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GREEN TECHNOLOGY AND PERFORMANCE OF MULTINATIONAL OIL CORPORATIONS IN SOUTH-SOUTH, NIGERIA.

Stanley, Emem Monday,
Department of Business Administration
College of Management Sciences
Michael Okpara University of Agriculture, Umudike

J. C Ihemeje. (Ph.D)
Department of Business Administration
College of Management Sciences
Michael Okpara University of Agriculture, Umudike

Uche Deborah Kelechi-Nwamuo (Ph.D)
Department of Business Administration
College of Management Sciences
Michael Okpara University of Agriculture, Umudike
[3]email: Umudike.debyuchekc@gmail.com

Abstract

The study investigated green technology and performance of multinational oil corporations in South-South, Nigeria. The specific objectives are to determine the effect of energy efficiency technology on the financial sustainability, assess the effect of green technology competencies on corporate social responsibility of multinational oil corporations in South-South. The research design used in the study was a survey design. The researcher adopted mainly primary sources of data. The total population was seventy-nine thousand seven hundred and sixty-five (79,765) respondents from the selected six states in South-South, Nigeria. A total of five hundred and ninety five (595) copies of questionnaire was administered to the selected Multinational Oil Corporations in South-South, Nigeria, during the collection of the administered questionnaire, eight one (81) copies questionnaires were wrongly filled, misplaced, void and discarded with a percentage rate of 13.6%, while the questionnaire recovered is 514 with a percentage ratio of 86.4% that aided the study. The sample size was 595 staff derived from Godden formula (2004). Simple regression analysis and Pearson correlation coefficient was used to test the relationships between dependent and independent variables of the study. The findings of the study stated that there is a positive effect between energy efficiency technology on the financial sustainability of multinational oil corporations in South-South. There is a positive effect between green technology competencies on corporate social responsibility of multinational oil corporations in South-South. The study concluded that if companies adopt green technology it will help in overcoming the technological challenges of emitting Co2 in the atmosphere and waste pollution that leads environment degradation, this will aid to achieving a proper balance of higher organizational performance and gaining competitive advantage. The study recommended that firms should regularly reduce reliance on fossil fuels for company operations and promote energy efficiency initiatives, also investing in green technologies demonstrates responsible corporate behavior and strengthens public trust.

Keywords: *Green Technology, Energy Efficiency Technology, Green Technology Competencies and Performance*

Introduction

Background to the Study

Green technology has arisen as a significant movement and advancement in the 21st century as a result of the rising global environmental issues such as climate change, global warming and the lack of energy supplies. Development is bound to boost global, sustainable

and economic capabilities that will have an impact on economic policy, communities, cultural practices and the way of future lives (Shubham, & Jayant, 2016). Basically, what is Green Technology? As in the early 1990s, there has been a lot of attention on green technologies subject matter. Green technology offers significant advantages not only for biodiversity itself, but also for a healthier and greener lifestyle. As now or even in the future, all human beings would like to stay alive and breathing on this earth without having any ecosystem problem.

Green technology and the implementation of green supply chain management are models of practices that must be implemented in order to leverage the effect of these challenges. Green technology is in fact an important strategic catalyst to obtain sustainable development, including technological innovation involved in energy-saving, pollution-prevention, and waste recycling (Chang, 2021). Moreover, green technology may be divided into green product and green processes that are designed for reducing energy and pollution emission, recycling of wastes, and utilizing sustainable resources (Chen, Lai, & Wen 2016). With the increase in the implementation of green innovations and technologies, the importance of addressing key drivers that support such activities is emphasized. Recent studies identify, among others, corporate environmental ethics, stakeholders' view of green product, and market demand for green products as contributors to the success of the implementation (Weng, 2015).

However, technological challenges become greater as firms adopt green technology and sustainable practices internally and in association with other firms in the supply chain. Such challenges are tackled with large scale data, top management commitment, and human resource (HR) practices that focus on achieving competitive advantage and improving environmental and firm growth. HR practices have been linked with green management, technology/operations management and found to have contributing roles in organizational sustainability and to boost the performance of the firm (Shahzadi, Javed, Pirzada, Nasreen, & Khanam, 2014).

Green technological capability development and eco-friendly practices have increasingly drawn scholarly attention within the management sciences over the years. For organizations to effectively adopt green technologies, it is essential that they evaluate the key determinants and antecedents influencing such adoption (Song, Wang, & Ma, 2020). These determinants include consumer concerns, the preferences of industry professionals and business owners, the competencies of suppliers and strategic partners, as well as the role of government regulators and policy requirements. They also encompass the environmental, technological, and organizational dimensions that shape green innovation (GI) practices (Al-Ali, Imran, & Fadi, 2010).

Green technologies consist of green innovation practices (e.g., green product, process, managerial, and marketing innovation) and the execution of green human resource management practices (e.g., green training and development, administrative support and culture, recruitment and selection, compensation, and benefits). Green technology is a significant strategy to acquire justifiable development, as it practices energy saving, environment-protecting, waste-recycling, and pollution preventing methods. Furthermore, green technology can be divided into green product's green marketing, green processes, and green management that are intended for eco-friendly environment, decreasing consumption of energy and increasing efficient use of the resource, control over pollution emission, and waste recycling, improving the performance of the organization and providing the pollution-free environment to society at large scale (Calza, Parmentola, & Tutore, 2017). Therefore, green technology on organizational performance of selected oil multinational corporations in South-South, Nigeria.

Statement of the Problem

Green technology has become a critical global strategy for reducing environmental degradation and promoting sustainable industrial operations. In the oil and gas sector, multinational firms are increasingly expected to adopt environmentally friendly technologies to minimize negative environmental impacts such as greenhouse gas emissions, oil spills, gas flaring, and ecosystem destruction. In Nigeria, where oil multinational firms play a dominant role in economic development, environmental sustainability remains a major concern, particularly in oil-producing regions (Quinn & Dalton, 2019).

Despite the presence of environmental regulations and corporate sustainability policies, the level of green technology adoption among oil multinational firms operating in Nigeria appears to be uneven and limited. Many firms continue to rely on conventional production technologies that contribute to environmental pollution and ecological damage. Challenges such as high cost of green technologies, inadequate technical expertise, weak enforcement of environmental regulations, infrastructural constraints, and limited investment in research and development have been identified as factors influencing the slow adoption of green technologies in the sector (Nidumolu, Prahald, & Rangaswami, 2019).

Analytically, this situation raises concerns about the effectiveness of green technology adoption within oil multinational firms in Nigeria. While many firms publicly commit to sustainability and environmental responsibility, there appears to be a disconnect between these commitments and actual operational performance. Factors such as the high capital intensity of green technologies, managerial priorities focused on short-term profitability, inadequate regulatory enforcement, and limited organizational capability may influence the extent and effectiveness of green technology integration. These interacting factors potentially constrain the ability of green technologies to deliver measurable environmental and organizational benefits (Nguyen, Skitmore, Gray, Zhang, & Olanipekun, 2017). Moreover, the relationship between green technology adoption and firm-level outcomes such as environmental performance, operational efficiency, regulatory compliance, and corporate sustainability remains insufficiently examined in the Nigerian oil sector. The absence of robust empirical analysis limits understanding of whether green technology investments significantly reduce environmental impact or enhance long-term firm performance (Weng et al., 2015). Consequently, there is a need to examine the current state of green technology in oil multinational firms in Nigeria, the factors affecting its implementation, and its implications for environmental sustainability and organizational performance. Therefore, the study examined the green technology on organizational performance of selected oil multinational corporations in South-South, Nigeria.

Objectives of the Study

The main objective of the study is to examine the green technology and performance of multinational oil corporations in South-South, Nigeria. The specific objectives are to:

i. determine the effect of energy efficiency technology on the financial sustainability of multinational oil corporations in South-South.
ii. assess the effect of green technology competencies on corporate social responsibility of multinational oil corporations in South-South.

Research Questions

i. What is the effect of energy efficiency technology on the financial sustainability of multinational oil corporations in South-South?
ii. What is the effect of green technology competencies on corporate social responsibility of multinational oil corporations in South-South?

Research Hypotheses

Ho_1: There is no positive effect between energy efficiency technology on the financial sustainability of multinational oil corporations in South-South.

Ho_2: There is no positive effect between green technology competencies on corporate social responsibility of multinational oil corporations in South-South.

Reviewed of Related Literature

Conceptual Review

Green Technology

Clean or green technology is the improvement and application of equipment, systems and products utilized to save the natural environment and resources which minimize and decrease the adverse effect of human activities. Green technology satisfies the following criteria:

a) It minimizes the deterioration of the environment;

b) It lowers greenhouse gases (GHG) emission to zero as well as its utilization is safe and finally it enhances healthy and improved environment for all forms of life.

c) It saves the use of natural resources and energy.

d) It enhances the utilization of renewables.

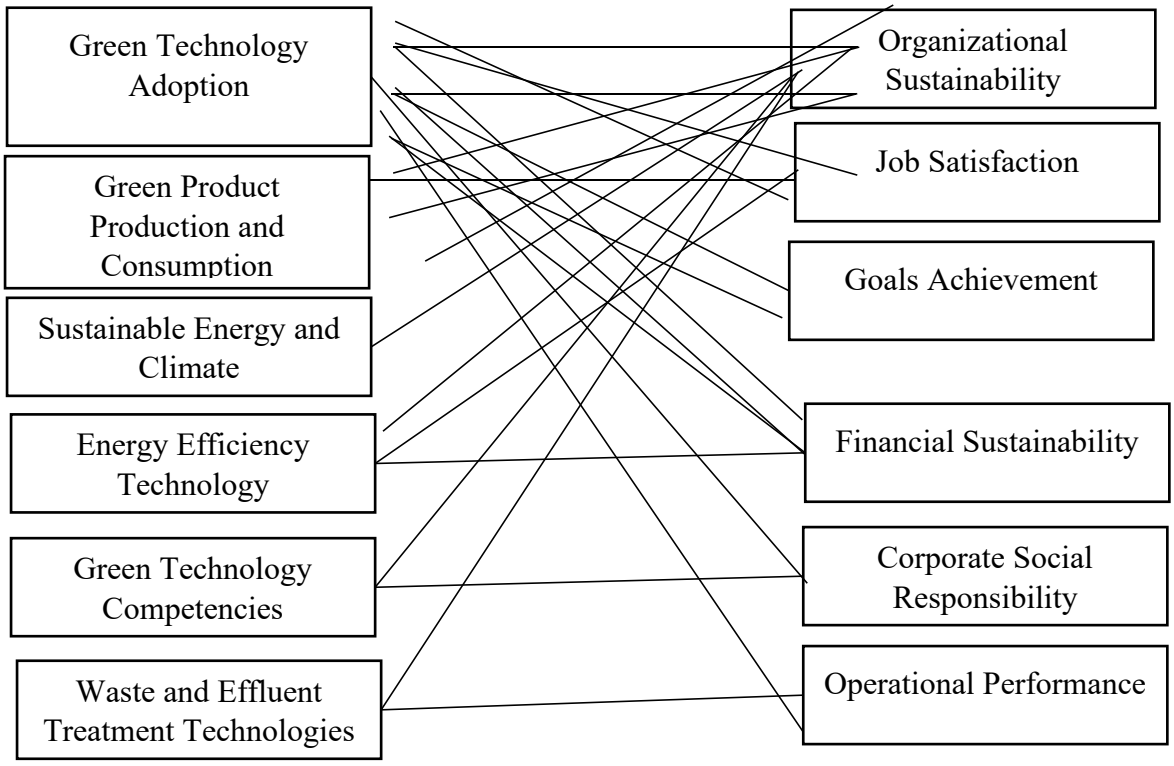
Different authors have expressed their views on green technology in different ways. Yim, Fung and Lau (2016), described green technology as a transformation process that comprises novel ways of doing things (e.g., production–manufacturing, construction, procedures, systems, etc.) that provide direct and positive benefits to the environment. According to Chen, Lai and Wen (2016), green technology is a novelty used in technologies that incorporate energy saving, pollution prevention, waste recycling, green product designs and corporate environmental management. The import of the definitions centers around how stakeholders can adopt green technology to promote and attain organizational goals without hurting the environment. Admittedly, green innovation plays a major role in organizational development toward sustainability. Shen, Zhang, and Long (2017), have acknowledged green technology as a vital spark in a firm's performance management. In today's hyper competitive environment, firms aiming for survival should adopt effective green technology policies and engage, build and develop to become relevant to stakeholders. With proper policies laid out, firms stand a chance to advance and become global players.

In essence, green technology is an important intangible asset that affects the firm value, helping enterprises transform the environmental sustainability goal into a profitable investment opportunity. The financial market will assign a value to the bundle of an enterprise's assets, which is equal to the present discounted value of all future cash flows created by its assets. If intangible assets are expected to affect future cash flow, their value should be reflected in the observed market value of the firm. Consistent with this idea, when green innovation is expected to influence the future cash flows of an enterprise by production, management, marketing, reputation and other aspects, it will affect the financial market in evaluating its value. Green innovation consists of process and product innovation through improvements in manufacturing processes and product design. Green innovation's objectives are to reduce pollution, save energy, minimize waste, and decrease a firm's negative impact on the environment (Dangelico & Pujari, 2020). The discourse on the relationship between green innovation and firm performance has grown but there is unclarity on the relationships between them which requires further empirical examinations. Green innovation enhances environmental performance, offsets environmental costs by developing new markets and increasing market share (Chen, 2018), and increases resource productivity. Green innovation brings a "first-mover advantage" to firms in terms of new market opportunities, improved corporate image, and competitive advantage (Dangelico & Pujari, 2010), along with increased customer loyalty and firm reputation (Arora, 2014). On the other hand, as compared to non-green firms, green innovation firms witness decreased financial performance as green innovation increases costs (Li, Huang, Ren, Chen, & Ning, 2018). The literature mentioned above suggests unclarity and gap in the existing literature on the consequence of green innovation in the organization. Furthermore, the literature is deficient on whether the motivation for firms to adopt and implement green innovation processes and

offer green products to the markets is internally driven or the relevant stakeholders pressurize them.

Green innovation reduces the firms' costs and enhances their competitiveness in dynamic markets (Dangelico & Pujari, 2020). Firms that believe in green innovation prefer to use recycled materials for product development because there are friendly. At the same time, we posit that due to the increased environmental awareness of stakeholders, firms are under constant pressure to enhance their corporate image and improve market competitiveness through green product innovation (GPDI). The level of empathy and attachment to the agenda of sustainability on the part of the firm's leadership and employees influence positively the acceptance of responsibility to act more sustainably (Font, 2016). While the best practices and exemplary green innovation cases generally portray large-sized companies' reality, smaller firms should better understand their unique green innovation characteristics. The extant literature suggests scant attention to how small and medium-sized enterprises (SMEs) manage sustainable innovation Needless to mention that SMEs should possess relevant entrepreneurial skills, engagement with external networks, and governmental supports in their growth (Green, Salkind, & Akey, 2008). However, the literature is scarce to guide on how to go ahead. Thus, based on the gap and unclarity in the extant literature, we proposed a theoretical model that depicts how SMEs under stakeholder pressure leverage their dynamic capabilities to engage in green innovations for enhanced firm performance. To explicate the nexus among stakeholder pressure, green dynamic capabilities, green innovation, and firm performance, we have used the stakeholder resource-based view to shed light on the direct and indirect effects of stakeholder pressure, green dynamic capabilities, and green innovation on SMEs' performance.

Figure 1: Conceptual Framework



Source; Researchers Computation (2025)

Theoretical Review

Legitimacy Theory by O'Donovan (2002)

According to O'Donovan (2002), "Legitimacy theory is the idea that in order for an organization to continue operating successfully, it must act in a manner that society deems

socially acceptable". The theory of legitimacy is a theory that explains that firms should continually ensure that they are operating within the norms prevailing in society and ensures that their activities are acceptable to outsiders. Deegan (2002) defines the theory of legitimacy as "a condition or status that exists when the entity value system is congruent with the wider community value system in which society becomes its part. When a difference, whether real or potential, exists between the two value systems, there will be a threat to the legitimacy of the company." Thus, this study anchored on legitimacy theory, this theory implies that organizations approaches on green technology should be eco-friendly practices and avoid leakages, gas flaring, and other chemical used in production and consumption that will pollute the community. Suchman (1995) considers that "Legitimacy is a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions". Conceptionally, the legitimacy theory is a mechanism that supports organisations in implementing and developing voluntary social and environmental disclosures in order to fulfill their social contract that enables the recognition of their objectives and the survival in a jumpy and turbulent environment. The social perceptions of the organisation's activities are reported to the expectation of the society.

Application of Legitimacy theory to the Study

The study anchored more on Legitimacy theory. In this theory any situation where the organization's activities do not respect the moral values, the organization is severely sanctioned by the society; these sanctions may even lead to the failure of the organization. The organization has to justify its existence through legitimate economic and social actions that neither jeopardizes the existence of the society in which it carries on, nor the environment.

Empirical Review

Amuda, Raheem, Idris, and Stephen (2022), study investigated on the barrier factors affecting adoption of green building technologies in Nigeria. This study aims at determining factors that affect adoption of Green Building Technologies that normally reduce greenhouse gas emissions. To elicit relevant information, online structured questionnaire forms were administered on practitioners who have been involved in green building development in Nigeria. Mean score ranking was adopted in ranking the barriers to green building technologies, while discriminant analysis was performed to examine how organizations groups (client, consulting, contracting, academia) were distinguished on the barrier factors identified. Findings revealed that, out of the 23 barrier factors considered in this research, lack of institutions to formulate policies and set guidelines (mean score - 4.5) ranked 1st as barrier to adoption of green building technologies in Nigeria. This is closely followed by lack of information about green products (4.0), low level of awareness about sustainability issues (4.0), human resource and client knowledge, lack of knowledge about green building technologies, high cost of green products, while unavailability of sustainable materials and products ranked the lowest (2.7). Only nine factors at 0.05 level of significance entered the discriminant analysis model and emerged as variables with the most significant power in differentiating the organization groupings on the basis of perceived barriers to adoption of green building technologies. The study recommends that there should be strong political will from government, to establish institutions that formulate policies on green building technologies.

Anas, Alhadid1 and As'ad, Abu-Rumman (2024),studied the impact of green innovation on organizational performance, environmental management behavior as a moderate variable: an analytical study on Nuqul Group in Jordan. The purpose of the study is to examine the impact of green innovation (green product innovation, green process innovation) on organizational performance. The study was applied on Jordanian industrial companies, specifically on Nuqul Group in Jordan. Design/Methodology/Approach: The

questionnaire was developed and distributed by 143 questionnaires to the higher managerial employees and the middle managerial employees (General Manager, Assistant General Manager, head of department, assistant head of department and supervisors). The researchers used the Simple regression and stepwise analysis to measure the effect of Green Innovation on Organizational Performance, and Environmental Management Behavior as a Moderate Variable. The most important finding of the study is having impact of moral green innovation in organizational performance, and also there is impact of the environmental management behavior as a moderator variable between green innovation and performance organizational. This study confirms the presence impact of green innovation in organizational performance, and this confirms that the practices of green economic and green management have significant benefits at the level of the national economy and achieve significant savings at the level of the Industrial sector.

Abdul-Nasser El-Kassara and Sanjay Kumar Singh (2023), studied green innovation and organizational performance: The influence of big data and the moderating role of management commitment and HR practices. Faced with internal and external pressure to adapt and implement environmental friendly business activities, it is becoming crucial for firms to identify practices that enhance their competitive advantage, economic, and environmental performance. Green innovation, green technologies, and the implementation of green supply chain management are examples of such practices. Green innovation and the adoption of the combination of green product innovation and green process innovation involve reduction in consumption of energy and pollution emission, recycling of wastes, sustainable utilization of resources, and green product designs. Although the extent research in this area is substantial, research on the importance of considering corporate environmental ethics, stakeholders view of green product, and demand for green products as drivers of green innovation must be conducted. Moreover, the role of large scale data, management commitment, and human resource practices play to overcome the technological challenges, achieve competitive advantage, and enhance the economic and environmental performance have yet to be addressed.

This paper develops and tests a holistic model that depicts and examines the relationships among green innovation, its drivers, as well as factors that help overcome the technological challenges and influence the performance and competitive advantage of the firm. This paper is among the first works to deal with such a complex framework which considers the interrelationships among numerous constructs and their effects on competitive advantage as well as overall organizational performance. A questionnaire was designed to measure the influence of green innovation adoption/ implementation and its drivers on performance and competitive advantage while taking into consideration the impact of management commitment and HR practices, as well as the use of large data on these relationships. Data collected from a sample of 215 respondents working in Middle East and North Africa (MENA) region and Golf-Cooperation Countries (GCC) were used to test the proposed relationships. The proposed model proved to be fit. The hypotheses were supported, and implications were discussed.

Methodology

The research design used in the study was a survey design. Survey design was a designed to portray accurately the characteristics of particular individuals, situations, or groups. The researcher adopted mainly primary sources of data to collect information from the respondents**.** The total population was seventy-nine thousand seven hundred and sixty-five (79,765) respondents from the selected six states in South-South, Nigeria. Therefore, the sample size was 595 staff of the selected oil multinational firms. A stratified sampling method was adopted to give every member of the staff' equal chance of being selected and therefore made the sample a representative one.

The methods used in this study to gather data was a set of questionnaire. Various types of questionnaire include; Open ended questions and a rating scale of 5 point Likert scale such as 5 (SA); 4 (A); 3 (UN); 2 (D); 1 (SD). Simple regression analysis will be employed, while to test hypotheses (iii)-(iv) Pearson correlation coefficient was used to test the relationships between dependent and independent variables of the study. A total of five hundred and ninety five (595) copies of questionnaire was administered to the selected Multinational Oil Corporations in South-South, Nigeria, during the collection of the administered questionnaire, eight one (81) copies questionnaires were wrongly filled, misplaced, void and discarded with a percentage rate of 13.6%, while the questionnaire recovered is 514 with a percentage ratio of 86.4% that aided the study.

Data Presentation

Table 1: Determine the effect of energy efficiency technology on the financial sustainability of multinational oil corporations in South-South.

Statement	SA	A	UN	D	SD	TOTAL	MEAN	STD
Lighting systems are energy-efficient (LEDs, sensors, timers)	220	190	55	30	19	2104	4.03	0.96
Heating, ventilation, and air-conditioning (HVAC) systems are optimized for energy efficiency	210	185	60	40	19	2069	3.95	1.01
Energy consumption is regularly monitored and evaluated	200	190	65	40	19	2044	3.92	1.03
Environmental sustainability initiatives motivate the organization to implement energy-efficient technologies	230	180	50	30	24	2104	4.09	0.94
Incentives and tax benefits support the adoption of energy-efficient technologies	210	185	60	40	19	2069	3.95	1.01
Implementation of energy-efficient technologies enhances organizational reputation	225	185	50	35	19	2104	4.04	0.97

Source; Field Survey, 2025

The table presents respondents' perceptions of energy efficiency technology adoption using a five-point Likert scale, based on a population of 514 respondents. Lighting systems (LEDs, sensors, timers) and the implementation of energy-efficient technologies enhancing organizational reputation received high mean scores of 4.03 and 4.04 respectively, suggesting that respondents strongly perceive these initiatives as both common and beneficial for operational and reputational outcomes. Environmental sustainability initiatives scored the highest mean (4.09), showing that organizational commitment to sustainability strongly motivates the adoption of energy-efficient technologies. HVAC optimization and incentives/tax benefits recorded slightly lower but still strong agreement (Mean = 3.95), indicating that while respondents acknowledge their importance, adoption and utilization may be uneven across organizations. Energy consumption monitoring and evaluation scored a mean of 3.92, highlighting that although organizations are aware of its importance, consistent monitoring may not yet be fully implemented.

Table 2: Assess the effect of green technology competencies on corporate social responsibility of multinational oil corporations in South-South.

Statement	SA	A	UN	D	SD	TOTAL	MEAN	STD
Organization provides training programs on green technology and sustainability	210	185	60	40	19	2069	3.94	1.01

Statement	SA	A	UN	D	SD	TOTAL	MEAN	STD
Management encourages employees to develop green technology skills	220	180	60	35	19	2089	3.98	0.99
Adequate resources are provided for learning and applying green technologies	200	185	65	45	19	2044	3.87	1.03
There is recognition or reward for employees who excel in green technology competencies	195	190	70	40	19	2044	3.85	1.04
Adequate knowledge of green technologies relevant to my work	225	185	50	35	19	2104	4.02	0.97
Aware of environmental laws and regulations influence green technology adoption	220	180	60	35	19	2089	3.98	0.99
Environmental impact of conventional technologies improves green technologies	210	190	55	35	24	2069	3.95	1.14

Source; Field Survey, 2025

The table presents respondents' perceptions of green technology competencies using a five-point Likert scale, based on a population size of 514 respondents. Organizational support received moderate to strong agreement. Statements such as **"**Organization provides training programs on green technology and sustainability" (Mean = 3.94) and "Management encourages employees to develop green technology skills" (Mean = 3.98) suggest that respondents perceive their organizations as generally supportive, though there may be variability in training and encouragement practices. The provision of resources for learning and applying green technologies and recognition/rewards for excellence scored slightly lower (Means = 3.87 and 3.85), indicating that incentive mechanisms and resource allocation may still need improvement. Individual knowledge and awareness recorded strong agreement. Respondents reported having adequate knowledge of green technologies (Mean = 4.02) and being aware of environmental laws and regulations influencing green technology adoption (Mean = 3.98), demonstrating that employees recognize the importance of competence in driving sustainability initiatives. Additionally, the statement on understanding the environmental impact of conventional technologies (Mean = 3.95) highlights awareness of why green technologies are necessary.

TEST OF HYPOTHESES

Ho_1: There is no positive effect between energy efficiency technology on the financial sustainability of multinational oil corporations in South-South.

Table 3: Correlations coefficient on relationship between energy efficiency technology on financial sustainability

			Energy Efficiency Technology	Financial Sustainability
Spearman's rho	Energy Efficiency Technology	Correlation Coefficient	1	.813
		Sig. (2-tailed)		.004
		N	514	514
	Financial Sustainability	Correlation Coefficient Sig. (2-tailed)	.813 .004	1
		N	514	514

Source; Field Survey, 2025

The table shows the relationship between relationship between energy efficiency technology on financial sustainability. The results showed rho = (81.3%) p-value = .004 < 0.05% significance level, which therefore states that there is a positive effect between energy efficiency technology on the financial sustainability of multinational oil corporations in South-South.

Ho_2: There is no positive effect between green technology competencies on corporate social responsibility of multinational oil corporations in South-South.

Table 4: Correlations coefficient on relationship between green technology competencies on corporate social responsibility

			Green Technology Competencies	Corporate Social Responsibility
Spearman's rho	Green Technology Competencies	Correlation Coefficient	1	.850
		Sig. (2-tailed)		.001
		N	514	514
	Corporate Social Responsibility	Correlation Coefficient Sig. (2-tailed)	.850 .001	1
		N	514	514

Source; Field Survey, 2025

The table shows the relationship between relationship between green technology competencies on corporate social responsibility. The results showed rho = (8.50%) p-value = .001 < 0.05% significance level, which therefore states that there is a positive effect between green technology competencies on corporate social responsibility of multinational oil corporations in South-South.

Summary of Findings

i. There is a positive effect between energy efficiency technology on the financial sustainability of multinational oil corporations in South-South (p-value = .004 < 0.05% significance level). This implies that a unit increase in energy efficiency technology leads to unit increase on financial sustainability.
ii. There is a positive effect between green technology competencies on corporate social responsibility of multinational oil corporations in South-South (p-value = .001 < 0.05% significance level). This implies that a unit increase in green technology competencies leads to unit increase on corporate social responsibility.

Conclusion

The adoption and implementation of green technology is driven by pressure from stakeholders, corporate environmental ethical practices and market demand for green product. The successful implementation of these practices required adequate adoption, routinization and assimilation of technology, such as big data and predictive analytics, as well as higher level of top management commitment, proper HR practices and employee training. It is a known fact that innovation takes a long time to provide benefits for improving organizational performance. The existence of the relationship between energy savings and raw materials during the production process was able to reduce the company's expenses, and waste so as to increase its profit. The study concluded that if companies adopt green technology it will help in overcoming the technological challenges of emitting Co2 in the atmosphere and waste pollution that leads environment degradation, this will aid to achieving a proper balance of higher organizational performance and gaining competitive advantage.

Recommendations

i. Organizations should incorporate energy audits and efficiency goals into the corporate strategic plan. This ensures that energy efficiency investments directly enhance the corporation's financial performance**.**

ii. Firms should regularly reduce reliance on fossil fuels for company operations and promote energy efficiency initiatives, also investing in green technologies demonstrates responsible corporate behavior and strengthens public trust.

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