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Integrating Sustainable Practices In Accounting And Office Technology: A Pathway To Resource Optimization In Developing Economies

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Abstract

This study investigates the impact of integrating sustainable practices in accounting and office technology on resource optimization in developing economies, focusing specifically on Nigeria. Primary data were collected through an online questionnaire distributed via accessible social media, yielding a sample size of 150 respondents. Data analysis was conducted using EViews software, revealing a significant positive impact of sustainable accounting practices (SAP) (18%, $p = 0.007$) and sustainable office technology (SOT) (89%, $p = 0.000$) on resource optimization (RO) in Nigeria. The model's R-squared value of 77% indicates that the explanatory variables (SAP and SOT) accounted for 77% of the variation in RO, with the remaining 23% attributable to error. The F-statistic of 245.02 ($p = 0.000$) confirms the collective significance of SAP and SOT on RO, while the Durbin-Watson statistic of 2.04 suggests no autocorrelation in the results. The study conclude that organizations committed to SAP and SOT not only enhance resource efficiency but also contribute to broader sustainability goals by minimizing environmental impact and operational costs. This study advances knowledge by integrating sustainable accounting practices (SAP) and sustainable office technology (SOT), introducing cultural diversity in SAP, technology lifespan management in SOT, and revenue per employee as a proxy for resource optimization (RO) to enhance resource efficiency in developing economies.

Keywords: Sustainable Accounting, Office Technology, Resource Optimization, Developing Economies

INTRODUCTION

Sustainable business operations refer to practices that enhance economic profitability while minimizing environmental impact and fostering social responsibility. In today's globalized economy, sustainability has become essential for companies aiming to balance growth with ecological and social considerations [1]. Companies are increasingly recognizing that sustainable practices lead to long-term success by reducing operational costs, enhancing corporate reputation, and complying with evolving regulations and consumer expectations [2]. Sustainability involves more than reducing waste or cutting emissions; it encompasses an overarching strategy of resource optimization, energy efficiency, and responsible production. For organizations in developing economies, integrating sustainability into business operations can provide a competitive edge, resilience to global challenges, and alignment with the Sustainable Development Goals (SDGs) [3], which prioritize inclusive economic growth and environmental stewardship. More so, integrating sustainability into accounting and office technology is crucial for promoting responsible business practices and resource management. The sustainable accounting practices consider environmental and social impacts alongside financial outcomes, such as green accounting, which tracks environmental costs associated with business activities [4]. Digital accounting tools that reduce paper use, energy consumption, and waste are gaining prominence as companies seek to minimize their ecological footprints [5].

Sustainable office technology supports this goal by fostering a digitally efficient workplace. Practices such

as transitioning to paperless environments, using energy-efficient devices, and implementing digital record-keeping systems are becoming standard for sustainable resource management [6]. Together, these practices in accounting and office technology allow companies to optimize resources, promote environmental stewardship, and drive substantial cost savings [7]. Meanwhile, sustainable practices in accounting and office technology are paramount for several reasons: By transitioning to sustainable practices, organizations can significantly reduce operational costs associated with energy, materials, and waste management. For example, companies that implement energy-efficient technologies can lower their utility bills while minimizing their ecological footprint [4]. Additionally, sustainable accounting practices help businesses identify inefficiencies, leading to better resource management and cost reductions [5]; Also, companies that prioritize sustainability are often viewed more favorably by consumers and stakeholders. By demonstrating a commitment to social responsibility and environmental stewardship, organizations can enhance their reputation and attract environmentally conscious consumers [8]. Furthermore, compliance with increasingly stringent environmental regulations can mitigate legal risks and ensure long-term viability.

Furthermore, sustainable practices in accounting and office technology contribute to achieving the SDGs, particularly in developing economies where such initiatives can foster economic growth and reduce inequalities. By aligning business operations with these goals, organizations can play a pivotal role in promoting sustainable development and social inclusivity [3]. The sustainable accounting practices provide a holistic view of a company's performance, incorporating both financial and non-financial metrics. This comprehensive approach facilitates better decision-making, enabling organizations to prioritize initiatives that yield long-term benefits [9]. Thus, the use of advanced office technologies streamlines operations, leading to enhanced productivity and efficiency. Also, this study showcased how SAP and SOT collectively contribute to capacity-building and sustainable business models, thus, this study aligns closely with the theme of the International Conference on Capacity Building for Inclusive Sustainable Development in Business, Management, and Entrepreneurship (CBISD 2025/Exhibition)**.** However, this study is motivated by the need for sustainable development within e economies, where economic growth often brings significant environmental and social challenges. Despite the advantages of sustainability, many organizations in developing markets are still in the early stages of adopting these practices [9]. Accounting and office technology, as foundational components of business management, offer practical entry points for promoting sustainability [7, 9].

Research Problem Statement

In developing countries, resource optimization remains a critical factor in achieving sustainable development. Organizations often face the dual challenge of maintaining profitability while addressing growing environmental concerns. Sustainable accounting and office technology practices offer promising pathways to achieve this balance; however, their adoption in developing economies is limited due to various structural, economic, and technological barriers. Thus, despite increasing attention to sustainable practices, the previous studies have primarily treated sustainable accounting practices (SAP) such as [10, 11, 12, 13, 14, 15,8) and sustainable office technology such as [16, 17,18,19, 20, 21] in isolation and failed to explore their integrated impact on resource optimization. Additionally, the studies have also largely overlooked the role of cultural diversity in shaping SAP, technology lifespan management in SOT and neglected workforce productivity (revenue per employee) as a critical proxy for resource optimization. These gaps limit a comprehensive understanding of how combining these dimensions can enhance sustainability efforts, especially in developing economies where efficient resource utilization is crucial for fostering long-term growth. This study aims to address these gaps by providing a holistic framework that integrates sustainable accounting and office technology practices, while considering cultural diversity, technology lifespan management and workforce productivity (as measured by revenue per employee), to optimize resources and foster sustainable growth.

Flowing from the above, the following research questions were formulated in order to address the identified problems and gapes:

1. What is the impact of sustainable accounting practice on resource optimization in developing economies?

2. Does sustainable office technology practice affect resource optimization in developing economies?

Objective of the Study

The main objective of the study is to investigate the impact of sustainable accounting practice and office technology practice on the resource optimization in the developing economies. To achieve this objective, the following sub-objectives are designed to:

1. investigate the impact of sustainable accounting practice on resource optimization in developing economies.

2. evaluate the effect sustainable office technology practice affect resource optimization in developing economies.

Hypothesis of the Study

The following statements are tested in a null hypothesis:

1. Sustainable accounting practice does not have significant impact on resource optimization in developing economies.
2. Sustainable office technology practice does not significantly affect resource optimization in developing economies.

SIGNIFICANCE OF THE STUDY

This paper's importance lies in the focus of the intersection of Sustainable Accounting Practices (SAP), Sustainable Office Technology (SOT), and Resource Optimization (RO), considering the cultural diversity, technology lifespan management, and workforce productivity. The integration of cultural diversity in SAP makes it an inclusive study in the management of resources. It also investigates how technology life span management in SOT contributes to sustainability, while examining workforce productivity (measured as revenues per employee) in linking sustainable practices to human capital efficiency. These findings have given a framework to the businesses of developing economies for the optimization of resources and fostering inclusive growth while balancing sustainability with productivity. This is particularly relevant for organizations in developing countries like Nigeria, Ghana, Kenya, etc. where sustainability challenges and resource constraints are prominent.

LIMITATIONS OF THE STUDY

The major limitations of this study include the use of a cross-sectional design, which limits the ability to establish causality. The study is also geographically restricted to Nigeria, potentially limiting the generalizability of the findings to other developing economies. Additionally, the reliance on self-reported data from online questionnaires may introduce response biases, affecting the accuracy of the results. However, future studies can overcome the limitations of this study by adopting a longitudinal design to better understand causality among sustainable accounting practices, office technology, and resource optimization over time. Generalizability of findings could also be enhanced if the scope of the study is extended to other developing economies, such as Ghana, Kenya, etc., to offer a wider perspective of the impact of sustainable practices. Moreover, to mitigate biases associated with self-reported data, subsequent research endeavors may consider employing a variety of data collection techniques, including interviews or objective company documentation, in conjunction with surveys to corroborate responses and enhance the accuracy of findings.

LITERATURE REVIEW

Concept of Sustainable Accounting Practice

Sustainable accounting practices have emerged as a critical component for organizations striving to meet environmental, social, and governance (ESG) goals while maintaining financial performance. Traditionally, accounting focused on financial metrics alone, but with rising environmental concerns and stakeholder pressure, there has been a significant shift toward integrating sustainability into accounting frameworks [13]. This shift is encapsulated in "sustainability accounting," which aims to account not only for economic outcomes but also for environmental and social impacts, promoting a more holistic approach to organizational accountability [14,15].

One key aspect of sustainable accounting involves incorporating environmental costs, such as carbon emissions and waste management, into traditional financial reporting. Omotayo [18] emphasizes the need for organizations to embed environmental cost accounting (ECA) practices, which allow firms to identify and manage the environmental costs associated with their operations. ECA aids in resource optimization by highlighting areas where resources can be conserved or costs can be minimized, thus supporting both environmental sustainability and economic efficiency [14].

Social impact reporting, another dimension of sustainable accounting, addresses how companies contribute to societal welfare. This includes reporting on labour practices, community engagement, and other social initiatives. Okoye and Egbunike [15] showed that social impact reporting not only improves transparency but also enhances corporate reputation, as stakeholders increasingly demand accountability for social outcomes. Thus, integrating social impacts into accounting practices helps organizations align their goals with societal expectations and demonstrates a commitment to broader ethical standards. Despite these advancements, barriers remain in implementing sustainable accounting, particularly in developing economies where resources and regulatory frameworks may be limited. As noted by Owusu and Boateng [23], challenges include a lack of expertise, high implementation costs, and limited awareness among decision-makers. These barriers indicate a need for capacity building and policy support to ensure sustainable accounting practices are widely adopted and effectively integrated into organizational operations in these contexts.

Cultural Diversity in Sustainable Accounting Practice (SAP)

Cultural diversity refers to the inclusion of individuals from various cultural backgrounds within an organization, which can significantly influence

sustainable accounting practices [24]. Diverse workforces bring a variety of perspectives that enhance decision-making and foster innovation, particularly in implementing sustainable practices [25]. Research indicates that organizations with culturally diverse teams tend to be more proactive in adopting socially responsible and sustainable accounting practices due to their broader worldview and ethical considerations [26]. However, while studies have explored the role of diversity in corporate governance and performance [27, 28], there is limited research specifically linking cultural diversity to sustainable accounting practices. This gap highlights the need to understand how diverse teams influence sustainability reporting and decision-making processes, particularly in developing economies. Addressing this can provide a more holistic approach to SAP, ensuring that sustainability initiatives align with various cultural and social contexts [29].

Therefore, sustainable accounting practices represent a crucial step for organizations especially in the area of cultural diversity to address sustainability challenges. Thus, integrating environmental, social, and financial considerations, sustainable accounting fosters resource optimization, promotes transparency, and enhances corporate reputation.

Concept of Sustainable Office Technology Practice

Sustainable office technology practices are essential in helping organizations reduce their environmental impact while increasing operational efficiency. Sustainable office technology encompasses energy-efficient equipment, digital documentation, virtual communication tools, and resource management systems [17]. These practices aim to reduce waste, minimize energy consumption, and support sustainability goals, particularly in office settings where technology usage is high [16]. Thus, Energy-efficient office equipment, such as ENERGY STAR-certified devices, is one prominent area of sustainable technology [30]. Research indicates that these devices can substantially lower energy costs, reduce emissions, and extend the equipment lifecycle, providing both environmental and economic benefits to organizations [16]. Thus, implementing energy-efficient equipment helps firms optimize their energy usage and directly contributes to their overall sustainability targets by minimizing their carbon footprint.

The shift toward digital documentation and cloud-based solutions also plays a crucial role in sustainable office technology. Thus, reducing reliance on paper and physical storage, digital tools decrease paper waste, lower printing costs, and improve information accessibility. United Nations [31] opines that adopting digital documentation can reduce operational expenses and align organizations with sustainable development goals by conserving resources and reducing office waste. Furthermore, virtual communication technologies, such as video conferencing, have become increasingly relevant for sustainability. With the ability to reduce travel-related carbon emissions, virtual meetings support environmental goals while promoting organizational efficiency and connectivity [30]. This technology has grown in importance, particularly in light of remote and hybrid work models, which allow companies to reduce their environmental impact while maintaining operational flexibility.

However, the implementation of sustainable office technology also comes with challenges. Research highlights that initial investment costs, technological compatibility issues, and resistance to change can hinder adoption, especially within resource-constrained environments like developing economies [16]. Additionally, regular upgrades and maintenance are required to keep office technology sustainable, which can be financially burdensome for some organizations. Therefore, sustainable office technology practices present a viable path for organizations aiming to reduce their ecological footprint and improve resource optimization [17]. Thus, integrating energy-efficient equipment, digital documentation, and virtual communication tools, organizations can enhance sustainability and operational performance. Despite certain challenges, the long-term benefits of adopting sustainable office technology practices support both organizational and environmental objectives [31].

Technology Lifespan Management in Sustainable office Technology Practice

Technology lifespan management refers to the processes and strategies that organizations implement to extend the operational life of office technology [32]. This includes regular maintenance, software updates, refurbishing, and proper end-of-life recycling to minimize environmental impact [29]. The effective management of technology lifespans contributes to resource optimization by reducing the need for frequent replacements, thus lowering costs and environmental waste [33]. Previous studies have focused on the economic and environmental benefits of technology recycling and disposal [34, 35]. However, limited research has explored comprehensive strategies to manage technology lifespan within sustainable office technology practices, especially in the context of developing economies. This study incorporates technology lifespan management in SOT, addressing gaps in previous research that have largely overlooked its significance in the sustainability practice.

Concept of Resource Optimization

Resource optimization is an increasingly critical goal for organizations seeking to improve efficiency, reduce costs, and minimize environmental impact. It involves the strategic management and efficient use of

resources—such as materials, energy, and human capital—to achieve maximum productivity with minimal waste [36]. Resource optimization has gained importance across industries as organizations address sustainability challenges and seek to balance profitability with environmental stewardship.

One fundamental aspect of resource optimization is the adoption of lean management practices, which focus on minimizing waste and maximizing value. Lean practices are applied to various organizational processes to streamline operations, eliminate inefficiencies, and reduce excess material usage. Studies show that organizations implementing lean principles not only achieve cost savings but also enhance their environmental performance by reducing waste generation and resource consumption [37].

Technology also plays a crucial role in optimizing resources, with advanced analytics, automation, and resource management systems enabling more efficient resource use. For example, resource tracking software and data analytics can help organizations monitor resource usage patterns and identify areas for improvement, leading to better inventory management, energy efficiency, and reduced environmental impact [38]. The use of such technologies allows firms to make data-driven decisions, ensuring that resources are allocated effectively and sustainably.

In terms of human resources, optimization includes enhancing workforce productivity through training, skills development, and optimal workforce allocation. Research indicates that when employees are well-trained and efficiently managed, they contribute more effectively to organizational goals, leading to a reduction in labor costs and an increase in overall productivity [39]. This human-centered approach to resource optimization highlights the importance of aligning human capital with organizational sustainability goals.

However, achieving resource optimization can be challenging, especially in developing economies. Limited access to capital, infrastructure, and technology often constrains organizations' ability to adopt advanced resource optimization practices {38]. Additionally, the lack of awareness and expertise in sustainable resource management can hinder the effective implementation of optimization strategies, particularly in smaller organizations with limited resources.

Therefore, resource optimization is an essential practice for organizations aiming to balance cost efficiency with environmental responsibility. By adopting lean practices, leveraging technology, and optimizing human resources, organizations can achieve better resource efficiency and contribute to broader sustainability goals. Despite some implementation challenges, resource optimization remains a valuable strategy for enhancing organizational performance and sustainability.

Workforce Productivity (Revenue per Employee) in Resource Optimization

Workforce productivity, often measured as revenue per employee, reflects the efficiency and effectiveness with which a firm utilizes its human capital to generate revenue [39]. It is calculated by dividing a company's total revenue by the number of its employees, serving as a proxy for operational efficiency and resource optimization [40]. High revenue per employee indicates a well-managed workforce capable of delivering value, whereas low revenue per employee may suggest inefficiencies or underutilization of human resources [38]. In the context of sustainable practices, workforce productivity is increasingly tied to factors like employee well-being, training, and technology adoption [42]. Lee and Chen [41] emphasized that organizations prioritizing sustainability, such as flexible work environments and professional development, tend to achieve higher workforce productivity. This metric is particularly relevant in resource-constrained environments, such as developing economies, where maximizing productivity is essential for competitive advantage and long-term sustainability [10]. This study incorporates revenue per employee as a proxy for resource optimization, addressing gaps in previous research that have largely overlooked its significance in the sustainability discourse.

EMPIRICAL REVIEW

Sustainable Accounting Practice and Resource Optimization

Empirical studies have increasingly explored the relationship between sustainable accounting practices and resource optimization, indicating a positive correlation between the two. Sustainable accounting, which integrates environmental and social factors into traditional financial metrics, aims to account for broader impacts of business operations beyond profit. This expanded accounting approach helps organizations optimize resources by identifying and addressing inefficiencies in their processes and promoting more sustainable decision-making [10]. Also, Adams and Robertson [11] found that firms employing environmental cost accounting were better able to identify areas of resource wastage, which led to cost savings and improved resource allocation. Their findings suggest that organizations adopting ECA are more likely to achieve sustainable resource utilization by minimizing the environmental impact of their operations.

Another empirical study by Brown [12] supports the connection between sustainable accounting and resource optimization, highlighting how sustainability reporting improves transparency and accountability. The study found that companies actively disclosing environmental and social impacts demonstrated more efficient resource management, as sustainability reports often encourage management to reduce resource-intensive activities and seek alternative, more sustainable practices.

Ogunde and Alade [13] examined sustainable accounting practices in Nigerian manufacturing companies and their effect on resource optimization. The study found a positive correlation, suggesting that organizations implementing sustainable accounting measures, such as energy-efficient resource allocation and waste reduction, reported significant cost savings and operational efficiency gains. The findings underline the role of sustainable accounting practices in enhancing operational sustainability across resource-dependent industries in Nigeria.

Adewuyi and Idowu [14] conducted a study on the adoption of environmental accounting practices in Nigerian small and medium-sized enterprises (SMEs) and how these practices impact resource utilization. Their findings revealed that SMEs that engaged in regular environmental reporting and waste management audits tended to achieve better resource optimization outcomes. The study highlighted the need for more robust regulatory policies in Nigeria to support the adoption of sustainable accounting in SMEs.

Abdullahi and Bello [2] explored the impact of green accounting practices on resource optimization within the agricultural sector in Ghana. The study noted that implementing green accounting and monitoring mechanisms led to efficient resource management, particularly in fertilizer and water usage. This research emphasizes the role of accounting practices tailored to environmental sustainability in enhancing resource use efficiency, a finding relevant to other African countries with agricultural economies, including Nigeria.

Okoye and Egbunike [15] conducted a cross-sectional study in Nigeria focusing on listed companies in the Nigerian Stock Exchange to assess the impact of environmental accounting on resource optimization and corporate performance. Their research revealed that companies with established environmental accounting frameworks managed resources better and showed higher profitability compared to companies without such frameworks. This study suggests that integrating environmental and sustainable accounting practices has the potential to improve both resource optimization and financial outcomes.

Mugambi and Kinyua [44] analyzed sustainable accounting practices in Kenya's energy sector and their implications for resource management and cost reduction. Their findings indicate that companies investing in sustainable accounting systems—specifically for tracking carbon emissions and energy consumption—experienced reduced operational costs and better resource efficiency. The study illustrates the broader benefits of sustainable accounting in resource optimization, relevant to energy-dependent sectors across Africa.

Ekpo and Obot [8] investigated the relationship between corporate social responsibility (CSR) accounting and resource optimization in the Nigerian oil and gas industry. Their study demonstrated that companies engaging in CSR-related accounting, which includes environmental and sustainability reporting, achieved better waste management and material usage efficiency. This research emphasizes the need for sustainability practices in resource-intensive industries to optimize resources and reduce environmental impact.

However, in the empirical review of Sustainable Accounting Practices (SAP) and Resource Optimization (RO), a few studies have found either weak or non-significant correlations between these practices, especially in developing countries or specific industries where implementation challenges may limit effectiveness. Here are some examples:

Akintola [45] examined the relationship between SAP and resource optimization within Kenya's public sector. Their study found that although sustainable practices were encouraged, they were inconsistently applied across departments, with little measurable effect on optimizing resources. They concluded that a lack of resources and inconsistent policy enforcement were major obstacles to achieving positive outcomes. Also, Smith and Johnson [46] investigated SAP and RO in the South African retail sector and found a weak correlation. They argued that while sustainable practices were increasingly integrated into accounting, many organizations lacked the required expertise and technology, thus limiting any significant resource optimization benefits.

Sustainable Office Technology Practice and Resource Optimization

Sustainable office technology practices, which involve energy-efficient equipment, digital processes, and virtual communication tools, are increasingly recognized for their role in optimizing resources within organizations. Empirical studies suggest that these practices support organizations in reducing energy consumption, minimizing waste, and improving overall efficiency. Sustainable office technology practices not only reduce environmental impact but also contribute

to financial savings by optimizing resources and streamlining processes [16]. Also, Oni and Ogunbiyi [17] studied the adoption of energy-efficient office technology in Nigerian financial institutions and its impact on resource optimization. Their research found that financial institutions implementing energy-efficient technologies—such as LED lighting, energy-saving office equipment, and digital record-keeping systems—achieved considerable reductions in operational costs and resource usage. The study highlights the role of sustainable office technology in promoting cost-effective and environmentally responsible business practices in Nigeria.

Njoroge and Muthee [19] investigated the impact of sustainable office technology on resource utilization within the Kenyan telecommunications sector. Their study revealed that companies using cloud-based storage, paperless documentation, and other sustainable office technologies significantly reduced paper and energy usage, leading to optimized resource management. This study emphasizes the environmental and operational benefits of adopting sustainable office technology practices in developing economies, applicable across African countries. Similarly, Ibrahim and Musa [20] analyzed sustainable office technology practices in Nigerian universities and their effect on resource optimization. By implementing digital systems for documentation, energy-efficient office equipment, and virtual collaboration tools, universities reported reduced costs related to paper, printing, and energy usage. This research demonstrates how adopting sustainable technology in the educational sector can contribute to significant resource savings and operational efficiency.

Owusu and Boateng [23] conducted a study on Ghanaian government offices focusing on the adoption of sustainable office technology and its impact on resource conservation. The study found that using digital communication platforms, virtual meeting tools, and energy-efficient appliances reduced energy consumption and minimized the need for travel, ultimately enhancing resource optimization. This research is relevant to other African government agencies, highlighting the role of sustainable practices in promoting resource efficiency. Ekpo and Umoh [21] explored the effects of sustainable office technology adoption on operational efficiency in Nigerian SMEs. Their findings indicated that SMEs that invested in sustainable office technologies, such as cloud storage and teleconferencing tools, experienced optimized resource usage by reducing paper and transportation costs. This study underscores the importance of office technology in advancing sustainability and resource efficiency within the SME sector in Nigeria.

Olatunji and Akinola [22] examined the role of green office practices, including sustainable office technology, in promoting resource optimization within Nigerian manufacturing companies. By implementing digital monitoring systems and reducing dependency on paper-based records, companies were able to enhance resource allocation, reduce waste, and lower operational expenses. This study emphasizes how sustainable office technology can significantly improve resource optimization in industries where resource management is critical. Finally, Digital documentation and cloud-based storage are other sustainable practices that promote resource optimization by reducing the need for paper and physical storage space. Lee and Kim [47] highlight that companies using digital documentation systems report reductions in paper consumption, storage costs, and document retrieval times. Their findings show that the shift from physical to digital storage systems allows firms to better manage information flow, optimize resource allocation, and reduce environmental impact by minimizing paper waste.

However, the empirical review of studies on sustainable office technology (SOT) and resource optimization (RO) that indicate a limited or negative correlation between sustainable office technology practices and resource optimization: Adegbite and Fapohunda [48] conducted a study on sustainable technology implementation in Nigerian SMEs, finding that the high cost of implementing sustainable office technology practices often outweighed the expected benefits. In this study, firms reported that their investments in eco-friendly office technologies did not significantly reduce costs or improve resource efficiency, due to initial setup and maintenance expenses that made cost-saving benefits less feasible in the short term.

Osei and Anane [49] examined office technology practices in Ghana's public sector and found that while certain sustainable office technologies aimed at reducing energy usage were implemented, they often did not yield expected results in resource optimization. This study attributed the lack of positive outcomes to inconsistent technology use, inadequate training for employees, and limited ongoing technical support, which reduced the effective utilization of these technologies and thus hindered resource efficiency. Similarly, Muthoni and Karanja [50] studied green office technology practices in Kenyan educational institutions and discovered that resource optimization was not significantly improved. While there was some adoption of digital technology for administrative tasks, the upfront costs and operational adjustments often resulted in resource allocation challenges, especially in institutions with limited budgets. The study concluded that, without significant investment and support,

sustainable office technology could struggle to positively impact resource efficiency in similar developing economies.

Finally, Bako and Adeyemi [51] evaluated green technology integration within Nigerian healthcare facilities and found that sustainable office practices did not directly lead to resource optimization. Instead, they often introduced additional complexity and cost, with little to no effect on reducing energy consumption or improving operational efficiency. This study emphasized that in resource-constrained environments, the effectiveness of sustainable practices was limited without a supporting infrastructure or adequate training.

Theoretical Framework

The Resource-Based View (RBV) theory is developed by Barney [52], posits that organizations gain a competitive advantage by effectively managing and utilizing their internal resources, which include tangible assets, human capital, and technology. RBV is relevant in this study because it emphasizes how sustainable practices in accounting and office technology can be leveraged as valuable resources to enhance efficiency, reduce costs, and achieve sustainable outcomes. By applying RBV, organizations can recognize that adopting sustainable technology and accounting systems is not merely a cost but a strategic investment that contributes to long-term resource optimization.

The Stakeholders theory is proposed by Freeman [53]. Stakeholder theory suggests that organizations have a responsibility to manage and balance the interests of all stakeholders, including employees, customers, investors, and the environment. This theory is pertinent to sustainable practices, as it recognizes that integrating sustainable accounting and office technology practices reflects the organization's commitment to addressing stakeholder expectations for social responsibility. By optimizing resources and reducing environmental impact, companies can enhance their reputation, build trust, and foster loyalty among stakeholders, ultimately contributing to sustainable development.

METHODOLOGY

This study employs a cross-sectional design research to examine the impact of sustainable accounting and office technology practices on resource optimization in developing economies, with a focus on Nigeria. This approach enables a detailed analysis within Nigeria, making findings relevant to local stakeholders and aligning with established precedents in sustainability research in the country [54,55,56,57). Data will be collected using an online Likert-scale questionnaire distributed via social media platforms like LinkedIn, Facebook, and Twitter, targeting finance and operations managers, accountants, and administrative staff in medium-to-large Nigerian organizations engaged in sustainable practices. The structured questionnaire, pre-tested for reliability and validity, includes items to measure sustainable accounting practices (e.g. cultural diversity), sustainable office technology practices (e.g. technology lifespan management), and resource optimization outcomes (e.g. revenue per employee), ensuring comprehensive coverage of each variable. The data will then be analyzed through multiple regression analysis to determine the effects of sustainable practices on resource optimization.

Sample Size and Sampling Techniques

A stratified random sampling technique ensured industry representation across Nigeria, with an initial sample of 384 determined by the Cochran formula for generalizability. However, this larger sample reduced the model's R-square value, suggesting potential outliers or noise, so the sample size was re-adjusted to 150 respondents based on power analysis, which confirmed sufficient statistical power for detecting the study's effects. This optimized sample size strengthened the variable relationships, aligning with prior studies that successfully used smaller samples [55,57].

Model Specification

The study used an econometric model to examine the relationships between the dependent variable (resource optimization) and the independent variables (sustainable accounting practices and sustainable office technology practices). The model is specified as follows:

$$Roi = \beta 0 + \beta 1 SAPi + \beta 2 SOTi + \epsilon i$$

Where:

ROi = Resource Optimization for organization

SAPi= Sustainable Accounting Practices for organization

SOTi = Sustainable Office Technology Practices for organization

$\beta 0$ = Intercept term

$\beta 1$, $\beta 1$ and $\beta 2$ = Coefficients that measure the impact of sustainable accounting and office technology practices on resource optimization, respectively

ϵi = Error term

FINDINGS AND INTERPRETATIONS

Correlation Analysis

Table 1

Variables	RO	SAP	SOT
SAP	0.718 (0.00)	1.0000	
SOT	0.870 (0.00)	0.741	1.000

The Table 1 above showed the result of correlation test of the variables RO, SAP and SOT. While all the independent variables (SAP: 0.72 and SOT: 0.87) are strong and positively correlated with dependent variable (RO), they are also significant to the RO because the p-values of the variables are less than 0.05 level of significant.

Regression Analysis

Table 2

Variables	Coefficients	Standard error	t-stat	p-value
C	1.349249	0.780728	1.728192	0.0861
SAP	0.165219	0.060382	2.736217	0.0070
SOT	0.890712	0.070125	12.70187	0.0000
R-square=0.769	Adj.R-sq.=0.766	F-stat.=245.02	p-value=0.000	DW-stat=2.04

The Table 2 above showed the OLS regression analysis results of the variables. The independent variables have the positive coefficients; SAP: 17%, SOT: 89% and they are all significant to the RO at p-value of 0.007 and 0.000 respectively. These results are in line with the correlation test results. This implies that an increase in the unit of SAP and SOT will cause an increase of 17% and 89% in the RO respectively. On the R-square model, the Table revealed that R-square is 77% indicating that the explanatory variables (SOP and SOT) accounted for 77% variation in the dependent variable (RO) while the remaining 23% can be explained by the error term. Thus, the model is good fit model. Similarly, the F-stat. of 245.02 with p-value of 0.000 showed from the Table 2 that both the SAP and SOT are collectively significant to the RO. While the result of Durbin-Watson statistics showed 2.04 indicated that the test results do not have autocorrelation.

DISCUSSION OF THE FINDINGS

This study carried out empirical investigations of how sustainable practices in accounting and office technology impacted resource optimization in developing economies with a focus on Nigeria. This section would be addressed based on the hypothesis by hypothesis stated in the previous section.

H_0: Sustainable accounting practice does not have significant impact on resource optimization in developing economies.

The above hypothesis was tested and found that sustainable accounting practice (SAP) has positive impact of 17% on the resource optimization (RO) with a p-value of 0.007. this implies that the above null hypothesis has failed to be accepted since the p-value is less than 0.05 level of significant. Thus, the alternative hypothesis is accepted. Hence, the study concluded that SAP has significant impact on the RO. The result of this study is in line with the findings from these studies [2, 14, 10. 12, 8, 15 13].

However, the positive and significant impact of Sustainable Accounting Practices (SAP) on Resource Optimization (RO) in our findings, as opposed to the results from [45] and Smith and Johnson [46] may be due to several factors. First, access to more advanced technology and resources could enhance the adoption and effectiveness of SAP. Additionally, there may have been recent policy changes or increased regulatory support promoting sustainable practices, along with improved awareness and training that boost SAP's impact on RO. Our study focused on Nigerian organizations with a stronger commitment to sustainability, fostering more significant resource savings. Finally, sectoral differences, methodological approaches, and the scale of SAP implementation in our sample may better capture the impact of SAP on RO, especially as awareness and practices evolve across developing economies like Nigeria.

H_0 : Sustainable office technology practice does not significantly affect resource optimization in developing economies.

The above hypothesis was tested and found that sustainable office Technology (SOT) has positive impact of 89% on the resource optimization (RO) with a p-value of 0.000. this implies that the above null hypothesis has failed to be accepted since the p-value is less than 0.05 level of significant. Thus, the alternative hypothesis is accepted. Hence, the study concluded that SOT has significant impact on the RO. The result of this study is in line with the findings from these studies [16, 21, 20, 19, 41**, 19,** 22, 17, 23].

In the findings from this study, sustainable office technology (SOT) shows a positive and significant impact on resource optimization (RO) as opposed to previous studies (Adegbite & Fapohunda,[48], Bako & Adeyemi, [49] Muthoni & Karanja, [50] Osei & Anane, [51]). Here are potential reasons why these findings differ from previous studies that reported limited or negative correlations. The positive impact of sustainable office technology (SOT) on resource optimization (RO) observed in this study could stem from increased employee training, improved technology access, supportive government policies, and a cultural shift toward sustainability. Recent technological advancements have made energy-efficient and paperless solutions more affordable, while government incentives help offset initial costs. Additionally, a stronger organizational focus on sustainability has led to consistent and effective implementation of sustainable practices, with some organizations adopting continuous improvement models to maximize resource efficiency. These factors likely contribute to the stronger positive relationship between SOT and RO found in this study compared to previous research.

DIAGNOSTIC TEST RESULTS

Table 3: Variation Inflation Factor Test

Variables	Centered VIF
SAP	2.223624
SOT	2.223624

The Table 3 above showed the result of a centered VIF of 2.223624 for both SAP (Sustainable Accounting Practices) and SOT (Sustainable Office Technology) indicates a moderate correlation with other predictors in the model, but it remains within acceptable limits, as a VIF below 5 generally suggests no serious multicollinearity concerns. This implies that SAP and SOT can be reliably included in the regression analysis without significantly affecting the model's stability or the interpretability of results.

Table 4 : Serial correlation test

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	0.974760	Prob. F(2,145)	0.3797
Obs*R-squared	1.989990	Prob. Chi-Square(2)	0.3697

The serial correlation LM test in the Table 4 above, a probability (p-value) of 0.3797 for the F-test and 0.3697 for the Chi-square test indicates that we fail to reject the null hypothesis of no serial correlation. Since both p-values are well above a typical significance level (such as 0.05), this suggests there is no significant serial correlation in the residuals of your model, implying that the model's error terms are likely uncorrelated over time. This supports the assumption of independence in the residuals, which is favorable for the validity of the regression results.

Table 5:

Heteroskedasticity Test: ARCH

F-statistic	0.957589	Prob. F(1,147)	0.3294
Obs*R-squared	0.964336	Prob. Chi-Square(1)	0.3261

The Table 5 showed the result of heteroscedasticity test using ARCH, the probability values of 0.3294 for the F-test and 0.3261 for the Chi-square test suggest that we fail to reject the null hypothesis of homoscedasticity. These p-values, both above a typical significance level of 0.05, indicate that there is no significant evidence of heteroscedasticity in the residuals. This result supports the assumption of constant variance in the error terms, which is favorable for the reliability of the regression estimates.

Table 6:

Ramsey RESET Test
Equation: UNTITLED
Omitted Variables: Squares of fitted values
Specification: RO C SAP SOT

	Value	df	Probability
t-statistic	1.536799	146	0.1265
F-statistic	2.361751	(1, 146)	0.1265
Likelihood ratio	2.407040	1	0.1208

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	17.89920	1	17.89920
Restricted SSR	1124.402	147	7.648991
Unrestricted SSR	1106.503	146	7.578784

LR test summary:

	Value
Restricted LogL	-363.9186
Unrestricted LogL	-362.7151

The Table 6 showed the result of Ramsey RESET test, the probability values of 0.1265 for both the t-statistic and F-statistic, and 0.1208 for the likelihood ratio test, indicate that we fail to reject the null hypothesis of no model mis specification. Since these p-values are above the typical significance level of 0.05, there is no significant evidence that nonlinear terms or omitted variables affect the model. This suggests that your model specification is appropriate and that key relationships are captured correctly.

RECOMMENDATION

Based on the findings, it is recommended that organizations in Nigeria as one of the developing economies should invest further in sustainable accounting practices (SAP) and sustainable office technology (SOT) to enhance resource optimization (RO). With this, adopting SAP, organizations can improve transparency, track resource use more effectively, and align financial practices with sustainability goals. Concurrently, implementing SOT, such as energy-efficient equipment and digital tools, can minimize waste and optimize energy use. Additionally, fostering a culture of sustainability through regular training and ongoing evaluations can reinforce these practices, ensuring they are both impactful and sustainable over time. These combined efforts can help organizations achieve significant resource savings and promote environmental stewardship in Nigeria and other developing economies.

CONCLUSION

In conclusion, the study investigated the impact of integrating sustainable practices in Accounting and Office Technology on Resource Optimization in the developing economies with a focus on Nigeria. The study employed primary source of data through on-line questionnaire distributed across the accessible social

media and obtained a sample size of 150 respondents. The EViews software was used to analyse the data. The study revealed that there is a significant and positive impact of sustainable accounting practices (SAP) (18%, prob. 0.007) sustainable office technology (SOT) (89%, prob. 0.000), on resource optimization (RO) in Nigeria (developing economy). The study also revealed that R-square is 77%, indicating that the explanatory variables (SOP and SOT) accounted for 77% variation in the dependent variable (RO) while the remaining 23% can be explained by the error term. Thus, the model is good fit model. Similarly, the F-stat. of 245.02 with p-value of 0.000 showed that both the SAP and SOT are collectively significant to the RO. While the result of Durbin-Watson statistics showed 2.04 indicated that the test results do not have autocorrelation. The findings indicate that when organizations commit to SAP and SOT, they not only enhance resource efficiency but also contribute to broader sustainability goals by minimizing environmental impact and operational costs.

The adoption of SAP facilitates transparent and accountable resource management, while SOT optimizes daily processes, reduces waste, and conserves energy. As organizations in Nigeria and other developing economies increasingly face pressures to balance growth with environmental responsibility, these findings underscore the importance of integrating sustainable practices into core business operations.

Ultimately, the study highlights SAP and SOT as essential pathways for achieving resource optimization, cost savings, and a sustainable business model in the context of emerging markets. Therefore, this study contributes to knowledge by empirically establishing the positive impact of integrating sustainable accounting practices and office technology on resource optimization in Nigeria, offering a framework for resource-efficient and environmentally responsible business operations within the country and other developing countries.

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APPENDICES

1. Correlation Analysis

Covariance Analysis: Ordinary
Date: 10/30/24 Time: 15:52
Sample: 1 150
Included observations: 150

Correlation Probability	RO	SAP	SOT
RO	1.000000 -----		
SAP	0.718331 0.0000	1.000000 -----	
SOT	0.870345 0.0000	0.741811 0.0000	1.000000 -----

2. Regression Analysis

Dependent Variable: RO
Method: Least Squares
Date: 10/30/24 Time: 12:49
Sample: 1 150
Included observations: 150

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.349249	0.780728	1.728192	0.0861
SAP	0.165219	0.060382	2.736217	0.0070
SOT	0.890712	0.070125	12.70187	0.0000

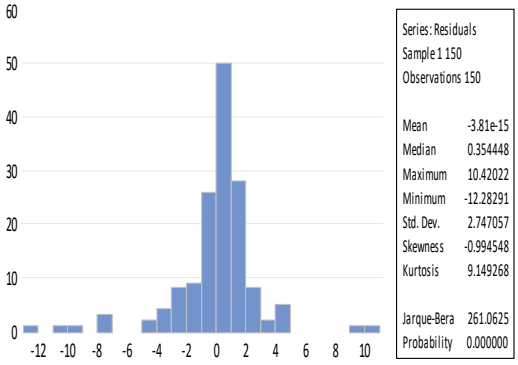
R-squared	0.769252	Mean dependent var	17.26000
Adjusted R-squared	0.766113	S.D. dependent var	5.718720
S.E. of regression	2.765681	Akaike info criterion	4.892248
Sum squared resid	1124.402	Schwarz criterion	4.952461
Log likelihood	-363.9186	Hannan-Quinn criter.	4.916711
F-statistic	245.0296	Durbin-Watson stat	2.044820
Prob(F-statistic)	0.000000		

3. Variance Inflation Factor

Variance Inflation Factors
Date: 10/30/24 Time: 12:51
Sample: 1 150
Included observations: 150

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.609537	11.95328	NA
SAP	0.003646	23.97053	2.223624
SOT	0.004917	22.85825	2.223624

4. Normality Test



5. Serial correlation test

Breusch-Godfrey Serial Correlation LM Test:
Null hypothesis: No serial correlation at up to 2 lags

F-statistic	0.974760	Prob. F(2,145)	0.3797
Obs*R-squared	1.989990	Prob. Chi-Square(2)	0.3697

6.

Heteroskedasticity Test: ARCH

F-statistic	0.957589	Prob. F(1,147)	0.3294
Obs*R-squared	0.964336	Prob. Chi-Square(1)	0.3261

7.

Ramsey RESET Test
Equation: UNTITLED
Omitted Variables: Squares of fitted values
Specification: RO C SAP SOT

	Value	df	Probability
t-statistic	1.536799	146	0.1265
F-statistic	2.361751	(1, 146)	0.1265
Likelihood ratio	2.407040	1	0.1208

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	17.89920	1	17.89920
Restricted SSR	1124.402	147	7.648991
Unrestricted SSR	1106.503	146	7.578784

LR test summary:

	Value
Restricted LogL	-363.9186
Unrestricted LogL	-362.7151