fronts, to aid in these efforts. For sustained competitiveness, Linde (1995) emphasises the significance of cost-effective environmental improvements.
Third, since cutting-edge management systems frequently rely on enormous amounts of data, worries about data privacy and security have grown. The need to protect sensitive information is highlighted by the General Data Protection Regulation (GDPR) in Europe and comparable laws around the world (EU GDPR, 2018). Fourth, implementing and maintainingnovel systems frequently calls for a workforce with specialised knowledge and abilities. Successful implementation may be hampered by an organization's inability to locate or develop personnel with the requisite competencies (Brynjolfsson& McAfee, 2014). Fifth, it might be difficult to implement innovative solutions while navigating a complicated web of rules and legal requirements, particularly in sectors like finance and healthcare (Dibbern et al., 2014). Sustainable operations depend on adherence to these rules. Sixth, using cutting-edge management tools like AI and machine learning might lead to ethical concerns, notably about bias, discrimination, and transparency (Mittelstadt et al., 2016). To preserve trust and guarantee sustained growth, these issues must be addressed.
Seventh, certain cutting-edge systems may unintentionally worsen the environment while increasing efficiency. The long-term environmental effects of these systems should be taken into account for sustainable economic growth (Schaltegger et al., 2019). The seamless integration of multiple innovative management systems is a major problem number eight. When merging various software systems, interoperability problems may occur, impeding effective operations (Iyamu&Nwobodo, 2017). Ninth, it can be difficult to define precise measures and key performance indicators (KPIs) to evaluate how new management strategies affect long-term economic growth. Effective progress tracking requires comprehensive frameworks and procedures (UNEP, 2018). Tenth, implementing innovative management methods frequently necessitates an organisational cultural transformation that emphasises cooperation, adaptability, and ongoing learning. It might be quite difficult to overcome resistance to this cultural transformation(Holt et al., 2017).

Of note, while there is great promise for sustainable economic growth with creative management systems, there are several issues that must be resolved. Organisations seeking to leverage the advantages of innovation while reducing its drawbacks must engage in effective leadership, strategic planning, skill development, and a dedication to ethical and sustainable practices.

METHODS AND MATERIALS

This paper adoptedtheexegetical research approach to systematically describe the emergence, characteristics and trends in innovative management systems in the 21st century and the implications for sustainable economic development in Nigeria. Applicable informationfor the study was extracted from

secondary shreds of evidence, particularly textbooks, journal articles, periodical publications from the central bank as well as annual reports from international business and financial organisations. Other sources include various management and Scopus-indexed publications as well as codified databases. These databases allowed for the retrieval of essential information for qualitative analysis. The data gathered from these sources were analysed and discussed along with the extant literature.

RESULTS AND DISCUSSION

Overall, innovation manifests itself in many different ways. These include product innovation commonly refers to both products and services and are either technology-driven or marketing-driven; process innovation, which implies or refers to the change in the conduct of a firm's organisational activities; strategic innovation which often involves either a significant adaptive shift in the organisation's current business model or adoption of a new business model; social innovation – meaning that society is in a constant state of change; political innovation - legislation, institutional reform, social direction and governance; and philosophical innovation which guides society by advancing knowledge and also by defining what is right and what is wrong (Ahmed & Shepherd, 2010). The pertinent questions, therefore, are: Has Nigeria as a nation embraced these or any aspects of innovation? What are the impediments to the realisation of the emerging innovative management systems and sustainable economic performance and development in Nigeria?

Generally, scholars have identified barriers to business growth and innovation to include lack of formation in the competitive market, high cost of production, and lack of incentive for businessmen and organisations to satisfy customer needs, government intervention in economic-related activities, economic shocks, dependency, etc. as the problem facing business organisations leading to innovative non-compliance. Consequently, these barriers, which are both internal and external, have far-reaching effects on the nation's economic development. Furthermore, these barriers stymied the transition toa competitive market economy. Moreover, business organisations have been the engines of economic growth through the creation of employment, technological innovations, contribution toGDP and other aspects of social and economic development. These have been unachievable because of the economic crisis arising from a centrally planned market economy as well as government intervention in economic activities. The recent economic recession,which engulfed the Nigerian state is a case in point. (Dickson &Ezirim, 2017).

Specifically, Louis &Macamo (2011) list barriers to business growth to include financial, organisational, external, social and legal or institutional barriers. According to the authors, financial barriers are one of the biggest barriers to growth in businesses. These include high collateral, high bank charges, lack of outside equity and venture capital and high cost of credit. Organizational barriers can also be known as internal barriers, these include managerial capacity and capability, skills and knowledge, and the objective of the firm among other things. External barriers to growth may come from low demand forthe product or service from customers, difficult access to raw materials, late payments of bills by business customers, government interference, public procurement rules and difficulties in exporting the product to other parts of the world due to rules and regulations. Social barriers are a lack of networking, trust and developing social capital between entrepreneurs as ways of stimulating the development and growth of small enterprises. Complicated laws, rules and regulations are barriers to the growth of companies. It may be in terms of an unsuitable tax system and various discriminatory legal regulations. In Nigeria, registration of business outfits is centrally done by the Corporate Affairs Commission (CAC) thereby denying prospective business organisations registration and possible growth.

Also explaining the challenges associated with innovation and economic growth, Iyoboyi and Na-Allah (2014) identified factors such as human capital, lack of strong institutions, the structure of the economy, government size etc. First, human capital has to do with the degree of labour quality. In Nigeria, investment in human capital to promote technological innovation and adaptation which reflects in economic growth and thus fosters improved economic performance has not yielded

appreciable results. Second, institutional quality and capacity are crucial to sustainable economic growth. However, the quality of institutions in Nigeria has not been effective in improving growth. Moreover, corruption, poor governance, and weak administrative, political and legal systems have not helped the real sector of the economy in a significant way. Third, currently, the nation's economy is predominantly a single-product (mono) economy. The implication is that lack of diversification to other economic sectors like agriculture and industrialisation has far-reaching implications for the country's total GDP with lower economic growth and performance.

Fourth, government creativity, innovation strategies and expenditure tend to be harmful to growth. In other words, a large and growing government size is not beneficial to higher economic growth due to the inefficiencies and distortions arising from government interventions. This assertion has been amply supported by someempirical studies (Barro, 1991; Folster&Henrekson, 2001; Anaman, 2004). Similarly, Chandra (1992) has argued that developing countries face a major obstacle in their attempts to embrace innovative management systems, industrialise and grow businessesdue largely totheir acute dependenceon developed countries in most major areas such as technology, trade, foreign investment, human resources, aid, and information flow etc. These, among other factors, have hampered companies' innovation capability, performance and corporate results.

CONCLUSION

From the analysisof this study, it is clear that innovative management systems consist of several cross-functional processes from generating ideas to taking technologies to market. It deals with “hard” business issues such as growth strategy, technological investments, project portfolios and the creation of new businesses. It also relates to “softer” challenges, such as promoting creativity and discipline, stimulating entrepreneurship, accepting risk, encouraging teamwork, fostering learning and change, and facilitating networking and communications; and fourth, it requires a special type of organizational culture (Benraouane& Harrington, 2021, p. xxviii). However, Nigeria as a nation has not fully embraced an aspect of innovation, which creates new products, generates new solutions to economic problems, enhances the efficiency of resource allocation engenders new processes boosts productivity and increases gains accruing from resource utilization. Being a key factor for corporate competitiveness, business growth and sustainable economic development, an innovative management system must be embraced.

RECOMMENDATIONS

Flowing from the foregoing, the study makes the following recommendations:

1. The expectation is that institutions matter for improved economic performance via higher growth so that, the higher the capacity of institutions; the better it is for growth and the performance of the economy.

2. The Nigerian market system has the potential to create, produce and distribute new products to meet and satisfy the increasing human need, therefore, rapid innovation and application of innovative management systems is a desideratum.

3. The people, business organisations and leadership must deploy new ideas, new methods and new structures for innovation to achieve sustainable economic growth and profitability through technological innovation and the evolving business network.

4. For higher sustainable economic performance to be achieved, the level of technologies (embodied in capital goods imports), including their adaptation is crucial. The imperatives of technological progress in terms of new knowledge and innovation are key drivers of long-run economic growth with significant sources of growth coming from new knowledge and innovation.

5. Achieving greater returns (efficiency) from both resource allocation and utilization activities through innovative management systems is important for greater economic progress.

6. As one of the fast-growing developing economies, Nigeria must break away from the shackles of dependency, particularly its current commodity-dependent status despite resource endowment. Therefore, prudent management of the resources will increase opportunities for employment, business development, increased fiscal revenues and overall economic growth.

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