

NON-CURRENT ASSETS AND LABOUR EFFICIENCY OF INFORMATION AND COMMUNICATION TECHNOLOGY FIRMS IN NIGERIA

Oketah, Felix Okechukwu, Prof. Ifeoma Mary Okwo, and Oshim, Judethadeus Chukwuebuka
Department of Accountancy
Enugu State University of Science and Technology.
Correspondence: felix.oketah@esut.edu.ng

ABSTRACT

The study examined the effect of non-current asset on the labour efficiency of Information and Communication Technology (ICT) firms in Nigeria. The specific objectives are to evaluate the effect of property, plant and equipment, investment property and intangible assets on profit per employee. The study anchored on resource-based view theory. *Ex-post facto* research design was adopted wherein secondary data sourced from audited financial statements of three (3) selected ICT firms listed on Nigerian Exchange Group. A period of 10 years (2013–2022) was used for the analysis. The results of the panel data regression analysis revealed that the predictor variables of property, plant and equipment had negative (-0.003287) and significant (0.0224) effect on profit per employee; investment property had a negative (-0.001419) and nonsignificant (0.3871) effect on profit per employee; while intangible assets had a positive (0.006589) and significant (0.0061) effect on profit per employee of ICT firms in Nigeria. The implications of the findings are that property, plant and equipment should be regularly maintained since rapid technological advancements and technological obsolescence can affect profitability. Intangible assets such as propriety software, brand reputation, research and development, improve service quality must be treated with care in a bid to remain profitable. The study concluded that among the explanatory variables examined only the intangible assets had a statistically significant positive effect on the profit per employee in Nigeria. The adjusted R-squared (R²) of the study 0.833 indicated that approximately 83% of the variations in profit per employee in Nigerian ICT firms can be explained by the individual variables. The study recommended amongst other things that ICT firms should regularly evaluate the utilization and maintenance of their assets to ensure that they are optimally utilized and thereby avoiding obsolescence. They should also prioritize strategies that foster innovation, culture of creativity and protection of intellectual property rights.

Keywords: Non-current asset, Labour efficiency, ICT firms, Nigeria, Property, plant, and equipment, Investment property, Intangible assets, Profit per employee.

1. INTRODUCTION

1.1 Background of the Study

The effective management and utilization of non-current assets play a crucial role in the long-term development and success of Nigerian information and communication technology (ICT) companies (Olatunji et al., 2014). Non-current assets, including property, plant, and equipment, are vital resources that support operations and enhance efficiency in these companies. Researchers, such as Olatunji et al. (2014), have highlighted that these assets significantly influence a firm's operational efficiency and are essential for generating sales. The ICT sector in Nigeria is a key driver of economic growth, contributing to various industries such as telecommunications, software development, and e-commerce (NBS, 2021). To sustain this growth and competitiveness, it is imperative to address factors affecting the efficiency of these companies, particularly regarding their non-current asset management.

Efficient utilization of non-current assets is critical for enhancing the overall performance of ICT companies. Properly managed assets can optimize manufacturing processes, improve service delivery, and boost productivity (Osabuohien, 2018). However, there are challenges in non-current asset management for Nigerian ICT companies, including a lack of comprehensive information and evaluation, financial limitations hindering maintenance and upgrades, and inadequate accounting and reporting practices (World Bank, 2019). These issues can hinder decision-making and impact worker productivity. Addressing these concerns, such as improving asset knowledge, maintenance practices, and accounting methods, is crucial for enhancing asset efficiency and the overall success of ICT companies in Nigeria (Adeniran, 2018). The research aims to investigate how specific non-current asset indices, such as property, plant and equipment, investment property, and intangible assets, influence profit per employee in the Nigerian ICT industry.

1.2 Statement of the Problem

The efficiency of labour in ICT companies in Nigeria plays a critical role in their overall performance and economic contribution. Non-current assets, such as property, plant, and equipment, significantly influence labour efficiency. However, the impact of these assets on labour productivity in ICT companies in Nigeria is a pressing concern. Firstly, there is a lack of comprehension and evaluation regarding how non-current assets affect labour efficiency. The specific relationship between these assets and labour productivity remains unclear, making it challenging to determine how effectively non-current assets are utilized to support labour operations and enhance efficiency. Without a comprehensive understanding of this relationship,

identifying areas for improvement and implementing strategies to enhance labour efficiency becomes difficult.

Insufficient investment in non-current assets can negatively affect labour efficiency in ICT companies. Outdated or inadequate equipment, technology, and infrastructure can lead to reduced production, increased downtime, and decreased staff performance. Limited financial resources and capital constraints may hinder the acquisition and maintenance of optimal non-current assets, thereby reducing labour efficiency. Moreover, the lack of appropriate asset management practices can exacerbate the situation. Inefficient allocation, subpar maintenance, and underutilization of non-current assets may result in inefficiencies and disruptions in labour operations. The absence of tailored asset management practices specific to ICT companies in Nigeria hinders the realization of labour efficiency potential.

The impact of non-current assets on labour efficiency in ICT companies in Nigeria requires urgent attention. Addressing this challenge involves gaining a comprehensive understanding of the relationship between non-current assets and labour productivity, increased investment in optimal assets, and the implementation of efficient asset management procedures.

1.3 Objectives of the Study

The main objective of this study is to ascertain the effect of non-current assets on the labour efficiency of ICT firms in Nigeria. The specific objectives are:

- i. To investigate the effect of property, plant and equipment on profit per employee of ICT firms in Nigeria.
- ii. To ascertain the effect of investment property on profit per employee of ICT firms in Nigeria.
- iii. To evaluate the effect of intangible assets on profit per labour hour of ICT firms in Nigeria.

1.4 Significance, Scope, and Limitations of the Study

The research investigating the impact of non-current assets on the labour efficiency of Information and Communication Technology (ICT) companies in Nigeria has significant implications for various stakeholders. For ICT business management in Nigeria, the findings provide valuable insights into the correlation between labour efficiency and profitability, enabling them to take proactive measures to motivate and incentivize their employees for improved financial performance. Finance professionals, such as accountants and tax analysts, can benefit from the study's insights on the relationship between non-current assets and profit per employee, allowing them to offer informed advice tailored to individual interests and goals. Additionally, the research

contributes valuable empirical data for researchers and academics in the fields of ICT and finance, serving as a foundation for future studies in this area. Government and regulatory agencies can utilize the study's results to shape and adapt policies that foster a favorable business environment for ICT companies in Nigeria, guided by an understanding of how asset management impacts financial performance and tax revenue collection.

The study's scope includes three selected ICT companies listed on the Nigerian Exchange Group, observed over a ten-year period from 2013 to 2022. Using proxies such as property, plant and equipment, investment property, and intangible assets, the research examines the effect of non-current assets on profit per employee, representing labour efficiency. Despite some limitations, including data availability and a limited sample size, the study provides valuable insights into the dynamic relationship between non-current assets and labour efficiency in Nigerian ICT companies. It emphasizes the importance of maintaining property, plant and equipment to avoid technological obsolescence and highlights the significance of intangible assets in driving profitability. As a result, the study offers practical recommendations for ICT companies to optimize asset utilization, foster innovation, and protect intellectual property rights to maintain competitiveness and profitability in the market.

2. REVIEW OF RELATED LITERATURE

2.1.1 Non-current Assets

According to Business Dictionary (2018), non-current assets can be defined as an asset that is not to be converted to cash within 12 months of the statement of financial position date. It is also a resource that is not expected to be consumed or disposed within the normal operating cycle of a firm. Non-current assets are expected to produce benefits for the business for more than one accounting year (Nnado & Ozouli, 2013). Investopedia (2019) defined non-current assets as company long-term investments where the full value will not be realized within the accounting year. Example of non-current assets include investments, intangible assets, property, plant and Equipment, right to use. Non-current asset appears on the company's statement of financial position.

2.1.2 Property, Plant & Equipment (PP&E)

International Accounting Standard (IAS) 16 defined PPE as tangible items that are (a) Held for use in the production or supply of goods or services, for rental to others, or for administration purposes (b) Expected to be used during more than one period. Property, plant, and equipment are physical or tangible assets that are long-term assets that typically have a life of more than one year. Examples

of property, plant, and equipment (PP&E) include: Vehicles like trucks, Office furniture, Computers and computer software, Machinery, Buildings. Property, plant, and equipment assets are also called fixed assets, which are long-term physical assets.

2.1.3 Investment Property

Investment property is property that an entity holds to earn rental income and/or capital appreciation. It generates cash flows mostly independently of other assets held by an entity. It is not property that an entity uses to supply goods or services, nor is it used for administrative purposes. IAS 40 defined Investment Property as property (land and/or buildings) held to earn rentals or for capital appreciation (or both). Investment property does not suffer depreciation because the assets are being held for capital appreciation.

2.1.4 Intangible Asset

An intangible asset is a non-physical asset having a useful life greater than one year. IAS 38 defines it as an identifiable non-monetary asset without physical substance. It's a long-term asset that accrues value year over year. Examples of intangible assets include intellectual property, brand recognition and reputation, relationships, goodwill and computer software. Amortization is used in place of depreciation here which helps to spread the intangible asset's cost over a number of years allowing the company to earn revenue from the asset.

2.1.5 Labour Efficiency

Labor efficiency plays a critical role in the overall success and competitiveness of organizations. Productive employees effectively utilize their time, skills, and resources to execute tasks successfully, maintaining high-quality standards (Fernandez, 2020). Factors such as employee motivation, training and development, job satisfaction, and work-life balance have been recognized as significant determinants of employee efficiency (Stachowski et al., 2018).

Regarding non-current assets, efficient employees can contribute to the optimal utilization and management of these assets within a company. Non-current assets, including property, plant, and equipment, require proper maintenance, utilization, and optimization to add value to the organization. When employees are efficient, they can ensure the best use of these assets, resulting in greater operational efficiency and potentially higher profitability (Fernandez, 2020). Moreover, organizations that foster employee efficiency tend to experience overall operational efficiency, increased levels of customer satisfaction, and improved profitability (Fernandez, 2020).

2.1.6 Profit per employee

Profit per employee is a crucial performance indicator within the Nigeria ICT industry, providing valuable insights into efficiency and productivity. A higher percentage indicates successful utilization of worker resources, signaling financial stability and overall success (Smith, 2017; Brown, 2020). On the other hand, lower ratios may indicate operational inefficiencies or a lack of profitability. Due to the diverse nature of the industry, certain segments may exhibit higher ratios due to being capital-intensive or technology-driven, enabling them to generate considerable profits with a smaller workforce. Conversely, labour-intensive segments may experience lower ratios due to higher labour costs and lower profit margins (Jones, 2019). By analyzing profit per employee, ICT companies in Nigeria can identify areas for improvement, maximize efficiency, reduce expenses, and benchmark their performance against industry peers (Smith, 2017; Brown, 2020).

2.1.7 Brief Overview of Information and Communication Technology (ICT)

The ICT industry in Nigeria plays a pivotal role in driving economic growth, fostering innovation, and bringing about digital transformation across various sectors. With a dense population, Nigeria offers a vast and limitless market for ICT products and services, encompassing activities like telecommunications, e-commerce, software development, hardware manufacturing, and IT services.

Telecommunications, particularly mobile telephony, has experienced remarkable growth and stands as a significant subsector within the Nigerian ICT industry (Ajayi, 2020). Mobile network carriers have made substantial investments in infrastructure, leading to improved connectivity and widespread access to mobile services throughout the country.

Recognizing the importance of the ICT sector, the Nigerian government has implemented measures to promote and support its growth. The National Information Technology Development Agency (NITDA) has played a crucial role in formulating regulations, actively promoting local content development, and overseeing policy implementation.

Despite the sector's growth and potential, challenges such as low internet penetration and unstable power supply pose constraints to its development. Addressing these infrastructure gaps requires increased investments in areas such as infrastructure development, research & development, and human capital development (Ajayi, 2020).

2.2 Theoretical Framework

The study anchored on Resource-Based View (RBV) Theory.

Barney (1991) proposed the Resource-Based View (RBV) theory, which suggests that a firm's competitive advantage and performance are influenced by its unique and valuable resources and capabilities. Non-current assets like property, plant, and equipment are considered valuable resources within the RBV framework. These assets play a role in enhancing labour efficiency by providing technological infrastructure, fostering innovation, and enabling efficient industrial processes.

To achieve higher performance, effective resource allocation and management are crucial. This involves aligning the utilization of assets with the specific needs of the ICT industry concerning non-current assets and labour efficiency in Nigerian ICT firms. For instance, efficient management of property, plant, and equipment to adapt to technological changes can lead to increased labour efficiency.

According to the RBV hypothesis, resources must be rare, difficult to imitate, and non-substitutable to provide a sustainable competitive advantage. In the context of the ICT industry, this means exploring how non-current assets such as proprietary software, brand awareness, or specialized skills contribute to creating distinct capabilities. These intangible resources not only offer a competitive edge but also enhance labour efficiency.

2.3 Empirical Review

Okwo, et al (2012) studied the relationship between Investment in Fixed Assets and Firm Profitability: Evidence from the Nigerian Brewery Industry. Data for the study was extracted from four (4) listed firms on the Nigeria Stock Exchange during the period 1999 to 2009. Findings from the regression analysis showed a positive insignificant relationship between investment in fixed assets and profitability of Nigerian Brewery Industry.

Ubesie and Ogbonna (2013) studied the Evaluation of the Effect of Non-Current Assets on Return on Assets of Cement Manufacturing Industry in Nigeria. Data for the study was sourced from annual reports and accounts of selected cement manufacturing firms covering the period 2004 – 2013. Findings revealed that noncurrent assets insignificantly affect the return on assets of cement manufacturing industry in Nigeria.

Olatunji and Adegbite (2014) studied the Relationship between Investment in Fixed Assets and Firm Profitability: Empirical Evidence from the Nigerian Banking Sector. Data were obtained from annual reports and accounts of selected Nigerian commercial Banks. The findings of the pearson

product moment correlation and multiple regressions showed that there is a significant relationship between the dependent variable (Net Profit) and the independent variables (Building, information communication and technology, machinery, leasehold, land and fixture and fitting).

Li and Wang (2014) explored the Influence of Intangible Assets on Profitability of Publicly Listed Firms in the Information and Communication Technology (ICT) Sector of Hong Kong. The results of the multiple regressions depicted a positive relationship between the independent variables (research and development cost and sale training expense) and ROA.

Gamayuni (2015) empirically tests the relationship between intangible assets, financial policies, and financial performance on firm value in Indonesia's going-public business from 2007-2009. Interestingly, intangible assets, financial policies, and financial performance have a significant effect on firm value. Important assets have no significant influence on financial policies but have had a positive and significant effect on financial performance (ROA) and firm value. Debt policies and financial performance (ROA) have had a strong and important effect on firm price. Limitation of financial statements in measuring and disclosing

Oluwaremi and Memba (2016) conducted a study that strives to find out the Relationship between Asset Management and the Financial Performance of Listed Manufacturing Firms in Nigeria. Data for the study was sourced from the annual reports and accounts of the 74 manufacturing companies listed on Nigeria Stock Exchange for the periods 2005 – 2014. Findings of the regression and correlation analysis showed that there was a significant and positive relationship between asset management and the financial performance of listed manufacturing companies in Nigeria.

Nnado and Ozouli (2016) studied the Effect of Intangible Assets on Economic Value Added of Selected Manufacturing Firms in Nigeria. Data for the study was drawn from the audited annual reports of 46 manufacturing firms listed on the Nigeria Stock Exchange for the periods studied. The results of the Regression Correlated Panels Corrected Standard Errors (PCSEs) showed a strong negative relationship between Economic Value Added and Intangible assets. Conversely, there is a perfect positive relationship between EVA and ROA.

Nijun (2017) researched on the effect of intangible assets on firms' economic performance in listed telecommunication firms in China. Intangible assets ratio (intangible assets divided by total assets) is used as an independent variable whereas the return on assets (ROA) as the dependent variable. There is a positive and significant correlation between intangible assets and the firm's profitability.

Mwaniki and Omagwa (2017) studied Asset Structure and Financial Performance: A Case of Firms Quoted under Commercial and Services Sector at the Nairobi Securities Exchange, Kenya. Data

were drawn from the annual reports and accounts of the firms considered in the study for the periods 2010 – 2014. The results of the study revealed that: property, plants and equipment, and long-term investments have a statistically significant effect on financial performance, while current assets and intangible assets do not have statistical significance on financial performance.

Mbogo (2018) studied the effect of Real Estate Investment Strategies on financial performance Groups in Kenya. Descriptive research design was adopted. The result unveiled that there was a positive correlation between financial performance and all investment strategies with a beta of 4.496.

Aima and Muhammad (2020) studied how oil prices and investments effect on the dynamics of firm value. The study develops a system dynamics model that integrates the financial and operational activities of oil firms. The simulation results reveals that when oil and gas prices increases, positive future expectations lead to increased investments and reduced cash flow.

LLic (2021) studied the effect of oil prices on profitability and investment activity of oil companies from Central and Eastern Europe (CEE). The result based on descriptive statistics and panel data analysis revealed that oil price had less influence on profitability and investment activities of CEE oil companies in comparison to oil majors.

2.4 Gap in Empirical literature

The existing empirical research on non-current assets and labour efficiency in Nigeria has primarily focused on the industrial and oil and gas sectors, neglecting the crucial ICT sector. This creates a significant gap in the literature, given the ICT sector's vital role in the country's economy, and it calls for more attention in empirical investigations.

Moreover, among the limited studies that have explored the relationship between non-current assets and efficiency in ICT firms, there is a notable absence of research on labour efficiency measured by employee profit per year. This further highlights the need for more comprehensive research, as profit per employee serves as a crucial indicator of a company's labour efficiency and productivity.

Additionally, the majority of the existing research in this subject predates the year 2021, making the current study conducted in 2023 particularly relevant and up to date. By addressing these gaps, this study aims to contribute to a better understanding of the relationship between non-current assets and labour efficiency in Nigerian ICT firms and provide more current insights into this essential sector.

3. METHODOLOGY

3.1 Research Design

The research adopted an ex-post facto research methodology, allowing for future replication by different researchers to verify or challenge its findings. The study was conducted in Nigeria, with a specific focus on the Information and Communication Technology (ICT) sector in the country. Secondary data from the annual reports and accounts of the selected firms served as the primary data sources. The study's target population consisted of nine ICT companies listed on the Nigeria Exchange Group as of December 31, 2022. However, due to a 10-year data gap, the researcher opted for a sample of three ICT firms from the Nigeria Exchange Group (NGX). Some companies were excluded from the sample due to factors such as insufficient trading experience and a lack of investment in property. Ultimately, based on data availability, the study narrowed its scope to include E-transact International Plc, Computer Warehouse Group Plc, and Courteville Business Solutions Plc, using non-probabilistic and purposive sampling approaches.

3.2 Method of Data Analysis

Panel multiple regressions were employed to analyze the effect of non-current assets on the labour efficiency of ICT firms in Nigeria. The study utilized the Ordinary Least Squares (OLS) technique, chosen for its simplicity in computation and equivalence of results with other methods commonly used in practice.

3.3 Model Specification

Model specification entails identifying the dependent and independent variables that are important in a given situation. The model was specified in line with Inyama and Ezeugwu (2016) with the following mathematical formula:

$$\text{PPEMPL} = F(\text{PPE}, \text{INVP}, \text{INTA}) \quad [\text{Equation (1)}]$$

$$\text{PPEMPL}_{it} = \beta_0 + \beta_1 \text{PPE}_{it} + \beta_2 \text{INVP}_{it} + \beta_3 \text{INTA}_{it} + \text{C}_{it} + \varepsilon_{it} \quad [\text{Equation (2)}]$$

Where; PPEMPL: Profit per Employee

PPE: Property, Plant, and Equipment

INVP: Investment Property

INTA: Intangible Assets

β_0 is the constant term or intercept for firm i in the year t .

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5,$ and β_6 are linear regression coefficients to be estimated.

C_{it} is the non-observable individual effect while ε_{it} is the disturbance or error term for firm i in the year t .

3.4 Statement of Decision Criteria

According to Gujarati and Porter (2009), the decision rule for hypothesis testing involves considering multiple criteria. To accept the alternate hypothesis (H1), the following conditions should be met:

- i. The sign of the coefficient should be either positive or negative, indicating a clear direction of the relationship.
- ii. The modulus (absolute value) of the t-statistic should be greater than 2.0, suggesting a significant deviation from the null hypothesis.
- iii. The p-value associated with the t-statistic should be less than 0.05, indicating statistical significance.

If any of these conditions are not met, the null hypothesis (H0) is accepted, and the alternate hypothesis (H1) is rejected.

4. DATA ANALYSIS

Table 4.1: Descriptive Statistic for the Variables Under Study

	PPEMPL	PPE	INVP	INTA
Skewness	-2.586362	0.531625	-0.258381	0.881978
Kurtosis	11.37491	1.832293	1.241583	2.230592
Jarque-Bera	121.1203	3.117550	4.198841	4.629408
Probability	0.000000	0.210394	0.122527	0.098795
Observations	30	30	30	30

Source: Author's Computation from Eviews 10.0 Statistical Software

Table 4.1 presents the variable description of the panel data consisting of 30 observations for the sampled information and communication technology (ICT) firms. The coefficients of Skewness, Kurtosis, and Jarque-Bera Probability provide insights into the normality of the distribution of the data series.

Analyzing Table 4.1, it can be observed that the Jarque-Bera Probability indicates the normal distribution of property, plant, and equipment (0.210394), investment property (0.122527), and intangible assets (0.098795), as their JB probabilities are greater than 5%. However, the distribution of profit per employee (0.000000) is non-normal, with a JB probability less than 0.05.

The skewness coefficients further support the normal distribution of property, plant, and equipment (0.531625), investment property (-0.258381), and intangible assets (0.881978). In contrast, profit per employee exhibits a skewness coefficient of -2.586362, indicating a non-normal distribution.

Confirming the normal distribution, the kurtosis coefficients for property, plant, and equipment (1.832293), investment property (1.241583), and intangible assets (2.230592) fall within the range of a normal distribution (less than 3). However, the kurtosis coefficient for profit per employee is 11.37491, indicating a non-normal distribution.

In summary, the findings from Table 4.1 suggest that property, plant, and equipment, investment property, and intangible assets exhibit a normal distribution, while profit per employee demonstrates a non-normal distribution.

Regression Results (OLS)

After the application of the ordinary least square (OLS) estimation method on the model earlier suggested in section three, the following results shown in the table below were obtained.

Table 4.2: Multiple Regression Result (Dependent Variable: PPEMPL)

Variable	Coefficient	Standard Error	t-Stat	p-Value
PPE	-0.003287	0.001351	-2.433940	0.0224
INVP	-0.001419	0.001612	-0.880347	0.3871
INTA	0.006589	0.002198	2.998110	0.0061
C	1644.664	837.1049	1.964704	0.0607

$R^2 = 0.856$, Adjusted $R^2 = 0.833$, F-Stat = 37.03903, Prob(F-stat) = 0.000000, D.W. Stat. = 1.94

Source: Author's Computation, 2023 (Eviews 10.0 Statistical Software)

Property, Plant, and Equipment: The value of the t-statistics (-2.433940 > 2) and the probability of the t-Statistic (0.0224 < 0.05) shows that property, plant, and equipment has a statistically significant effect on the profit per employee of ICT firms in Nigeria.

Investment Property: The value of the t-statistics (-0.880347 < 2) and the probability of the t-Statistic (0.3871 > 0.05) shows that investment property has a statistically non-significant effect on the profit per employee of ICT firms in Nigeria.

Intangible Assets: The value of the t-statistics (2.998110 < 2) and the probability of the t-Statistic (0.0061 < 0.05) shows that investment property has a statistically significant effect on the profit per employee of ICT firms in Nigeria.

Statistical Criteria (First Order Tests)

The Adjusted R² value of 0.833 indicates that approximately 83% of the variations in profit per employee in Nigerian ICT firms can be explained by the independent variables considered in the model. The remaining 17.7% can be attributed to other factors that influence profit per employee within the industry, as well as factors captured within the error term.

The significance of the model as a whole is evaluated using the f-statistic. In this case, the p-value (0.000000) is less than the 5% critical value, indicating that the model is statistically significant and well-fitted. This implies that the independent variables collectively have a substantial impact on the profit per employee in the ICT industry.

The Durbin Watson Statistic, with a value of 1.94, provides insights into the presence of positive autocorrelation within the time series data. A value of 1.94 suggests that there is an absence of positive autocorrelation, indicating that the observations in the data are not significantly correlated with each other over time.

4.3 Test of Hypotheses

The hypotheses were tested using the decision rule stated in section three of the study. The hypotheses were tested using Table 4.2 (Multiple Regression Result).

Hypothesis One

H₀: Property, plant, equipment has a non-significant effect on profit per employee of ICT firms in Nigeria.

H₁: Property, plant, equipment has a significant effect on profit per employee of ICT firms in Nigeria.

Decision: From the regression analysis result in Table 4.2, the p-value for property, plant, and equipment is 0.0224 which is less than the alpha value of 0.05. Also the t-statistic of -2.433940 is greater than 2. It falls in the rejection region, hence, we reject the first null hypothesis (H₀). The conclusion here is that property, plant, and equipment has a statistically significant negative effect on profit per employee of ICT firms in Nigeria.

Hypothesis Two

H₀: Investment property has a non-significant effect on profit per employee of ICT firms in Nigeria.

H₁: Investment property has a significant effect on profit per employee of ICT firms in Nigeria.

Decision: From the regression analysis result in Table 4.2, the p-value for investment property is 0.3871 which is greater than the alpha value of 0.05. Also the t-statistic of -0.880347 is less than 2. It falls in the acceptance region, hence, we accept the first null hypothesis (H_0). The conclusion here is that investment property has a statistically non-significant negative effect on profit per employee of ICT firms in Nigeria.

Hypothesis Three

H_0 : Intangible assets has a non-significant effect on profit per employee of ICT firms in Nigeria.

H_1 : Intangible assets has a significant effect on profit per employee of ICT firms in Nigeria.

Decision: From the regression analysis result in Table 4.2, the p-value for intangible assets is 0.0061 which is less than the alpha value of 0.05. Also the t-statistic of 2.998110 is greater than 2. It falls in the rejection region, hence, we reject the first null hypothesis (H_0). The conclusion here is that intangible assets has a statistically significant positive effect on profit per employee of ICT firms in Nigeria.

4.4 Discussion of Findings

4.4.1 Effect of Property, Plant, and Equipment on Profit per Employee

The results of the panel multiple regressions revealed a statistically significant negative effect of property, plant, and equipment on the profit per employee of ICT firms in Nigeria. The data indicated that a one-unit increase in property, plant, and equipment led to a 0.003 decrease in profit per employee for these firms. This finding was contrary to the researcher's initial expectations. However, considering the nature of the ICT industry, which is characterized by rapid technological advancements, the negative impact is not surprising. Such advancements can lead to higher fixed costs associated with property, plant, and equipment. Inefficient utilization of these assets or their becoming outdated can adversely affect profit per employee. Technological obsolescence poses a significant challenge as investments in property, plant, and equipment may lose value over time, resulting in reduced profits.

Given that ICT firms heavily rely on human capital, allocating resources to fixed assets might divert funds from developing human capital and innovation, both of which are essential for competitiveness and increasing profit per employee. This resource allocation also presents an opportunity cost, as these funds could be invested in areas with a more direct positive impact on profit, such as research and development or talent acquisition. Inefficient asset utilization or underutilization further exacerbates the negative effect on profit per employee. To address these

challenges in the ICT industry, efficient management practices, staying up-to-date with technology, and strategic resource allocation are crucial. By addressing these issues, ICT firms can better optimize their profits and enhance overall performance.

The finding is in line with the submission of Olatunji and Adegbite(2014) who established significant relationship between PPE and financial performance. On the other hand, the finding negates the stands of Ubesie and Ogbonna (2013), Oluwaremi and Memba (2010). The differences may be as a result of analytical techniques adopted and sectorial variances

4.4.2 Effect of Investment Property on Profit per Employee

The outcomes of the panel multiple regression analysis indicated that investment property had an insignificant negative impact on the profit per employee of Nigerian ICT firms. According to the visual representation, a single-unit increase in investment property was associated with a 0.001 reduction in profit per employee for these ICT firms. The lack of a significant negative influence of investment property on profit per employee in Nigeria aligns with the researcher's initial prediction. This alignment may be attributed to the notion that investment property's impact on profit per employee might be less pronounced in comparison to other sectors. In the case of ICT firms, their primary focus is on providing technology-driven services and solutions rather than extensive engagement in real estate operations.

The profitability of these ICT companies is primarily driven by factors such as revenue generated from service contracts, innovation capabilities, project efficiency, and customer satisfaction, which collectively exert a greater influence on overall profitability than investment property does. Nigerian ICT firms may also have well-established procedures in place for effectively managing their investment assets to ensure that they do not adversely affect profit per employee. They prioritize the efficient utilization and cost-effectiveness of their core ICT assets and may opt for leasing or outsourcing solutions to fulfill their real estate requirements. Additionally, within the Nigerian ICT industry, market dynamics like intense competition and market saturation could overshadow the impact of investment property on profitability.

This finding contradicts the conclusions drawn by Aima and Muhammad (2020), LLic (2021), and Mbogo (2018), who identified a significant positive relationship between investment property and the profitability of firms in the Central and Eastern European oil sectors and the Real Estate Investment Group in Kenya. Such disparities may arise due to variances in sectors and economic conditions between Nigeria and other countries like Kenya and Eastern Europe.

4.4.3 Effect of Intangible Assets on Profit per Employee

The outcomes of the panel multiple regressions unveiled a statistically significant positive impact of intangible assets on the profit per employee of Nigerian ICT companies. The study also indicates that a one-unit increase in intangible assets corresponds to a 0.007 rise in profit per employee for these Nigerian ICT firms. This significant favorable influence of intangible assets on profit per employee in Nigeria aligns with the researcher's initial anticipations. This alignment can be attributed to the crucial role that intangible assets play in driving profit per employee for multiple reasons.

Firstly, the heavy reliance of ICT firms on innovation for maintaining competitiveness underscores the significance of significant intangible assets like proprietary software and unique algorithms, which offer a distinctive advantage by enabling the creation of cutting-edge products and the attraction of new customers. Secondly, intangible assets like brand reputation and customer loyalty assume paramount importance as they bolster market visibility, foster customer trust, and enable the implementation of premium pricing strategies, ultimately leading to higher profit margins. Thirdly, the expertise and experience of skilled personnel in the ICT sector contribute to enhanced service quality, operational efficiency, and customer satisfaction, thereby resulting in increased fees and improved financial performance. Intangible assets can also generate revenue through licensing and royalty agreements, allowing firms to monetize their intellectual property. Finally, the enduring value and scalability offered by intangible assets, applicable to a wide range of projects, clients, and markets, further enhance efficiency and profitability within the dynamic ICT industry.

These findings concur with the conclusions drawn by Li and Wang (2014), Nijun (2017), and Gamayumi (2015), all of whom affirm the statistically significant positive impact of intangible assets on firms' financial performance.

5. SUMMARY OF FINDINGS, CONCLUSION, AND RECOMMENDATIONS

5.1 Summary of Findings

The findings are summarized as follows:

- i. Property, plant, and equipment had significant negative effect on profit per employee of ICT firms in Nigeria with a t-statistic of -2.433940 and a p-value of 0.0224.
- ii. Investment property had statistically non-significant negative effect on profit per employee of ICT firms in Nigeria with a t-statistic of -0.880347 and a p-value of 0.3871.
- iii. Intangible assets had statistically significant positive effect on profit per employee of ICT firms in Nigeria with a t-statistic of 2.998110 and a p-value of 0.0061.

5.2 Conclusion and Recommendations

Addressing the impact of non-current assets on employee efficiency within Nigerian ICT firms requires immediate attention. To effectively tackle this issue, a comprehensive understanding of how property, plant, and equipment, investment property, and intangible assets influence employee profit is imperative. The findings from the panel multiple regressions reveal that property, plant, and equipment have a statistically significant adverse effect on the profit per employee of Nigerian ICT companies. This outcome aligns with the notion that rapid technological advancements and associated fixed costs in the ICT industry can impact profitability. Factors such as technological obsolescence and diverted resources from human capital development and innovation exacerbate this negative effect. In contrast, investment property demonstrates a statistically non-significant negative impact on profit per employee in Nigerian ICT firms. This suggests that the influence of investment property on profitability may be less pronounced in companies primarily focused on technology-driven services rather than real estate operations. Elements like income from service contracts, innovation capabilities, and customer satisfaction have a more substantial impact on profitability.

Conversely, intangible assets exhibit a statistically significant positive impact on employee profit, in line with predictions. Assets like proprietary software, brand recognition, and specialized expertise contribute to a competitive advantage, increased revenues, and enhanced service quality. Monetizing intellectual property and the scalability of intangible assets further amplify profitability in the dynamic ICT sector. These findings underscore the significance of effective asset management, strategic resource allocation, and staying abreast of technological shifts to optimize profit per employee within the Nigerian ICT industry.

Guided by the implications of non-current asset influence on labor efficiency in Nigerian ICT enterprises, the following recommendations are proposed:

- i. Given the substantial negative effect of property, plant, and equipment on profit per employee, prioritizing robust asset management is advised. This entails continuous monitoring of asset utilization and maintenance to ensure efficient usage and prevent obsolescence. Implementing robust asset monitoring systems and conducting regular assessments of asset efficiency may pinpoint areas for improvement and alleviate the detrimental impact on profit potential.
- ii. Despite the statistically insignificant negative influence of investment property on profit per employee, prudent real estate asset management should be underscored. Exploring options

such as leasing or outsourcing for real estate needs can help ICT firms avoid adverse outcomes. Such strategies provide flexibility and enable more efficient resource allocation to areas with a greater impact on profit potential, such as innovation and customer satisfaction.

- iii. Enhanced management and utilization of intangible assets are recommended, given their statistically significant positive effect on profit per employee. ICT companies should prioritize strategies that foster innovation while safeguarding intellectual property rights. This involves investment in research and development (R&D) activities, cultivating a culture of innovation and knowledge-sharing among employees, and employing effective branding and marketing strategies to establish a robust reputation. Regular review and adjustment of intangible asset valuation can help ensure their sustained contribution to competitiveness and profitability.

By adhering to these principles, Nigerian ICT firms can better harness the effects of non-current assets, enhance labour efficiency, and optimize profit per employee within the rapidly evolving ICT sector.

5.4 Contribution to Knowledge

This study adds to the body of knowledge by addressing gaps present in the current empirical literature and providing fresh insights into the effect of noncurrent assets on labour efficiency of Nigerian ICT firms. Firstly, the research highlights the underrepresentation of the ICT sector in previous studies, which predominantly concentrated on the industrial and oil and gas sectors. By specifically delving into the ICT sector, this study enhances the understanding of how noncurrent assets impact labour efficiency in a sector pivotal to the nation's economy.

Secondly, this research contributes to the literature by focusing on labour efficiency as gauged by profit per employee, a dimension overlooked in prior investigations. The study underscores the significance of scrutinizing the adeptness with which companies leverage their workforce to generate profits, employing profit per employee as a metric of labour efficiency. This vantage point offers valuable insights into the interconnectedness of noncurrent assets and labour efficiency within Nigerian ICT enterprises.

Moreover, the timing of this study holds significance, being conducted in 2023, thereby providing contemporary perspectives on the nexus between noncurrent assets and labour efficiency in the Nigerian ICT landscape. This infusion of current findings enriches the existing knowledge reservoir

and ensures the relevance and timeliness of the conclusions for policymakers, industry professionals, and academia.

The outcomes of this research contribute to discerning the implications of property, plant, and equipment, investment property, and intangible assets on profit per employee in the Nigerian ICT domain. The adverse impact of property, plant, and equipment underscores the challenges stemming from rapid technological advancements and the diversion of resources from innovation and human capital development. The insignificance of investment property's effect on profitability suggests a diminished role in technology-centric organizations. Conversely, the affirmative influence of intangible assets accentuates the significance of intellectual property, brand recognition, and specialized expertise in augmenting profitability and gaining competitive edge within the swiftly evolving ICT industry.

6. REFERENCES

- Abubakar, Modibbo. (2015). Intangible assets and value relevance of accounting information of listed high-tech firms in Nigeria. *Research Journal of Finance and Accounting*, 6, 60-79.
- Adeniran, A. (2018). Challenges and practices in non-current asset accounting: A case study of Nigerian ICT companies. *International Journal of Accounting and Finance*, 7(2), 112-126.
- Ajayi, A. O. (2020). The role of the ICT sector in Nigeria's economic growth. *Journal of Economics and Sustainable Development*, 11(14), 17-26.
- Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120.
- Brown, C. (2020). Profit per employee as a performance metric. *Journal of Business Management*, 18(3), 45-62.
- Castro, W.O. & Benetti, C. (2012). The impact of intangible assets on the market value of companies that compose the Brazilian stock exchange Index.
- Corporate Finance Institute (2019). What is property, plant and equipment? *An article available at <https://corporatefinanceinstitute.com/resources/knowledge/accounting/ppe-property-plant-equipment/>*
- Eniola, V.O. & Memba, F. (2016). Relationship between asset management and financial performance of listed manufacturing firms in Nigeria. *International Journal of Social Sciences and Information Technology*, 2(6), 1258-1277.
- Erawati, N. M. A., & Sudana, I. P. (2005). Intangible assets, company values, and financial performance. doi: 10.5897/AJBM2017.8429
- Fatt, L.S. (2013). An empirical study on the impact of intangible assets on cash flows: A comparison between industrial product sector and trading/service sector in Malaysia. *International Journal of Business, Economics and Law*, 2(1), 129-137.

- Fernandez, M. (2020). The importance of labour efficiency in organizational success. *International Journal of Human Resource Management*, 30(5), 789-806.
- Fernandez, S. (2020). *Employee efficiency. In The SAGE Encyclopedia of Business Ethics and Society (2nd ed., Vol. 2, pp. 679-682)*. Sage Publications.
- Gamayuni, R. R. (2015). The effect of intangible asset, financial performance and financial policies on the firm value. *International Journal of Scientific & Technology Research*, 4(1), 202-212.
- Investopedia (2019). Property, Plant and Equipment. An article available at <https://www.investopedia.com/terms/p/ppe.asp>
- Inyama, O.I., Ugbor, R.O. & Chukwuani, V.N. (2017). Evaluation of the relationship between assets growth rate and financial performance of manufacturing firms in Nigeria. *International Journal of Managerial Studies and Research (IJMSR)*, 5(10), 63-73.
- Iqbal, A. & Mati, M. (2012). Relationship between non-current assets & firms profitability. *Munich Personal RePEc Archive. Online at <http://mpa.ub.uni-muenchen.de/44132/>*
- Jones, R. (2019). Profit per employee ratios in the ICT industry. *Journal of ICT Economics*, 12(2), 32-49.
- Lubyanaya, A.V., Izmailov, A.M., Nikulina, E.Y. & Shaposhnikov, V.A. (2016). Evaluation of the effect of non-current fixed assets on profitability and asset management efficiency. *International Journal of Environmental & Science Education*, 11(15), 7745-7753.
- Martins, J., & Alves, S. (2010). The impact of intangible assets on financial and governance policies: A literature review. *Portuguese Journal of Management Studies*, 15(1), 87-107.
- Mendoza, R.R. (2017). Relationship between intangible assets and cash flows: An empirical analysis of publicly listed corporations in the Philippines. *Review of Integrative Business and Economics Research*, 6(1), 188-202.
- Mwaniki, G. & Omagwa, J. (2017). Asset structure and financial performance: A case of firms quoted under commercial and services sector at the Nairobi Securities Exchange, Kenya. *Research Journal of Finance and Accounting*, 8(4), 192-200.
- NBS (National Bureau of Statistics). (2020). ICT sector in Nigeria: An overview. Retrieved from [URL]
- Okobo, M.M. & Ikpor, I.M. (2017). Impact of fixed asset investment on banks financial performance in Nigeria. *Funai Journal of Accounting, Business and Finance (FUJABF)*, 1(1), 241-254.
- Okwo, I.M., Ugwunta, D.O. & Nweze, A.U. (2012). Investment in fixed assets and firm profitability: Evidence from the Nigerian brewery industry. *European Journal of Business and Management*, 4(20), 10-17.
- Olatunji, A., Adegbite, S., & Tajudeen, S. (2014). Non-current assets and firm efficiency: Empirical evidence from Nigerian ICT firms. *Journal of Business Management and Economic Research*, 3(2), 45-59.

- Olatunji, T.E. & Adegbite, T.A. (2014). Investment in fixed assets and firm profitability: Empirical Evidence from the Nigerian banking sector. *Asian Journal of Social Sciences and Management Studies*, 1(3), 78-82.
- Osabuohien, E. S. (2018). Non-current assets and efficiency of ICT companies in Nigeria: A resource-based perspective. *African Journal of Economic Review*, 6(1), 76-90.
- Piluso, F. (2013). Intangible assets and profitability in the Italian banking industry: Which relationship? *Eurasian Journal of Business and Management*, 1(2), 1-15.
- Ruiwen, Z. & Honghui, G. (2010). An empirical test of the impact of intangible assets on enterprise performance of Chinese social services listed companies. *Proceedings of the 7th International Conference on Innovation & Management*, 1373-1377.
- Smith, L. M. (2017). Evaluating productivity in the ICT industry: The role of profit per employee. *Journal of Information Technology Management*, 24(3), 54-72.
- Stachowski, A. A., Kaplan, S. A., & Waller, M. J. (2018). *Employee efficiency*. In *The Wiley Blackwell Encyclopedia of Organizational Psychology* (1st ed., pp. 1-3). Wiley.
- Stachowski, A. A., Stanley, D. J., Bourassa, M. A., Hernandez, M., & Weinhardt, J. M. (2018). Employee efficiency: A review of factors influencing workplace performance. *Journal of Applied Psychology*, 103(4), 411-429.
- Taipi, E. & Ballkoci, V. (2017). Capital expenditure and firm performance evidence from Albanian construction sector. *European Scientific Journal*, 13(28), 231-238.
- Tudor, A.T., Ștefana, D.C., Dima, B. & Rațiu, R.V. (2014). The linkage between intangibles and profitability. *Annales Universitatis Apulensis Series Oeconomica*, 16(1), 283-293.
- Ubesie, M. C. (2013). Capital intensive firms and efficient asset utilization: A case study of the Nigerian ICT industry. *Journal of Applied Economics and Business Research*, 3(4), 230-242.
- Ubesie, M.C. & Ogbonna, E.E. (2013). Evaluation of the effect of non-current assets on return on assets of cement manufacturing industry in Nigeria. *Journal of Theoretical & Applied Statistics*, 3(2), 22-30.
- World Bank. (2019). Nigeria ICT sector development project: Project appraisal document. Retrieved from [URL]
- Zhang, N. (2017). Relationship between intangible assets and financial performance of listed telecommunication firms in China, based on empirical analysis. *African Journal of Business Management*, 11 (24), 751-753.