



**PLACE OF FACILITIES MANAGEMENT PRACTICE IN AFRICAN
DEVELOPMENT IN THE 21ST CENTURY.**

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Abstract:

Africa's opportunities are vast, and its challenges are persistent. Home to the world's largest free trade area and a 1.2 billion-person market, the continent is creating an entirely new development path, harnessing the potential of its resources and people. Development refers to the fundamental facilities and systems serving a country, city, or area, including the services and facilities necessary for its economy to function. It typically characterizes technical structures such as housing, roads, bridges, tunnels, water supply, sewers, electrical grids, telecommunications, and so forth, and can be defined as "the physical components of interrelated systems providing commodities and services essential to enable, sustain, or enhance societal living conditions. Several long-standing challenges remain and are holding back progress. Around 640 million people currently live without electricity in Africa – 210 million of which are in fragile and conflict-affected countries. Public debt levels and debt risk are rising, which might jeopardize debt sustainability in some countries; the availability of good jobs has not kept pace with the number of entrants in the labor force; fragility is costing the subcontinent a half of a percentage point of growth per year; and gender gaps persist and are keeping the continent from reaching its full growth and innovation potential.

More than 416 million Africans still live in extreme poverty. However, all these coupled together can bring about the provision of good and affordable housing necessary for the smooth operation of a nation. Infrastructure development has always played a key role in integrating economies within a region. Well developed and efficient infrastructure is essential for a regional economic development and growth. Infrastructure development has always played a key role in integrating economies within a region. Well developed and efficient infrastructure is essential for a regional economic development and growth. Infrastructure development is at its lowest ebb in developing nations because of dearth of fund. Among the challenges of African development is lack of proper actualization and implementation of facility management practice. Facilities Management practice when implemented will transform developing economies into self-sufficient developed nations in the 21st Century. The benefits of increased and rapid infrastructure development are evident in the successful economic development of the newly-industrialized nations of China, India, Mexico, South Africa and Brazil. It thus become vital for the less industrialized, third world communities to ensure increased investments in infrastructural development in order to bridge the economic gap from the highly industrialized and developed nations of the globe. However, given the widespread fiscal constraints in the wake of the global financial crisis, it will require innovative steps to boost productivity in the Africa development. The impact of shortage of infrastructure in Africa nations can be reduced by through the adoption of facility management. African nations must see facilities management as a tool for development and conscientiously embrace it. This paper assessed the roles of facilities management in development of Africa nations.

Keywords: *Facilities Management, Africa Development, 21st Century.*

Introduction

African nations are facing unparalleled economic, social, fiscal and environmental trials that make it imperious for the public and private sectors to excel. Most glaring amongst these challenges is the dearth of infrastructure especially in the urban areas. These new forces are incredibly diverse, but they share an underlying need for modern, efficient and reliable

infrastructure (Robert, 2015). The infrastructures in African nations are not only inadequate; they are also grossly non-functional due to poor management. For communities to experience strong business growth, essential and functional infrastructure development must take place (Zhou, 2017).

Facility management, according to IFMA (2019), is a profession that encompasses multiple disciplines to ensure functionality, comfort, safety and efficiency of the built environment by integrating people, place, process and technology. In April 2017, the International Standard Organisation (ISO) published the ISO 41011:2017 standard for facility management and defined facility management as the organisational function which integrates people, place and process within the built environment with the purpose of improving the quality of life of people and the productivity of the core business. Nwannekanma and Onyedika-Ugoeze (2019) stated that facility management is capable of contributing towards reducing facilities costs, increasing the capacity to generate revenue and improving the productivity, image and core business of organisations. Probably, the greatest challenges facing infrastructures development in developing nations today is not infrastructure design, finance or the availability of technology for construction, but maintenance of the infrastructure after delivery. Maintenance can help elongate the lifespan of infrastructure and reduce their demand.

Infrastructures in Africa countries are in states of decay, disrepair and/or abandonment (Obiadi, & Nzewi, 2018). The Olympic-size swimming pool at the Abuja stadium constructed in 2003 is in a dilapidated condition because it is neither used nor maintained. The National stadium at Surulere, Lagos, which was a cynosure of all eyes, is now a shadow of itself. Infrastructural development is a well-known key driver to economic development. Investments in water, sanitation, energy, housing, and transport improve lives and help decrease poverty; and new information and communication technologies support growth, improve the provision of health and other services, expand the reach of education, and support social and cultural improvements (Nilsson, 2017). The benefits of increased and rapid infrastructure development are evident in the successful economic development of the newly-industrialized nations of China, India, Mexico, South Africa and Brazil. It thus become vital for the less industrialized, third

world communities to ensure increased investments in infrastructural development in order to bridge the economic gap from the highly industrialized and developed nations of the globe (Peuckert, 2016). With an estimated global infrastructure spending of \$57 trillion between 2013 and 2030 to aid GDP growth; Nigeria for instance, will require \$871 billion in core infrastructure through 2030 to support an upside GDP growth scenario. But given widespread fiscal constraints in the wake of the global financial crisis, even assembling the minimum investment required to meet growth predictions is a challenge. As such, it is imperative to take smarter and practical steps that could boost productivity in the global infrastructure sector by as much as 60 percent, thereby lowering spending by 40 percent for an annual saving of \$1 trillion. Over the next 18 years, this would be the equivalent of paying \$30 trillion for \$48 trillion worth of infrastructure (Mirza, S., & Ali, 2017). Facilities Management (FM) has been identified as the vehicle by which the business of planning, designing, building, and managing the world's infrastructure will be transformed to deliver higher productivity, quality, and cost-effectiveness (Haynes, Nunnington, & Eccles, 2017). The place of Environmental Design and Built Environment Research is here hinged on the significance of Facilities Management in achieving the development of Africa nation in the 21st Century.

The Nature of Infrastructures in African Nation

Infrastructure is the basic physical and organisational structures needed for the operation of a society like farms, housing, security, industries, buildings, roads, bridges, health services, governance and so on. It is the enterprise or the products, services and facilities necessary for an economy to function (Etzkowitz, & Zhou, 2017). The word infrastructure has been used in English since at least 1927 according to Online Etymology Dictionary (2012), originally meaning "The installations that form the basis for any operation or system". Infrastructure in developing countries connotes roads and transport infrastructures. The advent of telecommunication infrastructure in Nigeria in 2001 brought infrastructure to the front burner as the products and services necessary for the performance of an entity (Oyedele, 2019). Infrastructure development is one of the basis of assessing the achievements of governments and it is the foundation of good governance.

Agitation for infrastructural development in African countries like Nigeria is higher in democratic government than in military dictatorship or compared to developed countries. This is because the resources for provision of infrastructure are always scarce (Abbas, & Wakili, 2018). Ethnic-interest agitation and lobbying are common things in democratic governance in developing countries. This is why the Office of Government Commerce (OGC) in United Kingdom, advised that infrastructure project initiation should be done by project management office (PMO) specifically established to do this job (Oyedele, 2019). The Infrastructural report of Nigeria, just like any third world country, is nothing to write home about. The housing situation is in a sorry state both quantitatively and qualitatively (Ajanlekoko, 2001; Nubi, 2000; Oyedele, 2012). The roads are inadequate for the teeming population. Most infrastructures are now decayed and/or disservice and need repair, refurbishment, rehabilitation or replacement. New or more infrastructures are required in all sectors of the economy (Sabri, & Olagoke, 2019). "Infrastructure has always played a key role in integrating economies within a region. Well developed and efficient infrastructure is essential for a region's economic development and growth. In a dynamic concept, infrastructure is seen as a regional public good that moves factors of production within and across countries, thus helping the region attain higher productivity and growth (Banerjee, Duflo, & Qian, 2020). "infrastructure resources generate value as inputs into a wide range of productive processes and that the outputs from these processes are often public goods and nonmarket goods that generate positive externalities that benefit society as a whole."

Infrastructure development in democratic governance is more challenging because of the accessibility of people to government and involves identifying the right project, carrying out feasibility and viability studies and embarking on physical development of the project. The challenges are numerous and include finance, technology for development, maintenance and design (Oyedele, 2019). The literacy level is low in developing nations and this means that few people can analyse development. Most successors in government, if not from the same party, will not continue and/or finish a project started by the previous government because of who gets the credit. The challenges also include quality requirements of projects to meet international standard and to be sustainably developed. Projects must meet the carbon emission

standard set by international organizations like International Standard Organisation (ISO) and health and safety measures set by World Health Organisation (WHO). Air is captured and analyses are done in communities to ensure that they emit as little greenhouse gases (GHGs) as possible. Human settlements must be bio-diversified with co-habitation of other animals and plants and natural environment must be conserved for sustainable development and so on (Oyedele, 2019).

Tradesmen and other technical human resources needed for infrastructural development are scarce because of lack of training and motivation. "As a result, many professionals, tradesmen and senior managers are migrating to other countries" (Oyedele, 2019) Because of fast money, most youths that are supposed to learn a trade are now "commercial bicycle riders". This development is affecting the quality of infrastructure being provided (Oyedele, 2019). The numerous challenges have not been tackled as they should. Nigeria's lack of basic infrastructure to facilitate sustainable development and trade – both regionally and globally – and to ensure competitiveness is already known by all. In particular, for the large number of local governments, especially the rural ones, the dwellers goods have no access to markets and are not stored, hampered by weak transport, warehousing and energy infrastructure. These challenges can be overcome partly by having sound facilities management strategy for the existing infrastructure (Shehu, 2018).

Definition and Scope of Facilities Management

Facility Management (or **facilities management** or **FM**) is a professional management discipline focused upon the efficient and effective delivery of support services for the organizations that it serves (Atkin, & Bildsten, 2017). The [International Organization for Standardization](#) (ISO) defines facility management is define as the "organizational function which integrates people, place, process and technology within the built environment with the purpose of improving the [quality of life](#) of people and the productivity of the core business in conjunction with the auxiliary as well as the support services. Professional FM as an [interdisciplinary](#) business function has the objective of coordinate demand and supply of facilities and services within public and private organizations Bröchner, Haugen, & Lindkvist, 2019). The term

“Facility” (pl. facilities) means something that is built, installed or established to serve a purpose, which, in general, is every “tangible asset that supports an organization”. Examples are real estate property, buildings, technical infrastructure, (HVAC), lighting, transportation, IT-services, furniture, custodial, grounds maintenance and other user-specific equipment and appliances. The European standard for facilities management defines it as “the integration of processes within an organization to maintain and develop the agreed services which support and improve the effectiveness of its primary activities”. (Lee, Jang, & Lee, 2016). FM covers these two main areas: 'Space and Infrastructure' (such as planning, design, workplace, construction, lease, occupancy, maintenance and furniture) and 'People and Organisation' (such as catering, cleaning, [ICT](#), [HR](#), accounting, marketing, hospitality). These two broad areas of operation are commonly referred to as “hard FM” and “soft FM”. The first refers to the physical built environment with focus on (work-) space and (building-) infrastructure. The second covers the people and the organisation and is related to work psychology and occupational physiology. According to the [International Facility Management Association](#) (IFMA): “FM is the practice of coordinating the physical workplace with the people and work of the organization. It integrates the principles of business administration, architecture and the behavioral and engineering sciences.” In a 2009 Global Job Task Analysis, IFMA identified the core competencies of facility management as: communication, emergency preparedness and business continuity, [environmental stewardship](#) and sustainability, finance and business, Hospitality management, [human factors](#), leadership and strategy operations and maintenance, [project management](#), quality [real estate](#) and [property management](#) and technology.

The Institute of Workplace and Facilities Management, formerly known as British Institute of Facilities Management, adopts the European definition and through its accredited qualification framework offers career path curriculum ranging from school leaver level through to [master's degree](#) level that is aligned with the European Qualifications framework. FM may also cover activities other than business services: these are referred to as non-core functions, and vary from one business sector to another. FM is also subject to continuous innovation and development, under pressure to [reduce costs](#) and to add value to the core business of public or private sector client

organizations. Facility management is supported with education, training and professional qualifications often coordinated by FM institutes, universities and associations. Degree programmes exist at both undergraduate and post-graduate levels.

Facility Management Practice and Africa Development

The African Development Bank (ADB) has made infrastructure development a cornerstone in its development agenda with regional member countries (Bøa, 2019). The Bank recognizes that lack of adequate social and economic infrastructure is one of the key constraints to short- and medium-term poverty reduction in Africa, and has thus been a major force in private and public sector infrastructure development through the provision of financial and technical resources. At the same time, the Bank recognizes the increasing importance of governance for infrastructure development and has made good governance an imperative in its lending and non-lending operations." Good facility management is concerned with addressing those needs in the best and most cost-effective ways possible. Indeed, facility management encompasses a wide range of responsibilities to infrastructural development which include the following.

Facilities Management service is wider than its mere definition, in service, facilities management encompasses wide range of services which include real estate management, financial management, change management, human resource management, health and safety and contract management, in addition to infrastructure development, domestic Service (such as, cleaning and catering) and utilities supplies (Kerzner, 2017). From the above definition, it is obvious that facilities management is more than a simple service that is the reason why many professionals that were not in the built environment partakes on facilities management service. Again, facilities management service embraces the concepts of cost-effectiveness, productivity improvement, efficiency, and employee quality of life (Muhamad, 2015). All these entails the fact that facilities management service has come to an age where it can coordinate and help to enhance provisioning of optimal quality of infrastructural (Haynes, Nunnington, & Eccles, 2017).

Facilities management is increasing perceived as "add value" not only to the world alone but it's social and environmental friendly activities such as

environmental impacts assessment (EIA) that makes proposed infrastructure less harmful to people (Muhamad, 2015). Frischmann and Selinger (2018) opined that trend towards people engagement in facilities management in the development of infrastructures that people needs and value has re-engineering new condition. New dimensions of community engagement in facilities management was first disclosed by Roberts (2004) within the ambit of urban facilities management.

Facilities management go beyond the horizon of property management and supporting core business of an organisation but to social setting of a given communities with service like poverty alleviation, gender equality and many activities that can accord sustainable development of nations. In addition, the need for engaging local communities in facilities management has been recognised by British government (Rozilah, 2011). Facilities Management is more concerned with the maintenance of service and facilities provided for the people, such as provision of infrastructure comfort of masses (Støre-Valen, & Buser, 2019).

An infrastructure without planning programmes that is only executed at operational level is likely to face many more exertion caused by the absence of accurate facilities management techniques and strategic planning and explanation (Bryson, 2018). Olawumi, Chan, and Wong (2017) supports the view that a poorly defined infrastructure is more likely to experience serious problems. The definition was support by work of Robert (2004). Facilities Management service in infrastructure development occupy a substantial position and happens to be an element that increases its complexity. It is well known fact that information and communication overflow are major problems and difficulties in infrastructure development (Dzorgbo, 2017).

A good facilities management practitioner plans actions to be proactive, not merely reactive (Meng, 2013). The role of planning in facilities management services has a very importance position. Initially, it purposely directs the faces of the organisation core aspect of operations. More again, it clearly exhibits how far from the initial stages of the infrastructure to the final stage through proper planning and maintenance of the infrastructure in question (Sneddon, 2000).

The Challenges of Facility Management in African Nation

The objective of facility management is to keep the milieu of infrastructures intact. Maintenance as a function in facility management is now becoming more important in infrastructural development (Fen, Wu and Liu, 2009). Maintenance process of a facility must be given serious consideration before

embarking on development if the milieu of the infrastructure has to be kept in place and yield value for money (Woltjer, 2017). Without proper maintenance of infrastructure in a country, the country will lose money. The challenges of facility management in African countries:

- Absence of Maintenance Culture: Maintenance culture is lacked in African countries. Infrastructural facilities are left to decay after completion. It is shocking that huge sums of money are spent in building in African countries only to look back after few years and find out that such beautiful infrastructures are decayed due to lack of maintenance (Amakom, & Ekeocha, 2017). According to Shankleman (2013), "The government's pothole review warned councils that if they wait until the last minute to repair a badly damaged road, it costs four times more than if they maintained a road that is still driver-friendly. Asphalt Industry Alliance (AIA) research has also found that preventative maintenance is at least 20 times less expensive than reactive maintenance. Our lack of maintenance is a case study and second to none. The National Stadium in Surulere, National Theatre in Iganmu, Murtala Muhammed International Airport in Ikeja, all in Lagos; are examples of infrastructures that have gone bad. The National Stadium, Abuja was in a sorry state as shown above in Pictures 1 and 2 before it was rehabilitated. Oyedele (2019) stated that our lack of maintenance is 'legendary'. "In most houses, when the roof starts to leak, we ignore because it's not the rainy season; we fail to fix the bad electrical sockets; the blocked drain-pipes and a thousand and one small defects or damage around the house when noticed. The day disaster strikes in the form of flooding or fire outbreak or building-collapse, we blame everyone else but ourselves" (Oyedele, 2019).

-Demand and Supply: Due to poor performances of most past leaders in the area of infrastructure provision, the demand for infrastructural facilities overwhelms its provisions in African countries. With a land mass of 9,110,000 square kilometers and over 150,000 million people. Nigeria has a total road network of 193,200 kilometres. This comprise of 34,123KM federal roads, 30,500KM state roads and 129,577 KM local government roads. This road network is inadequate for a population of over 160million people spread over 9,110,000 square kilometers. Unfortunately, over 70% of the federal roads are in bad state of repair due to intensive usage especially by heavy duty vehicles. South Africa's total road network is about 754,000 kilometres with a total land

mass of 1,219,090 square kilometres. In the area of housing, Nigeria requires about 17 million housing units and about 60 trillion naira in order to meet its housing needs as at 2011 (Pepple, 2011).

- **Finance:** The fund for infrastructure maintenance is not pre-allocated and usually maintenance fund is sourced through fire-brigade approach. This is why the plan by the federal government to provide 75 per cent of Nigeria's population with potable water by 2015 may not be realized (The Guardian, 2012). Federal Road Maintenance Agency (FERMA) cannot achieve its mission statement "to efficiently administer road maintenance with the objective of keeping all federal roads in good, safe and comfortable condition for the best value in road transport" because of lack of finance. To ensure continuous availability of fund, the Lagos State Government has passed a bill to establish "Infrastructure Asset Management Agency". This agency will be in charge of infrastructure maintenance.

- **PARETO Analysis:** Pareto analysis is a statistical method in decision making that is used for identification of a specific number of tasks that produce major impact (Giannakis, & Papadopoulos, 2016). It uses the Pareto Principle (which is also called the 80/20 rule). It originated the idea that by doing specific 20% of the work, you can generate 80% of the benefits of doing the whole job. In terms of quality improvement, a large majority of defects (80%) are produced by a few key causes (20%) (Giannakis, & Papadopoulos, 2016). This is also known as the vital few and the trivial many or the significant few and insignificant many. In infrastructural maintenance, 80% of inefficiencies are caused by 20% of defects etc. It can also mean that 80% of the defects are caused by 20% of the users (Zhan, & Ding, 2015). For example, Nigerian roads are mostly damaged by heavy duty trailers. The government can charge these vehicles road tax for maintenance.

-**Development Matrix:** Infrastructure developers are not appreciative of the four factors of infrastructural facilities development which are: design, finance, technology and management (Oyedele, 2019). (See Table 1 below). The appropriate designs that will ensure easy maintenance are equally important as the technology and finance. For example, conduit system is now being eradicated because of maintenance problems. In case of electric spark, the conduit pipe will be difficult to remove because the structure is monolithic. Structures are first finished before laying pipes for mechanical

and electrical services. These pipes may be done surface and hide with encasement or embedded. This system makes the structure monolithic and maintenance easier.

Table 1: Development Matrix.

S/N	1	2	3	4
1	Finance	Design	Technology	Facility Management
2	Design	Technology	Facility Management	Finance
3	Technology	Facility Management	Finance	Design
4	Facility Management	Finance	Design	Technology

-Corruption: *‘Without doubt, corruption has permeated the African society and anyone who can say that corruption in Africa has not become alarming is either a fool, a crook or else does not live in this continent’.* This is how an illustrious son of Africa, Achebe (1988) puts it. Corruption has been noted to be worse than prostitution because it endangers the morals of the entire society (Campos and Bhargava, 2007).

According to World Bank, corruption has become the greatest obstacle to economic and social development (Overview of Anti-Corruption, 2011). Though corruption is a global issue, it is highly visible in Africa. In (2015), it was estimated that 75 million people paid bribe that year (People and Corruption: Africa Survey, 2015). With most of the African governments failing to fight corruption, 58% of African claimed there is little being done to stop it. According to the research by Transparency International, 4 out of 5 South Africans believe corruption has been on the rise recently and this clearly shows the level of trust citizens have in their government. Rose-Ackerman, & Palifka, 2016). Corruption in Nigeria is very high and unbearable for effective infrastructural development. The Bureau of Public Procurement (BPP), the Independent Corrupt Practices Commission (ICPC) and Economic and Financial Crimes Commission (EFCC) have not been able to eradicate corruption in the country. Corruption permeates all facets of life (Shehu, 2018).

CONCLUSION AND RECOMMENDATION

The need for increased investments in infrastructure development has become an essential strategy to accelerate the necessary economic growth that will enhance the African nation development and become among the developed nations of the globe with the newly-industrialized nations of China, India, Mexico, South Africa and Brazil. As such, one of such policies to be adopted by Africa countries in the context of the Vision 2020 development initiative is the adoption of facilities management to support the expected GDP growth through 2030. However, with an estimated global infrastructure spending of \$57 trillion between 2013 and 2030 to aid GDP growth, and given the widespread fiscal constraints in the wake of the global financial crisis; smarter and practical steps that could boost productivity in the infrastructure sector by as much as 60 percent, and guaranty an annual saving of \$1 trillion has been recommended by global economic experts. Facility management therefore stands as the vehicle by which the business of planning, designing, building, and managing the world's infrastructure will be transformed to deliver higher productivity, quality, and cost-effectiveness. The dividends of such a paradigm shift in the capital expenditure procurement process are already bearing fruit in the major economies of the world. As such, it is imperative that the African governments must mandate the adoption of Facilities Management (FM) in infrastructure development. This will therefore serve as a necessary strategy towards achieving the development of the African countries.

Reference

- Abbas, A. I., & Wakili, S. G. (2018). Agitation for Restructuring and Resource Control in Nigeria's Federalism: Issues, Perspectives and the Way Forward. *Covenant University Journal of Politics and International Affairs*
- Ajanlekoko, J. S. (2001). Sustainable Housing Development in Nigeria – The Financial and <http://www.fig.net/pub/proceedings/nairobi/ajanlekokocmws1-1.pdf>.
- Amakom, U., & Ekeocha, Q. (2017). Alternative Financing for Infrastructural Development in Nigeria.
- Atkin, B., & Bildsten, L. (2017). A future for facility management. *Construction Innovation*.
- Banerjee, A., Duflo, E., & Qian, N. (2020). On the road: Access to transportation infrastructure and economic growth in China. *Journal of Development Economics*, 102442.

- Bøa, M. (2019). Environmental Policy in the African Development Bank and the Asian Development Bank. In *Handbook of Global Economic Policy* (pp. 39-68). Routledge.
- Bröchner, J., Haugen, T., & Lindkvist, C. (2019). Shaping tomorrow's facilities management. *Facilities*.
- Bryson, J. M. (2018). *Strategic planning for public and nonprofit organizations: A guide to strengthening and sustaining organizational achievement*. John Wiley & Sons.
- Dzorgbo, D. B. S. (2017). *Ghana in search of development: The challenge of governance, economic management and institution building*. Routledge.
- Etzkowitz, H., & Zhou, C. (2017). *The triple helix: University-industry-government innovation and entrepreneurship*. Routledge.
- Forrest, T. (2019). *Politics and Economic Development in Nigeria: Updated Edition*. Routledge.
- Frischmann, B., & Selinger, E. (2018). *Re-engineering humanity*. Cambridge University Press.
- Giannakis, M., & Papadopoulos, T. (2016). Supply chain sustainability: A risk management approach. *International Journal of Production Economics*, 171, 455-470.
- Haynes, B., Nunnington, N., & Eccles, T. (2017). *Corporate real estate asset management: strategy and implementation*. Taylor & Francis.
- http://www.mckinsey.com/insights/engineering_construction/infrastructure_productivity
- IFMA (2019). What is Facility Management? Available at <https://www.ifma.org/about/what-is-facility-management/what-is-fm-students>.
- ISO 41011 (2017). Facility Management. Available at <https://www.iso.org/obp/ui/#iso:std:iso:41011:ed-1:v1:en>.
- Kerzner, H. (2017). *Project management: a systems approach to planning, scheduling and controlling*. John Wiley & Sons.
- Lee, S. Y., Jang, Y. H., & Lee, M. S. (2016). Quality Management (QM) Standard Issues in FM: Based on Guidance on quality in European FM Standard. *Architectural research*, 18(1), 21-29
- McKinsey Global Institute (2014). Infrastructure productivity: How to save \$1 trillion a year :
- Meng, X. (2013). Involvement of facilities management specialists in building design: United Kingdom experience. *Journal of Performance of Constructed Facilities*, 27(5), 500-507
- Mirza, S., & Ali, M. S. (2017). Infrastructure crisis—a proposed national infrastructure policy for Canada. *Canadian Journal of Civil Engineering*, 44(7), 539-548.
- Muhamad, U. B (2015). Facilities Management Services For Enhancing and provisioning Of Optimal quality Municipal Services In Malaysia. Unpublished PhD Thesis Universiti Tun Hussein Onn Universiti Malaysia.
- Nilsson, M. (2017). *Important interactions among the sustainable development goals under review at the high-level political forum 2017*. Stockholm Environment Institute.

- Nubi, T. O. (2000). Housing Finance in Nigeria: Need for Re-engineering. Available at http://www.housingfinance.org/uploads/Publicationsmanager/Africa_EFFECTIVE%20MOBILIZATION%20HOUSING%20-%20Nigeria.pdf. Accessed on March 4, 2012.
- Nwannekanma, B. and Onyedika-Ugoeze, N. (2019). Facility managers want role in proper use of national assets. *The Guardian*, May 20, 2019.
- Obiadi, B. N., & Nzewi, N. U. (2018). The architecture of the urban fronts, the case of urban experience and pressure on the infrastructure. *Mgbakoigba: Journal of African Studies*, 7(2), 114-130.
- Olagoke, O. A. (2019). Predicaments in the Management of Religious Heritage Buildings and Sites in Nigeria. *Conservation and Management of Archaeological Sites*, 21(1), 45-65.
- Olawumi, T. O., Chan, D. W., & Wong, J. K. (2017). Evolution in the intellectual structure of BIM research: A bibliometric analysis. *Journal of Civil Engineering and Management*, 23(8), 1060-1081.
- Onibokun, A.G. and A. J. Kumuyi, 1996. An Evaluation of Informal Sector Activities and Urban Landuse. Available at www.fig.net/pub/fig2006/papers/ts35/ts35_02_adeyinka_etal_0641.pdf.
- Online Etymology Dictionary (2012). Infrastructure. Available at <http://www.etymonline.com/>.
- Onolomemen, M. (2012). Works Minister says N500b needed annually to fix roads. *The Nation*, Tuesday, December 11, 2012.
- Oyedele, O. A. (2012). The Challenges of Infrastructure Development in Democratic Governance. Paper presented at FIG Working Week 2012 Knowing to manage the territory, protect the environment, evaluate the cultural heritage Rome, Italy, 6-10 May 2012.
- Oyedele, O. A. (2019). Challenges of infrastructure assets management in Nigeria.
- Peuckert, J. (2016). Urban Water Innovation Systems in Newly Industrialized Countries: case studies of brazil, china, india and south africa. In *Innovation Systems and Capabilities in Developing Regions* (pp. 143-174). Routledge.
- Robert, P. (2015). Why Infrastructure Matters: Rotten Roads, Bum Economy.
- Roberts, P. (2004), FM: New Urban and Community Alignment, *journal of facilities*, Vol. 22, No. 13/14, pp. 349-352.
- Sabri, R., & Olagoke, O. A. (2019). Predicaments in the Management of Religious Heritage Buildings and Sites in Nigeria. *Conservation and Management of Archaeological Sites*, 21(1), 45-65.
- Shankleman, J. (2013). "Highways, how to make the most of maintenance budget". *The Guardian*, Friday, 27 September, 2013.
- Shehu, A. (2018). Infrastructural Dilemma and Nigerian Development: An Exploratory Study. *International Journal of Current Innovations in Advanced Research*, 1(3), 30-38
- Shin, Lee, Park and Lee (2018). Facility Management Process of and Office Building. *Journal of Infrastructure Systems*, 24(3), September 2018, p. 1.

- Sneddon, J. (2000), "Facilities management and its role in the strategic briefing process", MSc thesis, Department of Building Engineering and Surveying, Heriot-Watt University.
- Støre-Valen, M., & Buser, M. (2019). Implementing sustainable facility management. *Facilities*.
- The Guardian (2012). Why government may not meet 2015 target on potable water. The Guardian Newspaper, November 26, 2012, p. 7.
- The Transformation Agenda (2011-2015): Summary of Federal Government's Key Priority Policies, Programmes and Projects.
- Woltjer, J. (2017). *Consensus Planning: The Relevance of Communicative Planning Theory in Duth Infrastructure Development: The Relevance of Communicative Planning Theory in Duth Infrastructure Development*. Routledge.
- Zhan, W., & Ding, X. (2015). *Lean Six Sigma and Statistical Tools for Engineers and Engineering Managers*. Momentum Press.
- Zhou, T. M. (2017). Poverty, natural resources "curse" and underdevelopment in Africa. *Underdevelopment, development and the future of Africa*.