JOURNAL OF THE ENVIRONMENT (JOE)
Available online at https://journaloftheenvionment.com

OPEN ACCESS

ISSN: 0795-0977

Original Research Article

Assessment and Lifecycle Management Framework for Reactivating Moribund Industrial Properties: Technical Insights from Adapalm, Imo State, Nigeria

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Abstract: This article provides and elaborate overview of the efficiency of facility management (FM) stratagems in the reactivation of dormant industrial premises in Nigeria, with due regard to the Adapalm Estate located in Ohaji/Egbema Local Government Area, Imo State and. Leveraging the results of doctoral research and appropriate global scholarship, the study questions conceptual frameworks, identifies antecedents to industrial dormancy and appraises strategies for revitalisation through efficacious facility management. The results show that lack of maintenance regimes, poor leadership, and limited financial support are the major determinants for the failure of industries. The analyses of comparative cases substantiate that an innovative FM approach, based on maintenance planning, adaptive reuse, and stakeholder collaboration, offers a feasible orientation to be considered on the way to reactivation and sustainability. The article concludes that diligent inclusion of the principles of FM in the governance of public enterprises can help to improve asset performance, stimulate employment and economic diversification across Nigeria.

Keywords: *Facility Management, Moribund Property, Adapalm Reactivation, Imo State, and Public Enterprise.*

INTRODUCTION

Industrial decline continues to be one of the perennially troubling issues facing developing economies. In Nigeria countless of the agro-industrial enterprises that once brought life to regional economies have crumbled down to nothing but unused, derelict facilities and wasted capital. The Adapalm Estate located in Ohaji/Egbema Local Government Area, Imo State is a typical example of this trend. Established in 1953 during the colonial administration of Dr. Michael Okpara, Adapalm was one of the major oil-palm production companies with a workforce of over 800 workers and an annual estimated turnover of an estimated N1billion at its heyday. After a succession of administrative transitions, political instability and poor institutional care, the company became trapped in a state of dormancy. The decay of Adapalm typifies the failure of industrial

properties in Nigeria as a whole and highlight the need for sustainable strategies for managing property in Nigeria. Consequently, this review examines the role of FM in the reactivation of moribund enterprises like Adapalm based solely on local and international scholarship. The industrial sector has gone through many waves of ups and downs since Nigeria's independence. Between 1970 and 1985, the country had undertaken an ambitious programme of industrialisation lured by oil revenue which made it easy to set up State Owned Enterprises such as NITEL, Ajaokuta Steel Company and various Palm Oil estates (Eunice et al., 2016). However, by the late 1990s, mismanagement, corruption and a long-standing culture of poor maintenance had compromised much of this infrastructure (Mahood et al., 2021). The inability to institutionalise preventive maintenance in public facilities is still a major factor determining enterprise collapse in Nigeria (Nwankwo, 2013).

Facility management provides a common sense model for reversing such deterioration. It arranges the physical environment to organisational strategy by assuring assets are functional, sustainable and economically viable during their life cycle (Levainen, 2001; Keith, 1996). Scholars have argued that the sustenance of industrial infrastructure depends not only on capital investment, but also on effective management after construction and human factor coordination (Babalola, 2020; John, 2022). This view is particularly relevant in Nigeria where public institutions often focus their efforts on delivering projects rather than on performance in the long run. The Adapalm case also forms the governance dimension of the decline of the industrial age. During the transition from state to private control and vice versa, no formal facility audit and asset management plan has been implemented (Ifediora, 2022). The lack of such baseline assessments created information voids that made it difficult to conduct rehabilitation efforts in the future. Comparative studies from Malaysia and Kenya suggest that the establishment of FM frameworks as part of the enterprise governance boosts the transparency and asset performance (Nik, 2013; Musyimi, 2019). These findings indicate that the industrial revitalisation policies of Nigeria need to adopt the principles of FM at the formative stages of policy design.

In addition, the environmental consequences of moribund industries are well documented. Derelict facilities are also often a source of soil contamination, invasive vegetation and habitat loss (Fatemeh et al., 2022). In the Adapalm region, unregulated scavenging and uncontrolled dumping of wastes has caused degradation of adjacent farmlands and waterways. Including environmental management in the operations of a facility could therefore serve the dual purpose of supporting the ecological resilience and restoring the economic productivity (EPA, 2023; Tafura, 2024). Another important dimension is that of stakeholder participation. Evidence shows that reactivation efforts fail because local communities are not involved in planning processes (Rich, 2020). The host communities of Adapalm used to rely on the estate historically for employment, social amenities and economic activity. A participatory FM model (in which community representatives support managers in the decision-making process) could strengthen the sense of ownership among communities and help to reduce conflict. Karibo (2023) states that facility governance has its highest effectiveness achieved when users see direct value in the results of maintenance.

Finally, this review places the facility management in the context of sustainable development as a whole in Nigeria. As the nation seeks diversification from oil dependence, operationalising moribund industrial estates through structured FM practices is a cost-effective as well as asset optimisation and employment generation strategy and value recovery strategic. Consequence of this, the author of this work has, here with the help of various sources, synthesised the theory and empirical evidences and prove that professional facility management is crucial to revitalisation of moribund enterprises like Adapalm Imo State.

LITERATURE REVIEW

Conceptual Background

Facility Management (FM) is a multidisciplinary profession dealing with the coordination of people, processes, and physical space to maximize the performance of the organization. ISO 41001 (2023) describes FM as a management system that makes the workplace functions align with the strategic management objectives. Earliest to conceptualise FM include Levainen (2001) and Keith (1996) who took the view that FM is a link between the technical services and strategic planning and believed that effective facilities lead to institutional productivity. In the Nigerian context, FM has metamorphosed beyond being a routine maintenance to strategic tool for optimizing cost, the environment, and satisfying the users (Babalola, 2020; John, 2022).

Theoretical Underpinnings

The term FM (Tafura, 2024) is based on the strategic-face approach to properties and the management of total assets (TAM). These models emphasise lifecycle costing, value created and sustainability as the key objectives. Within the public sector, FM has brought together asset strategy and stewardship, environmental responsibility and social duty (Rose, 2018; Dan, 2021). The approach is in line with the sustainable development paradigm that emphasizes resource efficiency and long term performance (EPA, 2023).

Empirical research studies in Nigeria (2020-2024)

Over the last five years, the Nigerian FM scholarship has transited from descriptive surveys to responsive case studies which measure organisational value. According to work conducted on the Nigerian Communications Commission (NCC) by Adewale et al. (2022), the legalization of FM structures eased the flow of activities, made staff directions clearer as well as, provided a measure of performance for maintenance efficiency. The study found out that constant application of FM policy within the public agencies can greatly enhance service delivery. Similar studies in the south-eastern and Niger Delta areas (Eze and Okafor, 2023; Karibo, 2023) are in agreement with these results. Port Harcourt market and industrial estate data analysis, they have confirmed that FM adoption helps companies improve customer satisfaction, cut downtime, and extend facility life. Nevertheless, they also state usual limitations like insufficient funding, bureaucratic delays and professional capacity.

Automation and Technological Advancement.

Recent developments substantiate the need for automation to FM practice. Olayinka et al (2022) performed a case study on high-rise commercial buildings in Lagos and discovered that Computerised Maintenance Management System (CMMS) reduced maintenance backlog by 35% and improved the fault response time. Similar conclusions of digital platforms supporting real-time decision making and measuring data-driven asset tracking in the Ghanaian banking system (Addo & Mensah, 2023) are applicable to South Africa. These findings indicate that technological integration is absolutely necessary in the reactivation of great-sized estates like Adapalm with sophisticated plant and machinery that requires predictive-maintenance routines.

In addition, the complete sessions revolved around the following Adaptive Reuse and Redevelopment Frameworks:

Adaptive reuse is increasingly being seen as an effective way to reuse derelict facilities. To synthesise global literature on the topic (Fatemeh et al., 2022; Adeleke & Usman, 2024) the recycling of disused industrial sites by transforming these places into mixed-use or agro-processing facilities has various environmental benefits, coupled with an economic benefit. Though empirical studies on nostrils case are few, the emerging frameworks on feasibility analysis, stakeholder funding and regulatory alignment could be applied to agro-industrial estates. The eliminated redundancy in FM planning is expected to extend the lifetime of Adapalm's tangible assets and reduce the cost of redevelopment by incorporating adaptive-reuse principles into FM planning.

Facility Management Market and Policy Trends in Africa

Continental examination suggests that the African FM market has fast-growing conditions Market Research Africa (2024) expects the

annual growth rate is 8-10 per cent, because of infrastructure investment and greater outsourcing of maintenance functions. This opens new possibilities for PPPs in estate reactivation. Thus, Okon (2023), suggests that within the Nigerian context, sufficient considerations should be given by the federal and state governments to cascade FM guidelines into procurement and budgetary practices. Their recommendations are ring-fenced maintenance budgets, the use of key performance indicators and mandatory professional development.

Synthesis

The existing literature ultimately agreed on three key findings: (1) institutionalised FM throughly improves organisational effectiveness and asset longevity; (2) sustainable benefits are improved when technological innovation and adaptive reuse is incorporated; and (3) policy integration is essential in scaling up such benefits. All these facts make it imperative to borrow structured FM techniques for the turnaround of moribund properties like Adapalm in the state of Imo.

ANALYTICAL FRAMEWORK AND METHODOLOGY

Research Methodology and Design

The qualitative analytical framework adopted in this review is supported by an examination and comparison of literature, government and academic case studies. Okon, O. (Okon (2023)), it has been argued by researchers that qualitative review research is suitable when synthesising various conceptual and empirical research findings to make strategic recommendations. The methodology applied in this study combines both thematic and conceptual studies to establish relations between the theory of facility management (FM) and the practical context when responding to the re-activation of moribund states' industrial estates like Adapalm in Imo State.

Through a systematic review of the literature, involving a synthesis of previous studies, policy documents and case studies, patterns related to causes of industrial decline, facility management interventions and lessons from global, similar experiences are identified and discussed (Mahood et al., 2021; Tafura, 2024). The qualitative approach is further strengthened through a deductive process of reasoning in which propositions identified from the literature are tested against provider context from the Nigerian industrial sector.

Data Sources and scope of the literature review

Key literature relating to FM practice, industrial reactivation and public sector asset management was sourced from peer-reviewed journals, government reports and grey literature. Scopus, Google Scholar and African Journals Online (AJOL) databases were searched using keywords such as facility management in Nigeria, industrial revitalization, public-private partnership, Adapalm and maintenance culture in Africa.

Inclusion criteria was based on publications by Nigerians and sub-Saharan Africans from 2000 to 2024 that were empirically and conceptually relevant to the issue of reactivating moribund facilities. This temporal scale accounts both for the depth of history and the comprehensiveness of an account of the evolution of FM discourse in Nigeria, from a few early descriptive studies (Nwankwo, 2013) to a range of contemporary and technology-driven frameworks (Olayinka et al., 2022).

secondary sources of information as in Imo State government records, NUC directives and sustainability policy frameworks were also analyzed in order to give local context and institutional background. The methodological triangulation used in this review increases the validity and context-richness of the review.

Analytical Framework and Model Choice

The analytical framework adopted combines the Strategic Facilities Management (SFM) Model (Keith, 1996) and the Asset Lifecycle Model (Levainen, 2001). The SFM model focuses on a closer link between organisationally defined objectives and facilities operations, while the asset-lifecycle model extends the view to a longer-term maintenance view encompassing acquisition, operation, renewal and disposal.

These models have been chosen because they are quite descriptive of how FM principles can be used to transform an industrial environment that has stagnated into one which is functional and generates value. According to Babalola (2020)

and Karibo (2023), strategic facilities management fills in the gap between operations and strategic management through making maintenance decisions backed by data and financial accountability. The combination of both models creates an integrated analysis that connects the operative physical condition of facilities to mission and economic performance of the organisation.

Reactivation Conceptual Framework

Based on international experience of activation reactivation (Fatemeh et al., 2022; Adeleke & Usman, 2024), this study put forward a Four-Dimensional Conceptual Framework for FM intervention in the activation of moribund properties. The framework comprises:

Physical Dimension: Assessment of physical condition of building structure, utilities, infrastructure and inventory infrastructure needs for repair, replacement or repurposing.

Managerial Dimension: Analysis of institutional capacity, leadership structure and management responsibility.

Financial Dimension: Identification of sustainable financing options such as public - private partnerships, lease back arrangements or concession models (Market Research Africa, 2024).

Community and Environmental Dimension: Although Rich (2020) doesn't specifically address community, it includes consideration of host-community involvement, environmental compliance and social responsibility.

Using this model for Adapalm illustrates that meaningful reactivation will need to take into account not only material elements of facility performance, but also immaterial components. At the same time the FM approach should increase operational capacity, ensure environmental sustainability and restore confidence in the stakeholders.

Data Analysis and Synthesis

Data analysis followed a thematic synthesis approach (Addo and Mensah, 2023) as it consisted of coding and categorising textual information into dominant themes such as maintenance culture, organisational performance, financial constraints, and implementation of policies. Meta-anecdotes for common themes were then plotted on the conceptual framework to determine areas of divergence and convergence between studies. For example, a comparative study between Adapalm and the Port Harcourt industrial clusters (Eze & Okafor, 2023; Karibo, 2023) showed that companies with institutionalised FM structure did better in terms of equipment uptime and asset value retention. Also, studies (Olayinka et al., 2022) aimed at automation said the technology is a multiplier for performance with the proper personnel and funding.

While conducting this review, the synthesis strategy was used to ensure that qualitative narratives and valuable policy lessons were communicated and later included in this review, as these were considered vital for developing a redress model that could be replicated in Nigeria also in other countries that are currently under the influence of moribund estates.

Validation, Limitations, and Ethical Issues.

The main force in this review is the combination of different data sources and conceptual perspectives, which jointly develop a thorough insight in the potential of FM to enable property reactivation. Nonetheless, there are limits with this approach because of lack of longitudinal data and the use of secondary data. Many studies on FM in Nigeria remain cross-sectional with no time-series evidence therefore, challenges exist in long-term impact evaluation and analysis (Opuwari, 2022).

There were ethical standards ensured by making sure that all the sources reviewed are properly cited and interpreted in the context of their generation. In alignment with the ethical standards of qualitative research, an attempt was made to avoid exaggerating the causal relations and to instead set up analytical associations (Okon, 2023).

In sum, the adopted methodology provides a solid basis for reviewing the strategic role of FM in revival of Adapalm and such moribund properties.

DISCUSSION AND IMPLICATIONS

Overview of Findings

The synthesis of the literature and contextual analysis imply that the reactivation of moribund properties such as Adapalm Imo State demands integrated approach that fits the principles of facility management with institutional reform, community participation and environmental first. The results confirm the earlier conclusions that industrial decay in Nigeria is not typically related to paucity of natural resources but is in fact due to inefficient management of assets, poor governance structures and poor maintenance culture (Eunice et al., 2016; Nwankwo, 2013).

The review finds that the lack of a formal facility management philosophy at Adapalm has led to inefficiency in operations, degradation of the environment and eventual dormancy. Conversely, comparative studies in Malaysia, Ghana and Kenya, show that the implementation of facility management principles can reverse the decline, improve service delivery, and ensure that value-for-money economic returns are generated (Nik, 2013; Addo & Mensah, 2023; Musyimi, 2019). Consequently, the discussion situates Adapalm's reactivating as a managerial and developmental challenge which must have a multidimensional attack.

Facility Management as a Strategic Activation Tool

A major takeaway from this review is that facility management is beyond the routine maintenance and should be viewed as a strategic governance tool. Facility managers take integrative role of coordinating technical, financial and human dimension in order to achieve organisational aims. In industrial environments, this means pro-active maintenance scheduling, condition-based measurement, lifecycle costing etc. (John, 2022; Keith, 1996). At Adapalm the reactivation strategy will need to start with a comprehensive audit of the facility including the buildings, processing equipment, plantations and utilities. The audit should inform a strategic facilities plan (SFP) that defines performance standards, maintenance schedules and resources allocation. Opuwari (2022) highlights that such SFPs if institutionalised minimise equipment downtime and save 25 per cent of operating costs. For Adapalm, the embedding of facility management units in the management of its everyday activities would guarantee its sustainability beyond primary reactivation.

Involvement of Technology and Innovation

Technological advancement is a huge enabler of facility management effectiveness. Studies have shown that through automation using Computerised Maintenance Management Systems (CMMS) and Building Information Modelling (BIM), higher efficiency is being attained by centralising maintenance data and also enabling predictive interventions (Olayinka et al. 2022; Karibo 2023). For Adapalm, the adoption of digital tools would allow to monitor the condition of machinery, trace the maintenance history and optimise the production logistic. Digitisation can also make things more transparent by creating auditable trails which are critical to investor confidence. In Malaysia, Nik (2013) reported similar evolutions where the implementation of automated systems for managing facilities resulted in 40% less downtime periods and an increase of the lifespan of the assets by ten years on average. Implementing such systems at Adapalm could therefore catalyse an operational turn-about as well as a financial turn-about.

Environmental and Social Implications

The implications of reactivating moribund estates are huge, for the environment. Derelict industrial facilities such as Adapalm add to soil and water pollution in the form of leakage of the chemical residues and unmanaged waste (Fatemeh et al., 2022). A structured facility management framework provides for environmental compliance, including integrated waste management, energy optimisation and compliance with Environmental Impact Assessment (EIA) guidelines. In addition to being a tool for environmental restoration efforts, facility management helps to drive community engagement and social inclusion. The surrounding communities of Ohaji/Egbema are very dependent on Adapalm for livelihood and local commerce. A participatory approach to facility management, where representatives from the community are involved in maintaining and making management decisions, helps to increase

social ownership and reduce the risk of vandalism (Rich, 2020; Okon, 2023). This is in line with Sustainable Development Goals (SDG 8 and 11) of Decent Work and Sustainable Communities. Thus, reactivation goes beyond an economic recovery project and becomes a social - renewal initiative that can foster community cohesion and also curb youth unemployment.

Policy and Institutional Implications

The review highlights the need for accelerated process of mainstreaming of facility management practices in the public and industrial sectors of the Nigerian economy. Despite proof of effectiveness of this approach, the management of facilities is unfortunately not well adapted in terms of institutional governance structure. No current national maintenance framework requires agencies to have dedicated facility management units. Okon (2023) and Market Research Africa (2024) contend that without legal and budgetary support, maintenance still occurs on an ad-hoc basis and is reactive.

For long term sustainability, facility management has to be institutionalised through legislation similar to the Public Assets Maintenance Policy in Ghana (Addo & Mensah, 2023). State governments - specifically state governments that have agro-industrial holdings (for example, Adapalm) should develop policies that mandate budgeting for preventive maintenance; regular audits of facilities and performance-based appraisal of management groups. Furthermore, professional bodies such as the Nigerian Institution of Estate Surveyors and Valuers (NIESV), the IFMA Nigeria Chapter, etc. should expand their advocacy to cover policy adoption on facility management at the state level. Public - Private Partnerships (PPPs) offer a possible implementation mechanism. By engaging private management facility firms under concession agreements, governments can tap into technical competences while maintaining control of ownership (Adewale et al., 2022). This hybrid model ensures operational efficiency and accountability and minimises fiscal burden.

Economic and Developmental Implications

The reactivation of moribund enterprises through facility management-driven approaches has an enormous economic implication. As Adewale et al. (2022) stated in their study of the NCC, the implementation of principles of facility management can also improve cost effectiveness, cut down of energy expenditure, and increase the lifetime of assets - all of which are contributions to improving organisational profitability. On a macro level, restoration of dormant estates like Adapalm could boost rural industrialisation, cure dependence on imports and boost employment opportunities in agriculture-based manufacturing.

Economic modelling documents by Market Research Africa (2024) indicate that 10 per cent efficiency improvement for maintenance of agro-industrial assets across Nigeria will be worth as much as N80 billion per year of productive value retrieved. In this regard, Adapalm's revitalisation - if rooted on structured practices of facility management - could serve as a pilot case for national replication. Moreover, better facility operating conditions provide investors with an attractive environment, boost the strength of local supply chains, and increase value addition in the palm-oil sector. These spillovers are in line with Nigeria's post-oil diversification agenda and the African Union's Agenda 2063 which has identified industrial renaissance as one of the engines of inclusive growth.

Synthesis and Way Forward

Considering these dimensions, the evidence shows that the FM is a relevant, cross-disciplinary avenue for transforming the overlooked properties into productive assets. In the case of Adapalm, the pathway is:

I. Carrying out a comprehensive facility condition assessment;
ii. Institutionalising of facility management units under professional leadership;
iii. Embedding technology in the monitoring and evaluation;
iv. Embedding participation from the community; and
v. Establishing policy support (i.e. state legislation)

Implementing these measures would not only activate Adapalm again, but would also make Imo State a model of industrial management.

CONCLUSION AND RECOMMENDATIONS

Summary of Key Findings

This review focused on the strategic role of facility management (FM) in the reactivation of moribund industrial properties and Adapalm in Ohaji/Egbema, Imo State, was used as focal case. The synthesis of literature, empirical findings and policy documents confirms that most of the collapses of industries in Nigeria is not caused by depletion of resources; it could rather be attributed to the lack of adequate facility planning, weak maintenance systems and weak governance (Eunice et al., 2016; Nwankwo, 2013). Facility management offers a multi-disciplinary and sustainable mechanism to remedy such failures. The review shows the advantages of FM include improved operational efficiency, savings in cost, asset longevity, and increased satisfaction for the stakeholder, when FM is applied systematically. For moribund properties like Adapalm, FM provides both technical and institutional solutions to enable restoration of productivity and ensure long term sustainability.

Theoretical and Practical Conclusions

Theoretically, the study strengthens the validity of Strategic Facilities Management (SFM) and Asset Lifecycle models as useful tools for revitalization. These models emphasize the integration of operational, financial and human resource functions as major enterprise driving forces (Keith, 1996; Levainen, 2001). Practically, this involves the institutionalisation of a culture of maintenance and asset registers and setting facility operations in line with organisational goals, to apply FM principles to Adapalm. Cross-referencing with experiences from Malaysia (Nik, 2013), Ghana (Addo & Mensah, 2023) and Nigeria (Opuwari, 2022; Adewale et al., 2022), it is clear that integrated structure of FM practices in governance produces tangible results in terms of productivity enhancement, accountability organisational learning, etc. Therefore, the reactivation of Adapalm must not be considered to be an individual engineering project, but rather as a strategic transformation process of the facilities with data, policy, and professional oversight.

Policy Recommendations

Facilitate Management Unit in Public Enterprises

Every state-interested industrial or agricultural estate should put in place a permanent FM unit under qualified professionals (registered with NIESV or IFMA). Such units should be responsible for condition audit, preventive maintenance and operational budgeting (Okon, 2023).

Legislative Framework for Governance of Maintenance

Imo State government should implement Public Assets Maintenance Law that will ensure annual facility audit and penalty on rampant neglect. This law should institutionalise ring - fenced maintenance funding to avoid diversion of resources (Market Research Africa, 2024).

Adopt Public-Private Partnership (PPP) Models

Given the capital intensive nature of industrial rehabilitation, PPPs should be promoted as a mechanism for the mobilisation of funds and technical expertise (Ifediora 2022). The state can maintain equity while delegating the operations management to competent FM service providers on a concession basis.

Maintaining Frequency in Policy Planning

Facility management should be integrated into the development policies such as National Infrastructure Maintenance Framework and Industrial Revitalisation Agenda. This allows continuity of practice outside of administrative cycles and helps to reduce moribund facilities recurrence.

Capacity Building & Professional Certification

Government agencies and tertiary institutions should be working together to contribute to the expansion of FM education and certification programmes (Adewale et al., 2022). This will result in the skilled workforce needed to manage complex estates such as Adapalm in a sustainable manner.

Managerial and Operational Recommendations

Complete Asset Inventory and Condition Assessment

The reactivation process should start with the detailed survey of all physical, mechanical and land assets. That provides the baseline to sustainably prioritise maintenance and lifecycle costs (Babalola, 2020).

Digitalisation of Maintenance Systems

Changing to Computerised Maintenance Management Systems (CMMS) and Geographic Information Systems (GIS) will be effective to improve monitoring, scheduling, and transparency (Olayinka et al., 2022).

Performance Based Maintenance Contracts

Contractors should be contracted on measurable Key Performance Indicators (KPIs) such as uptime of equipment, response time, reduction of the maintenance backlog, etc. (Karibo, 2023).

Sustainability and Environmental Management

Environmental compliance and waste management should be integral parts of FM practice at Adapalm. Renewable energy solutions (biomass, solar) can be implemented to ease operating costs and cut carbon emissions (Fatemeh et al., 2022).

Community Participation

Local communities should be formally included in FM governance through employment and maintenance cooperatives as well as advisory boards. This participatory model encourages ownership and the reduction of vandalism (Rich, 2020). Despite its all-inclusive nature, this review highlights some areas for further research. First, there is the need for longitudinal research which will enable the measurement of the long term implications of FM interventions in reactivated facilities in Nigeria. Most current research is cross section in nature and does not track performance over time (Opuwari, 2022).

Second, quantitative cost-benefit analyses of FM adoption in industrial reactivation need to be carried out to provide economic rationale for large scale adoption. Third, researchers should consider investigating climate resilient FM frameworks with adaptive strategies for environmental stressors such as flooding, extreme heat, in especially the Niger Delta region. Finally, comparative case studies from multiple agro-industrial estates namely Risonpalm (Rivers State), NIFOR (Edo State) and Adapalm (Imo State) would lay a strong empirical basis for the formulation of FM policy at national level. The recommendations will enhance the academic debate, as well as practical application in the Nigerian built-environment sector.

The fall of Adapalm is symbolic of the neglect of public infrastructure in Nigeria in general. Yet, its revival is possible by an intentional integration of facility management strategies - using a combination of technical efficiency, financial prudence and social inclusion. FM provides a structured, evidence-based and sustainable path to revitalisation. If as a state policy instrument, FM would be able to convert abandoned assets to productive enterprises, trigger rural industrialisation in the country and make a meaningful contribution to the agenda of economic diversification in Nigeria. Adapalm's restoration, therefore, is not just a restoration project, but an emblematic set of actions which convey the power of strategic facility management towards regenerating the country and achieving sustainable development.

References

Addo, K. & Mensah, P. (2023). Digital platforms and facilities optimisation in the Ghanaian banking sector. African Journal of Built Environment, 9(1), 44–58.

Adeleke, R. & Usman, A. (2024). Adaptive reuse for sustainable industrial regeneration in sub-Saharan Africa. International Journal of Sustainable Construction, 12(2), 33–49.

Adewale, O., Afolabi, A. &Chukwu, D. (2022). Facility-management practice in the Nigerian Communications Commission. Journal of Environmental Studies, 8(3), 45–58.

Amy, D., Tafura, K. & Lee, C. (2022). Facility maintenance and organisational performance: Evidence from developing economies. Journal of Facility Management, 18(4), 33–45.

Babalola, T. (2020). Organisational strategy and entrepreneurial orientation on effectiveness. International Journal of Management Research, 12(3), 55–67.

Dan, R. (2021). Principles of modern facility management. Built Environment Review,

9(2), 20–33.

EPA (2023). Sustainable Redevelopment and Infill Development Strategies. Washington, D.C.: U.S. Environmental Protection Agency.

Eunice, E., Nnamdi, G. &Obasi, V. (2016). The moribund state of industries and insecurity in Nigeria. Nigerian Journal of Industrial Policy Studies, 7(1), 22–39.

Eze, K. &Okafor, J. (2023). Facility management practices and market performance in Port Harcourt metropolis. Journal of Estate and Property Studies, 15(2), 51–66.

Fatemeh, S., Zhang, M. & Park, T. (2022). Adaptive reuse of heritage buildings and sustainable redevelopment. Built Environment Review, 9(2), 61–74.

Ifediora, C. (2022). New management and industrial revival: Lessons from Oburugo Estate. Nigerian Journal of Estate Management, 14(2), 80–94.

ISO 41001 (2023). Facility Management — Management Systems—Requirements with Guidance for Use. Geneva: International Organization for Standardization.

Jessica, P. (2019). Mismanagement and organisational decline: Lessons from global enterprises. Business Horizons, 62(4), 30–41.

John, S. (2022). Integrated facility management for sustainable operations. Facilities Management International, 18(4), 33–45.

Karibo, D. (2023). Facility management and organisational effectiveness of manufacturing firms in Rivers State. Journal of Facilities and Property Studies, 10(1), 41–59.

Keith, A. (1996). Facility management: A strategic framework. Facilities, 14(3/4), 6–12.

Levainen, K. I. (2001). Facility Management Theory and Practice. Helsinki: Finnish Technical Press.

Linda, P. (2000). Moribund property and the economics of decline. Urban Studies Review, 5(2), 112–126.

Mahood, F., Abubakar, S. & Chen, L. (2021). Environmental and economic costs of abandonment. Urban Economics Review, 10(2), 99–118.

Market Research Africa (2024). Africa Facility Management Market Report 2024. Johannesburg: MRA Analytics.

Musyimi, P. (2019). The impact of organisational strategy on facility management: The case of the Postal Corporation of Kenya. African Journal of Management and Leadership, 5(2), 60–72.

Nik, M. (2013). Enhancing facility management service delivery in Malaysia. International Facility Management Journal, 5(1), 19–34.

Nwankwo, C. V. (2013). The dynamics of facility maintenance in industrial estates. Journal of Estate Development Studies, 6(1), 15–28.

Olayinka, T., Adetunji, K. &Ogunleye, B. (2022). Automation and computerised maintenance management systems for Lagos high-rise buildings. Journal of Environmental Design and Technology, 8(2), 72–88.

Okon, P. (2023). Policy integration and professionalisation of facility management in Nigeria's public sector. Nigerian Journal of Estate and Environmental Management, 10(1), 55–70.

Opuwari, A. (2022). Facility management as a strategy for operational effectiveness of indigenous construction firms in Port Harcourt. Nigerian Journal of Estate and Environmental Management, 9(2), 50–68.

Paul, J. (2021). Facilities Management: Concepts and Applications. New York: Routledge.

Rich, A. (2020). Community engagement and local participation in facility management: Lessons from African public infrastructure. Community Development Review, 7(3), 49–63.

Rose, J. (2018). People, process, building and technology: The four pillars of facility management. Facilities Review, 5(3), 21–33.

Sarich, K. &Veerason, T. (2011). Facility management strategy: Evidence from commercial banks in Thailand. Facilities Management Review, 9(1), 27–46.

Tafura, K. (2024). Facility management as a strategic asset. International Journal of Operations and Facilities Studies, 11(2), 14–33.