

**ASSESSMENT OF FACILITY MANAGEMENT PRACTICES IN SELECTED
PUBLIC HEALTH CARE FACILITIES IN NIGER STATE**

BY

**YUSUF, Sadiq Musa
MTECH/SET/2017/7427**

**DEPARTMENT OF BUILDING TECHNOLOGY,
FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA**

AUGUST, 2021

**ASSESSMENT OF FACILITY MANAGEMENT PRACTICES IN SELECTED
PUBLIC HEALTH CARE FACILITIES IN NIGER STATE**

BY

**YUSUF, Sadiq Musa
MTECH/SET/2017/7427**

**A THESIS SUBMITTED TO THE POSTGRADUATE SCHOOL FEDERAL
UNIVERSITY OF TECHNOLOGY, MINNA, NIGERIA IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS OF THE DEGREE OF MASTER
OF TECHNOLOGY IN BUILDING (FACILITIES MANAGEMENT)**

AUGUST, 2021

ABSTRACT

Facility Management (FM) is still in its infancy but growing due to the country's rising profile as one of the fastest growing entities in the emerging market economies. However Public Healthcare Facilities in Nigeria are generally faced with many challenges including poor maintenance culture and therefore there is a need for the professionalization of Facility Management Practices. It is on this basis that the present study assesses the facility management practices in selected Public health care facilities in Niger State. The study was basically on soft facility management which consist of cleaning, recycling, security, pest control, handyman services, grounds maintenance, waste disposal and internal plants. A mixed methods design was adopted with the administration of questionnaires and interview to the health workers, works and maintenance officers (service providers) as well as end-users and visitors in 9 Local Government Area of Zone 'B', geographical zone of Niger State. A total of four hundred and fifty (450) questionnaires were administered (50 questionnaires to each Local Government under Zone B Niger, State, Nigeria) and interview were conducted with (9) incharge medical officers and (9) maintenance officers across the zone. Out of which three hundred and fifty – two (352) questionnaire are retrieved and found valid and fit for analysis as well as resourceful to achieved the objectives of the study. The research data were analyse manually in tabular form using descriptive statistical procedures, particularly frequency distributions and simple cross-tabulations. The outcome of the findings revealed that Outsourcing Facility Management and In-House (FM) are the two major types of FM adopted in the public healthcare facilities. Also improved funding, manpower in the works unit, waste management, contract and contractor management, space management Training/re-training of staff and changing of old facilities are the indicators for effective FM practices. The findings also revealed that the level of implementation is adequate in both outsourcing and in-house (FM) practices in public healthcare facilities. The challenges facing the FM practices are unveiled to be corruption, insufficient funding, poor maintenance culture, problem of policy implementation, inadequate FM personnel skill level, low technical knowhow, age of the building. Finally measure recommended for improved FM practices are the adoption for effective are modernity, ease of usage, structural stability, accessibility to the facility. The researcher thereby recommended that strategic facility plan, benchmarking, building simulation/building forecasting, risk management in building facilities and building maintenance should be put in place by the government to encourage the uptake and adoption of FM practices in the healthcare facilities. Furthermore, there should be rigorous enlighten program on FM practice by government to improve healthcare standard and save lives.

TABLE OF CONTENTS

Content	Page
Title Page	i
Title Page	ii
Dedication	iii
Declaration	iv
Certification	v
Acknowledgements	vi
Abstract	vii
Table of Contents	viii
List of Tables	xii
List of Figures	xiii
CHAPTER ONE	
1.0 INTRODUCTION	1
1.1 Background to the Study	1
1.2 Statement of the Research Problem	4
1.3 Research Questions	5
1.4 Aim and Objectives of the Study	6
1.5 Justification for the Study	5
1.6 Scope and Limitation of the Study	7
CHAPTER TWO	
2.0 LITERATURE REVIEW	8
2.1 Concept of Facilities management	8
2.2 Facilities Management Practice	9
2.3 An Overview of Facility Management Practice	11
2.4 Need for Facility Management in Public Buildings	12

2.5	General Trends in Facility Management Practice	13
2.6	Trends in Facility Management Practice in Public Health Care Facilities	17
2.7	Types of Facilities Management Practice	19
2.7.1	Outsourcing Facility Management	19
2.7.2	In-House Facility Management	20
2.7.3	Outsourced Managing Agent FM Contract	21
2.7.4	Outsourced Managing Contractor FM Contract	21
2.7.5	Total Facility Management (TFM) Contract	22
2.8	Areas of Facility Management	22
2.9	Challenges Affecting Facilities Management Practices	23
2.9.1	Poor or non-existent pre-construction FM provisions	23
2.9.2	Use of non-professional personnel	23
2.9.3	Poor administration of a service charge account	24
2.9.4	Lack of government support/incentives and inadequate infrastructure	25
2.9.5	Late implementation of facilities management	25
2.9.6	Non-existence of standards to measure performance and relevant laws and Regulations	25
2.9.7	Financial constraints	26
2.10	Strategies for effectively improving Facility Management Practices in Public Health Care Facilities	26
2.10.1	Strategic Facility Plan	27
2.10.2	Benchmarking	28
2.10.3	Building simulation/building forecasting	29
2.10.4	Risk management in building facilities	29
2.10.5	Building maintenance	30

CHAPTER THREE

3.0 RESEARCH METHODOLOGY	32
3.1 Research Design	32
3.2 Research Population	33
3.3 Sample and Sampling Procedure	34
3.4 Procedure Data for Collection	34
3.5 Methods of Data Analysis	36
CHAPTER FOUR	
4.0 RESULTS AND DISCUSSION	39
4.1 Response Rate	39
4.1.1 General Information of the Respondents	40
4.2 Analysis of Research Objectives	42
4.2.1 Identifying the types of facility management practices in the selected Public healthcare facilities	42
4.2.2 Identifying indicators of effective implementation of facilities management practice for the health facilities in the study area	43
4.2.3 Determine the level of effectiveness of the identify practices in the selected Public healthcare facilities	45
4.2.4 To determine the challenges of facilities management practices in Public health care facilities in the study area	46
4.2.5 Proffer measures for improved facilities management practice in the study area	48
4.3 Summary of Findings	50
CHAPTER FIVE	
5.0 CONCLUSION AND RECOMMENDATIONS	51
5.1 Conclusion	51
5.2 Recommendations	52
REFERENCES	54
APPENDICES	59

LIST OF TABLES

Table	Page
4.1 Response Rate	40
4.2 General Information of the Respondents	41
4.3 Types of Facility Management Practices in the Selected Public Healthcare Facilities	43
4.4 Facility Management Practice Indicators	44
4.5 Challenges of Facilities Management Practices	47
4.6 Measures for improved facilities management practice	49
4.7 Summary of Findings	50

0

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the Study

Facilities Management (FM) is an age-long practice which has existed out of necessity since building/infrastructure was first constructed to support human activities (Burt, 2012). FM in industry is generally acknowledged to have stemmed from services provided by janitors and caretakers during the 1970's. According to Achoru (2015), FM is an interdisciplinary field and management concept, encompassing the seven principles of management, that is, planning, organizing, controlling, motivating, coordinating, communicating and directing. This is primarily devoted to the maintenance and care of commercial or institutional buildings, such as hotels, resorts, schools, office complexes, sport arenas, convention centers and so on (Bagshaw & Peters, 2015).

Facilities Management (FM) can be referred to as the practice of coordinating the physical workplace, work and the people in an organization in order to enhance service delivery and in turn create an enabling work environment for optimum output (Cotts, 1999). The above definition is somewhat limited to workplace FM practice as FM can still be practiced in order areas such as apartment buildings or condominiums, refugee camps, places of worship, military formations/bases and wherever there is an assembly of human activities and materials to be handled. FM can also be said to involve guiding and managing the operations and maintenance of buildings, precincts and community infrastructure on behalf of property owners (Burt, 2012).

The practice of Facilities Management (FM) is concerned with the process by which organisations ensure that their buildings, systems and services support core operations

while contributing to the achievement of their strategic objective under stable business conditions (Bagshaw and Peters, 2015). It focuses on matching limited resources to user needs with a view to securing higher quality, lower risks and value for money (Cotts, 1999). Specifically, it deals with space design, construction, allocation, strategy, property asset management, maintenance and post occupancy evaluation of premises, inventory management, value management and life cycle costing, computerization and office automation, management of support services, and so on (Achoru, 2015). Despite the significance facilities management, most developing countries like Nigeria are yet full adopt the full FM practices.

The practice of FM was alien to Nigeria until 1993 when FM was made the central theme of discussions at the annual conference of the Nigerian Institution of Estate Surveyors and Valuers. The conference aroused consciousness in the minds of the real estate professionals who had hitherto been referred to as experts in property management. This consciousness however spurred agitations among members as to whether or not FM was the exclusive preserve of the estate surveyors and valuers who are trained to manage real property and its facilities. Clarifying the issue among the men of the noble profession, Umezuruike (1998) argued that FM is broad and requires both technical and management skills and is therefore a multidisciplinary profession. With few members, however, the Nigeria chapter of International Facilities Management Association (IFMA) was incorporated in 1997. The association has currently grown into membership strength to 700 with members having different professional backgrounds. It appears that the relative newness of FM in Nigeria, like other African countries account for the paucity of related literature in the region. Most public facilities are characterized with mismanagement, lack of maintenance, short durability due to inadequate facilities

management practice (Olapipo and Amodu, 2012). This is not found wanting in the health sector.

Healthcare facilities in Nigeria especially Public owned, are generally old and in a poor state, and these facilities are faced with many challenges including uses of non-professional personnel, late implementation of facilities management and poor maintenance culture. It is therefore essential for every healthcare district to have an effective Facility Management practice. The lack of proper performance FM system in public healthcare facilities resulted in problems of various natures (Orubuloye 2008, Okpala, 2013). FM is viewed as a important function in public hospitals, with professional FM expertise barely exists amongst most of them. Thus few hospitals determine the maintenance needs for their facilities (Ilozor 2013, Chukwu, Okolie and Ezekoli, 2020). The provision of healthcare facilities is needed to sustain life on earth. Unfortunately, in Nigeria today, the provision of health care facilities seems to be poor as many Nigerians are vulnerably exposed to the danger of death (Abel, 2014).

According to Onifade (2003), in Nigeria, installed health facilities are as old as the hospitals themselves. Some of the medical equipment are unserviceable and need outright replacement. Facility management practices in public hospitals in Nigeria are often complex in nature. A mistake in a hospital building management can cost the lives of many human beings at a time. These characteristics represent unique operating conditions and a bottom-line that involves much greater stakes than the profit-only vision of most business ventures. The State of public health care services delivered in Niger State is poor and remains a huge source of concern. Most of the PHC facilities that are supposed to meet the health needs of the poor and rural dwellers are in a poor state due to poor budgetary allocation, (Olapipo and Amodu, 2012).

1.2 Statement of the Research Problem

The provision of health care in Nigeria remains the functions of the three tiers of government: the federal, state, and local government. The primary health care system is managed by the 774 local government areas (LGAs), with support from their respective state ministries of health as well as private medical practitioners. The primary health care has its sublevel at the village, district, and LGA (Adeyeye *et al.*, 2010). The ministry of health at the state level manages the secondary health care system. Patients at this level are often referred from the primary health care. This is the first level of specialty services and is available at different divisions of the state.

The state key health care comprises laboratory, diagnostic services and rehabilitation. Teaching hospitals and specialist hospitals provide the tertiary primary health care. At this level, the federal government also engage the voluntary and nongovernmental organizations, as well as private practitioners (Ahmed & Gidado, 2010).

The World Health Organization in 2010 reported that the growth of performance measurement uses in FM amongst public hospitals in Nigeria is very slow compared to other developing countries. It ranked Nigeria 187 out of 191 in health system performance. Nigerian government is seeking ways to improve the position. Most public hospital buildings in Nigeria suffer from inadequate physical conditions (Pati *et al.*, 2010).

Public hospital buildings in Nigeria are generally old and in a poor state. Hospitals in Nigeria are faced with many challenges including poor maintenance culture and there is a need for the professionalisation of FM. It is therefore essential for every hospital district to have an effective FM performance measurement plan of its facilities. The lack of proper performance FM system in public hospitals resulted in problems of various

nature (Orubuloye 2008, Abukhder and Munns 2013). FM is viewed as a secondary function in public hospitals, with professional FM expertise barely exists amongst most of them. Thus few hospitals determine the maintenance needs for their facilities (Ilozor 2013, Kirkham *et al.*, 2012).

It is in light of these that the present study sought investigate into the facility management practices in selected Public health care facilities in Niger State, Nigeria, with view of answering the following research questions.

1.3 Research Questions

- i. What are the types of facility management practices engaged in the selected Public healthcare facilities in study area?
- ii. What are the key indicators of effective implementation of facilities management practice for Public healthcare facilities (Hospitals) in the study area?
- iii. What is the level of effectiveness of facilities management practice implementation in the study area?
- iv. What are the challenges affecting the adoption of facilities management practices in Public healthcare facilities in the study area?
- v. What are the possible measures in place to enhance facilities management practices in Public health care facilities in the study area?

1.4 Aim and Objectives of the Study

The aim of the study is to assess the facility management practices in selected Public health care facilities in Niger State. With the view to maintain the right enabling environment that supports the core mandate of rendering clinical and medical diagnostic services.

In order to achieve the stated aim, the following objectives are set to: -

- i. Identify the types of facility management practices in the selected Public healthcare facilities.
- ii. Identify indicators of effective implementation of facilities management practice for the health facilities in the study area.
- iii. Determine the level of effectiveness of the identify practices in the selected Public healthcare facilities.
- iv. Determine the challenges the of facilities management practices in Public health care facilities in the study area.
- v. Proffer strategies to improve facilities management practice in Public health care facilities in the study area.

1.5 Justification for the Study

Adoption of facility management practices in public healthcare facilities will assist policy makers in public hospitals in Nigeria to drive key organisational changes in the way assets are managed and to move away from a culture of narrow ‘maintenance approach’ to a holistic approach integrating all aspects of Facility Management for the optimal delivery

of healthcare services. The outcome will also provide policy makers in public hospitals in Nigeria with tools for accountability in healthcare management.

This research will also assist Facility managers to correctly define requirements for tasks of outsourcers of particular support services for each object specific parts of operation. The application of effective management practices, such as outsourcing, if applied to a set of healthcare authorities present in a district, could favour both the achievement of high performance and the fulfilment of a high level of management flexibility and financial-economic requirements.

1.6 Scope and Limitation of the Study

The main scope of the study is to assess the facility management practices in selected Public health care facilities in Niger State by identify the types, factors, indicators, level of effectiveness and challenges likely to be associated with facilities management practices in Niger State public healthcare facilities. The findings of this research is limited to public health care facilities in Zone 'B' Area of Niger State which comprises of nine Local Government Area Councils which includes Chanchaga, Suleja, Tafa, Gurara, Bosso, Paiko, Rafi, Wushishi, Munya and Shiroro LGA within Niger State. This was as a result of getting the through picture of the health care facilities as this zone also cover the State Capital of Niger State and some major healthcare facilities.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Concept of Facilities management

Over the years, facilities management has grown from what was traditionally perceived to be mere managing of buildings or maintenance unit of an organization to the holistic reality of being woven into the core and support services of organizations (Price & Akhkaghi, 1999), making it one of the most outsourced components in particularly public sector organisations (Iwarere * Lawal, 2011). In other words, the more developed view of facilities management is an integrated approach to management of building/infrastructure (product) and services of an organization in order to create an environment that supports the primary objectives of that organization (Nutt, 2004). In their contribution, (Hui *et al.*, 2013) define facilities management as the integration and alignment of the non-core services, including those relating to premises, required to operate and maintain a business to fully support the core objectives of the organisation. This study entirely agrees with this assertion which views FM from the perspective of a non-core support service. This was earlier supported by Chitopanich (2004) who argued that the primary function of FM is to handle and manage support services to meet the needs of an organization, its core operations and employees. In other words, it is a support function coordinating physical resources and workplace, and support services to user and process of works in order to support the core business of an organization, the author concludes. In an effort to develop a synchronized list of FM services, Chitopanich (2004) after reviewing a list of support services within the FM remit, evolved a cluster of support services that can give a generic scope of FM services. It is made up of five main components namely real estate and property management,

maintenance and repairs, office services, space planning and management as well as employee supports and services.

Every country, therefore, has a definition for the concept. For instance, the International Facility Management Association (IFMA, 2009) defined facility management as “a profession that Encompasses multiple disciplines to ensure functionality of the built environment by integrating people, place, process and technology”. The definition considers human resources of an organization as part of facilities. Mustapha *et al.* (2008) also defined facility management in the Malaysian perspective to mean an integrated approach to operating, maintaining, improving and adapting the buildings and infrastructure of an organization in order to create an environment that strongly supports the primary objectives of that organization’. It should be noted that their definitions exclude the elements of human resource and considers only buildings and infrastructure.

2.2 Facilities Management Services

Services are increasingly taking up a larger part of any organization’s purchasing expenditures and one part of the business sector services is FM services (Leung & Fung, 2005). In a recent study on procurement and relationship management trends in FM services, the authors argue that the relative importance of different business services may differ across sectors, industries and individual companies; but all companies need a workplace (i.e. a physical place and related services). Therefore FM services are the most important service category in terms of volume (Fahnrich & Meiren, 2007). What then constitutes FM services?

As noted earlier, services performed under a typical FM division range from very complex strategic planning confined to the top echelon of management to the day-to-day operational janitorial services such as cleaning, security and catering services; while

the management style of the services depend on the size, objectives and core activities of the parent organisation. Opaluwah (2005), using the Nigerian context breaks down FM services into personnel, information services, premises and support services. Support services comprises of mail services, fleet car, catering, reception, house-keeping, office administration, furniture, refuse disposal, reprographics, security, stationery, travel, vending, power supply, water supply, land maintenance and laundry. In a paper on “overcoming the challenges facing FM operators in Nigeria”, Bagshaw and Peters (2015) writing under the caption “the current state of FM services in Nigeria”, lists 9 major areas that are very active in Nigeria. They include janitorial, mechanical and electrical, building systems, building structures and permanent interior elements, furniture and equipment, security, food services and office administrative services. However, Nazali *et al.* (2009) classifies FM works from the administrative point of view into classical, tactical and operational FM. FM on the strategic level involves aligning with the higher level of management to deliberate on corporate decisions that will ensure that facilities meet clearly defined business objectives on a long term basis. According to Chitopanich (2004), such strategic decisions involve issues on property asset portfolio management, strategic property decisions and facilities planning and development which are related to policy and strategic plan of the organization. On the other hand, tactical FM involves monitoring, controlling and managing the operational functions of FM to ensure they are being done in accordance with organization’s standards as it relates to policies, strategies and plan.

The operational function involves short term results on a day-to-day level and is the most visible part of FM (Chitopanich, 2004). It supports the basic routine and regular needs of the organization.

2.3 An Overview of Facility Management Practice

According to Mustapha *et al.* (2008), FM in Asian countries such as Hong Kong, Malaysia and Singapore is basically oriented towards research, practice and education. The practice of FM in Malaysia at present is undertaken by real estate companies due to the fact that buildings such as high rise office towers are managed by property consultants, who basically provide property and building management services as well as simple operations and maintenance. In addition, most companies manage a limited range and number of properties and therefore provide services related to their core employer's area of expertise. Computerised systems are used to provide integrated functions to allow management to control aspects involving property management, building operation and services management, space management, data monitoring, security, maintenance tracking, as well as monitoring energy consumption by occupants (Mustapha *et al.*, 2008).

A qualitative study which employed site observations and interviews of facility and maintenance managers compared FM implementation at the development stage of construction of high-rise buildings in Sri Lanka and revealed that in the United Kingdom (UK), the government policies integrate strong ties between construction and FM, for instance, Private Finance Initiative (PFI) contracts, where design, construction, finance and operation of projects are consolidated, have demonstrated the strong links between construction and operation (deSilva, 2011). However, this integration of FM in the development phase is unpopular in Sri Lanka due to a lack of awareness of this profession in the local industry as it is still in its adolescent stage and the absence of designated facilities manager in most government buildings and FM functions are usually outsourced in many private organizations. In addition, with the aging and increasing rate of development of high-rise buildings, maintainability recently became a

heavy burden, a situation also reported in Mustapha *et al.* (2008).

Ladhari (2008) reported that in Sweden, facilities managers are not different from traditional building support service providers such as property managers, asset and maintenance managers and that the use of the title of facilities manager is more of a marketing strategy. According to the authors, in some parts of Asia and Europe, FM is yet to integrate the strategic FM, and in the UK, FM is mostly cost-focused and operational. The author employed quantitative methods to compare FM practices in Nigeria and other regions where FM evolved, with emphasis on building support services.

Similar studies conducted in Nigeria revealed that the practice of FM is still in its infancy but growing due to the country's rising profile as one of the fastest growing entities in the emerging market economies (Ikediashi *et al.*, 2013). A recent study which dwelt on properties, albeit commercial revealed that facilities provided in the studied high-rise buildings were in poor condition due to the "below-average" level of FM practice (Aliyu *et al.*, 2015). Aliyu *et al.*'s study, which employed quantitative research methods to investigate the application of FM practices in high-rise commercial properties in Jos, Nigeria, revealed various tools including outsourcing, in-house sourcing and co-sourcing, used in practice. Effective FM could entail assigning some activities or functions, usually non-core activities, to external service providers in order to focus on core functions in an enterprise, termed outsourcing (Kurdi *et al.*, 2011).

2.4 Need for Facility Management Services in Public Buildings

According to Wong (1999), every facility or property needs to be effectively and efficiently managed, as there is a significant relationship between property management and investment performance. Effective property management may reduce operating

costs, dispose of excess properties or hold on troubled properties by improving their operating income (and reducing their operating losses). The importance of effective FM can be perceived in many ways. First, Ismail (1996), on a work in Malaysia, observed that public sector organisations in any part of the world are among the largest property owners and the richest in term of operational property value. Facility can, therefore, be considered as having financial contribution and effect upon annual financial statements and asset base, as well as on resale values (in the case of privatisations of any public entities). Second, as opined by Zailan (2001), in the events of economic and financial crises, effective FM would improve facility performance through quality improvement and control cost. Finally, Zailan (2001) concluded that effective property management delivers quality service to its end-users, i.e. public sector employees, tenants and private sector employees.

2.5 General Trends in Facility Management Practice

The concept of facilities planning and development dates back to 1950s when Dwight Eisenhower launched the federal interstate highway system in America, which expectedly heralded an unprecedented wave of residential and commercial development in the undeveloped America (Shohet *et al.*, 2013). However, facilities management as it is known today dates back to the 1980s when railway companies in United State of America conceived the idea of providing facilities-related services as opposed to providing buildings (Atkin & Brooks, 2000). Ever since then, it has witnessed tremendous global transformation entering Europe in the mid 1980s first in UK in 1983, the Netherlands in 1986, the Scandinavian countries in 1992 and Germany in 1995 (Brochener, 2003). As a follow up to this, anon-profit organization called International Facilities Management Association (IFMA) was established in the early 1980 to incorporate associations dedicated to serving the FM profession originally in North

America; but as of today has members represented globally in over 60 countries worldwide including Nigeria where it offers guidance and expertise to its members, as well as carrying out research to substantiate best practice in facilities management (Adewunmi *et al.*, 2008).

Accordingly and in line with the trends, FM practice is now distinguished into two purposes namely short term operational FM and longer term strategic FM. Short term operational level, describes as the most visible part and involves day-to-day provision of safe and efficient working environment of an organization core business activities to thrive (Nutt,1999). Strategic FM on the other hand manages and coordinates work environment and support services in such strategic areas as property asset management, strategic property decision and facilities planning and development, all related to policy and strategic action plan of an organisation. From the business model perspective, Pitt and Hinks (2011) contend that FM is often seen as the management of cost-efficiency rather than as a method of achieving the multi-dimensional enhancement of business competitiveness. They therefore argue that existing organizational structures negates the integration of functional and strategic dimensions of FM and must be dismantled to incorporate facilities managers in to strategic management through subordination to strategy as opposed to management.

Regarding structure of FM process, Barrett and Baldry (2013) developed a model of 5 organisational structures that has evolved over the years of facilities management practice. The first category, *Office manager model* involves a part time assignment of a facilities manager as part of general duties. The person who may not be technically oriented or actively involved in the core function of the organisation oversees occasional facilities functions and repairs as the need arises. It was popular in the early stages of FM and suitable for small organisations. *Single site model* is popular in

organizations in one locality table to create a separate FM unit responsible for management of its assets. The organization uses both in-house team and service providers to execute its functions. The model is common with middle size organisations such as manufacturing plants and independent retail outlets. *Localised site model* is common in organizations with facilities in different locations coordinated from one site headquarter office. A distinct feature of this model is the decentralization of operations allowing smaller sites to take some certain level of decision while major policy decisions are taking at the central management level. *Multi sites model* operates a system of multiple locations spread across several geographic allocations within the same nationality but however performing similar functions in each location through a dedicated FM office while its activities are coordinated at the strategic level. It is suitable for large organisations with large national and international spread such as hospitals (NHS in UK for instance), multinational companies and major banking institutions. The fifth category is the International model. It is similar in many respects to the multi sites model but operates across different countries.

It does this through partnering with off shoring out sourcing vendors who have the requisite knowledge and ability to integrate properly in terms of language and legislation with concerned countries.

To also buttress the changing face of FM, Lee-Ross (2008) carried out an explorative case study on the origin and constitution of FM as an integrated corporate function using Danish Broadcasting Corporation's 80years existence as a corporate function. The study shows a patterned growth of the corporation's FM unit from an ordinary administration office that coordinates all service and building related functions in 1951 to becoming one integral unit for administration office matters and building coordination activities. In conclusion, Lee-Ross (2008) stated that "the development

clearly shows the need for a coherent strategic planning of the development of the corporation and corporate facilities. This is important both for the corporation to achieve its objectives and for the FM function to act proactive and professional. This implies that building client function in general should be an integrated part of the FM function. “It is equally said that integration of FM function was established to make the organization more customer oriented and to reduce cost which are hall marks of outsourcing.

Moore and Finch (2004) study on the state of FM practice in South East Asia discovered that FM is said to be establishing itself within the region though with varying degrees of success. The authors concluded by identifying several drivers of FM in the region. These include globalization, information technology, high cost of space, labour costs, regional economy, property market, general business environment, market maturity and procurement systems. It must be pointed that, China having overtaken Japan as world second largest economy stands out as a promising market for FM in the region. Indications from the world’s largest economy, the United States shows a gradual and systematic decline in the state of FM profession.

Facility Management practice in Nigeria has seen a steady growth in recent years with a wide range of applications (Opaluwa, 2005). What obtains in Nigeria to a particular time years ago (Alaofin, 2003) is that different firms provides single components of the typical services under FM. These component services and the firms that provide them vary significantly in terms of sophistication, customer acceptance and market awareness/development.

The oldest and perhaps the biggest component of FM service in Nigeria in terms of market size is the janitorial services with over 5 decades old (Alaofin, 2003). It is

acknowledged the spread of FM vocation from the US and Europe into Nigeria has been encouraged partly by globalization (Adewunmi *et al.*, 2008) and the rising profile of Nigeria as one of the major producers of crude oil in the world (Vetiva, 2011). In response, the world's major multinationals are coming to the country to seek for an integrated business resource, infrastructure and management of their facilities (Adewunmi *et al.*, 2008).

Today, government agencies, corporations and non-governmental organizations in Nigeria have realised that the use of organisational structures to manage functions is not helpful. According to (Adewunmi *et al.*, 2008), some practical examples of where facilities management has been adopted in practice in the country in both private and public sectors include; NAL towers, Investment and Banking Trust Corporation building, Mobil, Chevron, Sports Complex at Ibadan, National theatre and many others.

The general submission from the review on trends in FM practice above points to the fact that FM as part of the global business model has continued to explore how organization can grow faster through expansion into new markets, find new ways of fostering innovation through collaborative outsourcing that will achieve right balance between the decision to outsource, risks and legal requirements embedded in the service level agreement (SLA) between client organizations and their FM outsourcing vendors.

2.6 Trends in Facility Management Practice in Public Health Care Facilities

The demand for healthcare services and facilities are ever increasing in the 21st Century due to population growth, increased life expectancies, and elevated standards of life (Hosking and Jarvis, 2003). The growing urbanization has also created the need for more complex hospital buildings. Nowadays, the urban hospitals need to provide a diverse set of health care services to a vast number of patients and visitors in a more

condensed, congested and concentrated space. This has emphasized the importance of facility management (FM) in the healthcare sector (CHFM, 2016). In this regard, facility management practice is one of the most challenging and costly elements in hospitals (Chitopanich, 2004; Shohet *et al.*, 2013). It supports functioning and continuity of care facilities and services of hospitals as critical as emergency and lifesaving care facilities (Shohet *et al.*, 2013). Maintenance might also affect many non-core activities of hospitals such as food storage and supply, cleaning, and security of buildings (CHFM, 2016).

National Health Service (NHS) in the UK has advocated the integration of noncore healthcare services under the responsibilities of FM (Lavy & Fernández-Solis, 2010). They have identified several issues necessary to address to implement an integrated FM in NHS that includes maintenance strategic planning, maintenance benchmarking, customer care, market testing, environment and staff management (Liyanage & Egbu, 2008).

A number of studies have been reported in the literature (with mentioning of hospitals and healthcare facilities) on maintenance management issues (Garg & Deshmukh, 2006), facility management implications (Ventovuori *et al.*, 2007), KPIs for facility performance measurement (Shohet & Lavy 2004), and maintenance performance metrics (Kumar *et al.*, 2013).

Shohet and Lavy (2004) reviewed published literature in healthcare FM domain. On that basis, they proposed five subcomponents for healthcare facility management including maintenance management, performance management, risk management, supply services management and development.

Garg and Deshmukh (2006) reviewed the literature for maintenance management and

identified several research gaps. In particular, they pointed to the need for customization and implementation of maintenance optimization models in the form of operational decision support systems, measurement of maintenance performance by considering its links to decisions outside maintenance unit, and integration of IT in maintenance management, just to name a few.

Lavy and Fernández-Solis (2010) discussed current measuring metrics and key performance indicators (KPIs) for facility management practices. They classified these indicators into “cost-related” and “non-cost related,” or “functional” and “physical” categories. Kumar *et al.* (2013) identified techniques to formulate performance indicators for maintenance performance measurement (MPM). Their research illustrated the value and applicability of MPM frameworks for the organization.

2.7 Types of Facilities Management Practice

2.7.1 Outsourcing facility management

Kurdi *et al.* (2011) defined outsourcing as a common practice among both private and public organizations and is a major element in business strategy. Perhaps most organizations now outsource some of the functions they used to perform themselves. Due to widespread outsourcing practices, it has become a frequent topic in the literature. Numerous reasons why outsourcing is initiated have been identified by researchers (Kurdi *et al.*, 2011; Ikediashi *et al.*, 2013; Bagshaw & Peters, 2015). Organizations may expect to achieve many different benefits through successful outsourcing, although there are significant risks that may be realized if outsourcing is not successful. Most buildings nowadays are still practicing conventional management which includes a small organization or team in one department. They only pay attention towards the performance of the facilities and services of the building such as the

maintenance department where they make sure all the equipment and services are functioning all the time (Bagshaw & Peters, 2015).

This is where an organization has an in-house team of FM professionals who procure and manage a series of out sourced contracts. There may be a small team of in-house non-management staff such as maintenance technicians to run high risk operations or maintain vital M and E plant.

2.7.2 In-House facility management

Here the organization has its own dedicated management team and in-house employees to deliver all FM services. Some specialist services, where there is no expertise in the company, will be outsourced to simple service contracts. These might include as like lift and escalator maintenance. This arrangement is often found in public sector and educational organisations.

According to IFMA (2009), traditionally FM has been provided in-house by an FM, Property or Corporate Services department and, depending on the size of the building and the scope of services, the in-house department could range from a few janitorial employees to a multi-disciplined team managing technical, security and cleaning staff.

Services department and, depending on the size of the building and the scope of services, the in-house department could range from a few janitorial employees to a multi-disciplined team managing technical, security and cleaning staff. The FM market is still immature in the public buildings, but the potential is enormous, particularly with the large economic growth rate and amount of property development (Mudrak *et al.*, 2004).

2.7.3 Outsourced managing agent FM contract

In this scenario the organization will outsource most or all services on contracts and will appoint a FM company as managing agent to manage these contracts on their behalf. Here the service contracts are between the client organisation and the service providers. The client organization is responsible for procurement and the FM managing agent will manage performance. Although the FM services are outsourced the client organization must maintain in-house the knowledge and skill to procure and understand the delivery of FM services (Mudrak *et al.*, 2004). This is sometimes referred to as an ‘intelligent client’ function. To co-ordinate services requests and collate data to manage performance it is usual to provide a centralized call centre which will operate on some form of service management software. The call centre can be provided by the FM company, a third party or the client organization.

2.7.4 Outsourced managing contractor FM contract

Structurally this is similar to outsourcing on a managing agent contract but a step further where by the FM supplier will deliver services to the client organization through a mixture of their own resources and a series of sub-contracts. The client organisation only has a single contract with the FM supplier. The FM supplier develops their own supply chain and manages the risk of service delivery across all services. The diagram below can depict either the managing agent or managing contract or options (Nazali *et al.*, 2009). The dotted lines would represent the contract relationships between the client organization and the various service providers in the managing agent option.

2.7.5 Total facility management (TFM) contract

This is a development on the managing contract or option where by the FM supplier will, through strategic partnerships, joint ventures, subsidiary companies or in-house resources, deliver all or at least most FM services to the client organization (Moore and Finch, 2004). Thus they will provide a total FM solution or ‘one stop shop’. Many best practice FM companies aspire to deliver a TFM solution to clients where possible.

2.8 Areas of Facility Management

Typically, FM might be split into two areas of ‘hard’ and ‘soft’ services. The hard services relate to the actual fabric and building systems and might also be considered as the more traditional FM services (Mustapha *et al.*, 2008). These include:

1. Building fabric maintenance
2. Air conditioning maintenance
3. Decoration and refurbishment
4. Lift and escalator maintenance
5. M and E plant maintenance
6. Fire safety system maintenance
7. Plumbing and drainage
8. Minor project management

Soft services could include:

9. Cleaning
10. Recycling
11. Security
12. Pest control

13. Handyman services
14. Grounds maintenance
15. Waste disposal
16. Internal plants

2.9 Challenges Affecting Facilities Management Practices

Panoply of factors was identified as barriers to effective implementation of FM. These are discussed hereunder.

2.9.1 Poor or non-existent pre-construction FM provisions

According to Enoma (2005), de Silva (2011) and Jawdeh (2013), pre-construction provisions which articulate end-users' needs at the design stage hardly exist. As a result, quality is compromised and rework is needed, in some cases. Inclusion of FM at the development phase minimizes maintainability problems at the occupancy phase (de Silva, 2011). De Silva's qualitative study in Sri Lanka identified critical, but preventable, maintainability problems (such as defects in floor components, plaster and tiles, *etcetera*) which originated during the development phase of the sampled high-rise buildings and which escalated management costs as a result. The lack of attention for future maintenance requirements was the most critical factor that gave rise to the problems, for instance, future needs with regard to frequency, method and access systems of cleaning and maintenance, budget, should be considered at the pre-construction stage.

2.9.2 Use of non-professional personnel

The nature of FM requires professional competence and input in such areas as formulating and communicating facility policy, planning and designing for continuous improvement of service quality, identifying business needs and user/customer

requirements, negotiating service level agreements, establishing effective purchasing and contract strategies, creating service partnership and creating systematic service appraisal in terms of quality, value and risks. However, Mustapha *et al.* (2008) opined that in Malaysia, FM services are being undertaken by operatives who are traditionally blue-collar employees with limited training. This view was supported in a similar study in which the essence of competent facility managers was stressed (Ikediashi *et al.*, 2013). Interestingly, Ikediashi *et al.* (2013) explained that the sustainability of the FM services rendered was negatively affected by the dearth of trained FM professionals to handle intelligent and green buildings. The situation is compounded by a lack of tools for appropriate training and response to emergency maintenance needs (Mustapha *et al.*, 2008, Ikediashi *et al.*, 2013).

2.9.3 Poor administration of a service charge account

A major challenge of service charge administration stems from the competence or lack thereof of the managing agent regarding service charge administration. The challenges of service charge administration in Nigeria as identified by Okpala (2013) stems from improper budget practice, lack of consideration of service charge items with heavy price fluctuation, and above all lack of excellent communication and reward system resulting from weak budgetary control. The study recommended that budgetary control should be intensified to motivate employees to embark on service cost minimization to gain savings or at least achieve a state of break-even in order to promote tenancy relationship and achievement of financial objective. This study however, investigated FM from the view of managing operatives and the commercial/economic value of properties.

2.9.4 Lack of government support/incentives and inadequate infrastructure

A lack of incentives and support from the government makes it difficult for organisations to commit and create routines around environmental issues (Shohet *et al.*, 2013; Ikediashi *et al.*, 2013). In agreement with this view, Mustapha *et al.* (2008), opined that the lack of funding support exacerbates a situation of uncertainty about benefits from FM as most building managers claim that their profits are not as much as expected and in order to adopt an integrated FM system, funding support is required. This suggests that another factor hindering the advancement of FM practices is uncertainty of benefits and outcomes. According to Ikediashi *et al.* (2013), as it is today in Nigeria, inadequate infrastructure base and organisational resources at federal and state levels means that even with the existence of laws and regulations, it would be difficult to achieve compliance.

2.9.5 Late implementation of facilities management

Implementation of FM is late for most buildings, especially aging buildings with high level of deterioration (Mustapha *et al.*, 2008; Shohet *et al.*, 2013). However, FM may help in standardising future maintenance allocation required albeit maintenance costs may be higher as building services in poor condition, due to improper maintenance carried out in the past, may be more expensive to maintain.

2.9.6 Non-existence of standards to measure performance and relevant laws and Regulations

Lack of relevant laws and regulations to guide FM practice hinders effective implementation. The non-existence of standards that can be used to measure the quality and performance of both traditional and integrated FM applied by the building/property management is a major challenge in FM. Depending on the services provided or

practices applied for the buildings, practices may vary from one firm to another. Laws and standards should ideally guide FM practices. The slow pace of regulating appropriate FM standard or regulation in Malaysia hinders FM (Mustapa *et al.*, 2008). The situation is even more important where political class distinction is rife.

2.9.7 Financial constraints

Due to the high costs of maintenance of degrading properties, finance for maintenance is a problem (Ikediashi *et al.*, 2013). A high financial cost involved in the management of facilities was one of the identified difficulties encountered in the FM of high rise commercial properties (Aliyu *et al.*, 2015). In addition, due to high initial costs, the lack of software development or computerized systems for integrated FM is a major challenge (Mustapha *et al.*, 2008).

2.10 Strategies for effectively improving Facility Management Practices in Public Health Care Facilities

As a key to the practice of healthcare FM, an integration of management and control of support services represents effective business decision-making by healthcare executives towards delivering value for money. It is crucial that an integrated approach is designed and incorporated into the main operational strategy in order to reap maximum benefits from FM (Ware, Harris Bowen and Carder, 2017). According to Opaluwah (2005), to provide an integrated healthcare service, there must be sufficient healthcare facilities available to sustain the core business. Managing of hospital services cost money to both government and customers who pay for it indirectly as tax. Thus, for any hospital to have efficient and well-managed facilities, there must be sufficient financial resource investment to sustain its assets and service delivery objectives. It has also been observed as opined by Okoroh, *et al.*, (2002), that efficient doctors and clinicians are always

comfortable to care for patients in a hospital environment where the technology, facilities and resources, especially finance are available, in order for them to manage clinical outcome effectively.

2.10.1 Strategic facility plan

IFMA (2009) defined the strategic facility plan: “A two-to-five year facility plan encompassing an entire portfolio of owned and/or leased space that sets strategic facility goals based on the organisation’s strategic (business) objectives”. Therefore, strategic facility planning is the process by which a facility management organization envisions the future of a building by linking its purpose to the strategy of the overall organization and then developing goals, objectives and action plans to achieve that future expectation of the building (IFMA, 2009, p. 19). The result of the strategic facility planning process is the strategic facility plan. Strategic facility planning (SFP), as opined by Shohet and (2004), is a process that can lead to better, more proactive delivery of services from an FM organisation to its stakeholders. IFMA (2009) stated that the time taken to carry out SFP is well spent, in that it helps to avoid mistakes, delays, disappointments and customer dissatisfaction. It can actually allow facility plan implementations to run more quickly and smoothly. Lavy and Fernández-Solis (2010) stressed that, while every organisation is different, all organisations strive to become more competitive, effective and provide the best workplace possible for its employees. This is the role facility managers fulfill and SFP is an exercise that is considered another tool to add to the “FM tool belt” needed for success (IFMA, 2009). The following are some of the tools used by facility managers in SFP.

2.10.2 Benchmarking

Benchmarking is a very useful tool for comparing and measuring one building against others, anywhere in the world, to gain information on tips, practices and measures that will help the building's performance to be improved. According to Liyanage and Egbu, (2008), benchmarking is a continuous analysis of strategies, functions, processes, products or services, performances, etc. compare within or between best-in-class organisations by obtaining information through appropriate data collection method, with the intention of assessing an organisation's current standards and thereby carrying out self-improvement by implementing changes to scale or exceed those standards. Networking with peer organisations, competitors and, especially for facility organisations, visiting award-winning service organizations provide insight to bring back and adapt to your operations (IFMA, 2009).

A major function of the benchmarking process is to measure against outstanding contemporaries to achieve improved performance (DeSilva, 2015). Adaptation is the key – recognizing a good process or practice and use it in your own specific way within your organisation is the essence of successful benchmarking in FM (Achoru, 2015).

Adewunmi *et al.* (2008) argued that the application of FM and benchmarking in FM in particular are practices that are yet to gain wide acceptance in Nigeria, and IFMA (2009) highlighted that, for SFP to serve as the right mechanism to analyse and improve current FM, a proactive approach to benchmarking practices and services of those organisations recognized as industry leaders is needed. According to Adewunmi *et al.* (2008), benchmarking itself is a formal process that uses comparison approaches, models and informal approaches to benchmarking from experiences of organisations.

2.10.3 Building simulation/building forecasting

Building simulation is a prominent tool in building studies and strategic management planning. IFMA (2009) has it that this tool aims to understand how buildings operate. The building simulation, as analysed in Pitt and Tucker (2008), can describe the coordination of facility operations based on understanding and analysing the impact of interrelated facility alternatives and activities. This method can measure building performance and support strategic planning.

2.10.4 Risk management in building facilities

Bell (1992) defined the term “risk management” as: A process where an organisation adopts a proactive approach to the management of future uncertainty, allowing for identification of methods for handling risks which may endanger people, property, financial resources or credibility. Therefore, as opined by Shoheit *et al.* (2013), risk management should be a high priority for any facility, and it is achieved through a risk management program, in which risks are identified, analysed, classified and controlled. Okoroh *et al.* (2002), in a study of FM in hospitals, found that one of the facility manager’s principal duties in FM is to identify, analyse and economically control “those business risks and uncertainty that threaten building assets or cause loss of earning capacity in buildings.” Okoroh *et al.* (2002) then proposed the following seven main levels of possible risks in healthcare organisations:

1. Customer care
2. Business transfer risks
3. Legal risks
4. Facility transmitted risks
5. Corporate risks

6. Commercial risks

7. Financial and economic risks

While it presents a very thorough and comprehensive study, most risks identified by Okoroh *et al.* (2002) cannot be controlled by any actions taken by a facility manager or by implementing any FM processes. Holt *et al.* (2000) classified the risks faced by FM 1) pure risks, in which business survival is threatened, or its objectives have failed to be achieved; and speculative risks, which may result in negative effects.

Okoroh *et al.* (2002) and Srinivasan (2008) emphasized the need to develop generic risk data bases appropriate to FM. Ventovuori (2007) used the integration of value engineering (tactical) and value management (strategic) to the implementation of FM risk management. The review of past studies shows that risk management has achieved maturity in FM, at both the strategic and tactical levels (Lavy, 2010; Srinivasan, 2008).

From these studies, it is argued that the effectiveness of FM services will increase with the growth and development of the FM profession towards a proactive, tactical and strategic discipline. This will change the position of FM in organisations to a more central part of the organisation – a position that will help shape organisational decisions and processes (Lee-Ross, 2008).

2.10.5 Building maintenance

Maintenance of buildings is one of the major contribution of FM to any building as it forms the most obvious function of FM on the building. Maintenance could be corrective, preventive, planned and predictive. Iwarere and Lawal (2011) argued that, in any building, all the types of maintenance arrangements are so important and not one can be said to be the best depending on the nature and type of the building. Kaiser (2004) reiterated the fact that preventive maintenance is always the best approach to

proper maintaining of buildings. Kaiser (2004) further established that planned and corrective maintenance are also to be used concurrently by maintenance officers together with preventive maintenance as depending on the type and nature of the building. Kaiser (2004), concluded that the choice of corrective maintenance pose a big treat on the maintenance life of any building and should be reduced to the minimum unless there is no alternative to use.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Research Design

Research designs are the approaches adopted by a researcher to obtain the necessary information in a study. It can be qualitative, quantitative or mixed methods. For the purpose of the study both mixed research methods was adopted; A mixed methods research design is a procedure for. collecting, analyzing, and “mixing” both quantitative and qualitative research and methods in a single study to understand a research problem. Clark and Cresswell (2015) defined quantitative research as research techniques that seek to quantify data and typically apply some form of statistical analysis. Therefore, quantitative research is found appropriate for the present study as it will be helpful for systematic scientific investigation of the research phenomena and their relations. Hence, Data were collected using questionnaire.

Qualitative data are considered as data gotten from protocols of unstructured interviews and notes from observations [which] tend to be less easily summarized in numerical form (Fink, 2016) defined). Qualitative research does not just rely on statistics or numbers, but gives more focus on gaining insights into people attitudes, understanding specific phenomena, content and culture by analysing structured and unstructured data, figures, feedback forms, photos and videos (Hamed, 2018). With the significance influence of quantitative and qualitative research method, this study found it dim fit to adopt the mixed method.

3.2 Research Population

The population of the study consist of health workers, maintenance officers (service providers) end-users and personnel of the selected public healthcare facilities in Chanchaga, Suleja, Tafa, Gurara, Bosso, Paiko, Rafi, Wushishi, Munya and Shiroro LGA within Niger State.

In Niger State, there are three zones namely Zone ‘A’, ‘B’ and ‘C’. But this research only make use of zone ‘B’ to get the required data, because it is the largest zone that has the required and relevant public health care facilities for this study which covers 9 Local Government Area Councils Chanchaga, Suleja, Tafa, Gurara, Bosso, Paiko, Rafi, Wushishi, Munya and Shiroro LGA within Niger State.

3.3 Sample and Sampling Procedure

Since the target population is very large, the entire population cannot be studied due to resource constraint and time limitation. The most frequent formula used was the formula that estimates population mean with infinite population, which is given below:

$$n = \frac{z^2 \delta^2}{e^2}$$

$$n = \frac{(37)^2(0.33)^2}{(0.05)^2}$$

$$n = 450$$

where n is sample size, z = standard score based on an assumed confidence level (37 adapted from Pegula (2008)), δ = standard deviation (0.33), and e = margin of error (in ratio/interval measure) (0.05)

Hence, only 450 respondents were engaged for the study in the study area by targeting minimum 50 respondents from each Local Government Area. Additionally, Saunders *et al.* (2011) has recommended that random selection is appropriate because of its objectivity in obtaining a sample size for a study. Similarly, Ranjit (2005) posited that for a sampling design to be called random sample, it is imperative that each element in the population has an equal and independent chance of selection in the sample. In view of this, a random sampling technique was adopted for the study. Also interviews were carried out to the head of the health workers and maintenance unit in respective health facilities considered for the study, hence a total of nine (18) interviews were target

3.4 Procedure for Data Collection

Questionnaire

A self-developed and constructed questionnaire is a tool designed for the collection of quantitative data and is widely used in construction research (Hamed, 2018). It is a good research instrument for collecting standardized data and making generalizations. In this study, a self-structured questionnaire was used, as these simplify the statistic process. The questionnaires were well structured to address information about the individual respondent, background information about the particular healthcare facilities, the types, challenges, level of effectiveness and strategies Facility Management practices, level of availability of Facility Management practices in the building and extent of usage of Facility management in healthcare facilities will be sought to address the facility management practices in the particular healthcare facilities.

Interview

Interviews are a tool mainly for the collection of qualitative data and are popular as a data collection tool because of their flexibility (Berg and Lune, 2017). It is an active interaction between two or more people (Cooper and Schindler, 2014). Such interaction could lead to a negotiated contextually based result. There are different forms of interview to include face-to-face and focused interviews (Babbie, 2015). Face-to-face interview was used in this study.

The researcher also conducts structured interviews with a sample of the interview guide to each 1 head of the health workers and maintenance unit from selected health care from each Local Government Area in the study area) in order to seek additional insights and clarifications. The researcher ensured he interviewed the head of health worker of each health care considered for the study, which make up a total of 9 interviewees. The interview was conducted with each participant in their respective offices. Each of the interviews took approximately 40 minutes. In order to obtain pertinent information of the study the researcher ensures the interviewee gave response to all the structured questions. All the responses of interviewees were recorded and transcribed. After transcription, the resultant information was qualitatively analysed.

Before exploring the responses of the respondent to achieve the broad objectives of the study there is need to evaluate the reliability and validity of the variables target to gives verdict on the objectives of the study. Hence the Cronbach's Alpha Test for Reliability and Validity was carried out on the collected data and the result is shown on Table 3.3.

Table 3.3 Cronbach's Alpha Test for Reliability and validity

No	Variables Tested	Cronbach's Alpha	No. of Items
1	Identify the types of facility management practices in the selected Public healthcare facilities.	0.72	5
2	Identify indicators of effective implementation of facilities management practice for the health facilities in the study area.	0.88	8
3	Determine the level of effectiveness of the identify practices in the selected Public healthcare facilities.	0.81	10
4	Determine the challenges the of facilities management practices in Public health care facilities in the study area.	0.86	10
	Proffer strategies to improve facilities management practice in Public health care facilities in the study area.	0.85	7
	Average	0.82	

Source: Field Survey (2020)

The result shown on Table 3.1 reveals the level of reliability and validity of instrument questions target to answer each of the study research questions. The average Cronbach's Alpha value of 0.82 made it obvious that the research instrument is suitable, reliable and valid for providing answers to the research questions of the study.

3.6 Methods of Data Analysis

All data collected with respect to this research will be analyse manually in tabular form using descriptive statistical procedures, particularly frequency distributions and simple cross-tabulations.

Descriptive statistics such as tables, charts, percentages, means item score, relative important index; were used to present, analyse and rank the variables. Percentage was used to analyse the respondents' general information. Tables and/or charts were used to present the result of the analysis. Mean item score and percentages with correlation were used to analyse and rank variables in objectives 1, 2 and 3 to check the types of facility management practices in the selected Public healthcare facilities, identify indicators of effective implementation of facilities management practice for the health

facilities in the study area and determine the level of effectiveness of the identify practices in the selected Public healthcare facilities.

The formula for mean item score is written as

$$\text{Mean Item score (MIS)} = \frac{5n_5 + 4n_4 + 3n_3 + 2n_2 + 1n_1}{n_5 + n_4 + n_3 + n_2 + n_1} \dots\dots\dots (3.2)$$

where;

	RQ-Scale			Rating
Highly Adequate	Very important	Excellent	5	4.50 - 5.00
Adequate	Important	Very good	4	3.50 - 4.49
Inadequate	Important	Good	3.	2.50 - 3.49
Highly Inadequate	Not very important	Bad	2.	1.50 - 2.49
Unsure	unsure	Very bad	1.	0.50 – 1.49

Objective (4) and (5) which are to determine the challenges of facilities management practices in Public health care facilities in the study area and proffer measures for improved facilities management practice in the study area were analysed using relative importance index (RII) in order to see if the afore mentioned objectives were achieved.

Fagbenleet *al.*, (2004) posit that when the score given by the target respondents are summed up, the relative importance index (RII) can be calculated using the Relative Important Index formula; written as

$$\text{Relative Important Index (RII)} = \frac{\sum P_i U_i}{A \times N} \dots\dots\dots (3.2)$$

Where;

P_i = respondent rating of variables,

U_i = Number of respondents placing identical weighting/rating on variables

A = highest weighting (i.e. 5 used in this study)

N = Sample size

This study adopted the following cut-off point for the establishing the level of importance, satisfaction, significance and / or severity of factors using relative frequency (or percentage) index;

- 1) (0-20%) - Very Low
- 2) (21-40%) - Low
- 3) (41-60%) - Average
- 4) (61-80%) – High, and
- 5) (81-100%) - Very High

The information obtained through interview was analysed through content analysis. The responses were extracted from the data collected and written.

For the purpose of this study, interview response is gathered and analyses using content analysis approach. The information was rigorously scrutinised while insights meanings of respondent responses were unveiled. The responses were compare and contrast and further interpretations that best disclosed the opinion of the response were given.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 Response Rate

The organization of data was done with the administration of questionnaire and interview conducted with medical practitioners and patient/visitors of the sampled healthcare facilities in Zone B of Niger State, Nigeria. From the field survey conducted a total of four hundred and fifty (450) questionnaires were administered (50 questionnaires to each Local Government Under Zone B Niger, State, Nigeria) and interview were conducted with twelve (18) health works and maintenance officers across the zone.

Table 4.1 shows the response rate of the respondent across the nine Local Government Areas in Zone B Niger State. Out of four hundred and fifty questionnaires (450) administered, 369 (82.0%) were returned out of which 352 (78.2%) are found valid and fit for analysis as well as resourceful to achieved the objectives of the study. The implication of this is that reasonable percentage of the overall questionnaire were retrieved and also utilised to obtain the main objectives of the study.

Table 4.1: Response Rate

S/N	LGA	Administered Questionnaire (%)	Returned Questionnaire (%)	Valid Questionnaire(%)
1	Bosso	50(11.1)	43(9.6)	39(8.7)
2	Chanchaga	50(11.1)	45(10.0)	46(10.2)
3	Gurara	50(11.1)	40(8.9)	40(8.9)
4	Munya	50(11.1)	41(9.1)	38(8.4)
5	Paikoro	50(11.1)	36(8.0)	35(7.8)
6	Rafi	50(11.1)	46(10.2)	43(9.6)
7	Shiroro	50(11.1)	39(8.7)	36(8.0)
8	Suleja	50(11.1)	43(9.6)	39(8.7)
9	Tafa	50(11.1)	36(8.0)	36(8.0)
Total	(%)	450(100.0)	369(82.0)	352(78.2)

Source: Authors' Field Survey (2021)

4.1.1 General Information of the Respondents

The result of the analysis of the general information of the respondents in Table 4.2 revealed that 168 (47.7%) of the respondent are Doctor/Nurse of the healthcare facilities. 101 (28.7%) are the Manager/Technical officer of Facility and 83 (23.6%) are User/Customer visiting the healthcare facilities. And also 11(3.1%) are response from dispensary, 92 (26.1%) responses from Clinic, 174 (49.4%) from General Hospital and finally, 75 (21.3%) responses are from Specialist Hospital.

The analysis of gender distribution of the respondents shows that 196 (55.7%) are male while 156 (44.3%) are female. Likewise, the age distribution unveiled that 186 (52.8%) are within the age range 25 – 35, while 93 (26.4%) are within the age gap of 31 – 36, followed by 39(11.1%) are within 37 – 42, 24 (6.8%) falls within 43 – 48, 8 (2.3%) also falls within the 49 – 54 and 2 (0.6%) falls 55 and Above.

This shows that over 70% of the respondent are within the age range of 25 - 42. Hence, responses are gotten from active personnel.

As regarded to the length of service of the medical personnel, 106 (39.4%) had 1 - 5 years' experience followed by 92 (34.2%) had 6-10 years, 51 (19.0%) had 11-15 years of experience, 15 (5.6%) had 16 - 20 years and finally 5 (1.9%) had 20 years and above. The result in this section shows that the respondents have the requisite experience and are educated enough to take active part and give dependable information that will help achieve the aim of this study.

Furthermore, twelve (18) interviewees based on their years of experience of at least 10 to 15 years, in healthcare facility management were interviewed to provide appropriate/valid responses and to ascertain some findings gotten from the administration of questionnaires.

Table 4.2 General Information of the Respondents

Category	Classification	Freq.	Percent (%)
Category of Respondent:	Doctor/Nurse	168	47.7
	Facility Manager/Technical officer	101	28.7
	User/Customer	83	23.6
	TOTAL	352	100.0
Sex:	Male	196	55.7
	Female	156	44.3
	TOTAL	352	100.0
Age:	25 – 35	186	52.8
	31 – 36	93	26.4
	37 – 42	39	11.1
	43 – 48	24	6.8
	49 – 54	8	2.3
	55 and Above	2	.6
	TOTAL	352	100.0
	Length of Service:	1 - 5 years	106
6-10 years		92	34.2
11-15 years		51	19.0
16 - 20 years		15	5.6
20 years and above		5	1.9
TOTAL		269	100.0
Type of Facility	Dispensary	11	3.1
	Clinic	92	26.1
	General Hospital	174	49.4
	Specialist Hospital	75	21.3
	TOTAL	352	100.0

Source: Authors' Field Survey (2021)

4.3 Analysis of Research Objectives

4.2.1 Identifying the types of facility management practices in the selected Public healthcare facilities

Findings on types of facility management practices in the selected Public healthcare facilities were analysed as shown in Table 4.3. The result showed that outsourcing facility is has Mean Item Score (MIS=3.88), indicating adequate availability of outsourcing facility management which is ranked 1st, in-house facility takes the 2nd ranking with MIS = 3.70, which is also adequately practices. The Outsourced Managing Agent FM Contract, Outsourced Managing Contractor FM Contract and Total Facility Management (TFM) Contract has MIS score of 2.88 (3rd rank), 2.73 (4th rank) and 2.64 (rank 4th) respectively indicating that they are not adequately practices in the Public Healthcare Facilities management in Zone B, Niger State.

Responses from the interview conducted also disclosed that ‘Outsourcing facility management’ and ‘In-house facility management’ is widely practice among public health facilities in the study area., As disclosed by ten (10) of the interviewees that the available facilities management practice that is known to adopted in our healthcare center here is the in-house facility management., it was also added by four (8) other respondent that: Basic outsourcing are partly utilized.

From all the interviewee responses the Outsourced Managing Agent FM Contract, Outsourced Managing Contractor FM Contract and Total Facility Management (TFM) Contract facility management appears not feasible in the public healthcare facilities in Zone B, Niger State as one most of the interviewee ascertain that the basic outsourcing and in-house is better for the setting of the healthcare sector in the study area.

Table 4.3 Types of Facility Management Practices in the Selected Public Healthcare Facilities

S/N	FM practices	N*	MIS*	RANK
1	Outsourcing facility management	269	3.88	1 st
2	In-house facility management	269	3.70	2 nd
3	Outsourced Managing Agent FM Contract	269	2.88	3 rd
4	Outsourced Managing Contractor FM Contract	269	2.73	4 th
5	Total Facility Management (TFM) Contract	269	2.64	5 th

Source: Authors' Field Survey (2021)

This findings of the present study is in line with other study Adewunmi *et al.* (2008) unveiled that Nigeria need to adopted best practice in facilities management, as it is only managing most of the facilities on in-house measure. Pitt and Hinks, (2011) contend that in-house FM is often seen as the management of cost-efficiency rather than as a method of achieving the multi-dimensional enhancement of business competitiveness.

4.2.2 Identifying indicators of effective implementation of facilities management practice for the health facilities in the study area.

The outcomes of the analysis indicators of effective implementation of facilities management practice for the health facilities in the study area was displayed in table 4.4 The respondents were of the view prompt response to patients has MIS=3.61, Quality health service delivery has MIS=3.32, 24hours power supply and maintenance MIS = 3.32, Adequate crowd management (i.e. effective utilisation of large population) MIS=3.28, full cooperation between staff in ensuring quality facilities management MIS=3.22, immediate replacement or repair of damage facilities MIS=3.19, Proper

waste and management to prevent outbreak MIS=3.08, reliable amenities for patients MIS= 3.00 and Building repairs and maintenance MIS=3.00.

The result showed that there is very good implementation of indicators facilities management.

Summary for interview conducted with the heads of the healthcare’s revealed that: there is turnover of attention to facility management with increase in manpower for rapid responses to emergency, quick replacement or repair of damage facilities”. All the interviewees, responded that 24 hours’ service delivery is an indicator of Facility Management Practice.

Smartly, 11 of the interviewee added that adequate crowd management as well as available social amenities to patient disposal, is an indication of adequate facility management in the health care facilities

Table 4.4 Facility Management Practice Indicators

S/N	Facility Management Practice Indicators	N*	MIS*	RANK
1	Prompt response to patients	269	3.61	1 st
2	Quality health service delivery	269	3.32	2 nd
3	24hours power supply and maintenance	269	3.32	2 nd
4	Immediate replacement or repair of damage facilities	269	3.19	5 th
5	Full cooperation between staff in ensuring quality facilities management	269	3.22	4 th
6	Proper waste and management to prevent outbreak	269	3.08	6 th
7	Adequate crowd management (i.e. effective utilisation of large population)	269	3.28	3 rd
8	Reliable amenities for patients	269	3.00	7 th

Source: Authors’ Field Survey (2020)

Finding of Adewunmi *et al.* (2008) supported these findings that the application of FM through indicators are essential to gain wide acceptance in Nigeria, which are prompt response to emergency , changing old facilities to modern ones, waste management, Space management (i.e. effective utilisation of space).

4.2.3 Determine the level of effectiveness of the identify practices in the selected Public healthcare facilities

In regards to the outcome on the findings the types of management practices in the selected Public healthcare facilities, this section here by unveiled the level of effectiveness of the practices in Public healthcare facilities (Outsourcing facility management and In-house facility management). The response for the interview was used to assess the level of effectiveness of the identify practices in the selected Public healthcare facilities.

The interviewee response also backed this fact as one of the respondent says' that: "the Outsourcing facility management and In-house facility management practices are the available facilities management practice in the health care facilities.

Two (2) out of the interviewee considered moderate implementation of the facilities management, similarly three (3) other interviewee opined that the effective implementation is ongoing". Thirteen (13) of the interviewee also lamented that: "the management practices are still fairly implemented though to lack of technical knowhow".

In view of the responses there are still more needed to be done in the facilities management practice in the public healthcare facilities. The outcome of the study is in line with that Mustapa *et al.* (2008), similar (Ikediashi *et al.*, 2013; Aliyu *et al.*, 2015).

4.2.4 To determine the challenges of facilities management practices in Public health care facilities in the study area

The result of the analysis on challenges of facilities management practices in Public health care facilities in the study area was displayed in Table 4.6, the unveiled that corruption take the highest ranking with relative importance index (RII=0.98), poor maintenance culture follows with RII=0.94, the 3rd ranking take the insufficient funding with RII =0.90, problem of policy implementation take the RII=0.88, inadequate facilities usage information takes 5th with RII=0.85, Insufficient FM personnel with RII=0.83 ranked 6th, Overcrowding in the building RII=0.79 with 7th, Age of the building 8th with 0.76, Inadequate FM personnel skill level 9th with RII = 0.70 and Low technical know- how RII = 0.58 ranked 10th.

The outcome of the interview conducted also describe corruption, insufficient fund, poor maintenance culture, Problem of policy implementation and Inadequate facilities usage information among others. The 1st clear state the adverse effect of corruption to the adequate implementation of Facilities Management Practices in Public health care facilities in the study Area. He says' "The classical challenge mainly faced by the maintenance unit is corruption which need urgent attention other challenges such as insufficient fund, poor maintenance culture and problem of policy implementation". Another interviewee says' "Maintenance and management culture is the greatest challenge we are facing, as well as insufficient fund and low technical knowhow in the health facilities". The outcome of the findings has proved the list of factors on table 4.5 to be urgent issue needed to be address to ensure adequate implementation Facilities Management Practices in Public health care.

Table 4.5: Challenges of Facilities Management Practices in Public health care facilities in the study Area

S/N	Factors Affecting Facility Management Practice	N*	RII*	RANK
1	Corruption	352	0.98	1 st
2	Insufficient funding	352	0.90	3 rd
3	Poor maintenance culture	352	0.94	2 nd
4	Problem of policy implementation	352	0.88	4 th
5	Inadequate FM personnel skill level	352	0.70	9 th
6	Low technical knowhow	352	0.58	10 th
7	Insufficient FM personnel	352	0.83	6 th
8	Age of the building	352	0.76	8 th
9	Inadequate facilities usage information	352	0.85	5 th
10	Overcrowding in the building	352	0.79	7 th

Source: Authors' Field Survey (2021)

The findings also supported the findings of some researchers According to (de Silva, 2011) the lack of attention for future maintenance requirements was the most critical factor that gave rise to the problems, for instance, future needs with regard to frequency, method and access systems of cleaning and maintenance, budget, *etcetera*, should be considered at the pre-construction stage.

Also the findings of Mustapaet *al.* (2008) that FM services are being undertaken by operatives who are traditionally blue-collar employees with limited training. This view was supported in a similar study in which the essence of competent facility managers was stressed. Interestingly, Ikediashi *et al.* (2013) explained that the sustainability of the FM services rendered was negatively affected by the dearth of trained FM professionals to handle intelligent and green buildings. The situation is compounded by a lack of tools for appropriate training and response to emergency maintenance needs. Also lack of incentives and support from the government makes it difficult for organisations to commit and create routines around environmental issues (Nielsen *et al.*, 2012), and high financial cost involved in the management of facilities was one of the identified

difficulties encountered in the FM of high rise commercial properties (Aliyu *et al.*, 2015).

4.2.5 Proffer measures for improved facilities management practice in the study area.

As revealed from the outcome of the analysis on measures needed for improved facilities management practice in public health care facilities in the study area. The result on table 4.6. show that fitness for purpose/ functionality has RII=0.98, followed by providing all require infrastructure to ensure ease of usage with RII=0.97 making sure all facilities meet up with aesthetics and psychological appeal has RII=0.95, making sure all the facilities are structurally stable has RII=0.94, there should accessibility/ access to the facility by staffs sand patients has RII=0.93, while modernity, Staff training and re-training, ensure sufficient facilities to staffs and patient, Routine check on facilities and All amenities should be in place for risk management has RII of 0.92, 0.90, 0.89, 0.85 and 0.83 respectively. The result show that all measures are believe to be vital for improved facilities management practice in the public healthcare facilities.

Responses of the interviewee those differ from the opinion above has one the respondent says' "functionality is the key to proper management practices as it center round any other necessities for the system", another interviewee says', "Ease of usage, structural stability and accessibility/ access to the facility and number in use should be taken into consideration as measure to adequate facilities management practice in the public healthcare facilities"

Table 4.6 Measures for improved facilities management practice in the study area.

S/N	State of Facilities	N*	RII*	RANK
1	Ensuring the facilities fit for purpose/ functionality	352	0.98	1 st
2	Making sure all facilities meet up with aesthetics and psychological appeal	352	0.95	3 rd
3	The use of modern facilities	352	0.89	8 th
4	Providing all require infrastructure to ensure ease of usage	352	0.97	2 nd
5	Making sure all the facilities are structurally stable	352	0.94	4 th
6	There should accessibility/ access to the facility by staffs sand patients	352	0.93	5 th
7	Ensure sufficient facilities to staffs and patient	352	0.90	7 th
8	Regular Staff training and re-training on FM	352	0.92	6 th
9	Adequate routine check on facilities in the health care	352	0.85	9 th
10	All amenities should be in place for risk management	352	0.83	10 th

Source: Authors' Field Survey (2021)

These findings backed the findings of Lavy and Fernández-Solis (2010) ad it stressed that, the role facility managers fulfil is an exercise that is considered needed for success in health services. The following measures are important Aesthetics and psychological appeal, modernity, ease of usage, structural stability, accessibility/ access to the facility among others. According to Kurdi *et al.*, (2011), Fitness for purpose/ functionality and routine check on facilities is a continuous analysis of strategies, functions, processes, products or services, performances, etc. compare within or between best-in-class organisations by obtaining information through appropriate data collection method, with the intention of assessing facility management practices. Adewunmi *et al.* (2008) argued that the application of FM and benchmarking in FM in particular are practices that are yet to gain wide acceptance in Nigeria, and IFMA (2009) highlighted. Lavy and

Fernández-Solis (2010), again stated that risk management should be a high priority for any facility, and it is achieved through a risk management program, in which risks are identified, analysed, classified and controlled.

4.3 Summary of Findings

Table 4.7 shows the summary of key findings from the analysis carried out on the subject matter.

Table 4.7 Summary of Findings

S/N	Objectives	Findings
1	Identify the types of facility management practices in the selected Public healthcare facilities	The findings of the study unveiled that outsourcing facility management and In-house facility management has been proved to be the two types of FM adopted in the public healthcare facilities while Outsourced Managing Agent FM Contract, Outsourced Managing Contractor FM Contract and Total Facility Management(TFM) Contract are rarely adopted.
2	Identify indicators of effective implementation of facilities management practice for the health facilities in the study area.	The findings on the indicators for effective FM practices are as follow; prompt response to patients, Quality health service delivery, 24hours power supply and maintenance Immediate replacement or repair of damage facilities as well as full cooperation between staff in ensuring quality facilities management
3	Determine the level of effectiveness of the identify practices in the selected Public healthcare facilities.	There is fair effective implementation of both outsourcing facility and in-house facility, management practices public healthcare facilities
4	To determine the challenges of facilities management practices in Public health care facilities in the study area.	The challenges unveiled for the findings are corruption, insufficient funding, poor maintenance culture, problem of policy implementation, inadequate FM personnel skill level, low technical knowhow, insufficient FM personnel, age of the building, inadequate facilities usage information and overcrowding in the building.
5	Proffer measures for improved facilities management practice in the study area.	Measure cited from the findings are fitness for purpose/ functionality, ease of usage, structural stability, accessibility/ access to the facility, staff training and re-training, routine check on facilities and risk management.

Source: Authors' Field Survey (2021)

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The study was set out with an aim of assessing the facility management practices in selected Public health care facilities in Niger State with the view to maintain the right enabling environment that supports the core mandate of rendering clinical and medical diagnostic services. Utilizing information gathered health workers, maintenance officers (service providers) end-users, visitors and personnel of the selected public healthcare facilities. The study was able to determine the types of facility management practices in the selected Public healthcare facilities, identify indicators of effective implementation of facilities management practice for the health facilities in the study area, determine the level of effectiveness of the identify practices in the selected Public healthcare facilities, the challenges of facilities management practices in Public health care facilities in the study area and finally proffer measures for improved facilities management practice in the study area.

From the outcome of the findings it could be concluded that outsourcing facility management and In-house facility management are the two major types of FM adopted in the public healthcare facilities. Also that improved funding, manpower in the works unit, equipping the store in the FM unit of spare parts, Training/re-training of staff etc. are the indicators for effective FM practices. There is effective implementation of both outsourcing facility and in-house facility, management practices public healthcare facilities.

The challenges facing the FM practices are corruption, insufficient funding, poor maintenance culture, problem of policy implementation, inadequate FM personnel skill level, low technical knowhow among others. Finally measure cited for improved FM

practices are fitness for purpose/ functionality, aesthetics and psychological appeal, modernity, ease of usage, structural stability, accessibility/ access to the facility and so on.

5.2 Recommendations

From the findings and conclusion, the study makes the following recommendation.

1. The management of public healthcare centre; should attached importance to the FM practice by any staff.
2. The outsourcing facility management and In-house facility management should be effective implemented in order to quality service delivery to the patients.
3. The health management should ensure all ensuring the facilities fit for purpose/ functionality
4. There should be provision of financial incentive and modern infrastructure to encourage FM practice in the health care sector in order to avoid any for hazard.
5. More skilled personnel skill should be employed in the facility management and maintenance unit by the healthcare centres (manager or head) in order to improve and increase adequacy of effective implementation of FM practices.

From the findings, the following are the contribution of the research to knowledge;

1. The study has contributed in FM practices in healthcare sector with capturing the effectiveness and challenges of FM practices adoption in public healthcare facilities.
2. This study aids decision makers and healthcare sector key players in making appropriate decision utilizing the suggested strategies' on how to achieve a sustained FM practices.
3. The study would further encourage the healthcare professional and general public that are aiming to achieve standard FM practices in health sector in order to improved standard of healthcare services offered.

4. The study has also added to the existing body of knowledge available on Facility Management practices in the health sector.

The study recommends the following further research;

1. A study that will extensively compare the level of effectiveness of FM practice and state of facilities in health between the private and public healthcare centre.
2. A study that will develop a strategy for the adoption and incorporation of standard FM practices among healthcare facilities in Nigeria.
3. The effect of effective indicators on the adoption of FM practice amongst both private and public healthcare facilities in Niger State, Nigeria. In order to factor out main loo hole in the FM effective implementation so far.

REFERENCES

- Abel, M. H. (2014). Competencies management and learning organizational memory. *Journal of Facilities Management*, 25(2), 68-80.
- Achoru, A. M. (2015). Effective facilities management through management information system: a case study of Industrial Training Fund building Abuja. *Journal of Technology Management*. 2(1), 3 – 9.
- Adewunmi, Y., Ogunba, O. & Adeyeye R.. (2008). Shaping a Sustainable Role for Estate Surveyors and Valuers in the Evolution of Facilities Management in Nigeria. International Conference on the Built Environment, Innovation Policy and Sustainable Development Covenant University Ota, Nigeria. 322 – 327.
- Adeyeye, K., Pasquire, C., Bouchlaghem, D. & Chandler, J. (2010). Exploring the efficacy of digital tools for the design and construction of hybrid buildings. In: Boyd, D (Ed.) Proceedings 22nd Annual ARCOM Conference, 4-6 September 2006, Birmingham, UK. Association of Researchers in Construction Management, 2, 663–673
- Ahmed, A. & Gidado, K. (2010). Evaluating the potential of renewable energy technologies for buildings in Nigeria. In: Dainty, A (Ed.) Proceedings 24th Annual ARCOM Conference, 1-3 September 2008, Cardiff, UK. Association of Researchers in Construction Management, 2, 1175–1182.
- Alaofin, V. O. (2003). Overcoming the challenges facing FM operators in Nigeria to profit from hidden opportunities. *Facilities management world*, 2(3), 19-21 November.
- Aliyu, A. A., Ahmad, A. & Alhaji, M. U. (2015). Application of facilities management practice in high rise commercial properties: Jos in perspective. *Civil and Environmental Research*. 7(4), 10 -19.
- Atkin, B. & Brooks, A. (2000). Total Facilities Management. London: Blackwell Science Atkin.
- Bagshaw, K. B. & Peters, G. T. (2015). Facility management and organisational effectiveness of manufacturing firms in Rivers state Nigeria. *European Journal of Business and Management*, 7(26), 147 – 156.
- Barrett P. & Baldry D. (2013). Facilities Management: towards best Practices 2nd ed. Oxford.
- Becker, F. (1990). The Total Workplace: Facilities Management and the Elastic Organization, Van- Nostr and Reinhold, New York, NY.
- Bell, J. (1992) Facilities Management and Changing Professional Boundaries. *Facilities*. 10(10), 21-22.
- Bernard, W. A. (1994). Facilities Economics, Building Economics Bureau, Bromley.

- Brochener, J. (2003). Integrated Development of Facilities Design and Services. *Journal of Performance of Constructed Facilities*, 2(3), 19-23.
- Burt, N. (2012). Facilities management: good practice guide. *Journal of Facility Management Association of Australia*, 1(1), 2 – 7.
- CHFM (Certified Healthcare Facility Manager) (2016). Candidate Hand Book and Application. American Hospital Association Certification Center.
- Chitopanich, S. (2004). Positioning facility management. *Facilities*. 22 (13), 364- 372.
- Chukwu, E. D., Okolie, K. C. & Ezekoli, F. O. (2020). Facilities Management Practices in Nnamdi Azikiwe University Teaching Hospital (NAUTH), Nnewi, Anambra State, Nigeria. *PM World Journal*, 9(3), 34-78.
- Clark, V. L. P. & Cresswell, J. W. (2015). *Understanding research: A consumer's guide*. Pearson Higher Edition. Lincoln: Saddle River publisher.
- Cotts, G. D. (1999). *The Facility Management Handbook*. New York. American Management Association.
- De Silva, N. (2011). Promoting the facilities management profession in the project development phase of high rise buildings in Sri Lanka. *Built Environment, Sri Lanka*. 9-10(2),37-44.
- Enoma, A. (2005). The role of facilities management at the design stage,” in Khosrowshahi, F. (Ed.), *21st Annual ARCOM Conference*, 7-9 September 2005, SOAS University of London, Association of Researchers in Construction Management. 21-30.
- Fahnrich, A. & Meiren, D. (2007). Service Engineering. State of the art and future trends. *Advances in Service Innovation*, 2(5), 3 -16.
- Fink, A. (2016). *How to Conduct Surveys, A Step-by step Guide*. Fifth ed., Sage Publications, Thousand Oaks.
- Garg, A. & Deshmukh, S. G. (2006). Maintenance management: literature review and direction. *Journal of Quality in Maintenance Engineering*, 12(3), 205 - 238.
- Hamed, T. (2018). *Validity and Reliability of the Research Instrument. How to test validity of a Questionnaire/Survey in Research*. 4th Edition, Kaduna Publishers
- Hosking, J. E. & Jarvis, R. J. (2003). Developing a replacement facility strategy: Lessons from the healthcare sector. *Journal of Facilities Management*, 1(2), 214-228.
- Hui, E. C.-m., Zhang, P., & Zheng, X. (2013). Facilities Management Service and Customer Satisfaction in Shopping Mall Sector. *Facilities*, 31(5/6), 1-1.
- IFMA (2009). *A White Paper on Strategic Facility Planning*. Retrieved on May, 18.
- Ikediashi, D. I., Ogunlana, S. O., Oladokun, M. G. & Adewuyi, T. (2013). Assessing the level of commitment and barriers to sustainable facilities management practice:

- A case of Nigeria. *International Journal of Sustainable and Built Environment*, 1(2), 167-176.
- Ilozor, B. D. (2013) Open-planning concepts and effective facilities management of commercial buildings. *Journal of Engineering, Construction and Architectural Management*, 13(4), 396–412.
- Ismail, I. (1996). The operational Property Management Process in Large Non-Property Organisation in Malaysia, Unpublished PhD Thesis, University of Reading, Reading.
- Iwarere, H. T. & Lawal, K. O. (2011). Performance measures of maintenance of public facilities in Nigeria. *Research Journal of Business Management*. 5(1), 16 – 25, 1819 – 1932.
- Jawdeh, H. B. U. (2013). Improving the integration of building design and facilities management. Unpublished Doctoral Thesis, University of Salford: United Kingdom.
- Kaiser, H. H. (2004). Reviewing the State of Deferred Maintenance Facilities Manager. *Research Journal of Business Management* 1(1), 14-21.
- Kamarazaly, M. A., Mbachu, J., Phipps, R., Kamarazaly, M.A., Mbachu, J. & Phipps, R. (2013). Challenges faced by facilities managers in the Australasian universities. *Emerald Journal of Facilities Management*. 11(2), 136–151.
- Kirkham, R. J., Boussabaine, A. H. & Awwad, B. H. (2002). Probability distributions of facilities management costs for whole life cycle costing in acute care NHS hospital buildings. *Journal of Construction Management and Economics*, 20(3), 251–261.
- Kothari C. R. (2004). *Research Methodology: Method and Techniques*, New Delhi, New Age International (P) Ltd.
- Kumar, U., Galar, D., Parida, A., Stenström, C. & Berges, L. (2013). Maintenance performance metrics: a state-of-the-art review. *Journal of Quality in Maintenance Engineering*. 19(3), 233-277.
- Kurdi, M. K., Abdul-Tharim, A. H., Jaffar, N., Azli, M. S. & Shuib, M. N. (2011). Outsourcing in facilities management: A literature review. *Procedia Engineering*. 20(1), 445-457.
- Ladhari, R. (2008). Alternative measures of service quality: a review. *Managing Service Quality*, 18(1), 65-86.
- Lavy, S., & Fernández-Solis, J. (2010). Complex Healthcare Facility Management and Lean Construction. *Health Environments Research & Design Journal*, 3(2), 3-6.
- Lee-Ross, D. (2008). An exploratory study of the contextual stability of SERVQUAL amongst three retail clusters in far North Queensland. *Journal of Place Management and Development*. 1(1), 46-61.

- Leung, M., & Fung, I. (2005). Enhancement of classroom facilities of primary schools and its impact on learning behaviors of students. *Facilities*, 23(13/14), 585-594.
- Liyanage, C. & Egbu, C. (2008). A performance management framework for healthcare facilities management. *Journal of Facilities Management*, 6(1), 23-36.
- Moore, M. & Finch, E. (2004). Facilities Management in South East Asia, *Facilities*, 22(9), 259-270.
- Mudrak, T., Van-Wagenberg, A. & Wubben, E. (2004). Assessing the Innovative Ability of FM Teams: A Review. *Facilities*, 22(12), 290-295.
- Mustapha S. A. H., Adnan, H. & Jusoff, K. (2008). Facility management challenges and opportunities in the Malaysian property sector. *Journal of Sustainable Development*, 1(2), 79 - 85.
- Nazali, M. Noor, M. & Pitt, M. (2009). A Critical Review on Innovation in Facilities Management Service Delivery. *Facilities*, 27(6), 211-228.
- Nutt, B. (1999). Linking FM Practice and Research. *Facilities*, 17(1/2), 11-17.
- Nutt, P. C. (2004). Making strategic choices. *Journal of Management Studies*, 39(1), 67 – 96.
- Okoroh, M. I., Gombera, P. & Ilozor, B. D. (2002). Managing FM (support services) business risks in the healthcare sector. *Facilities*, 20(1) 41-51.
- Okpala, K. E. (2013). Budgetary control and service charge management performance in real estate sector: *An empirical study of the motivational aspect*. *Asian Economic and Financial Review*, 3(6), 749-761.
- Olapipo, A. R. & Amodu, M. O. (2012). Primary health care services in Niger State: critical issues and strategies for enhancing the use by the rural communities. *Journal of Public Health and Epidemiology*, 4(1), 5-13.
- Onifade, K. (2003). Informatics in Hospital management'.M.Sc. Research Report Department of Business Administration, University of Lagos.
- Opaluwah, S. A. (2005). Principles and Practice of Facilities Management in Nigeria. Abuja: Still Waters Publications.
- Orubuloye, O. (2008). Hospital Management in Nigeria. *Nigerian Institute of Social and Economic Research Journal, The 2008 National Conference*, Ibadan, Nigeria. 12-17.
- Pati, D, Park, C. & Augenbroe, G. (2010). Facility Maintenance Performance Perspective to Target Strategic Organizational Objectives. *Journal of Performance of Constructed Facilities*, 24(2), 180–187.
- Pitt, M and Goyal, S (2004) Business Continuity Planning as a Facilities Management Tool. *Facilities*, 22(4), 87-99.
- Pitt, M. & Hinks, J. (2011). Barriers to the Operations of the Facilities Management. *Research Journal of Management Sciences*, 19(7), 304-307.

- Pitt, M. & Tucker, S. (2008) Determining the Role of Innovation Management in Facilities Management. *Journal of Facilities Management*, 25 (1/2), 48-60.
- Price, I. & Akhlaghi, F., (1999) New Patterns in Facilities Management: Industry Best Practice and New Organisational Theory. *Facilities*, 1(7), 159-166.
- Ranjit K. (2005). *Research Methodology, A Step-By-Step Guide for Beginners*, Sage Publications, New Delhi.
- Saunders, M. N., Saunders, M., Lewis, P., & Thornhill, A. (2011). *Research methods for business students*, 5/e. Pearson Education India.
- Shohet, I. M. & Lavy, S. (2004). Healthcare facilities management: state of the art review. *Facilities*, 22(8), 210-220.
- Shohet, I. M., Lavy-Leibovich, S. & Bar-On, D. (2013). Integrated maintenance monitoring of hospital buildings. *Construction Management and Economics*, 1(2), 219-28.
- Srinivasan, A. V. (2008). *Managing a modern hospital: Response Books*. 3rd Edition. Wesley Publishers.
- Ventovuori, T. (2007). *Elements of sourcing strategy in FM services – Decision categories and choices*. Doctoral Dissertation. Helsinki University of Technology.
- Vetiva R. (2011). *Construction Industry Report: A Haven of Opportunities*, A Publication of the Vetiva Capital Management Ltd, Victoria Island, Lagos Nigeria.
- Ware, J., Harris, R., Bowen, M. & Carder, P. (2017). *Raising the Bar: From Operational Excellence to Strategic Impact in FM*. Report for royal institution of chartered surveyors and international facility management association.
- Wong, K. S. (1999). *Property management in private practice*. Unpublished lecture notes, Kurus Pengurusan Hartanahdan Facility, INSPEN.
- Zailan, M. I. (2001). *The management of public property in Malaysia*. International Conference FIG Working Week 2001, Seoul. 6-11.

APPENDIX I

Department of Building Technology,
Federal University of Technology,
Minna, Niger State.
25th May, 2020.

**QUESTIONNAIRE FOR AN ASSESSMENT OF FACILITY MANAGEMENT
PRACTICES IN SELECTED PUBLIC HEALTH CARE FACILITIES IN NIGER
STATE**

Dear respondent,

I am a student of the Building Technology Department, Federal University of Technology Minna undertaking a research on the topic ‘Assessment of Facility Management Practices in Selected Public Health Care Facilities in Niger State’. I will be grateful if you can respond to the questionnaire below to enable me generate data for my research analysis. Please be assured that all information provided by you will be used strictly for academic purpose and your submission treated with utmost confidentiality.

Please tick (√) as appropriate any option you consider to be correct to you and comment where necessary. Thank you Sir/Ma for your cooperation.

Yours faithfully,

YUSUF SADIQ MUSA
MTECH/SET/2017/7427

PART ONE: BACKGROUND INFORMATION

Please provide the information as required below by ticking (√) in the appropriate **box**

PERSONAL DATA

i. Sex:

Male ()

Female ()

ii. Age:

a. 25 – 35 ()

b. 31 - 36 ()

c. 37 – 42 ()

d. 43 – 48 ()

e. 49 – 59 ()

f. 55 and Above ()

iii. Length of Service

a. 1- 5 years ()

b. 6 – 10 years ()

c. 11 – 15 years ()

d. 16 – 20 years ()

e. 21 – 25 years ()

f. 26 - above

iv Name of Facility/Hospital_____

iv. Type of Facility

a. Dispensary ()

b. Clinic ()

c. General Hospital ()

d. Specialist Hospital ()

v. Category of respondent.

(a) Doctor/Nurse (). (b).Facility Manager/Technical officer (). (c) User/ Customer ()

PART ONE: BACKGROUND INFORMATION

Please provide the information as required below by ticking (√)in the appropriate **box**

PERSONAL DATA

vi. Sex:

Male ()

Female ()

vii. Age:

a. 25 – 35 ()

b. 31 - 36 ()

c. 37 – 42 ()

d. 43 – 48 ()

e. 49 – 59 ()

f. 55 and Above ()

viii. Length of Service

g. 1- 5 years ()

h. 6 – 10 years ()

i. 11 – 15 years ()

j. 16 – 20 years ()

k. 21 – 25 years ()

l. 26 - above

iv Name of Facility/Hospital_____

ix. Type of Facility

e. Dispensary ()

f. Clinic ()

g. General Hospital ()

h. Specialist Hospital ()

x. Category of respondent.

(a) Doctor/Nurse (). (b).Facility Manager/Technical officer (). (c)

User/Customer ()

SECTION A

TYPES OF FACILITY MANAGEMENT PRACTICE

INSTRUCTION: Please tick regarding the type of Facility Management Practice you observe in your facility.

(5) Highly adequate, (4) Adequate, (3) Unsure, (2) Inadequate, (1) Highly inadequate

S/N	FM practices	5	4	3	2	1
1	Outsourcing facility management					
2	In-house facility management					
3	Outsourced Managing Agent FM Contract					
4	Outsourced Managing Contractor FM Contract					
5	Total Facility Management (TFM) Contract					

What is the level of implementation of the identified facility management practice in question above? _____

SECTION B

THE FACILITIES MANAGEMENT PRACTICE INDICATORS

Please tick to indicate (✓) which of these indicators best describes the present state of your facility

(5) Excellent, (4) Very Good (3) Good (2) Bad (1) Very bad

S/N	FACILITY MANAGEMENT PRACTICE INDICATORS	5	4	3	2	1
1	Prompt response to patients					
2	Quality health service delivery					
3	24hours power supply and maintenance					
4	Immediate replacement or repair of damage facilities					
5	Full cooperation between staff in ensuring quality facilities management					
6	Proper waste and management to prevent outbreak					
7	Adequate crowd management (i.e. effective utilisation of large population)					
8	Reliable amenities for patients					

SECTION C

FACTORS AFFECTING FACILITY MANAGEMENT PRACTICE IN YOUR FACILITY

(5) Highly adequate, (4) Adequate, (3) Unsure, (2) Inadequate, (1) Highly inadequate

Please tick (√) to indicate

S/N	FACTORS AFFECTING FACILITY MANAGEMENT PRACTICE	5	4	3	2	1
1	Corruption					
2	Insufficient funding					
3	Poor maintenance culture					
4	Problem of policy implementation					
5	Inadequate FM personnel skill level					
6	Low technical knowhow					
7	Insufficient FM personnel					
8	Age of the building					
9	Inadequate facilities usage information					
10	Overcrowding in the building					

SECTION D

WAYS OF IMPROVING FACILITY MANAGEMENT PRACTICE

Please tick to indicate (✓) ways of improving facility management practice in your facility

S/N	STATE OF FACILITIES	5	4	3	2	1
1	Ensuring the facilities fit for purpose/ functionality					
2	Making sure all facilities meet up with aesthetics and psychological appeal					
3	The use of modern facilities					
4	Providing all require infrastructure to ensure ease of usage					
5	Making sure all the facilities are structurally stable					
6	There should accessibility/ access to the facility by staffs sand patients					
7	Ensure sufficient facilities to staffs and patient					

APPENDIX II

INTERVIEW QUESTIONS

Question 1: What are the Types of Facility Management Practices adopted in your healthcare facilities:

.....
.....
.....
.....
.....

Question 2: What are the present state of facilities management practice indicators?

.....
.....
.....
.....
.....

Question 3: What is the level of implementation of the identified facility management practice in question above?

.....
.....
.....
.....
.....

Question 4: What Factors Affecting Facility Management Practice In Your Facility

.....
.....
.....
.....
.....

Question 5: state ways of Improving Facility Management Practice

.....
.....
.....
.....
.....

APPENDIX III

CRONBACH'S ALPHA TEST FOR RELIABILITY

Reliability: OBJECTIVE 1 -IDENTIFY THE TYPES OF FACILITY MANAGEMENT PRACTICES IN THE SELECTED PUBLIC HEALTHCARE FACILITIES

Scale: TYPES OF FACILITY MANAGEMENT PRACTICES

Case Processing Summary

		N	%
Cases	Valid	352	100.0
	Excluded ^a	0	.0
	Total	352	100.0

^a. Listwise deletion based on all

Reliability Statistics

Cronbach's Alpha	N of Items
.835	10

Reliability: OBJECTIVE 2 -: IDENTIFY INDICATORS OF EFFECTIVE IMPLEMENTATION OF FACILITIES MANAGEMENT PRACTICE FOR THE HEALTH FACILITIES IN THE STUDY AREA.

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	352	100.0
	Excluded ^a	0	.0
	Total	156	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.805	10

Reliability: OBJECTIVE 3- DETERMINE THE LEVEL OF EFFECTIVENESS OF THE IDENTIFY PRACTICES IN THE SELECTED PUBLIC HEALTHCARE FACILITIES.

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	352	100.0
	Excluded ^a	0	.0
	Total	352	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.795	10

Reliability: OBJECTIVE 4 -: DETERMINE THE CHALLENGES OF FACILITIES MANAGEMENT PRACTICES IN PUBLIC HEALTH CARE FACILITIES IN THE STUDY AREA.

Case Processing Summary

		N	%
Cases	Valid	352	100.0
	Excluded ^a	0	.0
	Total	352	100.0

. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.881	10

Reliability: OBJECTIVE 5 -: MEASURES FOR IMPROVED FACILITIES MANAGEMENT PRACTICE IN THE STUDY AREA.

Case Processing Summary

		N	%
Cases	Valid	352	100.0
	Excluded ^a	0	.0
	Total	352	100.0

. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.845	10