

Impact of Asset Replacement Decisions on Organisational Performance in Nigeria

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Abstract

Decisions on when and how to replace physical assets are central to organisational strategy and long-term sustainability, particularly in asset-intensive and resource-constrained environments. This study examines the impact of asset replacement decisions on organisational performance in Nigeria using a desk review methodology. Relying on secondary data from peer-reviewed journal articles, industry and consultancy reports, policy documents, and publications by international organisations, the study synthesises contemporary evidence on replacement timing, lifecycle assessment, maintenance strategy, technological upgrades and their implications for productivity, cost efficiency, operational reliability, and competitiveness. The findings show that timely and strategic asset replacement enhances productivity, reduces unplanned downtime, lowers maintenance costs, and strengthens competitive positioning. However, the study also highlights contextual challenges that hinder effective asset replacement in Nigeria, including high financing costs, infrastructural deficiencies, macroeconomic volatility, and weak internal control systems. These constraints make asset replacement decisions more complex than in advanced economies, for which many existing frameworks were originally developed. The study recommends the adoption of structured asset replacement models, stronger internal controls, supportive government policies, and flexible financing arrangements. It concludes by identifying gaps in the extant literature and proposing areas for further empirical research on asset replacement and organisational performance in Nigeria.

Keywords: Asset Replacement, Organisational Performance, Asset Management, Nigeria, Maintenance Strategy, Capital Investment.

1. Introduction

Decisions about asset replacement are fundamental to organisational strategy and have significant implications for sustainability and long-term success. These decisions involve determining the optimal timing and approach for replacing tangible assets such as machinery, equipment, vehicles, and technological infrastructure. They affect several dimensions of organisational outcomes, including customer satisfaction, employee productivity, financial stability, and operational efficiency. Organisations that fail to replace assets when necessary face heightened maintenance costs, reduced reliability, and frequent disruptions in productivity (Deloitte, 2023).

Timely asset replacement is also crucial for preserving competitiveness in an era characterised by rapid technological advancement and shifting market demands. Transitioning from outdated to modern, energy-efficient alternatives can reduce energy consumption, enhance functionality, and ensure compliance with evolving regulatory requirements (International Energy Agency [IEA], 2024). For example, the IEA (2024) reports that replacing obsolete industrial equipment with energy-efficient models can reduce energy use by up to 30%. Nonetheless, asset replacement decisions often involve substantial upfront costs and uncertain returns on investment, which necessitate strategic planning and careful analysis (McKinsey & Company, 2024).

In today's fast-paced and highly competitive business environment, firms increasingly recognise the importance of asset management for long-term viability and operational effectiveness. A key component of asset management is determining the appropriate time and method for replacing ageing or underperforming assets in order to maintain operational continuity and cost-effectiveness. These decisions are particularly critical in developing countries such as Nigeria, where organisations frequently contend with resource constraints, infrastructural deficits, and unstable economic

conditions (Akinyemi & Adeyemi, 2023). The strategic management of assets, therefore, has a direct impact on organisational performance, shaping productivity, profitability, and competitive advantage.

Nigeria's dependence on sectors such as manufacturing, oil and gas, and agriculture, which rely heavily on tangible assets like machinery, equipment, and infrastructure, underscores the importance of effective asset replacement decisions. However, many Nigerian organisations continue to operate with outdated or inefficient assets due to poor maintenance practices, limited strategic planning, and financial constraints (Ogunleye et al., 2024). These challenges often result in higher operating costs, reduced output, and weakened competitiveness in both domestic and international markets.

Most existing research on asset management and organisational performance has focused on advanced economies whose regulatory, infrastructural, and economic environments differ significantly from those of Nigeria (Eze & Okoro, 2023). Consequently, there is limited understanding of how Nigerian organisations make asset replacement decisions and how these decisions affect their performance outcomes. The decision-making process is further complicated by contextual factors such as unreliable power supply, inflation, and limited access to finance. These issues highlight the need for a localised analysis that reflects Nigeria's socioeconomic realities.

Although asset replacement decisions feature prominently in global management literature, their limited application in emerging economies has attracted criticism. Critics argue that many asset replacement models and frameworks are designed for environments with strong financial systems, advanced technological infrastructure, and stable macroeconomic conditions (Smith & Johnson, 2022). Such frameworks often neglect the unique constraints and uncertainties faced by organisations in countries like Nigeria, where volatile policies and currency fluctuations can significantly influence asset management strategies. Moreover, the literature has tended to prioritise quantitative measures such as return on investment and cost-benefit analysis at the expense of qualitative dimensions such as stakeholder perceptions, organisational culture, and employee morale (Chukwu et al., 2024). This narrow focus may limit understanding of the broader organisational implications of asset replacement decisions.

The urgent need to bridge this knowledge gap in the Nigerian context forms the basis of this study. The study aims to provide practical insights for Nigerian organisations seeking to enhance their asset management practices by examining the relationship between asset replacement decisions and organisational performance. The findings are expected to inform the development of frameworks and recommendations tailored to Nigeria's specific opportunities and challenges. Policymakers, financial institutions, and industry stakeholders may also benefit from the study, as the insights can guide policy interventions, financing solutions, and support mechanisms that enable organisations to acquire and maintain efficient assets.

2. Literature Review

2.1. Global Perspectives on Asset Replacement and Organisational Value

Kwon and Lee (2024) argue that a corporation's pursuit of long-term wealth and sustainable development is closely linked to its approach to asset replacement. In technologically advanced firms, expenditures on research and development (R&D) and workforce training must be aligned with financial outlays on asset renewal. Evidence from Korean electronics and metals firms suggests that investments in R&D and training significantly enhance firm value, as measured by indicators such as Tobin's Q (Kwon & Lee, 2024). These findings support the view that asset management is most effective when embedded in broader strategic resource allocation and capability development. Sustaining competitive advantage in rapidly innovating markets requires a balance between exploring new capabilities and exploiting existing assets; firms that continuously invest in talent development and production modernisation tend to exhibit superior market performance and adaptability.

Stipanovic et al. (2021) emphasise that replacement planning goes beyond financial considerations in capital- and infrastructure-intensive organisations. It incorporates reliability engineering and risk management dimensions. Drawing on examples from railway systems, they highlight how decision-makers use frameworks such as Multi-Attribute Utility Theory (MAUT) to evaluate interventions based on user costs, economic implications, and structural reliability. Such comprehensive approaches enable organisations to plan maintenance and replacement activities in

ways that balance cost, reliability, and safety, thereby reducing the likelihood of unforeseen failures and operational disruptions. This is particularly important in sectors where continuous asset functionality is critical.

2.2. Asset Replacement in Developing Economies and Nigeria

The asset replacement decision-making process is a critical aspect of organisational management in developing economies, where firms grapple with infrastructural inadequacies and economic volatility. Akinyemi and Adeyemi (2023) note that the literature consistently recognises asset replacement as vital for maintaining operational efficiency, controlling costs, and ensuring long-term sustainability. However, there is a significant knowledge gap concerning how these processes unfold in resource-constrained contexts such as Nigeria, since much of the existing research focuses on advanced economies (Eze & Okoro, 2023).

Determining the optimal timing and method for replacing ageing or underperforming assets remains a central challenge. Oluleye et al. (2023) contend that such decisions are essential for sustaining productivity, minimising operational disruptions, and ensuring cost-effectiveness. In Nigeria, where sectors such as manufacturing, agriculture, and energy rely heavily on physical assets, timely asset replacement can have a profound effect on organisational performance (Akinyemi & Olatunji, 2024).

Despite these benefits, several constraints hinder effective asset replacement in Nigeria. Current frameworks tend to be designed for stable economic environments characterised by advanced technological and financial infrastructures (Smith & Johnson, 2022). These models often focus narrowly on cost minimisation and neglect long-term performance outcomes and qualitative factors such as employee morale and organisational culture (Chukwu et al., 2024). In addition, the lack of robust data analytics and predictive maintenance systems in many Nigerian organisations fosters reactive rather than proactive approaches to asset management (Adebayo et al., 2023). Structural barriers such as high interest rates, currency fluctuations, and limited access to affordable finance further increase the cost of acquiring new assets (World Bank, 2024).

Elsawah et al. (2019) suggest that adopting integrated decision-support frameworks can help organisations transition to more mature asset management, characterised by strategic vision and adaptability to internal and external change. Empirical evidence indicates that strategic replacement of outdated or underperforming assets can unlock internal production reserves, increase labour productivity, and boost operational efficiency. This is particularly evident when workflows are streamlined and workplaces are standardised and certified. Kovalev et al. (2024) show that reasonable asset replacement plans are crucial for aligning labour needs with operational requirements and promoting continuous improvement in sectors such as manufacturing and animal husbandry. The need to replace ageing equipment can also act as a catalyst for broader process improvements and technology adoption, aligning asset replacement with wider trends in organisational innovation.

The effectiveness of asset replacement initiatives is also shaped by the strength of internal control and governance processes. Robust internal controls support the monitoring, reporting, and execution of asset-related activities, ensuring that organisations follow procedures that safeguard assets and maintain orderly operations. Research from the banking sector demonstrates that strong controls are essential for reducing losses and achieving both short- and long-term strategic objectives, linking sound asset management to overall business resilience (Acquah et al., 2019).

2.3. Identified Gaps in the Literature

The reviewed literature suggests several gaps relevant to the Nigerian context. First, many asset replacement frameworks are designed for advanced economies and do not fully account for the financial, infrastructural, and institutional constraints present in Nigeria and similar environments (Smith & Johnson, 2022). Second, empirical studies that specifically examine the relationship between asset replacement decisions and organisational performance in Nigeria are limited, resulting in a reliance on generalised assumptions. Third, qualitative aspects such as organisational culture, leadership behaviour, and staff attitudes toward asset management are often underexplored (Chukwu et al., 2024). These gaps underscore the need for context-specific analysis and tailored frameworks that better reflect Nigerian realities.

2.4. Conceptual Framework

The conceptual framework for this study positions asset replacement decisions as the primary independent construct influencing organisational performance within the Nigerian context. Asset replacement decisions encompass key dimensions such as replacement timing, cost considerations, and technological upgrading. These dimensions shape how effectively and efficiently organisations renew their physical asset base.

The relationship between asset replacement decisions and organisational performance is moderated by several contextual and organisational factors, including internal control systems, financial capacity, economic and regulatory conditions, and maintenance culture. These moderating variables may strengthen or weaken the impact of replacement decisions on performance outcomes. For instance, organisations with robust internal controls and sufficient financial resources are better equipped to implement a timely replacement strategy, which in turn enhances productivity and reduces downtime.

Organisational performance is conceptualised as the dependent construct and is reflected in outcomes such as increased productivity, improved operational efficiency, cost reduction, enhanced reliability, and greater competitiveness. The framework assumes that when asset replacement decisions are strategically formulated and implemented within supportive contextual conditions, they lead to superior performance outcomes. This conceptualisation provides a holistic understanding of how asset management practices influence organisational sustainability and competitiveness in Nigeria and highlights the importance of aligning asset replacement strategies with broader organisational goals and environmental realities.

3. Methodology

This study investigated the effect of asset replacement decisions on organisational performance in Nigeria through a desk review approach. Rather than generating primary data, the research relied entirely on existing documented evidence. The desk review design was adopted because it offers a structured means of examining a wide range of published and unpublished materials on asset replacement, maintenance practices, organisational performance, and the broader context of asset-intensive operations in Nigeria. This method is particularly appropriate for studies that aim to consolidate existing knowledge, evaluate theoretical positions, and identify gaps requiring further empirical investigation.

The data used for the study were strictly secondary and were obtained from credible sources such as peer-reviewed journal articles, industry and consultancy reports, policy documents, corporate annual reports, and technical publications by international organisations, including the IEA, the World Bank, McKinsey & Company, and Deloitte. These documents provided relevant discussions on replacement timing, lifecycle assessment, maintenance strategy, cost–benefit considerations, technological upgrades, financial constraints, and their implications for organisational performance. Priority was given to studies and reports published between 2019 and 2025 to ensure that the review reflected contemporary trends and the current realities of the Nigerian economic and industrial environment.

Data collection involved identifying appropriate keywords, searching for relevant literature across academic databases and institutional repositories, and screening retrieved materials based on relevance, credibility, and contribution to the study's objectives. Materials focusing on asset management in developing economies, particularly Nigeria, were given substantial weight. After screening, selected documents were carefully examined and relevant information extracted. The extracted content was then organised thematically, enabling the identification of trends, patterns, contradictions, and conceptual linkages across the reviewed literature.

Data analysis was conducted using qualitative content analysis. The reviewed documents were examined for their conceptual arguments, empirical findings, methodological orientations, and relevance to the research focus. Themes that appeared consistently across multiple sources were synthesised into broader analytical insights, while divergent findings were compared to highlight contextual differences and areas requiring further research. This approach enabled the study to build a coherent narrative on how asset replacement decisions influence various dimensions of organisational performance, including productivity, operational reliability, cost efficiency, and competitiveness.

Validity and reliability were enhanced by relying exclusively on credible academic and professional sources, cross-checking information across multiple documents, and maintaining analytical neutrality during interpretation. The inclusion of studies and reports from both local and international contexts strengthened the robustness of the findings by providing a balanced and comparative perspective. Although the study did not involve human participants, ethical considerations were upheld through proper acknowledgement of all sources, respect for intellectual property rights, and strict adherence to academic integrity. Overall, the desk review design provided a comprehensive foundation for evaluating the existing body of knowledge on asset replacement decisions and their impact on organisational performance in Nigeria.

4. Results and Discussion

The findings of this study, based on an extensive review of contemporary academic literature, industry reports, and policy documents, reveal clear patterns regarding the influence of asset replacement decisions on organisational performance in Nigeria. The reviewed evidence consistently shows that the timely replacement of ageing or underperforming assets contributes significantly to improved productivity, reduced operational disruptions, and enhanced competitiveness across key sectors of the Nigerian economy.

A major insight from the literature is that strategic asset replacement is strongly linked to higher levels of productivity and operational efficiency. Empirical and industry-based studies highlight that delayed asset replacement often results in increased downtime, frequent breakdowns, and inconsistent output (Deloitte, 2023). Conversely, organisations that proactively replace worn-out equipment tend to experience smoother operations, reduced error margins, and greater stability in production processes (Kovalev et al., 2024). This is particularly critical in Nigeria, where manufacturing, agriculture, transportation, and energy sectors depend heavily on physical assets that deteriorate rapidly under infrastructural and environmental pressures. The IEA (2024) further notes that replacing obsolete machinery with modern, energy-efficient technologies can improve energy utilisation by as much as 30%, a crucial advantage in Nigeria's high-cost power environment.

Another important finding relates to cost efficiency. The literature demonstrates that organisations tend to incur excessively high maintenance costs when they prolong the use of deteriorated assets (McKinsey & Company, 2024). Frequent repairs, emergency servicing, and unplanned downtime often exceed the long-term financial cost of acquiring new equipment. This issue is amplified in Nigeria, where inflation and currency volatility significantly increase the cost of maintenance inputs, spare parts, and imported technical components (World Bank, 2024). As a result, Nigerian organisations that embrace timely replacement strategies tend to experience better cost management, more predictable budgeting outcomes, and stronger financial performance.

Furthermore, the findings indicate that asset replacement decisions play a vital role in strengthening organisational competitiveness. Firms that invest in modernising their equipment tend to provide higher-quality products and services, maintain more reliable delivery schedules, and respond more effectively to technological advances (Kwon & Lee, 2024). This fosters stronger customer satisfaction, increases market responsiveness, and enhances organisational adaptability, attributes that are vital in Nigeria's highly competitive and rapidly changing business landscape. The reviewed literature shows that in sectors such as telecommunications, logistics, and consumer goods, timely asset replacement correlates strongly with enhanced market share and brand reputation (RSIS International, 2025).

The analysis also reveals that internal control systems significantly affect the success of asset replacement initiatives. Strong internal controls ensure that organisations properly track asset conditions, enforce maintenance schedules, and plan adequately for renewals (Acquah et al., 2019). Conversely, weak governance structures often result in asset mismanagement, underinvestment in maintenance, and inadequate forecasting for replacement needs. This finding underscores the importance of embedding asset replacement within broader organisational governance and internal monitoring frameworks.

At the same time, the results highlight substantial contextual challenges that inhibit effective asset replacement in Nigeria. These include limited access to affordable financing due to high interest rates, currency devaluation, and underdeveloped leasing markets; infrastructural deficits such as

unstable power supply and poor transportation networks; and managerial reliance on reactive rather than proactive asset management approaches (Adebayo et al., 2023; Eze & Okoro, 2023). These constraints mean that even when organisations recognise the importance of replacing outdated assets, they may lack the financial or operational capacity to implement timely replacements.

The desk review, therefore, supports the argument that although global asset replacement models, such as lifecycle costing, risk-based replacements, and predictive analytics, provide useful frameworks, they are not always directly applicable to Nigeria's economic realities (Elsawah et al., 2019). The evidence indicates a need to adapt these models to reflect local constraints, including financing conditions, infrastructural challenges, regulatory gaps, and firm-level capacity limitations. The findings reinforce the conclusion that asset replacement decisions are central to organisational performance and long-term sustainability, particularly in asset-intensive sectors in Nigeria.

5. Conclusion and Recommendations

This study examined the impact of asset replacement decisions on organisational performance in Nigeria through a comprehensive desk review of current literature and industry analyses. The findings clearly demonstrate that timely, strategic asset replacement is essential for enhancing productivity, reducing operational downtime, improving cost efficiency, and sustaining competitiveness. Nigerian organisations that prioritise asset replacement tend to enjoy better performance outcomes than those that rely on obsolete or deteriorated assets.

However, the study also reveals that Nigerian organisations face significant barriers, including economic volatility, inadequate access to capital, and infrastructural deficiencies, which complicate replacement decision-making. Despite these challenges, asset replacement remains a critical determinant of operational success and organisational resilience. The study contributes to the existing body of knowledge by contextualising asset replacement within Nigeria's unique business environment and by identifying key gaps in the available literature that warrant further empirical investigation.

Based on the findings, several recommendations are proposed. First, organisations should adopt structured asset replacement models that incorporate lifecycle costing, predictive maintenance, and performance-based evaluation. Integrating asset replacement plans into corporate strategy will improve budgeting, minimise disruptions, and ensure the timely renewal of critical equipment. Organisations should also strengthen internal control mechanisms to improve asset monitoring, reporting accuracy, and compliance with maintenance schedules.

Second, government agencies should formulate and implement policies that support asset modernisation. These may include tax incentives, import duty reductions for industrial equipment, and subsidised financing schemes designed to encourage investment in modern assets. Strengthening regulatory frameworks for asset management will further promote compliance and accountability among organisations.

Third, financial institutions should introduce flexible asset-financing products—including equipment leasing, instalment-based financing, and lower-interest credit facilities—to reduce financial barriers to replacement. Tailored financing structures are especially critical for small and medium-sized enterprises that lack the capital resources to purchase new assets outright.

Finally, industry associations and professional bodies should invest in capacity-building programmes that enhance managerial competencies in asset management. Workshops, certifications, and knowledge-sharing platforms will equip decision-makers with the skills and information needed to understand asset lifecycles and make more informed replacement decisions.

6. Limitations and Suggestions for Further Research

This study is subject to several limitations. Because it relies exclusively on secondary data, the findings are constrained by the availability, scope, and quality of existing literature on asset replacement in Nigeria. Empirical studies directly examining this relationship remain limited, implying that some conclusions are based on general patterns rather than statistically validated relationships. The absence of primary data from industry practitioners also restricts the depth of practical insight that could have been generated. Moreover, because asset replacement practices vary considerably across industries, the lack of sector-specific analyses limits the generalisability of some

findings.

Future studies should therefore adopt empirical methodologies to quantify the relationship between asset replacement decisions and organisational performance in Nigeria. Survey-based, case-study, and longitudinal designs would provide more robust insights into industry-specific dynamics. Researchers should also explore predictive modelling approaches that integrate Nigeria's macroeconomic variables into asset replacement frameworks. Additionally, studies focusing on behavioural and organisational factors, such as leadership attitudes, employee skills, and organisational culture, would deepen understanding of internal influences on replacement decision-making. Finally, research examining the role of digital technologies such as the Internet of Things (IoT), artificial intelligence (AI), and blockchain in asset lifecycle management could offer valuable guidance for modernising asset management practices across Nigerian industries.

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