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Assessment of facility management practices in public and private buildings in Akure and Ibadan cities, south-western Nigeria

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Abstract

Purpose – This paper aims to assess the facility management (FM) practices in public and private buildings, and compare the practices in both the buildings. This paper critically analysed the current FM practices and explored the range of contributions that the facility manager could offer in both public and private buildings.

Design/methodology/approach – A case study of 19 public and 20 private buildings in Ibadan and Akure cities was carried out in this paper.

Findings – The paper revealed that the state of FM awareness is higher in private buildings than in public buildings and that FM practices in the two types of buildings are significantly related, but the extent of usage of FM methods are significantly different in the buildings. It was also observed in the research that corrective and responsive FM practices are the order of the day in both public and private buildings.

Practical implications – The paper acknowledged that the involvement of the facility manager with the integrated design team if implemented efficiently will contribute in reducing the need for major repairs and alterations in the lifespan of the facility and that the practices of preventive, planned and immediate responsive approaches would better the life of buildings.

Social implications – The paper recommended that stricter action should be taken to mitigate against the poor handling and misuse of buildings by users, as it affects negatively the success story of FM in the country.

Originality/value – This paper reached out to address the lack of proper FM in the country.

Keywords Facility management practices, FM approaches, FM methods, FM services, Private buildings, Public buildings

Paper type Research paper

Introduction

The development of the construction industry from a traditional crafting industry to a service-based industry requires a more structured and effective process of developing and designing facility management (FM; Enoma, 2005). This trend, as opined by Fahnrich and Meiren (2007) coupled together with the growing number of competitors, increased market saturation, deregulation and multiplication of successful service concepts, making the service markets in the construction industry more dynamic and increasing the pressure on the participating FM providers.

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Bernard William Associate (1994) opined that FM is a management process, which includes analytical and systematic approaches used to determine and deliver the agreed levels of service activities that are required to manage, operate, maintain and support a facility in a quality environment at an appropriate cost to meet the business requirements. Hendrickson and Au (1988) opined FM as the discipline of planning, designing, constructing and managing space in every type of structure, from office building to process plant. Becker (1990) presented a picture of FM as a subset of general management. FM, therefore, involves guiding and managing the operations and maintenance of buildings, precincts and community infrastructure on behalf of property or facility owners to achieve a better output at a reduced cost with a higher level of professionalism. According to Enoma (2005), FM is an age-old practice that has existed out of necessity because buildings were first constructed to support human activities which is generally acknowledged as having stemmed from services provided by janitors and caretakers during the 1970s.

Bennett and Iossa (2006), however, observed that decisions as requisite to FM services are often made intuitively, without a thorough analysis of what is really needed and how it is needed, and most decisions are made very late, i.e. when the building's planning has already been finalised or the building has even been constructed. A fast and early decision-making process with regard to the service support required is, however, crucial to ensure that both the building and the services perfectly fit the life-cycle costs and the users' comfort. In addition, FM services need to consider an increasing variety of user groups. Bosch and Pearce (2003) concluded that, in the future, the structure of tenants' households, for example, will vary even more than today, resulting in more diverse service needs for residential buildings. The same is true, in the perspectives of Fahnrich and Meiren (2007), for office buildings, considering the increasing flexibility of people's work schedules and the blurring of the boundaries between work and private life. The provision of the right services to a customer is, therefore, a crucial, but yet challenging task which requires a structured FM practice which considers (and continuously adapts to) key user needs.

However, dwelling on a study made on the public and private properties in Malaysia by Wong (1999) and on the work of Bennett and Iossa (2006) with the conclusion that FM services tend to thrive more in the private sector than in the public sector, an opinion that can be said to be relevant in the Nigerian context based on the observed cases of public buildings' negligence and extent of public buildings' deterioration in the country as opined in a research by Akinsola *et al.* (2012). This research work is aimed at appraising the FM practices in both the public and private buildings in Nigeria with specific objectives of identifying the FM practices in the public and private buildings, comparing the practices in both and assessing the factors that affect FM in the buildings.

Previous studies

The British Institute of Facilities Management defined FM as the practice of coordinating the physical workplace with people and work of an organisation. Bernard William Associate (1994) looked at FM as a management process, which includes analytical and systematic approaches used to determine and deliver the agreed levels of service activities that are required to manage, operate, maintain and support a facility in a quality environment at appropriate cost to meet the business requirements. Hendrickson and Au (1988) saw it as the discipline of planning, designing, constructing and managing space, in every type of structure, from office building to process plant. Becker (1990) presented a picture of FM as a

subset of general management. All the above definitions have management, workplace, people and management process in common; it is clear that FM is an umbrella term which brings together a wide range of issues for the benefits of the organisation in achieving efficiency and effectiveness at an optimal combination of cost, quality and time. The hard issues are building, equipment and furniture, and the soft being people, process and safety environment; they are all the responsibilities of FM (Enoma, 2005).

FM services

Wong (1999) considered FM as the work carried out to manage and maintain the facility including its functional parts at the level that will retain or enhance the value of the facility; create a safe, functional and conducive living environment for occupants; keep or restore every part in efficient working order and in good state of repair; and project a good appearance or image for the facility. Furthermore, in a study on the operational property management process in large non-property organisation in Malaysia, Ismail (1996) regarded FM responsibility to include all the necessary reporting, accounting, maintenance and decision-making to ensure the economic and physical vitalities of property assets. In view of the above-mentioned, as opined by Ismail (1996) and Wong (1999), the core of FM may thus involve the management of the physical asset, which includes maintenance; organisational use management, which includes space management or user requirements; and financial management, which includes property valuation, acquisition and disposal, property investment management and tenancy management. FM services (conventional and non-conventional) are further broken down based on different views of past researchers into this field. Wong (1999) gave some of the below FM services:

- maintenance planning (equipment, etc.);
- projecting a building's identity and image;
- record keeping (legal requirements, monitoring, etc.);
- reducing operational impacts and life cycle costs; and
- responding to complaints and suggestions.

Kaplan and Norton (2000) listed more FM services in buildings to be:

- building management control systems;
- building code and regulatory compliance;
- building repairs and maintenance;
- cleaning and general maintenance;
- concierge (a resident caretaker), mail and other "soft" services; and
- conserving asset value.

Ismail (1996), in a study in Malaysia, gave more FM services to be:

- asset management (mechanical services, etc.);
- contract and contractor management;
- energy and water management (lighting use, etc.); and
- enhancing comfort and amenity for facility users.

Facility Management Association of Australia's (2012) FM guide for multi-unit residential buildings included:

- gardening and grounds maintenance;
- improving building performance;
- maintaining security for property occupants and assets;
- essential services provision (fire systems, etc.);
- risk management;
- space management (i.e. effective utilisation of space);
- sustainability projects and implementation;
- tracking and recording energy and water consumption;
- undertaking larger capital or maintenance projects;
- stakeholder engagement; and
- waste management.

Need for FM in public and private 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). Apart from that, 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 the 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.

Value addition of FM to organisations and the society

Quoting from the work of Jensen (2010):

> […]FM during the last few decades have seen a gradual shift from a focus on cost reduction (alone) towards managing of facilities as a strategic resource to add value to the organisation and its stakeholders and to contribute to its overall performance […] in the economy of any nation.

This makes it imperative to examine some of the value contribution of FM practices to the organisations and to the society in general. According to Kaplan and Norton (2000), a study by the Nordic FM Work Group (2006), came up with one of the general conclusions that there had been a change in FM from mainly focusing on cost reductions towards a higher degree of focus on adding value.

Taking a critical look at the strong demand for new generations of a limited number of highly skilled professionals from the creative class by most multi-nationals, it is for many companies more important to attract new and retain old employees. Jensen *et al.* (2013)

opined that the task of providing attractive workplaces with excellent services has become increasingly important as a primary requirement for FM. This forces FM to focus on how facilities can be managed to add value to the core business. The new focus on sustainability and corporate social responsibility are other trends that drive FM towards a focus on added value (Jensen, 2010). However, FM, to this extent, had been able to provide attractive facilities, better service delivery and more effective maintenance practices which has pushed the organisations (be it public or private) to achieve its goals.

A study by UNEP (2009) has it stated that it is already a widely known fact that, at present, in most parts of the world, buildings contribute as much as one-third of total global greenhouse gas emissions and that the building sector has the most potential for delivering significant and cost-effective greenhouse gas emission reductions. However, less recognized is that over 80 per cent of greenhouse gas emissions take place during the operational phase of buildings (Junnila *et al.*, 2006) and is (or should be) under the control of FM. FM, in recent years, has dealt extensively on this, as greenhouse gasses emitted from within the buildings (mostly commercial centres) have been well managed. However, a study of environmental sustainability from the occupier organisation perspective by Sarasoja and Aaltonen (2012) in Jensen *et al.* (2013) showed that improving the environmental performance of facilities and services not only decreases the energy consumption and greenhouse gas emissions but also contributes to the organisation in other ways. This is presented as a part of the value asset of FM to the society by helping to control environmental pollution.

Furthermore, as opined by De Vries (2007), Jensen (2009), Den Heijer (2011), Sarasoja and Aaltonen (2012) in Jensen *et al.* (2013), FM services have a potential to:

- increase employee satisfaction;
- increase user satisfaction;
- supporting image and culture of the occupier organisation;
- increase flexibility;
- support user activities;
- improve quality of place;
- stimulate employees' innovation;
- stimulate collaboration between employers and employees;
- increase value of the facility;
- promote marketing and sale values of the organisation (for corporate buildings);
- control risk;
- support environmental sustainability;
- affect employee wellbeing and productivity; and
- last but not the least, decrease costs at the same time.

Consequently, therefore, it is not overstating to say that FM has a potential to influence the world more than ever before (Jensen *et al.*, 2013).

FM practices in building contracts

In recent years, International Facility Management Association (IFMA) has come out to complain about the reasons why most structures failed with respect to FM. IFMA, in

2009, stated that not all structures' FM fails because of lack of proper FM handling, but most of them failed because of the type of FM arrangement that was adopted on the structure and also the time of introduction of FM in the structure. The following are some of the stages and arrangements of FM in any particular building.

FM at the design stage

The reason for the incorporation of facility managers into the design stage of any construction work or facility has been the focal discussion of some researches into FM practices and performances that have been done in the past. However, conclusively, it could be deduced from Enoma (2005) and Bosch and Pearce (2003) that the facilities manager's concern at the design stage will be the delivery of an efficient facility that is cost-effective and will respond to their subsequent roles in the facility on a day to day basis. Cost-effective design solutions are then generated to meet the needs of the building objectives (Enoma, 2005). Enoma (2005) also advised that the future of FM be built on a strong programme of education and research dedicated to understanding and developing the discipline, to a collective knowledge base and to identifying and codifying best practice. Jensen (2009) concluded that FM should be based on individual company's perspective, that it should be designed in such a way that it will conform to the program of works, activities and support the primary objectives of the occupier's organisation right from the design stage of the facility or structure. Furthermore, Bosch and Pearce (2003) capitalised on the evidence that sustainable design and construction contributes to the creation of facilities that are energy efficient, cost less over their life cycle and improves workers' productivity. Subsequently, in the review of nine guidance documents (Bosch and Pearce, 2003), deemed to educate facilities decision-makers, while offering a framework for a sustainable design process, it was reported that the active participation of facilities managers during the planning, design and construction phases ensures that sustainable strategies are not undermined after the facilities are delivered, and that future plans and policies for the facility are kept.

Summarizing the above paragraphs, Figure 1 shows an illustration on the technical roles and functions of the FM team at the design stage of any building. It can be concluded that the involvement of FM at the design stage brings about lower cost of procurement due to reduction in design alteration and rework and provision of a facility that is better suited to the needs of the end user, a facility that is attractive to potential users and clients, the one that can respond to their needs and a facility that is easy to run and maintain, control and manage. Also, FM at the design stage adds value to the facility by ensuring less "rework", emphasising value for money, efficient control of the supply chain and team work.

FM at the completion stage

Although most researchers into the field of FM argued that FM services have to be introduced right from the inception of the construction of the building, they also agree that introduction at the finish stage is important if the building has no FM in place during the stage of design, especially in most public buildings, as the contracts mostly do not give chance or consideration for FM at the early life of the building. This arrangement can be of two types – Private Finance Initiative (PFI) or Outsourcing of FM and In-House FM Administration.

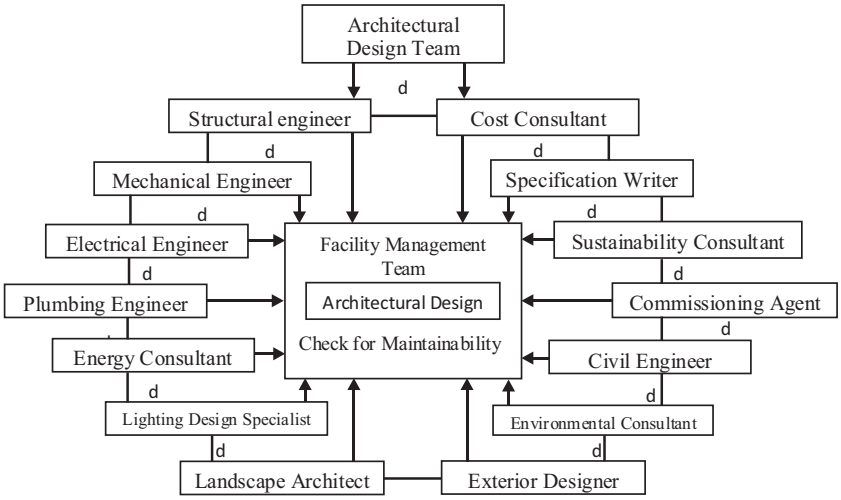

Figure 1.
The role of the facility management team within the integrated design team

Source: Mohammad and Hassanain (2010)

PFI/Outsourcing of FM

Since the 1980s, according to IFMA, the trend has been for organisations to concentrate on their core business and hence consider outsourcing support services which of course includes all FM services. This outsourcing trend was led by the USA, with Europe lagging approximately 5-10 years. In the past five years, outsourcing of FM has become more common in Southeast Asia, with Hong Kong being an early innovator particularly in the financial services sector.

According to Bennett and Iossa (2006), PFI is a new invention which is a variant of public–private partnership developed in the UK, which has been widely accepted in the construction industry all over the world. HM Treasury (2004) has it that PFI contracts cover most forms of public service provision, including health, education, defence, prisons and roads. HM Treasury (2003) estimates that, over the period from 1998-1999 to 2003-2004, private sector investment in public services through PFI was between 10 and 13.5 per cent of total investment in public infrastructure, with 451 PFI projects completing construction, including 34 hospitals and 119 other health schemes, and 239 new and refurbished schools. Bennett and Iossa (2006) has it that there are two major differences between PFI and previously known arrangements (the traditional procurement). First, PFI typically involves the bundling of the design, building, finance and operation of the project, which are contracted out to a consortium of private firms for a long period of time, usually 25-30 years. The consortium includes a construction company and an FM company, and it is responsible for all aspects of services. Second, a system of output specifications is used: the government specifies the service it wants and some basic standards, but it leaves the consortium with control rights over how to deliver the service. HM Treasury (1998) in Bennett and Iossa (2006) highlighted that the consortium has responsibility for the infrastructure facility during the contract period, during which it may implement innovative approaches to service delivery, and it may use the facility for additional income-generating activities – provided the basic

standards of service provision are not violated. Bennett and Iossa (2006) also observed that, under traditional procurement (TP), the different stages of an infrastructure project are contracted out separately to different private firms and an input specification approach is followed, with the government keeping ownership of the facility both throughout the contract period and after the contract ends (HM Treasury, 1998). But it has been argued by many researchers into PFI and TP contracts that PFI approach provides a better FM practice after the completion of the construction process, as the short-time owner (the consortium) tends to manage the facility better than it would have been handled by a government parastatal because the consortium is profit oriented and the only way they can achieve their profit is by ensuring the proper maintenance of these facilities so as to bring in the required income unlike the government settings which is not (in most cases) profit oriented.

In-house FM administration

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.

Performance-based FM approach

Increased competitiveness in the business sector as elucidated by Lavy (2010), puts considerable pressure on companies to reduce expenditure on "non-core" activities, such as maintenance. This encourages buildings' owners and users to increase their expectations and requirements of facilities. Facility managers are, thus, expected to attain lower operational costs and risks through effective and efficient management of facilities, without compromising their performance (Lavy, 2010). Shohet (2006) elucidated that over the past three decades, the field of FM has witnessed significant development, mainly due to:

- increased construction costs (particularly in the public sector);
- greater recognition of the effect of space on productivity;
- increased performance requirements by users and owners;
- contemporary bureaucratic and statutory restrictions that decelerate the procurement of new construction projects (mainly in the public setting); and
- recognition that the performance of high-rise and complex buildings is highly dependent on their maintenance.

As a result, as opined by Atkin and Brooks (2000), the traditional "maintenance manager" has become a "facility manager,", and is one of the key individuals in an organisation's continuity and success. The facility manager is responsible for making strategic and operational facilities-planning decisions that affect the organisation's business performance (Cotts *et al.*, 2009). As a result of this, the assessment of the FM

practices, in some cases, in buildings has been based on the visible performance of the buildings. Therefore, facility managers are now making use of the performance-based FM approach in carrying out FM practices in buildings, especially commercial buildings. The performance-based FM approach has mainly been focused on the:

- strategic facility planning (benchmarking, building simulation and critical analysis);
- customer care;
- during the last few decades risk management;
- during the last few decades environmental management; and
- during the last few decades building simulation (Lavy, 2010).

Strategic facility planning

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 (2006), 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 (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 fulfil 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.

Benchmarking

Benchmarking is a very useful SFP 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. IFMA (2009) has it that:

> […] benchmarking is the practice of being humble enough to admit that others are better at something and being wise enough to learn how to match, and even surpass, them at it.

According to Anand and Kodali (2008), benchmarking is a continuous analysis of strategies, functions, processes, products or services, performances, etc. compared 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 organisations 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 (Ho *et al.*, 2000). 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 (Adewunmi *et al.* 2013). Adewunmi *et al.* (2013) 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 Adebanjo *et al.* (2010), benchmarking itself is a formal process that uses comparison approaches, models and informal approaches to benchmarking from experiences of organisations. Benchmarking could be formal and informal.

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.

Risk management in building facilities

O'Donovan (1997) 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 Lavy (2010), 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.* (2001), 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.* (2001) 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; and
(7) financial and economic risks.

While it presents a very thorough and comprehensive study, most risks identified by Okoroh *et al.* (2001) 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 organisations into two categories:

(1) pure risks, in which business survival is threatened, or its objectives have failed to be achieved; and

(2) speculative risks, which may result in negative effects.

Okoroh *et al.* (2001) and Holt *et al.* (2000) emphasized the need to develop generic risk databases appropriate to FM. Williams (2000) introduced 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; Holt *et al.*, 2000). 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 (Nelson, 2004; Cotts *et al.*, 2009).

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. Al-Hammad *et al.* (1997) 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. But Chew *et al.* (2004) reiterated the fact that preventive maintenance is always the best approach to proper maintaining of buildings. Chew *et al.* (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. Chew *et al.* (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.

Factors affecting FM administration in buildings

FM practices, as opined by Akinsola *et al.* (2012), is generally affected by the lack or insufficient allocation allowed for maintenance and FM. Akinsola *et al.* (2012), on a study on the critical factors affecting FM in Nigerian tertiary institution, observed that one of the many challenges in public buildings is that fund for maintenance and other related works is mostly from the government which would have been reduced to the minimum or may not be approved at all due to the strict processes involved in the process of releasing fund in the government settings. Obviously, as opined by Mohammed and Hassanain (2010), the most paramount problem with buildings lies in the way and manner in which occupiers, facility or maintenance manager of a particular building maintains the building after construction. Akinsola *et al.* (2012) opined that most buildings lack proper maintenance culture, as most do not have a maintenance manual, practice of corrective maintenance, etc. Preventive maintenance is critical because as the building or facility ages, it is inevitable that costly replacement or emergency repair needs will arise. Failure to pay sufficient attention to preventive maintenance will do nothing to slow the deterioration of facilities and will surely have a negative impact on the bottom line for the facility/building, the users and the owner. Another important and determining factor that affects the success of FM in any particular building is the issue

of usage, population and handling of the building on the part of the end-users of the facilities. As observed by Mohammed and Hassanain (2010), most buildings, especially the residential buildings, house more than the specified number of users that the building had been designed for during the design stage. This has a long way to affecting the structural and appearance stability of the building over time and has a direct effect on the later cost of administrating FM on that particular building.

According to Hightower and Highsmith (2013), some individuals may think that the FM profession is taking a major hit not because the need for facilities managers is declining but in the fact that the need for proficient facilities managers is growing rapidly each year. Each year, more and more positions are opening up for this profession, but there is a worldwide shortage of young qualified entry-level professionals to place in these jobs. Many MNCs' executives suggest that something must be done soon to increase the number of qualified professionals to enter the industry. One of the potential hits in the industry apparently stems from the declining number of students graduating with a FM-accredited degree. As opined by Hightower and Highsmith (2013), different reasons exist for this shortage of qualified job candidates. First, one can take into consideration the lack of public exposure to the FM profession. Many students and even graduates are not exposed to the FM career path, if ever, until they are already years into their respective careers as schools tend to only focus on certain academic paths that have been around for years, an example of this would be Business, Social Sciences, Medicine and Pharmacy. Second, schools virtually never mention a facility manager on "career day" because the average person may not know what FM means. If that is true, how can young people have their passion in studying FM? This development has to be taken with urgent attention and more input needs to be put into the FM world to make its existence better known.

Asiabaka (2008) opined that another fundamental problem in FM is lack of policy guidelines for infrastructural development and maintenance in buildings in Nigeria. The lack of building regulation code in the country has contributed a lot in a negative way to building maintenance and performance in the country and various designs are just being made with no check on the plan of FM that will be used in the building throughout its lifespan.

Research methodology

The study was targeted towards two major population: public buildings and private buildings in Akure and Ibadan cities, south-western part of Nigeria. The public buildings selected were ministry buildings, government- or government parastatal-owned office complexes, corporate public buildings and public commercial centres, while the private buildings in the population were also corporate private buildings, residential buildings, warehouses and commercial buildings (hotels and office and shopping complexes). The methodology for the study included using questionnaires to seek views of some professional facility managers in the public and private buildings and service providers as well as end-users (workers, owners, tenants, etc.) of the buildings which were self-administered to the residents or a company's facility manager or the appropriate quarters in the buildings and the users of the buildings selected for study and formed the primary source of data so as to conduct an intensive

investigation on the study with a case study approach used for the study using a purposive and convenient sampling technique. The questionnaires were well structured to address information about the individual respondent, background information about the particular building under-studied, the state of awareness of FM, level of availability of FM in the building and extent of usage of FM in the particular building and were sought to address the facility practices in the particular building.

The methods of analysis used for the study included frequency distribution analysis and mean and rank analysis; mean gap analysis was used to show the difference, and Max Wilcoxon signed-ranks test was used to test the difference in FM practices in both the building types.

Discussion of findings

The categories of respondent surveyed were mostly facility managers, users/tenants of the buildings and resident technicians in the buildings. Majority of the respondent were professionals in the construction industry like Estate Surveyors (31 per cent), Quantity Surveyors (23 per cent), Architects (18 per cent), Engineers (15 per cent) and Builders (3 per cent), as they were in good position to give more reliable information about the FM practices in any building they work in. Some other respondents (10 per cent) include Medical doctors, Nurses and Occupants of the buildings. Table I shows the collection and analysis of the years of involvement in FM and living in the building, academic and the professional qualifications and numbers of FM projects handled by the respondents. In total, 28 consulting firms and contracting firms were the sources of building information, while the rest were from the users of the buildings. Sixty-three per cent of the respondents were registered member of their professional bodies which included NIQS, NIESV, NIA, NIOB and NSE. Also, 95 per cent of the respondents were at least BSc or BTech holders with one PhD holder. Table II shows that private or corporate buildings had 51 per cent of the buildings surveyed, while 49 per cent were public or government buildings. Over three-fourth of the forms of building used for the research were residential, office complexes and shopping complexes, while the rest were hospitals, hotels and warehouses. Also, 87 per cent of the buildings were built not more than 15 years from the year of the research.

Table III shows that the maintenance department is the most available department; users are very aware of the purpose of its availability and it is the most used by the users of public buildings. Fire extinguishers and users' building evaluation forms are also available, the purpose of availability is known and used. Although water sprinklers may be available, the purpose of their availability may not be well known as seen in the case of fire extinguishers and are rarely used. However, fire alarms may not be that available for use, the purpose of having them is known by the users. FM department and maintenance manuals are generally not really available in public buildings. Table IV maintains that maintenance departments are mostly available to the users, users are also very aware of the reason for their existence and are used extensively by the users of private buildings. Fire extinguishers are also available, and the purpose of availability is well known and they are used when necessary, while FM departments are also available in private buildings, and the purpose is known and are used as appropriate by

Factors	Variables	Frequency	(%)
Category of respondent	Facility manager	23	59
	Technical officer	5	13
	User/tenant/customer	11	28
	Total	39	100
Type of firm of respondent	Contracting firm	7	18
	Consulting firm	21	54
	User/tenant/customer	11	28
	Total	39	100
Years of involvement of respondent in FM/living in the building	0-5	8	21
	6-10	11	29
	11-15	9	24
	16-20	4	10
	26-30	1	3
	31 years and above	5	13
	Total	38	100
Numbers of projects involved in over the years	1-10	8	27
	11-20	12	40
	21-30	9	30
	31-40	1	3
	Total	30	100
Profession of respondent	Quantity surveyor	9	23
	Estate surveyor	12	31
	Architect	7	18
	Builder	1	3
	Engineer	6	15
	Others	4	10
	Total	39	100
Professional membership	NIQS	9	23
	NIESV	12	31
	NIA	7	18
	NIOB	1	3
	NSE	6	15
	Others	4	10
	Total	39	100
Professional qualification	Graduate	6	16
	Probationer	7	18
	Corporate/associate	23	60
	Fellow	1	3
	Others	1	3
	Total	38	100
Highest academic qualification	PhD	1	3
	MSc/MTech	23	59
	B.Sc./B.Tech.	13	33
	HND/PDG	2	5
	Total	39	100

Table I. Respondents' information

Factors	Variables	Frequency	(%)
Type of building	Public/government building	19	49
	Private/corporate building	20	51
	Total	39	100
Form of building	Residential	9	24
	Office complex	10	26
	Shopping complex	11	29
	Hospital	3	8
	Hotel	4	11
	Warehouse	1	3
	Total	38	100
Years of existence of the building	0–5	8	21
	6-10	15	39
	11-15	10	26
	16-20	2	5
	21-25	2	5
	26-30	1	3
	Total	38	100

Table II.
Building information

Equipment/tools/department	Level of availability Mean	Rank	Level of awareness Mean	Rank	Extent of usage Mean	Rank
Fire alarms	3.06	5	3.33	3	2.56	5
Fire extinguishers	4.00	2	3.72	2	3.00	2
Water sprinklers	3.11	4	3.17	5	2.50	6
Maintenance manual	2.89	7	2.39	7	2.61	4
Users' building evaluation forms	3.12	3	3.18	4	2.71	3
Maintenance department	4.33	1	4.11	1	3.83	1
Facility management department	2.94	6	2.72	6	2.44	7

Table III.
FM equipment, tools and departments in public buildings

Equipment/tools/department	Level of availability Mean	Rank	Level of awareness Mean	Rank	Extent of usage Mean	Rank
Fire alarms	3.45	4	3.55	4	3.15	4
Fire extinguishers	3.95	2	3.90	2	3.55	2
Water sprinklers	3.15	7	3.10	7	2.80	6
Maintenance manual	3.20	6	3.15	6	2.80	6
Users' building evaluation forms	3.30	5	3.35	5	2.95	5
Maintenance department	4.55	1	4.63	1	4.63	1
Facility management department	3.74	3	3.58	3	3.32	3

Table IV.
FM equipment, tools and departments in private buildings

the users of the buildings. Fire alarms and users' building evaluation forms are also available and well aware of with a good level of usage by the users of the building. Maintenance manual and water sprinklers are on the low side, as they are not abundantly available for use by the users most times in private buildings.

It was observed that, in public buildings, the awareness level of corrective maintenance is very high, as it is mostly used, and it has a very high rate of effectiveness. Users' or customers' evaluation/feedback is also on the high in terms of awareness and level of its effectiveness, but it is not commonly used. Planned maintenance is recognized, effective and used. Although the awareness and effective level of predictive maintenance is a bit low, it is used sometimes. Preventive maintenance is rarely used, is low in awareness and level of effectiveness. Also, benchmarking and building simulation are hardly ever used with very low level of recognition and effectiveness. However, in the private buildings, the awareness level of corrective maintenance is very high, as it is mostly used and has a very high rate of effectiveness. Planned maintenance is very well recognized with a high rate of awareness, very effective when used and is often used. Users' or Customers' Evaluation/Feedback is also on the high in terms of awareness, its extent of usage and is also, to an extent, very effective when used. Although the awareness and effectiveness rates of predictive maintenance are very high in private buildings, the usage extent is on the low side. Benchmarking is used and has a reasonable rate of effectiveness and awareness in private buildings, while preventive maintenance and building simulation are hardly ever used but with a tangible level of recognition or awareness and effectiveness.

Table VI shows that, generally, all the methods to FM administration are well recognised and aware of in public and private buildings. In the public building, building performance being the most aware of closely followed by responsive inspection and outsourcing of FM, planned/regular inspection, preventive maintenance, feedback mechanism, strategic planning and benchmarking on the low. Responsive inspection, in-house FM administration and planned or regular inspection are mostly used and very effective, while outsourcing of FM, benchmarking, preventive maintenance and feedback mechanism are rarely used because of their low level of effectiveness in public buildings. However, in private buildings, planned/regular inspection being the most aware of closely followed by responsive inspection and building performance evaluation. Planned/regular inspection, outsourcing of FM, benchmarking and strategic planning are less recognised in private buildings. In terms of the extent of usage, responsive, regular inspection and outsourcing of FM of the buildings are extensively used. Building performance evaluation, feedback mechanism and in-house FM administration are also put into use, while benchmarking, strategic planning and preventive maintenance are not mostly used. The level of effectiveness of the responsive, planned inspections, feedback mechanism, building performance and outsourcing of FM are very high, while benchmarking and strategic planning are low. Table V shows that there is no much difference in the approaches to FM in both types of buildings, as the difference is much in the planned, corrective and predictive maintenance with an average difference of 0.51, 0.50 and 0.48, respectively. This indicates that the use of the three approaches is much higher in private buildings than in public buildings. It is further shown that all other approaches are related in public and private buildings except that the usage level is higher in private buildings than in public buildings. From Tables IV and VI, it was shown that planned or regular inspection and feedback mechanism is more used and with higher effectiveness in the private buildings than in the public buildings with 0.77 and 0.59 values, respectively. Also, the practice of outsourcing of FM and in-house FM administration awareness levels are higher in public buildings than in private buildings, but the reverse is the case in the extent of

Approaches to FM in public and private buildings	Level of awareness		Mean gap Level of awareness	Extent of usage		Mean gap Extent of usage	Level of effectiveness		Mean gap Level of effectiveness	Average of mean gap (Positive)
	Public	Private		Public	Private		Public	Private		
Preventive maintenance	3.78	3.75	0.03	3.12	2.95	0.17	3.24	3.05	0.19	0.13
Corrective maintenance	4.33	4.60	−0.27	4.18	4.65	−0.47	3.94	4.70	−0.76	0.50
Predictive maintenance	3.89	3.90	−0.01	3.47	2.60	0.87	3.35	3.90	−0.55	0.48
Planned maintenance	4.11	4.40	−0.29	3.35	4.10	−0.75	3.65	4.15	−0.50	0.51
Benchmarking/building comparison	3.78	3.60	0.18	2.47	3.05	−0.58	3.00	3.21	−0.21	0.32
Building simulation/forecasting	3.39	3.45	−0.06	2.82	2.95	−0.13	2.88	3.05	−0.17	0.12
Users' or customers' evaluation/feedback	4.17	4.15	0.02	3.24	3.75	−0.51	3.88	3.75	0.13	0.22

Table V.
Compares of approaches to FM in public and private buildings

Methods to FM in public buildings and private buildings	Level of awareness		Mean gap Level of awareness	Extent of usage		Mean gap Extent of usage	Level of effectiveness		Mean gap Level of effectiveness	Average of mean gap (Positive)
	Public	Private		Public	Private		Public	Private		
Outsourcing of FM	4.22	3.95	0.27	3.06	3.74	−0.68	3.47	3.74	−0.27	0.46
In-house FM administration	4.11	3.55	0.56	3.59	3.32	0.27	3.29	3.42	−0.13	0.29
Strategic planning	3.22	3.45	−0.23	3.18	3.11	0.07	3.00	3.05	−0.05	0.12
Building performance evaluation	4.28	4.40	−0.12	3.18	3.63	−0.46	3.47	3.79	−0.32	0.30
Benchmarking/building comparison	3.44	3.55	−0.11	3.00	3.21	−0.21	2.88	3.21	−0.33	0.22
Feedback mechanism	3.72	4.25	−0.53	2.82	3.58	−0.76	3.41	3.89	−0.48	0.59
Preventive maintenance	3.72	4.25	−0.53	2.94	3.11	−0.17	3.00	3.68	−0.68	0.46
Responsive inspection	4.22	4.75	−0.53	4.24	4.74	−0.50	4.47	4.84	−0.37	0.47
Planned/regular inspection	4.06	4.60	−0.54	3.29	4.21	−0.92	3.53	4.37	−0.84	0.77

Table VI.
Compares of methods to FM in public and private buildings

usage and level of effectiveness which are higher in private buildings than public buildings.

Using the mean gap value in Table VII, the analysis revealed that the services are higher in private buildings compared with public buildings except for risk management, cleaning and general maintenance, building repairs and maintenance, responding to customers' complaints and reducing operational impact or life-cycle cost with negative mean gap values. The services with the highest difference are contract and contractor management followed by tracking and recovering energy and water consumption. This connotes that contract and contractor management, tracking and recording energy and water consumption, assets management and waste management are more inherent in private buildings, while the rest to an extent looking at the mean gap values both negative and positive are general to both public and private buildings. A Wilcoxon signed-ranks test showed that there is a significant difference between the services rendered by a facility manager in public buildings and in private buildings with Z value of – 2.153 and an asymptotic significance (two-tailed) value of 0.031. This indicates that the types of FM services rendered in public buildings are not the same with the FM services rendered in private buildings. A Wilcoxon signed-ranks Test with Z Value of −0.676 and an asymptotic significance (two-tailed) value of 0.499 indicate that the awareness level of the approaches is not significantly different. It also reveals that, at Z value of −0.845 and an Asymptotic Significance (two-tailed) value of 0.398, the usage level is not significantly different. It further gave a test result of Z value of −1.690 and an Asymptotic Significance (two-tailed) value of 0.091 of the level of effectiveness of the approaches to FM in buildings, and the result indicates that there is no significant difference in the effectiveness of the approaches in both public and private buildings. These test results conclusively mean that there is no significant difference in the awareness level, effectiveness level and the extent of usage of the approaches to FM in private and public buildings. However, the level of awareness of the methods to FM in buildings in public and private buildings according to Wilcoxon signed-ranks Test with Z value of –1.482 and an Asymptotic Significance (two-tailed) value of 0.138 indicates that the awareness level of the methods are not significantly different. Also, the indication of the test statistics of the extent of usage of the methods using Wilcoxon Signed-Ranks test reveals that, at Z value of -2.073 and an Asymptotic Significance (two-tailed) value of 0.038, the usage level is significantly different; a Z value of −2.490 and an asymptotic significance (two-tailed) value of 0.013 of the level of effectiveness of the methods to FM in buildings indicate that there is a significant difference in the effectiveness of the methods in both public and private buildings. These test results conclusively mean that there is no significant difference in the awareness level, but a significant difference is observed in the effectiveness level and the extent of usage of the methods to FM in private and public buildings.

It was observed in Table VIII that corruption in the country affects FM administration most, followed by insufficient fund allocation to FM, poor maintenance culture on the part of the end users of the buildings and poor handling and misuse of the building facilities Table VIII further shows that, in most of the buildings, age of the building, overcrowding, insufficient personnel and skill level have lesser effects on FM in both public and private buildings.

From the research, it was discovered that the state of FM awareness is generally on the high both in the public and private buildings, as most of the tools and equipment that

Facility management services in buildings	Public building Mean	Rank	Private building Mean	Rank	Mean Gap
Maintenance planning (equipment, etc.)	3.67	5	4.00	6	0.33
Record keeping (legal requirements, monitoring, etc.)	3.50	9	4.05	4	0.55
Reducing operational impacts and life cycle costs	3.65	7	3.55	13	−0.10
Responding to complaints and suggestions about the building	4.47	1	4.10	3	−0.37
Building code and regulatory compliance management	3.29	13	3.45	15	0.16
Building repairs and maintenance	4.33	2	4.05	4	−0.28
Cleaning and general maintenance	4.06	3	3.35	16	−0.71
Resident caretaker	3.78	4	4.45	1	0.67
Conserving asset value	3.06	16	3.75	11	0.69
Asset management (mechanical services, etc.)	2.89	17	3.80	8	0.91
Contract and contractor management	1.72	20	2.80	20	1.08
Gardening and grounds maintenance	2.28	19	2.95	19	0.67
Enhancing comfort and amenity for facility users	3.50	9	3.50	14	0.00
Improving building performance	3.61	8	3.80	8	0.19
Maintaining security for property occupants and assets	3.44	12	3.25	17	−0.19
Essential services provision (fire systems, etc.)	3.50	9	3.65	12	0.15
Risk management	3.17	15	3.00	18	−0.17
Space management (i.e. effective utilisation of space)	3.28	14	3.80	8	0.52
Tracking and recording energy and water consumption	2.78	18	3.85	7	1.07
Waste management	3.67	5	4.45	1	0.78

Table VII. Nature of FM services in public and private buildings

Factors affecting FM in buildings	Mean	Rank
Corruption	4.68	1
Insufficient funding	4.58	2
Poor maintenance culture	4.50	3
Poor handling and misuse	4.24	4
Lack of maintenance information manual to users	3.97	5
Problem of policy implementation	3.84	6
Inadequate facilities usage information	3.76	7
Lack of legislative rule on FM	3.74	8
Inadequate FM personnel skill level	3.71	9
Low technical knowhow	3.71	9
Insufficient FM personnel	3.58	11
Overcrowding in the building	3.53	12
Age of the building	2.79	13

Table VIII. Factors affecting FM in buildings

easily signify the presence of FM in any particular building are shown to be available and the purpose of their availability is known by the users and residents of the buildings, only that it was also observed as opined by Akinsola *et al.* (2012) that the extent of the usage of these tools, equipment and departments are relatively low apart

from the maintenance department that stood out alone. It was observed in the research that the awareness level of FM is relatively higher in private buildings than in public buildings. It was discovered during this research work that the FM services common to public buildings are responding to complaints from the users of the building:

- building repairs and maintenance;
- cleaning and general maintenance;
- resident caretaker;
- maintenance planning;
- waste management;
- reducing operational impacts; and
- life cycle costs.

Also from the data collected, it was observed that in-house FM administration and responsive inspection of the building are the commonly used methods to FM while outsourcing of FM is rarely used. However, it was observed that the FM approaches mostly used in public buildings are:

- corrective maintenance;
- planned maintenance; and
- the Users' feedback.

In private buildings, it was observed from the research that the common FM services are:

- waste management;
- resident caretaker;
- responding to complaints and suggestions about the building;
- record keeping;
- building repairs and maintenance;
- maintenance planning;
- tracking and recording energy and water consumption;
- asset management; and
- improving building performance.

Also observed is that the methods majorly used in private buildings are FM outsourcing, responsive, planned and regular inspection. The research work further indicates that the approaches to FM mostly common and used include corrective maintenance, planned maintenance and the users' feedback.

It was revealed in this study as a first-hand investigation was conducted to establish the relationship and differences between the nature of FM practices in both public and private buildings in consideration of the methods, approaches and services of FM, that there is a great relationship in the nature of FM practices in both types of building. The differences observed from this research study were in the extent of usage of the methods of FM which were more dominant in the private buildings, thereby causing the

effectiveness of the methods of FM to thrive more in the private buildings than in the public building. Also, in agreement with Akinsola *et al.* (2012), the study reveals that the state of FM awareness is more in private buildings than in public buildings.

From the research, it could be observed that corruption in the country is a major factor that affects FM administration. Insufficient fund allocation to FM, poor maintenance culture on the part of the end users of the buildings and poor handling and misuse of the building facilities are also contributing factors that affect FM in buildings in confirmation of the opinion of Mohammed and Hassanain (2010) and Akinsola *et al.* (2012). The research shows that in contrary to Hightower and Highsmith (2013), in most of the buildings age of the building, overcrowding, insufficient personnel and skill level have lesser effects on FM in both public and private buildings.

Conclusion and recommendation

Based on the discussions of the result of this research work, it was found that the state of FM awareness in public and private buildings is high with high level of availability of FM facilities and departments but low response to usage on the part of the facilities users in the buildings. Corrective approach to FM is widely used in both the public and private buildings; building simulation and preventive maintenance approaches are least used in the two types of buildings. Responsive and planned maintenance methods are common to both public and private buildings while benchmarking and strategic planning are both hardly ever used in the two types of buildings. However, in public buildings, in-house FM administration is mostly used while outsourcing of FM is common to private buildings. Also, the nature of FM services in public and private buildings are relatively the same. Generally, the practices of FM in the public and the private buildings are significantly relative but only the extent of FM usage is higher in private buildings than in public buildings. The major factors that affect FM in both public and private buildings are corruption, insufficient funding, poor or lack of maintenance culture, poor handling and misuse of the facilities and lack of maintenance information through maintenance manual.

It is therefore paramount that more effort should be made by facility managers to sensitize the public (especially building owners) more on the need and importance of FM in buildings as the research shows that although the awareness level of FM generally are on the high note, there are still some owners of the buildings that are yet to come to the realisation of the benefits they stand to gain from FM services in buildings. Also, the study indicates that the extent of usage of FM, tools, equipment and departments are relatively low; therefore, the users of the buildings should be encouraged to use FM tools and departments more habitually. Moreover, judging from past and the generally accepted notion on discussions of the proper maintenance program choice and the indications from the research, preventive maintenance has always been adjudge the best of all. Therefore, it is paramount that preventive maintenance should be used more often than corrective maintenance as an approach to FM as it is more effective and prevent unnecessary cost of repairing. From the research, better effectiveness is obtained with the use of FM outsourcing than in-house FM administration. This invariably suggests that outsourcing of FM is a better FM method and should therefore be used more than in-house administration of FM as more professionalism is ensured. Benchmarking, strategic planning and customers' evaluation are evidently (even from conclusions of past researches into the field of FM) better methods to FM as it allows for planning for

the future of the building, realizing the future threat(s) to the building and enabling facility managers to have a first-hand information about the building from the users of the building who are directly affected by any practice on the building's FM. They should therefore be frequently used as it encourages proper FM administration in buildings and helps in keeping tabs on the needs and expectations of the building from the users' perspectives. The study therefore recommends that owners of buildings should endeavour to plan and make more funds available to facility managers because of the generally accepted fact that "money" contributes a lot to the success story of any task or procedure. Government of Nigeria should give more attention to FM by ensuring that legislation be passed to make FM mandatory in buildings (especially public buildings) and stricter measures should be made available to correct the poor handling and misuse by building users.

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