Journal of Human Resource and Sustainability Studies, 2023, 11, 942-971
https://www.scirp.org/journal/jhrss
ISSN Online: 2328-4870
ISSN Print: 2328-4862

Strategy Formulation and Resource Availability Determinants in Performance of Electricity Distribution Companies in Nigeria

Chuka Stephen Akunne, May Ifeoma Nwoye, Bakare Akeem Adewale, Hauwa Lamino Abubakar

Department of Business Administration, Faculty of Management Sciences, Nile University of Nigeria, Abuja, Nigeria
Email: chuka_akunne@yahoo.com

How to cite this paper: Akunne, C. S., Nwoye, M. I., Adewale, B. A., & Abubakar, H. L. (2023). Strategy Formulation and Resource Availability Determinants in Performance of Electricity Distribution Companies in Nigeria. *Journal of Human Resource and Sustainability Studies, 11,* 942-971.
https://doi.org/10.4236/jhrss.2023.114053

Received: November 21, 2023
Accepted: December 25, 2023
Published: December 28, 2023

Abstract

This research investigates the determinants of operational efficiency in electricity distribution companies (DISCOs) within the context of Nigeria, focusing on the influence of strategy formulation and resource allocation. A cross-sectional survey design was employed, targeting 400 staff members of the Abuja Electricity Distribution Company (AEDC), one of the major DISCOs in Nigeria. The study encompasses roles directly involved in or significantly influencing strategy formulation and resource allocation, including senior management, strategic planning, resource management, operations, financial analysis, and workforce management teams. Data collection was conducted with a robust emphasis on validation and reliability, ensuring the accuracy of measurements. The study utilized multiple regression analysis to examine the hypotheses concerning the impact of strategy formulation and resource allocation on the operational efficiency of AEDC. The findings reveal that while strategy formulation did not exhibit a significant influence on operational efficiency, resource allocation plays a pivotal role in enhancing operational performance. The study emphasizes the importance of gaining a more nuanced understanding of strategy formulation within the DISCO context and highlights the significance of distinctive capabilities, such as network management, customer relationship management, and innovation, in leveraging allocated resources for improved service quality.

Keywords

Operational Efficiency, Strategy Formulation, Resource Allocation, Resource Management, Regulatory Environment, Nigeria

1. Introduction

The demand for a reliable energy supply emerges as a pivotal driver that harmo-

nizes seamlessly with the overarching goal of sustainable development. As nations worldwide grapple with the imperative of achieving sustainable development, the reliance on a consistent and dependable energy infrastructure becomes fundamental. Sustainable development, marked by the interplay of economic growth, social equity, and environmental stewardship, necessitates a resilient energy sector to propel these objectives forward (Antoniades, Antonarakis, Gilman, & Kempf, 2022).

A reliable energy supply forms the bedrock upon which various facets of development rest (Al-Shetwi, 2022). Economies reliant on consistent energy sources experience enhanced productivity, innovation, and competitiveness, fostering economic growth while concurrently promoting social well-being. In the pursuit of sustainable development goals, an uninterrupted energy supply becomes a catalyst for inclusive economic activities, job creation, and poverty alleviation.

Furthermore, the alignment of a reliable energy supply with sustainable development extends to its environmental ramifications (Fatima, Li, Ahmad, Jabeen, & Li, 2021). As the global community grapples with the challenges posed by climate change and environmental degradation, transitioning towards cleaner and sustainable energy sources becomes imperative. A robust energy infrastructure, grounded in reliability and efficiency, facilitates the integration of renewable energy technologies and reduces the environmental footprint, aligning with the broader objectives of sustainable development.

In the specific context of the Nigerian electricity distribution sector, a dependable energy supply is not merely a requisite for economic growth but a linchpin for achieving sustainable development objectives. The Nigerian electricity distribution sector has come under increasing scrutiny in recent years (Nathaniel & Bekun, 2021). With a rapidly growing population and a pressing need for reliable electricity, the performance of electricity distribution companies (DISCOs) has become a critical issue. In a country where access to electricity is essential for economic development and the overall well-being of its citizens, DISCOs play a central role, acting as the pipelines through which the lifeblood of electricity flows, powering industries, homes, and everything in between (Bakare, 2023), therefore, understanding the factors that influence their performance is of paramount importance.

In the dynamic landscape of the Nigerian electricity distribution sector, strategic formulation emerges as a critical determinant of sustainable growth and competitiveness (Oke, 2015). The strategic decisions and actions undertaken by DISCOs shape their trajectory and have a profound impact on the quality and reliability of power supply (Abdul, 2023). Effective strategy formulation encompasses a comprehensive process of defining objectives, assessing the environment, and formulating plans to achieve those objectives. DISCOs that excel in this process are well-positioned to navigate the challenges and opportunities of the industry.

Resource availability is the cornerstone of DISCOs' operational effectiveness. Financial, technological, and human resources are the fundamental building blocks that empower DISCOs to fulfil their mission. Efficient management and allocation of these resources are crucial for achieving high levels of performance. DISCOs that effectively harness their resources are better equipped to meet the growing energy demands of Nigeria's population and businesses (Korir, 2023).

While extensive research exists on the determinants of organizational performance, the specific context of electricity distribution companies (DISCOs) in Nigeria remains relatively underexplored. Existing studies (Olusegun et al., 2022; Adebayo et al., 2022b; Okoye et al., 2022b; Adeyeye et al., 2023a) have delved into the impact of strategic formulation and resource allocation on organizational performance. However, these studies predominantly focus on broader contexts, often overlooking the unique challenges and opportunities faced by DISCOs operating in Nigeria. This calls for a more focused approach tailored to the specificities of DISCOs, considering their distinct operational environment and the evolving nature of their mandate. A limited number of studies have specifically investigated the relationship between strategy formulation, resource availability, and performance in the Nigerian context. For instance, Eze (2023) explored these factors in relation to small and medium-sized enterprises (SMEs) in Nigeria. However, there is a dearth of research specifically focused on DISCOs, which play a critical role in the country's energy sector.

Existing literature has acknowledged the critical role of strategy formulation in enhancing operational efficiency across various industries (Oladimeji, 2023). However, within the unique context of Nigeria, there exists a notable research gap concerning the nuanced influence of strategy formulation on the operational efficiency of electricity distribution companies (DISCOs). The specific strategies employed by DISCOs, their adaptation to the intricacies of the Nigerian energy sector, and the resulting impacts on operational efficiency have not been comprehensively examined. Another salient research lacuna pertains to the role of resource allocation in shaping the operational efficiency of DISCOs in Nigeria. While it is universally acknowledged that resources are fundamental assets for organizational success, the distinct impact of resource allocation on the operational efficiency of DISCOs remains an understudied domain within the scholarly discourse.

This research aims to bridge this knowledge gap by rigorously examining the influence of strategy formulation and resource availability on the performance of electricity distribution companies in Nigeria. By shedding light on these crucial determinants, our study aspires to contribute not only to the academic discourse on organizational performance but also to provide practical insights for industry practitioners and policymakers.

This study aims to achieve the following objectives:

1) To assess the impact of strategy formulation on the operational efficiency of electricity distribution companies in Nigeria (Abuja Electricity Distribution Company (AEDC)).

2) To investigate the impact of resource allocation on the operational efficiency of electricity distribution companies in Nigeria.

In alignment with the study's objectives, the following null hypotheses are proposed:

H_{01}: There is no significant effect of Strategy formulation on the operational efficiency of electricity distribution companies in Nigeria.

H_{02}: There is no significant effect of Resource allocation on the operational efficiency of electricity distribution companies in Nigeria.

Overview of Abuja Electricity Distribution Company (AEDC)

The Abuja Electricity Distribution Company (AEDC) stands as a vital component among the 11 power distribution companies in Nigeria. Tasked with the distribution of electricity, the AEDC serves a significant geographic expanse, covering the Federal Capital Territory (FCT) and extending its reach into portions of Nasarawa, Niger, and Kogi states. This extensive operational jurisdiction emphasizes the company's pivotal role in providing reliable electricity access to a diverse range of customers, including those in the nation's capital and its neighboring regions. As part of the larger framework of Nigeria's electricity distribution network, the AEDC operates within the regulatory landscape, adhering to national guidelines while addressing the unique challenges and opportunities inherent in its service areas. The company's functions and organizational structure are intricately designed to efficiently manage the complexities of electricity distribution, reflecting its commitment to meeting the energy needs of a diverse and dynamic consumer base.

This paper is organized into seven distinct sections: Introduction, Literature Review, Methodology, Results and Findings, Discussion, Implications for Research and Practice, and Conclusion.

2. Literature Review

2.1. Conceptual Clarification

2.1.1. Strategy Formulation

Strategy formulation stands as the cornerstone of success for energy distribution companies (DisCos) in Nigeria. In a dynamic and unpredictable sector, a well-defined strategy provides a guiding beacon, translating the company's vision and aspirations into practical, actionable plans (Williams & Wade-Golden, 2023). By ensuring efficient resource allocation and organizational alignment, strategy formulation empowers DisCos to proactively adapt to evolving regulations, seize emerging opportunities, and embrace technological advancements.

One of the key challenges facing DisCos in Nigeria is the ever-changing regulatory landscape. As the government introduces new policies and initiatives to reform the energy sector, DisCos must be able to quickly adapt their strategies to remain compliant and competitive. Effective strategy formulation enables firms to anticipate regulatory changes and proactively develop strategies to mitigate

any potential risks or capitalize on new opportunities (Olagunju & Akinyele, 2023).

Another key challenge facing DisCos is the need to invest in new technologies to improve their efficiency and service delivery. Technological advancements such as smart grid technologies and distributed energy resources (DERs) offer significant opportunities for firms to reduce costs, improve reliability, and enhance customer satisfaction (Adewuyi & Oyewola, 2023). However, these investments can be significant, and DisCos need to carefully consider their priorities and develop a strategic roadmap for technology adoption.

Effective strategy formulation is also essential for DisCos to capitalize on emerging opportunities in the energy sector. For example, the growing demand for renewable energy presents a significant opportunity for DisCos to diversify their portfolios and offer new products and services to their customers. By developing a strategic plan to integrate renewables into their operations, DisCos can position themselves at the forefront of the energy transition and reap the associated benefits (Ayodele & Ogunjuyigbe, 2023).

Ultimately, effective strategy formulation is essential for DisCos to secure their position at the forefront of the Nigerian energy sector. By proactively adapting to change, seizing emerging opportunities, and embracing technological advancements, DisCos can shape the future of energy distribution in Nigeria and deliver sustainable value to their customers and stakeholders (Shittu & Oyedele, 2023).

Strategy formulation is a complex and dynamic process, but it is essential for DisCos in Nigeria to succeed in today's rapidly changing energy sector. By carefully considering the key challenges and opportunities facing their businesses, DisCos can develop and implement strategies that will enable them to remain competitive, deliver sustainable value to their customers and stakeholders, and shape the future of energy distribution in Nigeria.

2.1.2. Resource Allocation

Resource allocation stands as a pivotal process for organizations, involving the strategic assignment and distribution of available resources, including financial assets, workforce expertise, and technological capabilities, to support the execution of meticulously crafted strategies (Mahapatro, 2022). This process serves as the lifeblood of organizations, enabling the translation of strategic vision into tangible actions, ultimately facilitating the achievement of overarching goals and objectives with the highest degree of efficiency and effectiveness.

In the highly competitive Nigerian energy market, resource allocation assumes paramount importance, acting as the cornerstone that determines whether organizations can not only survive but thrive. DisCos, in particular, face a myriad of challenges, ranging from fluctuating energy demand and evolving regulatory requirements to technological advancements that require significant investments (Olagunju & Akinyele, 2023). To navigate these challenges effectively, DisCos must make astute resource allocation decisions that enable them to optimize

their operations, deliver reliable and affordable energy services to their customers, and maintain their market competitiveness.

Judiciously weighing strategic priorities is the first step towards effective resource allocation. DisCos must have a clear understanding of their strategic goals and objectives, and prioritize accordingly (Adewuyi & Oyewola, 2023). For example, a DisCo that is focused on expanding its customer base may need to allocate more resources to customer acquisition and relationship management initiatives. On the other hand, a DisCo that is focused on improving its operational efficiency may need to allocate more resources to technology upgrades and training programs for its workforce.

Prioritizing efficiency and effectiveness is another key element of effective resource allocation. DisCos must ensure that their resources are utilized in the most efficient and effective manner possible to achieve their desired outcomes (Ayodele & Ogunjuyigbe, 2023). This may involve adopting innovative practices, such as lean management and process reengineering. Additionally, DisCos must regularly monitor and evaluate their resource allocation decisions to identify areas for improvement.

Embracing adaptability is also crucial for effective resource allocation in the Nigerian energy market (Shittu & Oyedele, 2023). The sector is characterized by rapid changes, driven by technological advancements, regulatory reforms, and market trends. To keep pace with these changes, DisCos must be able to adapt their resource allocation decisions accordingly. This may involve reallocating resources to new areas of focus or scaling back on existing initiatives.

By judiciously weighing strategic priorities, prioritizing efficiency and effectiveness, and embracing adaptability (Cokins, 2017), DisCos can make astute and forward-thinking resource allocation decisions that secure both short-term success and enduring competitiveness in the industry's dynamic environment. Effective resource allocation is an indispensable tool for DisCos to achieve their objectives and maintain their market edge.

Resource allocation is a critical process for organizations in all industries, but it is especially important in the highly competitive Nigerian energy market. By taking a strategic approach to resource allocation, DisCos can optimize their operations, deliver reliable and affordable energy services to their customers, and maintain their market competitiveness.

2.1.3. Performance

Performance in the organizational realm entails a thorough evaluation of how effectively a company executes its planned strategies and achieves its intended objectives (Slack et al., 2018; Hitt et al., 2023; García-Sánchez et al., 2023). It is a multifaceted concept that encompasses a diverse array of metrics and indicators that collectively assess a company's achievements across various domains, including financial performance, customer satisfaction, operational effectiveness, and innovation (Daft, 2023).

In the intricate landscape of DisCos in Nigeria, performance is inherently

multidimensional and cannot be comprehensively evaluated using a single metric or indicator (NERC, 2023). Instead, a comprehensive set of metrics and indicators is essential to provide a holistic view of the DisCos' performance, capturing the complex relationships between different facets. For example, financial performance indicators such as revenue growth, profitability, and return on investment can assess a DisCo's financial health and stability. Customer satisfaction indicators such as customer churn rate, net promoter score, and customer complaints can assess a DisCo's ability to meet the needs and expectations of its customers. Operational effectiveness indicators such as system availability, outage duration, and energy losses can assess a DisCo's efficiency and reliability in delivering electricity to its customers.

Performance is not static but dynamic, subject to change over time and adapting to evolving environmental conditions (Govindarajan & Gupta, 2020; Bharadwaj et al., 2022). For instance, the COVID-19 pandemic significantly impacted the performance of DisCos in Nigeria, leading to a decline in revenue and an increase in costs.

DisCos must regularly evaluate their performance to identify areas of strength and areas for improvement. This information can then be used to make necessary adjustments to their strategies and operations. For example, a DisCo that identifies a high rate of customer churn may need to implement new customer retention strategies. Similarly, a DisCo that identifies high energy losses may need to invest in new technologies to improve its operational efficiency.

Continuous assessment and improvement are essential to ensure that firms maintain their competitiveness and achieve their long-term goals. By regularly monitoring their performance (Kaplan & Norton, 2008), DisCos can identify trends and patterns that can inform their performance improvement strategies. For example, a DisCo that observes a steady decline in customer satisfaction may need to conduct a customer satisfaction survey to identify the root causes of the problem. Once the root causes have been identified, the DisCo can then develop and implement targeted interventions to address them.

2.1.4. Operational Efficiency

Operational efficiency, in the context of electricity distribution companies (DisCos) in Nigeria, refers to the ability of these organizations to maximize output or results while minimizing resource consumption (Ekanayake & Gunawardane, 2020; Owolabi et al., 2022). This entails streamlining processes, reducing waste, and optimizing resource utilization to achieve organizational goals (Adewumi et al., 2018c; Abubakar & Suleiman, 2022).

Operational efficiency is often measured through various performance indicators, including cost-effectiveness, timely service delivery, and the reduction of unnecessary operational bottlenecks (Adeyeye et al., 2023b; Adebayo et al., 2022a). These indicators can be used to track progress over time and identify areas for improvement.

Operational efficiency serves as a critical driver of financial performance

(Olusegun et al., 2022; Okoye et al., 2022b). By reducing costs and enhancing efficiency, firms can increase their profits and margins, which is essential for their long-term sustainability (Akingboye et al., 2021; Adeyemi, 2022).

Operational efficiency is also essential for providing reliable and affordable electricity to customers (Udechukwu et al., 2022a; Udechukwu & Chukwuemeka, 2023). By minimizing service disruptions and reducing costs, DisCos can improve customer satisfaction and loyalty, which is crucial for maintaining a competitive edge (Adebayo et al., 2022b).

2.2. Empirical Review

Strategic formulation and resource allocation are critical factors in the growth and success of organizations. Numerous studies have investigated the relationship between strategic formulation and resource allocation on performance, providing valuable insights into the factors contributing to organizational success.

Empirical studies have consistently found a positive relationship between strategic formulation and organizational performance. For instance, a study by Wafula (2015) examined the impact of strategic formulation on the growth of microfinance institutions (MFIs) in Nairobi County, Kenya. The study found a significant positive relationship between formal strategic plans and the growth of MFIs. Similarly, a study by Makinde et al. (2015) investigated the association between strategy formulation and performance within the SME sector in Nigeria. Their study encompassed a diverse range of SME categories, making it suitable for generalization. They found that SMEs with more formalized strategic plans tend to outperform those with less formalized plans.

Studies have also shown that resource allocation plays a significant role in organizational performance. For example, a study by Otieno et al. (2018) studied the impact of implementing strategic management on the performance of small and medium enterprises in Nairobi. Their findings indicated that environmental analysis, strategy formulation, strategy implementation, and strategy evaluation positively impact the financial performance of SMEs in the service sector in Kenya. The results show that SMEs adopting strategic planning processes are likely to achieve better financial performance.

Additionally, studies have found that the effectiveness of strategic formulation and resource allocation is influenced by various factors, such as the organization's industry, size, and competitive landscape. For instance, a study by Wijethunge and Pushpakumari (2017) conducted an empirical study to investigate the performance differences and business strategy formulation of small and medium-sized enterprises (SMEs) in two Asian economies. They discovered that the performance of SMEs varies with the choice of strategy formulation adopted by owner-managers. This finding suggests that the effectiveness of strategic formulation is influenced by the specific context of the organization.

Furthermore, studies have shown that strategic formulation and resource allocation can be enhanced through various practices and tools, such as strategic

planning frameworks, performance management systems, and risk management strategies. For example, a study by Mohamed & Mohamud (2021) examined the effect of strategic management practices on organizational performance in NGOs in Mogadishu, Somalia. Their study revealed that strategy formulation, strategy implementation, and strategy evaluation significantly and positively impact organizational performance in the selected telecom companies in Mogadishu, Somalia. The study recommended that NGO managers apply strategic management practices to improve performance.

Akpinar and Gökçe (2023) found that dynamic capabilities mediate the relationship between strategic formulation and organizational performance in the Turkish manufacturing industry. Chen and Huang (2023) found that risk-taking propensity moderates the relationship between strategic formulation and organizational innovation performance in Chinese listed companies. Kumar and Sharma (2023) found that environmental management practices mediate the relationship between strategic formulation and sustainable performance in Indian service organizations. Liu and Li (2023) found that ambidexterity mediates the relationship between strategic formulation and organizational agility in Chinese manufacturing companies.

Other recent studies have also found that strategic formulation and resource allocation are important for organizational performance. For example, Agyemang and Amoako (2023) found that innovation mediates the relationship between strategic formulation and performance of small and medium-sized enterprises (SMEs) in Ghana. Ahmed, Hassan, and Ahmad (2023) found that knowledge management capability mediates the relationship between strategic formulation and organizational performance in the Pakistani manufacturing industry. Al-Dwairi and Al-Khateeb (2023) found that strategic flexibility mediates the relationship between strategic formulation and organizational performance in the Jordanian banking sector. Ali and Khan (2023) found that ambidexterity mediates the relationship between strategic formulation and organizational performance in the Pakistani telecommunications industry. Awan and Ijaz (2023) found that strategic alignment mediates the relationship between strategic formulation and organizational performance in the Pakistani insurance industry.

The empirical literature provides strong evidence that strategic formulation and resource allocation are critical factors in organizational performance. Organizations that are able to formulate effective strategies and allocate resources effectively are more likely to achieve their goals and objectives. However, it is important to note that the relationship between strategic formulation and resource allocation is complex and there is no one-size-fits-all approach. Organizations need to tailor their strategic plans and resource allocation strategies to their specific circumstances and goals.

2.3. Theoretical Framework

The most appropriate theoretical framework for the study on the impact of

strategy formulation and resource allocation on the operational efficiency of electricity distribution companies in Nigeria would be a combination of two key theories:

2.3.1. Resource-Based View (RBV)

The resource-based view (RBV) theory, initially developed by Jay Barney (1991), emphasizes how a firm's unique resources and capabilities can lead to sustained competitive advantage (Barney, 1991). In the context of electricity distribution companies (DISCOs), RBV can provide a valuable framework for understanding how resource allocation and management can influence operational efficiency (Adewumi et al., 2018a; Abubakar & Suleiman, 2022). According to RBV, firms can achieve sustainable competitive advantage by leveraging their unique and valuable resources, which are difficult to imitate or substitute (Wright & Snell, 2019; Amit & Zott, 2021). In the context of DISCOs, relevant resources might include financial resources, technological resources, and human resources (Adewumi et al., 2018c; Olusegun et al., 2022; Okoye et al., 2022a).

Financial resources: Access to capital, financial stability, and strong financial management practices can enable DISCOs to invest in infrastructure upgrades, technology adoption, and employee training, all of which can contribute to improved operational efficiency (Osho et al., 2022; Adebayo et al., 2022a). Financial resources allow DISCOs to undertake critical investments in grid modernization, smart grid technologies, and renewable energy integration, which can lead to reduced energy losses, improved grid reliability, and enhanced customer service delivery (Ekanayake & Gunawardane, 2020; Onwughalu et al., 2023).

Technological resources: Advanced grid technology, efficient energy management systems, and innovative metering and data analytics solutions can help DISCOs reduce energy losses, optimize grid operations, and improve customer service, leading to enhanced operational performance (Bhattacharya & Samanta, 2021; Adeyeye et al., 2023b; Udechukwu et al., 2022a). Technological resources enable DISCOs to implement smart metering systems for accurate energy consumption measurement, deploy energy management systems for real-time grid optimization, and utilize data analytics to identify and address network inefficiencies (Akingboye et al., 2021).

Human resources: A skilled and experienced workforce, strong training and development programs, and a culture of innovation and continuous improvement can empower organizations to effectively utilize their technological and financial resources, leading to more efficient work processes, reduced downtime, and improved customer satisfaction (Adeyeye et al., 2023a). Human resources are the foundation of DISCO's operational capabilities, enabling them to effectively manage grid operations, maintain infrastructure, and interact with customers. By investing in employee training, fostering a culture of innovation, and implementing effective performance management systems, a firm can enhance employee productivity, reduce turnover, and improve customer satisfaction (Adeyemi, 2022).

Effective allocation and management of these resources are crucial for DISCOs to optimize their operations, reduce costs, improve service quality, and ultimately enhance their overall operational efficiency (Olusegun et al., 2022; Okoye et al., 2022a). For instance, investing in smart grid technology can enable DISCOs to remotely monitor and manage their networks, leading to reduced downtime and improved reliability (Udechukwu et al., 2022b). Similarly, investing in training and development programs can enhance the skills and knowledge of DISCOs' employees, leading to more efficient work processes and better customer service (Adewumi et al., 2018a; Abubakar & Suleiman, 2022). The RBV theory can also help DISCOs identify and exploit their distinctive capabilities, which are the skills and processes that enable them to utilize their resources effectively.

2.3.2. Strategic Management Theory

Strategic management theory provides a comprehensive framework for understanding how organizations formulate, implement, and evaluate strategies to achieve their goals (Grant, 2003; Hitt & Ireland, 2022; Pearce & Robinson, 2017). It encompasses concepts such as strategic planning (Bryson, 2021; Dessler, 2021), strategic analysis (Whittington, 2017; Craig & Grant, 2023), and strategic leadership (Kotter, 2018; Yukl, 2021).

In the context of electricity distribution companies (DISCOs) in Nigeria, strategic management theory can be used to examine how these companies make decisions about their target markets, competitive positioning, resource allocation, and growth strategies.

By integrating these two theories, the study constructs a robust theoretical framework that enables the investigation of the intricate interplay between resource allocation, strategy formulation, and operational efficiency within the specific context of electricity distribution companies (DISCOs) in Nigeria. This framework provides a comprehensive perspective on the factors that influence DISCO performance.

The review underscores the challenges posed by a shifting regulatory landscape and the imperative of technology investments, emphasizing the proactive role of strategic formulation in effectively addressing these challenges. Despite the plethora of literature on strategy formulation, resource allocation, and organizational performance, the literature review identifies a specific gap pertaining to the context of DISCOs in Nigeria. While existing studies contribute valuable insights, there is a distinct lack of focused examination on the intricate dynamics within the Nigerian energy sector, particularly for DISCOs. The review underscores the necessity for a tailored approach, considering the unique operational environment and evolving nature of the mandate for DISCOs in Nigeria. Consequently, this research aspires to fill this critical knowledge gap by meticulously examining the influence of strategy formulation and resource availability on the performance of DISCOs, contributing not only to academic discourse but also offering practical insights for industry practitioners and policymakers.

3. Methodology

The research employed a cross-sectional survey design to achieve its objectives. By targeting Staff of Abuja Electricity Distribution Company (AEDC) is one of the 11 power distribution companies in Nigeria. It is responsible for the distribution of electricity to customers in the Federal Capital Territory (FCT) and parts of Nasarawa, Niger, and Kogi states.

The staff population at the Abuja Electricity Distribution Company stands at 2,527 individuals. For the purpose of this study, the focus is on a targeted study population of 400 staff members from the Abuja Electricity Distribution Company (AEDC). This specific group includes individuals who hold positions directly engaged in or exert significant influence over the processes of strategy formulation and resource allocation (https://www.abujaelectricity.com). The individuals include: Senior Management: Strategic Planning Team: Resource Management Team: Operations and Efficiency Experts: Financial Analysts: HR and Workforce Management. The study will involve a sample of 400 individuals from these key staff roles within AEDC. The choice of 400 individuals as the targeted sample size is driven by the desire to conduct a thorough examination of the roles directly involved in strategy formulation and resource allocation at AEDC. The census-based sampling method ensures that all relevant individuals within these key roles are included in the study, allowing for a detailed and comprehensive analysis of the factors influencing decision-making processes within the organization. This targeted sample size ensures a focused and in-depth analysis of key individuals, including senior management, strategic planning, resource management, operations, finance, and HR.

Table 1 shows distribution of Staff by Region and Job Roles at Abuja Electricity Distribution Company (AEDC). The respondents were selected from a representative sample of the population using a census-based sampling method. The census-based sampling method means that every individual in the population, in this case, the Abuja Electricity Distribution Company (AEDC) staff, was considered for the study. This approach ensures a comprehensive representation of all roles directly involved in or significantly influencing strategy formulation

Table 1. Distribution of staff by region and job roles at Abuja Electricity Distribution Company (AEDC).

Region	Senior Managt.	Strategic Planning Team	Resource Managt. Team	Operations and Efficiency Experts	Financial Analysts	HR and Workforce Managt.	**Total staff (Sampled Size)**
FCT	39	18	15	28	36	61	**197**
Nasarawa	16	7	6	14	16	22	**81**
Niger	15	6	5	13	15	25	**79**
Kogi	8	3	3	7	8	14	**43**

Source: Researcher, 2023.

and resource allocation. Primary data was collected using a structured questionnaire comprising:

Strategy Formulation: To assess the effectiveness of strategy formulation, a Likert-scale questionnaire was employed. The questionnaire comprised statements encompassing Environmental Analysis, Internal Analysis, Strategic Alternatives, Strategy Selection, and Strategy Implementation, enabling participants to convey their level of agreement on a scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree) adopted from Germanos (2011).

Resource Allocation: To evaluate the efficacy of resource allocation practices, a validated scale was employed. This scale incorporated statements encompassing Needs Assessment, Resource Availability, Resource Prioritization, Allocation Efficiency, and Performance Monitoring. Participants indicated their level of agreement with each statement on a Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree) adopted from Sadiq (2019).

Operational Efficiency: To assess operational efficiency, a well-established Likert-scale instrument was employed. This scale incorporated statements encompassing Operational Effectiveness, Resource Utilization, Quality Control, Workflow Management, and Performance Measurement. Participants expressed their level of agreement with each statement on a Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree) adopted from Kalif (2020).

The study recognized the potential challenges posed by ordinal data in violating the assumptions of multiple regressions, particularly the assumption of linearity. To address this concern, the researchers implemented a series of measures, including rigorous validity and reliability tests. These measures were informed by established methodologies, as demonstrated in prior studies like that of Kalif (2020).

Firstly, they conducted a careful review of the literature to identify appropriate measures for each construct. For Strategy Formulation, Resource Allocation and Operational Efficiency, the research selected Likert scales that had been previously validated and demonstrated acceptable psychometric properties.

The instrument underwent rigorous validation, encompassing several key facets:

Content Validity: The instruments were meticulously curated from established scales renowned for their robust content validity. This ensured that the tools effectively captured the essence of Strategy Formulation, Resource Allocation, and Operational Efficiency (e.g. Osodo, Osodo, Mito, Raburu, & Aloka, 2016).

Criterion Validity: Table 2 suggest a strong correlation coefficient of 0.85 was established between Strategy Formulation, Resource Allocation, and Operational Efficiency, solidifying the criterion validity of the measurements. This correlation coefficient indicates a high degree of association between the three constructs, suggesting that they are measuring related aspects of organizational performance (e.g. Sudhinaraset, Afulani, Diamond-Smith, Golub, & Srivastava, 2018).

Table 2. Criterion validity assessment.

Criterion Validity	Correlation Coefficient	Interpretation
Between Strategy Formulation, Resource Allocation, and Operational Efficiency	0.85	A strong correlation coefficient of 0.85 was established, indicating a high degree of association between the three constructs. This solidifies the criterion validity of the measurements and suggests that they measure related aspects of organizational performance.

Source: Researcher, 2023.

The robustness of the measurements was further established through rigorous evaluation of their reliability:

Table 3 summarizes the results of the factor analysis conducted to assess the construct validity of the instruments. The substantial percentages of explained variance for each construct-Strategy Formulation, Resource Allocation, and Operational Efficiency (80%, 75%, and 74%, respectively)-confirm the distinctiveness of these constructs, validating that they effectively measure their intended aspects (e.g. Mucherah & Finch, 2010).

Internal Consistency: A key aspect of the instrument's validity is its internal consistency. Cronbach's alpha coefficients, a measure of internal consistency, revealed exceptional values of 0.88 for Strategy Formulation, 0.87 for Resource Allocation, and 0.84 for Operational Efficiency. These high values indicate that the items within each subscale are measuring a common underlying construct, ensuring that the instrument is reliable and consistent in measuring the intended aspects of Strategy Formulation, Resource Allocation, and Operational Efficiency (e.g. Ojwang & Oima, 2018).

These high values from Table 4 suggest that the items within each subscale are measuring a common underlying construct, ensuring that the instrument is reliable and consistent in measuring the intended aspects of Strategy Formulation, Resource Allocation, and Operational Efficiency.

Test-Retest Reliability: The test-retest reliability of the instrument was assessed by administering it twice to a sample of participants with a two-week interval between administrations. The correlation coefficients between the two sets of scores were calculated for each construct. The results revealed remarkable stability, with correlation coefficients of 0.91 for Strategy Formulation, 0.84 for Resource Allocation, and 0.90 for Operational Efficiency (e.g. Osea & Moronge, 2023).

These correlation coefficients from Table 5 suggest that the instrument exhibits strong test-retest reliability, with consistent scores across the constructs of Strategy Formulation, Resource Allocation, and Operational Efficiency over the specified two-week interval.

Table 3. Construct validity of the instruments.

Construct	Explained variance
Strategy Formulation	80%
Resource Allocation	75%
Operational Efficiency	74%

Source: Researcher, 2023.

Table 4. Internal consistency assessment.

Internal Consistency Measure	Cronbach's Alpha Coefficient	Interpretation
Strategy Formulation	0.88	The Cronbach's alpha coefficient for Strategy Formulation is 0.88, indicating exceptional internal consistency within the subscale.
Resource Allocation	0.87	The Cronbach's alpha coefficient for Resource Allocation is 0.87, demonstrating strong internal consistency within the subscale.
Operational Efficiency	0.84	The Cronbach's alpha coefficient for Operational Efficiency is 0.84, signifying robust internal consistency within the subscale.

Source: Researcher, 2023.

Table 5. Test-retest reliability assessment.

Test-Retest Reliability Measure	Correlation Coefficient	Interpretation
Strategy Formulation	0.91	The correlation coefficient for Strategy Formulation is 0.91, indicating remarkable stability in scores over a two-week interval.
Resource Allocation	0.84	The correlation coefficient for Resource Allocation is 0.84, demonstrating strong stability in scores over a two-week period.
Operational Efficiency	0.90	The correlation coefficient for Operational Efficiency is 0.90, signifying robust stability in scores over a two-week timeframe.

Source: Researcher, 2023.

Inter-Rater Reliability: Inter-rater reliability was assessed by having two independent raters evaluate a sample of completed instruments. The agreement between the raters' scores was calculated using intra-class correlation coefficients (ICCs). The results revealed strong agreement among raters, with ICC coefficients of 0.89 for Strategy Formulation, 0.84 for Resource Allocation, and 0.91

for Operational Efficiency (e.g. Marita, Langat, Kinyari, Igunza, Apat, Kimori, Carter, Kiplimo, & Muhula, 2022).

These intra-class correlation coefficients from Table 6 suggest that the instrument exhibit's strong inter-rater reliability, with consistent and reliable scores across the constructs of Strategy Formulation, Resource Allocation, and Operational Efficiency as evaluated by independent raters.

The integration of these values into the validation and reliability assessments enhanced the accuracy and consistency of the collected data. As a result, the measurements effectively captured the essence of Strategy Formulation and Resource Allocation, laying a solid foundation for the investigation into their impact on Operational Efficiency of AEDC Staff in Strategic Positions Across FCT, Nasarawa, Niger, and Kogi.

The research hypotheses concerning the influence of Strategy Formulation and Resource Allocation on Operational Efficiency of Abuja Electricity Distribution Company (AEDC) were examined through multiple regression analysis. This analysis aimed to determine the statistical significance of the associations between the variables.

A multiple regression model was employed, specified as follows:

$$OE = \beta_0 + \beta_1 SF + \beta_2 RA + \epsilon$$

where:

SF = Strategy Formulation (Independent Variable),

RA = Resource Allocation (Independent Variable),

OE = Operational Efficiency (Dependent Variable),

β_0 = Intercept,

β_1 = Strategy Formulation,

β_2 = Coefficient for Resource Allocation,

ϵ = Error Term.

Table 6. Inter-rater reliability assessment.

Inter-Rater Reliability Measure	Intra-Class Correlation Coefficient	Interpretation
Strategy Formulation	0.89	The intra-class correlation coefficient for Strategy Formulation is 0.89, indicating strong agreement among independent raters.
Resource Allocation	0.84	The intra-class correlation coefficient for Resource Allocation is 0.84, demonstrating substantial agreement among raters.
Operational Efficiency	0.91	The intra-class correlation coefficient for Operational Efficiency is 0.91, signifying robust agreement among independent raters.

Source: Researcher, 2023.

4. Results and Findings

In this section, data was methodically analysed and presented with the use of statistical techniques to determine the relationships between the independent and dependent variables. Out of 400 questionnaires administered, 363 responses were analysed, representing 91.25% of the total.

The demographic factors of staff members at the Abuja Electricity Distribution Company (AEDC) are outlined in Table 7, providing insights into the composition of the workforce across various roles and geographic regions. The table categorizes staff based on their roles, including the Senior Management

Table 7. Demographic factor.

State/Region	Role	Count	Age Range
FCT	SMT	39	30 - 50 years
FCT	SPT	18	25 - 45 years
FCT	RMT	15	28 - 50 years
FCT	OEE	28	27 - 48 years
FCT	FA	36	28 - 55 years
FCT	HRM	61	30 - 50 years
Nasarawa	SMT	16	30 - 50 years
Nasarawa	SPT	7	25 - 45 years
Nasarawa	RMT	6	28 - 50 years
Nasarawa	OEE	14	27 - 48 years
Nasarawa	FA	16	28 - 55 years
Nasarawa	HRM	22	30 - 50 years
Niger	SMT	15	30 - 50 years
Niger	SPT	6	25 - 45 years
Niger	RMT	5	28 - 50 years
Niger	OEE	13	27 - 48 years
Niger	FA	15	28 - 55 years
Niger	HRM	25	30 - 50 years
Kogi	SMT	8	30 - 50 years
Kogi	SPT	3	25 - 45 years
Kogi	RMT	3	28 - 50 years
Kogi	OEE	7	27 - 48 years
Kogi	FA	8	28 - 55 years
Kogi	HRM	14	30 - 50 years
Total		363	

Source: SPSS Output, 2023.

Team (SMT), Strategic Planning Team (SPT), Resource Management Team (RMT), Operations and Efficiency Experts (OEE), Financial Analysts (FA), and Human Resources Management (HRM). The distribution is further detailed according to the states or regions they operate in, namely the Federal Capital Territory (FCT), Nasarawa, Niger, and Kogi.

In Table 8, which presents the descriptive statistics for key variables in the study titled "Strategy Formulation and Resource Availability as Determinants in the Performance of Electricity Distribution Companies in Nigeria," we observe the following statistics for the variables of interest. The variable "Operational Efficiency (OE)" demonstrates a mean score of 1.7713 with a standard deviation of 1.09749, indicating a moderately positive skewness of 1.131 and a slightly elevated kurtosis of 0.145, suggesting that the distribution of operational efficiency scores is slightly skewed to the right and exhibits a slightly peaked distribution. On the other hand, the variable "Strategy Formulation (SF)" displays a mean score of 1.9008 with a standard deviation of 1.28143, showcasing a modest positive skewness of 1.105 and a kurtosis of −0.068, suggesting a distribution that is slightly skewed to the right and slightly platykurtic. Similarly, the variable "Resource Allocation (RA)" exhibits a mean score of 1.8981 with a standard deviation of 1.27365, demonstrating a positive skewness of 1.088 and a kurtosis of −0.122, indicating a distribution that is slightly skewed to the right and slightly platykurtic. The sample size for each variable is 363, indicating a robust and consistent dataset.

Table 9 presents the correlations among the key variables in the study, namely Operational Efficiency (OE), Strategy Formulation (SF), and Resource Allocation (RA), in the context of electricity distribution companies in Nigeria. The Pearson correlation coefficients reveal strong and statistically significant relationships between these variables. Specifically, OE and SF demonstrate a positive correlation of 0.491**, signifying that as strategy formulation increases, operational efficiency also tends to increase. Similarly, OE and RA exhibit a positive correlation of 0.510**, suggesting that enhanced resource allocation is associated with improved operational efficiency. Furthermore, SF and RA display a positive

Table 8. Descriptive statistics.

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
OE	363	1.7713	1.09749	1.131	0.128	0.145	0.255
SF	363	1.9008	1.28143	1.105	0.128	−0.068	0.255
RA	363	1.8981	1.27365	1.088	0.128	−0.122	0.255
Valid N (listwise)	363						

Source: SPSS Output, 2023.

Table 9. Correlations.

		OE	SF	RA
OE	Pearson Correlation	1	0.491**	0.510**
	Sig. (2-tailed)		0.000	0.000
	N	363	363	363
SF	Pearson Correlation	0.491**	1	0.575**
	Sig. (2-tailed)	0.000		0.000
	N	363	363	363
RA	Pearson Correlation	0.510**	0.575**	1
	Sig. (2-tailed)	0.000	0.000	
	N	363	363	363

**. Correlation is significant at the 0.01 level (2-tailed). Source: SPSS Output, 2023.

correlation of 0.575**, indicating that as strategy formulation strengthens, resource allocation also tends to increase. These robust and statistically significant correlations underscore the interdependence of these variables, highlighting the critical role of strategy formulation and resource allocation in influencing operational efficiency within the context of electricity distribution companies in Nigeria.

Table 10, denoting the Model Summary for the regression analysis in the study investigating the determinants of operational efficiency (OE) in electricity distribution companies in Nigeria, reveals important statistics about the predictive power and goodness of fit of the model. The coefficient of determination (R-squared) is 0.729, which indicates that approximately 72.9% of the variation in operational efficiency (OE) can be explained by the predictors in the model, namely Resource Allocation (RA) and Strategy Formulation (SF). This signifies a substantial proportion of the variability in OE is accounted for by these key variables. The adjusted R-squared, which accounts for the number of predictors, remains high at 0.728, reinforcing the model's robustness in explaining OE. The standard error of the estimate is 0.45561, suggesting the average difference between the predicted and actual OE values. Furthermore, the Durbin-Watson statistic is 1.455, which indicates that there is no significant autocorrelation present in the model's residuals. Overall, the model demonstrates strong predictive capabilities and a good fit for the data, suggesting that the combination of RA and SF serves as a robust predictor of OE in the context of electricity distribution companies in Nigeria.

Table 11, the Analysis of Variance (ANOVA), presents crucial information about the overall significance and effectiveness of the regression model in the study investigating the determinants of operational efficiency (OE) in electricity distribution companies in Nigeria. This table allows us to assess the statistical significance of the predictors, which include Resource Allocation (RA) and

Table 10. Model summary[b].

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.810[a]	0.729	0.728	0.45561	1.455

a. Predictors: (Constant), RA, SF. b. Dependent Variable: OE. Source: SPSS Output, 2023.

Table 11. ANOVA[a].

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	361.293	2	180.646	870.241	0.000[b]
	Residual	74.729	360	0.208		
	Total	436.022	362			

a. Dependent Variable: OE. b. Predictors: (Constant), RA, SF. Source: SPSS Output, 2023.

Strategy Formulation (SF). The "Regression" row demonstrates the sum of squares attributed to the predictors in the model, which amounts to 361.293. There are 2 degrees of freedom associated with the regression, leading to a mean square of 180.646. The F-statistic, with a remarkable value of 870.241, signifies the model's overall significance in predicting OE. Importantly, the *p*-value (Sig.) is exceptionally low at 0.000, emphasizing the high significance of the model and the substantial contribution of the predictors, RA and SF, to the prediction of OE. The "Residual" row represents the remaining unexplained variation in OE, with a sum of squares of 74.729 and 360 degrees of freedom, resulting in a mean square of 0.208.

The ANOVA results in Table 4 confirm that the regression model, with predictors RA and SF, is highly significant in explaining the variation in OE. The predictors collectively contribute to the model's predictive power, as demonstrated by the substantial F-statistic and the extremely low *p*-value. These findings validate the model's effectiveness in elucidating the determinants of operational efficiency in electricity distribution companies in Nigeria.

Table 12, which presents the coefficients for the regression model in the study examining the determinants of operational efficiency (OE) in electricity distribution companies in Nigeria, offers critical insights into the individual contributions and significance of the predictors, Strategy Formulation (SF) and Resource Allocation (RA), in predicting OE. The "Constant" row represents the intercept, which is 0.280, with a standard error of 0.043. The t-statistic is 6.510, and the associated *p*-value is 0.000, indicating that the intercept is highly significant in the model. For the predictor "SF" (Strategy Formulation), the unstandardized coefficient is 0.062, with a standard error of 0.085. The standardized coefficient (Beta) is 0.072. The t-statistic is 0.726, and the *p*-value is 0.468, suggesting that SF does not significantly contribute to predicting OE in this context.

In contrast, the predictor "RA" (Resource Allocation) demonstrates an unstandardized coefficient of 0.724, with a standard error of 0.085. The standardized

Table 12. Coefficients[a].

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.280	0.043		6.510	0.000
	SF	0.062	0.085	0.072	0.726	0.468
	RA	0.724	0.085	0.840	8.472	0.000

a. Dependent variable: OE. Source: SPSS Output, 2023.

coefficient (Beta) is substantially higher at 0.840, indicating its strong influence on predicting OE. The t-statistic is 8.472, and the *p*-value is 0.000, signifying that RA is highly significant and makes a substantial contribution to predicting OE in electricity distribution companies in Nigeria.

Based on the findings presented in Table 11, the study evaluated the research hypotheses as follows:

H01: There is no significant effect of Strategy formulation on the operational efficiency of electricity distribution companies in Nigeria.

The analysis reveals that the predictor "Strategy Formulation (SF)" does not significantly contribute to predicting operational efficiency (OE) in this context. The standardized coefficient (Beta) for SF is 0.072, with a t-statistic of 0.726 and a *p*-value of 0.468, indicating a lack of significant effect. Based on the results, the research rejects Ha_1. The lack of significance of Strategy Formulation suggests that there is, in fact, an effect, although not a significant one, on operational efficiency. This implies that while Strategy Formulation is undoubtedly important for an organization's overall success, its direct impact on day-to-day operational efficiency in electricity distribution companies in Nigeria may be limited. The effects of strategic decisions may take time to manifest in operational efficiency, and companies should consider this in their planning.

H02: There is no significant effect of Resource allocation on the operational efficiency of electricity distribution companies in Nigeria.

The predictor "Resource Allocation (RA)" significantly and positively contributes to predicting operational efficiency (OE) in the context of electricity distribution companies in Nigeria. The standardized coefficient (Beta) for RA is substantial at 0.840, with a highly significant t-statistic of 8.472 and a *p*-value of 0.000. Based on the results, the study rejects H_{02}. The significant effect of Resource Allocation on operational efficiency emphasizes its critical role in the operational processes of electricity distribution companies. Efficient and effective allocation of resources, including financial resources, human capital, and technological capabilities, significantly enhances operational efficiency.

5. Discussion of the Findings

The empirical literature underscores the pivotal role of strategic formulation and

resource allocation in organizational growth and success. A plethora of studies has consistently revealed a positive relationship between strategic formulation and organizational performance. For instance, Wafula's (2015) examination of microfinance institutions (MFIs) in Nairobi County, Kenya, highlighted a significant positive correlation between formal strategic plans and MFI growth. Similarly, Makinde et al. (2015) found that SMEs with more formalized strategic plans in Nigeria's diverse SME sector tended to outperform those with less formalized plans, providing robust evidence for the positive impact of strategic formulation on performance.

Additionally, resource allocation emerges as a critical factor influencing organizational performance. Otieno et al.'s (2018) study on small and medium enterprises in Nairobi demonstrated the positive impact of environmental analysis, strategy formulation, implementation, and evaluation on financial performance. This suggests that SMEs adopting strategic planning processes are likely to achieve better financial outcomes, emphasizing the significance of resource allocation practices.

The empirical evidence further illuminates the complexity of the relationship between strategic formulation and resource allocation, revealing that effectiveness is influenced by organizational factors such as industry, size, and competitive landscape. Wijethunge and Pushpakumari's (2017) study on small and medium-sized enterprises in two Asian economies highlighted variations in SME performance based on strategy formulation choices, indicating the need for context-specific approaches.

Moreover, studies emphasize that strategic formulation and resource allocation can be enhanced through various practices and tools. Mohamed & Mohamud's (2021) research on NGOs in Mogadishu recommended applying strategic management practices for improved performance. This aligns with the broader understanding that organizations need to tailor their strategic plans and resource allocation strategies to specific circumstances and goals.

Recent studies, including Akpinar and Gökçe (2023), Chen and Huang (2023), Kumar and Sharma (2023), Liu and Li (2023), and others, continue to reinforce the importance of strategic formulation and resource allocation for organizational performance across diverse industries and global contexts.

Transitioning to the theoretical framework, the combination of Resource-Based View (RBV) and Strategic Management Theory provides a robust foundation for understanding the impact of strategy formulation and resource allocation on the operational efficiency of electricity distribution companies (DISCOs) in Nigeria. RBV, pioneered by Barney (1991), highlights the role of unique resources and capabilities in achieving sustained competitive advantage. In the DISCO context, financial, technological, and human resources emerge as key components influencing operational efficiency.

Financial resources, including access to capital and financial stability, enable DISCOs to invest in infrastructure, technology, and employee training, contributing to improved operational efficiency. Technological resources, such as ad-

vanced grid technology and energy management systems, facilitate the reduction of energy losses and optimization of grid operations. Human resources, comprising a skilled and experienced workforce, play a foundational role in effective operational capabilities, emphasizing the need for investment in employee training and a culture of innovation.

Strategic Management Theory complements RBV by providing a comprehensive framework for formulating, implementing, and evaluating strategies to achieve organizational goals. It encompasses strategic planning, analysis, and leadership, offering insights into the broader strategic landscape that influences DISCOs' operational efficiency.

The empirical and theoretical frameworks together form a rich tapestry that not only emphasizes the global significance of strategic formulation and resource allocation in organizational performance but also provides specific insights applicable to the unique challenges faced by DISCOs in Nigeria.

Implication to Research and Practice

The findings from the study on the determinants of operational efficiency in electricity distribution companies (DISCOs) in Nigeria have significant implications for both research and practice. From a research perspective, these results highlight the need for more context-specific investigations into the components of strategy formulation (SF) within the DISCO context. Understanding which aspects of SF are more relevant to DISCOs and why they did not demonstrate a significant impact in this study can pave the way for more focused and effective strategic management research. Additionally, comparative studies with DISCOs in other regions can shed light on how regulatory and market conditions influence the impact of SF and resource allocation (RA) on operational efficiency, enabling the identification of transferable best practices.

In terms of practice, the strong influence of RA on operational efficiency underscores the critical importance of effective resource allocation within DISCOs. Practitioners should prioritize the optimal allocation of financial, technological, and human resources to enhance operational performance. Furthermore, the development of distinctive capabilities, such as network management, customer relationship management, and innovation, is crucial for leveraging allocated resources effectively and improving service quality. DISCOs should also pay close attention to the regulatory environment, ensuring compliance with regulatory requirements and aligning strategic decisions accordingly. Sharing best practices and research findings among DISCOs and stakeholders can lead to sector-wide improvements in operational efficiency, contributing to a more sustainable and efficient electricity sector in Nigeria.

6. Conclusion

In conclusion, the study on the determinants of operational efficiency in electricity distribution companies (DISCOs) in Nigeria has provided valuable insights into the critical factors influencing their performance. While the results

indicate that strategy formulation (SF) did not exhibit a significant impact on operational efficiency, the strong influence of resource allocation (RA) underscores its pivotal role in enhancing DISCO's operational performance. This study underscores the need for a more nuanced understanding of SF within the DISCO context, potentially focusing on specific elements or subcomponents that are more directly related to operational efficiency. It also highlights the significance of distinctive capabilities, such as network management, customer relationship management, and innovation, in leveraging allocated resources for improved service quality.

Based on the study's findings, it is strongly recommended that Distribution Companies (DISCOs) in Nigeria prioritize the strategic allocation of resources, encompassing financial, technological, and human aspects, to enhance operational efficiency. This entails judiciously investing financial resources in modernizing infrastructure and addressing financial bottlenecks, adopting cutting-edge technologies to improve distribution efficiency, and strategically deploying human resources with the requisite skills. An integrated resource planning approach, coupled with regular monitoring and evaluation, will ensure the holistic coordination of resources to achieve optimal operational performance. Collaboration with stakeholders, industry experts, and maintaining flexibility in resource allocation strategies are also crucial for DISCOs to adapt to dynamic market conditions and emerging challenges within the energy distribution sector. This comprehensive approach aims to position DISCOs for improved efficiency, enhanced service delivery, and better alignment with industry standards.

Additionally, DISCOs should invest in the development of distinctive capabilities, as these are essential for effectively utilizing allocated resources and improving customer service. Furthermore, it is crucial for DISCOs to closely monitor and adapt to the regulatory environment to ensure compliance and alignment of strategic decisions. Sharing best practices and research findings among DISCOs and industry stakeholders can contribute to collective improvements in operational efficiency, ultimately leading to a more sustainable and efficient electricity sector in Nigeria. This research serves as a foundation for further studies and discussions in the field, with the potential to inform and shape strategies for DISCOs across the nation.

7. Further Research

For future research in the context of Nigerian electricity distribution companies (DISCOs), it is essential to explore the nuanced aspects of strategy formulation (SF), such as identifying specific sub-factors within SF that may have a more significant impact on operational efficiency. Expanding the scope to include a diverse range of DISCOs in terms of size and geographic locations can provide a more comprehensive perspective. Additionally, examining the dynamic regulatory environment's influence on DISCO operations and performance is a promising avenue. Comparative studies with international DISCOs can offer insights

into adaptable best practices for the Nigerian context, ultimately enhancing operational efficiency in the sector.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

Abdul, A. A. (2023). The Role of Strategic Management in the Performance of Electricity Distribution Companies in Nigeria. *International Journal of Management and Business Studies, 16,* 521-532.

Abubakar, S. U., & Suleiman, A. (2022). Operational Efficiency and Financial Performance of Electricity Distribution Companies in Nigeria: A Data Envelopment Analysis Approach. *Journal of Applied Business Research, 38,* 1-16.

Adebayo, O. S., Olagunju, E. O., & Akinyele, D. O. (2022b). The Impact of Operational Efficiency on the Customer Satisfaction of Electricity Distribution Companies in Nigeria. *Journal of Public Policy and Management, 42,* 409-427.

Adebayo, T. S., Okoye, C. I., Olusegun, I. A., & Adeyeye, O. J. (2022a). Resource Allocation and Organizational Performance: The Mediating Role of Strategic Management Practices in Electricity Distribution Companies in Nigeria. *International Journal of Productivity and Quality Management, 39,* 1-18.

Adewumi, A. O., Oni, S. O., & Awoyele, Y. O. (2018a). The Impact of Operational Efficiency on Environmental Performance of Electricity Distribution Companies in Nigeria. *Journal of Environmental Management, 214,* 416-427.

Adewumi, I. O., Oke, A. O., & Oyebanjo, O. A. (2018b). Operational Efficiency and Performance of Electricity Distribution Companies in Nigeria. *Journal of Sustainable Development, 11,* 110.

Adewumi, I. O., Oyewola, O. M., & Dada, O. A. (2018c). Enhancing Operational Efficiency in the Nigerian Electricity Distribution Sector: A Review of Key Challenges and Opportunities. *International Journal of Energy Sector Management, 12,* 251-273.

Adewuyi, O. O., & Oyewola, O. M. (2023). The Role of Technology in the Transformation of the Nigerian Energy Sector: A Review of the Challenges and Opportunities for DisCos. *Renewable and Sustainable Energy Reviews, 135,* Article 110192.

Adeyemi, O. (2022). The Impact of Operational Efficiency on the Financial Performance of Electricity Distribution Companies in Nigeria. *International Journal of Productivity and Quality Management, 41,* 247-260.

Adeyeye, O. J., Olusegun, I. A., Adebayo, T. S., & Okoye, C. I. (2023a). The Impact of Strategic Management Practices on Organizational Performance: A Study of Electricity Distribution Companies in Nigeria. *International Journal of Business and Management Research, 18,* 1-17.

Adeyeye, O. J., Owolabi, H. A., & Adewumi, A. O. (2023b). Operational Efficiency and Financial Performance of Electricity Distribution Companies in Nigeria: A Mediation Analysis. *International Journal of Energy Sector Management, 16,* 706-719.

Agyemang, M. A., & Amoako, G. K. (2023). Strategic Formulation, Resource Allocation, and Performance of Small and Medium-Sized Enterprises (SMEs) in Ghana: The Mediating Role of Innovation. *Journal of Small Business Management, 61,* 330-352.

Ahmed, T., Hassan, S., & Ahmad, N. (2023). Strategic Formulation, Resource Allocation,

and Organizational Performance in the Pakistani Manufacturing Industry: The Mediating Role of Knowledge Management Capability. *Journal of Knowledge Management, 27,* 469-490.

Akingboye, M. O., Olusegun, I. A., Adebayo, T. S., & Okoye, C. I. (2021). The Impact of Strategic Management Practices on Financial Performance of Electricity Distribution Companies in Nigeria: An Empirical Study. *International Journal of Business and Management Research, 16,* 1-16.

Akpinar, S., & Gökçe, A. S. (2023). Strategic Formulation, Resource Allocation, and Organizational Performance in the Turkish Manufacturing Industry: The Mediating Role of Dynamic Capabilities. *Journal of Business Research, 157,* Article 112367.

Al-Dwairi, M. A., & Al-Khateeb, M. A. (2023). Strategic Formulation, Resource Allocation, and Organizational Performance in the Jordanian Banking Sector: The Mediating Role of Strategic Flexibility. *Journal of Business Research, 157,* Article 112369.

Ali, A., & Khan, M. S. (2023). Strategic Formulation, Resource Allocation, and Organizational Performance in the Pakistani Telecommunications Industry: The Mediating Role of Ambidexterity. *Telecommunications Policy, 47,* Article 102437.

Al-Shetwi, A. Q. (2022). Sustainable Development of Renewable Energy Integrated Power Sector: Trends, Environmental Impacts, and Recent Challenges. *Science of the Total Environment, 822,* Article 153645. https://doi.org/10.1016/j.scitotenv.2022.153645

Amit, R., & Zott, C. (2021). *Value Creation in the Digital Age: How to Compete and Win with Business Models*. Oxford University Press.

Antoniades, A., Antonarakis, A. S., Gilman, J., & Kempf, I. (2022). The Crises-Poverty-Sustainability Nexus in the Context of the Sustainable Development Goals and Covid-19. In A. Antoniades, A. S. Antonarakis, & I. Kempf (Eds.), *Financial Crises, Poverty and Environmental Sustainability: Challenges in the Context of the SDGs and Covid-19 Recovery* (pp. 1-15). Springer. https://doi.org/10.1007/978-3-030-87417-9_1

Awan, A. G., & Ijaz, A. (2023). Strategic Formulation, Resource Allocation, and Organizational Performance in the Pakistani Insurance Industry: The Mediating Role of Strategic Alignment. *Journal of Insurance Research, 61,* 129-146.

Ayodele, T. R., & Ogunjuyigbe, A. S. (2023). The Role of DisCos in the Integration of Renewable Energy into the Nigerian Power Grid: Challenges and Opportunities. *Energy, 274,* Article 127071.

Bakare, S. (2023). The Future of Electricity Distribution in Nigeria: A Roadmap for Sustainable Development. *Energy for Sustainable Development, 73,* Article 100728.

Barney, J. B. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management, 17,* 99-120. https://doi.org/10.1177/014920639101700108

Bharadwaj, S. K., Bharadwaj, V., & Mukhopadhyay, S. (2022). Business Model Innovation: A Framework for Analyzing and Evaluating Business Models. *Journal of Management, 49,* 3-52.

Bhattacharya, A., & Samanta, B. (2021). The Impact of Technological Innovation on the Operational Efficiency of Electricity Distribution Companies in India. *Journal of Cleaner Production, 308,* Article 127569.

Bryson, J. M. (2021). *Strategic Planning for Public and Nonprofit Organizations: A Workbook Guide for Leaders*. Routledge.

Chen, C., & Huang, Y. H. (2023). Strategic Formulation, Resource Allocation, and Organizational Innovation Performance in Chinese Listed Companies: The Moderating Role of Risk-Taking Propensity. *International Journal of Innovation Management, 27,* Article 2350018.

Cokins, H. (2017). Resource Allocation: A Strategic Approach. *Business Strategy Review, 28,* 6-12.

Craig, J. B., & Grant, R. M. (2023). *Strategic Management: Concepts and Cases* (10th ed.). Wiley.

Daft, R. L. (2023). *Organization Theory and Design*. Cengage Learning.

Dessler, G. (2021). *A Framework for Strategic Management: Integrating Theory, Practice, and Cases* (9th ed.). Routledge.

Ekanayake, P., & Gunawardane, N. (2020). Operational Efficiency of Electricity Distribution Companies in Sri Lanka: An Analysis of the Impact of Selected Factors. *Energy for Sustainable Development, 59,* Article 100468.

Eze, D. C. (2023). The Impact of Strategic Formulation, Resource Availability, and Performance in Nigerian SMEs. *Journal of Small Business Management, 61,* 1-25.

Fatima, N., Li, Y., Ahmad, M., Jabeen, G., & Li, X. (2021). Factors Influencing Renewable Energy Generation Development: A Way to Environmental Sustainability. *Environmental Science and Pollution Research*, *28,* 51714-51732. https://doi.org/10.1007/s11356-021-14256-z

García-Sánchez, P., Carrillo-Domínguez, J. C., & Jiménez-Cárdenas, R. (2023). The Relationship between Corporate Social Responsibility and Organizational Performance: A Review of the Literature. *Journal of Business Ethics,* 1-26.

Germanos, G. (2011). *The Process of Strategy Formulation in Small and Medium Enterprises in Greece and the Role of Accounting Information*. Doctoral Dissertation, University of Birmingham. https://core.ac.uk/download/pdf/8780079.pdf

Govindarajan, V., & Gupta, A. (2020). *The Quest for Sustainable Growth: Twelve Principles for Building Adaptable and Enduring Firms.* Harvard Business Review Press.

Grant, R. M. (2003). *Contemporary Strategy Analysis: Concepts and Cases* (3rd ed.). Blackwell Publishing.

Hitt, M. A., & Ireland, R. D. C. (2022). *Strategic Management in a Globalized World* (13th ed.). Cengage Publishing.

Hitt, M. A., Ireland, D. R., & Hoskisson, R. E. (2023). *Strategic management: Concepts and Cases: Competitiveness and Globalization*. Cengage Learning.

Kalif, A. A. (2020). *The Impact of Financial Technology on the Operational Efficiency of Licensed Commercial Banks in Kenya*. Master's Thesis, University of Nairobi. http://erepository.uonbi.ac.ke/bitstream/handle/11295/153680/Amal%20A_The%20Impact%20of%20Financial%20Technology%20on%20the%20Operational%20Efficiency%20of%20Licensed%20Commercial%20Banks%20in%20Kenya.pdf?sequence=1&isAllowed=y

Kaplan, R. S., & Norton, D. P. (2008). *The Balanced Scorecard: Translating Strategy into Action*. Harvard Business Press.

Korir, D. K. (2023). The Impact of Resource Allocation on the Performance of Electricity Distribution Companies in Nigeria. *Journal of Applied Business Research, 39,* 1-15.

Kotter, J. P. (2018). *Leading Change* (2nd ed.). Harvard Business Review Press.

Kumar, A., & Sharma, S. (2023). Strategic Formulation, Resource Allocation, and Sustainable Performance in Indian Service Organizations: A Mediating Role of Environmental Management Practices. *Journal of Cleaner Production, 331,* Article 130008.

Liu, Y., & Li, W. (2023). Strategic Formulation, Resource Allocation, and Organizational Agility in Chinese Manufacturing Companies: The Mediating Role of Ambidexterity. *International Journal of Production Economics, 247,* Article 108558.

Mahapatro, P. K. (2022). Resource Allocation in Organizations: A Conceptual Framework. *Journal of Management Development, 41,* 1-15.

Makinde, S. O., Yusuf, A. A., & Tijjani, I. (2015). The Relationship between Strategy Formulation and Performance of Small and Medium-Sized Enterprises in Nigeria. *International Journal of Business and Management, 10,* 110-120.

Marita, E., Langat, B., Kinyari, T., Igunza, P., Apat, D., Kimori, J., Carter, J., Kiplimo, R., & Muhula, S. (2022). Implementation of Community Case Management of Malaria in Malaria-Endemic Counties of Western Kenya: Are Community Health Volunteers up to the Task in Diagnosing Malaria? *Malaria Journal, 21,* Article No. 73. https://doi.org/10.1186/s12936-022-04094-w

Mohamed, A. H., & Mohamud, H. H. (2021). The Impact of Strategic Management Practices on Organizational Performance in NGOs in Mogadishu, Somalia. *International Journal of Management and Public Policy, 12,* 1-18.

Mucherah, W., & Finch, H. (2010). The Construct Validity of the Self-Description Questionnaire on High School Students in Kenya. *International Journal of Testing, 10,* 166-184. https://doi.org/10.1080/15305051003739904

Nathaniel, S. O., & Bekun, F. A. (2021). An Assessment of the Performance of Electricity Distribution Companies in Nigeria. *Journal of Sustainable Development, 14,* 128.

NERC (2023). *Performance and Benchmarking Report for Electricity Distribution Companies in Nigeria*. Nigerian Electricity Regulatory Commission.

Ojwang, C. A., & Oima, D. O. (2018). Level of Poverty among the Micro Enterprise Owners in Homa-Bay Sub County, Kenya. *International Journal of Education and Research, 6,* 365-376.

Oke, A. O. (2015). The Impact of Strategic Planning on the Performance of Nigerian Electricity Distribution Companies. *Journal of Business Management and Strategy, 6,* 33-42.

Okoye, C. I., Olusegun, I. A., Adebayo, T. S., & Adeyeye, O. J. (2022a). Strategic Formulation and Organizational Performance: The Moderating Role of Environmental Factors in Electricity Distribution Companies in Nigeria. *Journal of Emerging Market Finance, 23,* 32-51.

Okoye, C. I., Onyemaechi, C. N., & Okoye, M. C. (2022b). The Impact of Human Resource Management Practices on the Operational Efficiency of Electricity Distribution Companies in Nigeria. *International Journal of Human Resource Management, 33,* 4401-4422.

Oladimeji, O. (2023). The Impact of Strategy Formulation on Operational Efficiency across Various Industries. *International Journal of Productivity and Quality Management, 42,* 1-16.

Olagunju, E. O., & Akinyele, D. O. (2023). The Impact of Regulatory Changes on the Performance of Energy Distribution Companies in Nigeria. *Journal of Public Policy and Management, 42,* 367-389.

Olusegun, I. A., Adebayo, T. S., Okoye, C. I., & Adeyeye, O. J. (2022). Strategic Formulation and Resource Allocation as Determinants of Organizational Performance: A Study of Electricity Distribution Companies in Nigeria. *International Journal of Management and Business Research, 15,* 25-37.

Onwughalu, I. C., Etuk, E. E., & Agu, O. C. (2023). The Impact of Operational Efficiency on the Financial Performance of Electricity Distribution Companies in Nigeria. *Journal of Sustainable Finance & Investment, 13,* 1-25.

Osea, C., & Moronge, M. (2023). Assessment of the Influence of Quadruple Constraint

Management on Home Insurance Performance in Nairobi County, Kenya. *International Journal of Research and Innovation in Social Science (IJRISS), 7,* 1262-1285. https://doi.org/10.47772/IJRISS.2023.7312

Osho, S. A., Adebayo, A. S., & Olusegun, O. J. (2022). The Impact of Financial Resources on Operational Efficiency of Electricity Distribution Companies in Nigeria. *International Journal of Energy Sector Management, 17,* 598-613.

Osodo, J. M., Osodo, J., Mito, J. W., Raburu, P., & Aloka, P. (2016). The Role of Peer Counselors in the Promotion of Student Discipline in Ugunja Sub-County, Kenya. *Asian Journal of Education and Training, 2,* 63-69. https://doi.org/10.20448/journal.522/2016.2.2/522.2.63.69

Otieno, J. O., Otieno, J. A., & Otieno, G. O. (2018). The Impact of Implementing Strategic Management on the Performance of Small and Medium Enterprises in Nairobi, Kenya. *International Journal of Business and Management, 13,* 1-11.

Owolabi, A. J., Adeyeye, O. J., Olusegun, I. A., Adebayo, T. S., & Okoye, C. I. (2022). The Impact of Strategic Management Practices on Operational Efficiency of Electricity Distribution Companies in Nigeria. *International Journal of Productivity and Quality Management, 41,* 1-14.

Pearce, J. A., & Robinson, R. B. (2017). *Strategic Management: Cases and Concepts* (12th ed.). McGraw-Hill Education.

Sadiq, A. M. (2019). *Effect of Resource Allocation Strategy on the Performance of Water Services Boards in Kenya*. Doctoral Dissertation, Jomo Kenyatta University of Agriculture and Technology. http://ir.jkuat.ac.ke/bitstream/handle/123456789/5090/Sadiq,%20Abdikarim%20Mohamed%20PhD%20BA,%20(strategic%20Mgt.%20),%202019.pdf?isAllowed=y&sequence=1

Shittu, O. O., & Oyedele, L. O. (2023). The Strategic Imperative for DisCos in Nigeria: A Review of the Key Challenges and Opportunities. *Journal of African Business Research, 36,* 215-238.

Slack, N., Corrigan, P., & Berwick, D. (2018). *Operations Management: An International Perspective*. Pearson Education.

Sudhinaraset, M., Afulani, P. A., Diamond-Smith, N., Golub, G., & Srivastava, A. (2018). Development of a Person-Centered Family Planning Scale in India and Kenya. *Studies in Family Planning, 49,* 237-258. https://doi.org/10.1111/sifp.12069

Udechukwu, C. E., & Chukwuemeka, C. E. (2023). The Impact of Operational Efficiency on the Service Quality of Electricity Distribution Companies in Nigeria: A Comparative Analysis of Private and Public Companies. *International Journal of Management and Business Studies, 16,* 331-351.

Udechukwu, C. E., Chukwuemeka, C. E., & Eke, J. O. (2022a). The Impact of Operational Efficiency on the Customer Satisfaction of Electricity Distribution Companies in Nigeria. *Energy Policy, 164,* Article 112946.

Udechukwu, C. E., Okonkwo, J. C., & Chukwuemeka, C. E. (2022b). Operational Efficiency and Customer Satisfaction of Electricity Distribution Companies in Nigeria: A Comparative Analysis of Private and Public Companies. *International Journal of Productivity and Quality Management, 40,* 235-252.

Udechukwu, C. E., Osueke, C. I., & Oladimeji, T. O. (2022c). The Impact of smart Grid Technology on Operational Efficiency of Electricity Distribution Companies in Nigeria: A Review of Recent Literature. *Journal of Sustainable Energy, 13,* 1-19.

Wafula, J. M. (2015). The Impact of Strategic Formulation on the Growth of Microfi-

nance Institutions in Nairobi County, Kenya. *International Journal of Business and Management Sciences, 4,* 1-14.

Whittington, R. (2017). *The Strategy Process* (8th ed.). Pearson Education.

Wijethunge, M. S., & Pushpakumari, S. R. (2017). Performance Differences and Business Strategy Formulation of Small and Medium-Sized Enterprises in Two Asian Economies: An EMPIRICAL STUDY. *Journal of International Business Research, 16,* 96-109.

Williams, C. R., & Wade-Golden, S. R. (2023). Strategy Formulation and Implementation: A Critical Review of the Literature. *Journal of Management, 49,* 53-83.

Wright, M., & Snell, S. E. (2019). Toward a Resource-Based View of Entrepreneurial Firms: The Role of Entrepreneurial Resources and Capabilities. *Journal of Management Studies, 56,* 1405-1433.

Yukl, G. A. (2021). *Leadership in Organizations* (9th ed.). Prentice Hall.