

HEALTHCARE FACILITIES IN NIGERIA: REDEFINING STANDARDS AND DEVELOPING PERFORMANCE BENCHMARKS FOR THE PROFESSIONALISATION OF FM PRACTICES

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Healthcare in Nigeria is delivered by three tiers of government: the federal, state, and local government. Public hospital buildings suffer as facilities management (FM) functions are often neglected with significant effect on the operation of public hospitals in Nigeria. Most government hospitals have no tools for measuring FM performance. The aim of the study is to propose a performance measurement framework by redefining standards and developing performance benchmarks to improve current practices and to professionalise FM. The research adopted mixed qualitative and quantitative approaches to explore key issues and barriers to FM practices with stakeholders responsible for the management of hospital assets. The findings provided pointers on how to develop performance measurement in FM. Adoption of the FM performance measurement framework will assist policy makers in public hospitals in Nigeria to drive key organisational changes in the way assets are managed to support healthcare delivery and the professionalisation of FM.

Keywords – healthcare facilities, facilities management, performance measurement

INTRODUCTION

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 at low ebb as many Nigerians are vulnerably exposed to the danger of death (Abel 2014). Indeed, poor healthcare services in the country have contributed to increase in mortality rate in the country. Statistics of health indices from international agencies point to the fact that 58 years after independence, Nigeria is still far from achieving the minimum required health standard. A recent World Health Organisation (WHO) report shows that 466,000 Nigerian children die at birth out of the 4.1 million infant deaths recorded globally (WHO, 2017).

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 and 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).

The aim of the study is to propose a framework for performance measurement by redefining standards and developing performance benchmarks to improve current practices and to professionalise FM. Following the introduction, the literature review is carried out followed by the outline of the research methodology underpinned by qualitative and quantitative approaches. The findings based on case studies of major public hospitals are then discussed to provide the basis of developing a performance measurement framework for FM.

CONCEPT OF FACILITIES MANAGEMENT

Traditionally, FM has been seen as the management of buildings and related building services. The growing trend is to view FM as the management of non-core company assets and activities to support and increase the efficiency of the core businesses of an organisation (BIFM, 2013). The goal of FM has now evolved into improving organisational effectiveness by helping the organisation to allocate its resources in a way that allows it to flourish in competitive and dynamic markets. Measurement of FM performance is one of the three essential issues for effective implementation of a facilities strategy (Akhlaghi 1997). FM is a term that encompasses a wide range of activities involved in the effective management of built assets. It involves the total management of all services that support the core business of the organisation (Bootle and Kalyan 2002). The existence of active FM may help identify potential problems with maintenance and running costs before they result in component breakdown and even temporary shutdown of buildings (Reeve 2000). It can provide a disciplined framework for the examination of many of the relationships between decisions and the satisfaction of the end user of the property, whether in economic or environmental terms (figure 1).

Measuring the performance of an FM system also provides a framework for redefining standards, developing performance benchmarks and reviewing user satisfaction as business and other circumstances change. It is clear that FM is an umbrella term under which a wide range of property and user related functions may be brought together for

the benefit of the organisation and its employees as a whole. Therefore, the aim of FM should be not just to optimise running costs of buildings, but to raise the efficiency and suitability of the management of space and other related assets for people and processes, in order that the mission and goals of the organisation may be achieved at the best combination of efficiency, cost and quality. The scope of FM includes: Hard (FM) services (e.g. building maintenance, groundwork, landscaping, etc.) and Soft FM services (e.g. cleaning, catering, security (Robinson and Scott 2009). FM has the potential to contribute significantly and it is important to identify and measure the extent that it supports, or can be adapted to, the changing needs of organisations, and contribute to productivity, profitability, service and quality (Mole and Taylor 1992).

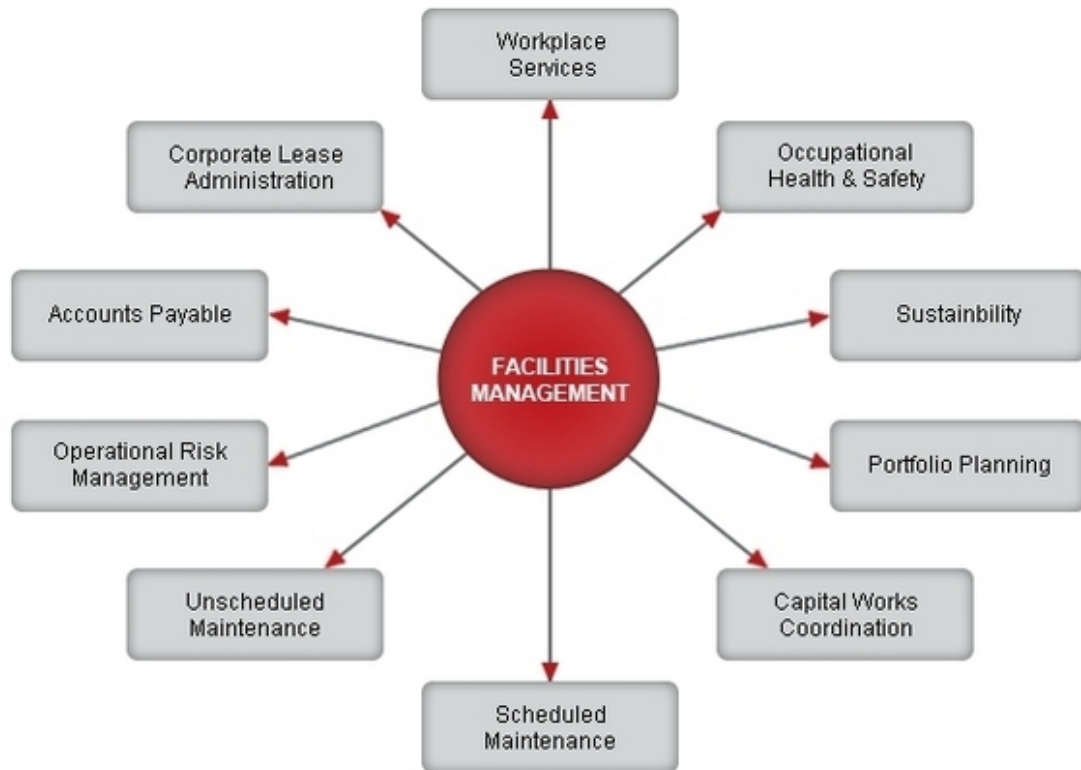


Figure 1: Scope of facilities management (adapted from Hronec, 1993)

THE NEED FOR PERFORMANCE MEASUREMENT

FM has the potential to contribute significantly and it is important to identify and measure the extent that it supports, or can be adapted to, the changing needs of organisations, and contribute to productivity, profitability, service and quality (Mole and Taylor 1992). Measurement of FM performance is one of the three essential issues for effective implementation of a facilities strategy (Akhlaghi 1997). Performance measurement systems historically developed as means of monitoring and maintaining organisational control, which is the process of ensuring an organisation, pursues its strategies that lead to the achievement of its overall goals and objectives (Djerdjouri 2015). In attempting to change the focus of an organisation, Goyal (2007) suggests that performance measurement is a key agent of change. The four potential benefits that can arise as a result of having an appropriate performance measurement system are: satisfying customers; monitoring progress; benchmarking processes and driving change (Chotpanich 2014).

Performance measures are used to ensure that an organization is achieving its aims and objectives (Jensen 2008). The measures are used to evaluate, control and improve production processes (Mathew and Michael 2010). Mudrak *et al* (2014) discussed how performance measurement can be built and used as a motivational tool. Inappropriate performance measurement is a barrier to organizational development since measurement provides the link between strategies and actions according to Santos (2009). Inappropriate measures lead to actions incongruent with strategies not well formulated and communicated. For these benefits to be realized, it is necessary for organizations to implement an effective performance measurement system that, "enables informed decisions to be made and actions to be taken because it quantifies the efficiency and effectiveness of past actions through acquisition, collation, sorting, analysis, interpretation, and dissemination of appropriate data" (Santos 2009). Appropriate performance measures for soft and hard FM should provide and strengthen this link, and both lead to attainment of strategic goals and impact on the goals and strategies needed to achieve them. It has long been recognized that performance measures can be used to influence behaviour and thus, affect implementation of strategy (Loosemore 2004). Strategies are realized through consistent decision-making and action (Bell 1992). Indeed, performance measurement is seen as an integral part of the strategic control cycle.

CHALLENGES FACING HEALTHCARE FACILITIES IN NIGERIA

Many hospital organisations are transforming their culture as a means by which they may improve performance. FM has a positive role to play in enabling the transformation either by supporting the hospital organisation as part of the holistic drive for change or by acting as a catalyst, leading the way for others to emulate (Becker 1990). For these benefits to be realised it is necessary for hospital organisations to implement an effective performance measurement system (Neely 2008). Public hospital buildings in Nigeria are often in a poor state so it is essential for every hospital district to have an effective FM performance measurement plan of its facilities. The hospitals in Nigeria have poor maintenance culture and are faced with many other challenges. Research conducted by the Amaratunga and Baldry (2002) concluded that hospital organisations use performance measurement systems as the basis for management to perform better. However, the lack of proper performance FM system in public hospitals in Nigeria is caused by problems of various nature (Orubuloye 2008, Abukhder and Munns, 2013).

There is a major challenge that arises from government subvention due to the irregular flow of funds. This implies that the hospitals must rely on the other sources of finance for running the healthcare facilities (Nutt 2010). There are delays in the payment of the subvention confronting the hospital and at times, the subvention for some periods is not received (Anderson and McAdam 2004). There is also a gradual reduction in the amount of subventions received exacerbated by the fact that the monies received from government are often 'ring fenced' for only health workers' salaries and administrative expenses (Bell 1992). There is no component of the subvention directed specifically for investments and the delivery of FM services (Kirkham *et al* 2012). The inability of patients to pay fees and charges is another problem and some patients often default in settling their hospital bills (Ilozor 2013). There are additional problems including government's influence in determining the fees to be charged (Pitts and Goyal 2004).

Other challenges include exploitation largely around control of resources and lack of accountability for resources in the hospital creating crisis. Poor accountability and the control of financial resources flowing around various units of the hospital is always a cause of friction (Okoroh 2012). There is also the problem of incompetence due to poor recruitment practices. When appointment to management/administrative positions are made based on entry level qualifications and specialty, regardless of experience and further training, the best candidate may not be favoured (Ahmed and Gidado 2010). While entry qualification and specialty are basic, it must be appreciated that further training and experience are required in order to function effectively in a top management position (Adeyeye *et al* 2010). There is a widespread culture of government sponsoring public officials abroad for treatment at the expense of investing and modernising the healthcare infrastructure delivery system (Okoroh 2012). Even the leaders who ought to show their commitment by example are guilty of this practice demonstrating a lack of faith in the Nigerian healthcare system, which is why they support health tourism by flying themselves and their cronies to other countries with highly developed healthcare systems (Orubuloye 2008).

Finally, there are also inadequate tools for measuring output. Most government hospitals have no tools for measuring the work output of their staff (Ilozor 2013). Significant latitude is therefore given to individual staff to work as expected, but this is largely abused, creating divided loyalty and double-dealing. Measuring outputs should be linked to the inputs that are required to deliver the standard of healthcare facilities, hence the need for an FM system redefining the standards for both soft and hard FM and developing performance benchmarks that would support the delivery of key outputs expected of public hospitals. However, the poor understanding of FM performance measurement in public hospitals in Nigeria is major barrier to healthcare service delivery (Ilozor 2013). Redefining standards and developing performance benchmarks is crucial in developing and transforming FM as a profession in Nigeria. The outcome of this review was to identify knowledge gaps in the literature relating to performance measurement in FM with Nigeria as the focus of the study. Although the area of performance measurement is not new, this concept is neither well established or standardised across and even within FM organisations.

RESEARCH METHODOLOGY

The aim of the research is to develop a framework for performance measurement in facilities management (FM) for the public hospitals in Nigeria. Review of the literature was the initial step and this included an in-depth examination of literature relating to performance measurement in organisations in general and performance measurement in FM organisations in particular. A pilot study was conducted as a crucial step to improve the quality of the research by focusing on the data collection phase (Miles and Huberman 2014, Easterby-Smith *et al* 2018, Yin 2014). From the conclusions of the pilot study, the research focused on following key questions:

- What are the economic, technological and managerial factors or drivers that influence or hinder the development of performance measurement?
- How can the needs of public hospitals be captured in the development of an FM performance measurement system?
- How can performance measurement change public hospitals?

The preference for the case study strategy derives from the fact that the main research questions are in the form of “how”, and case studies provide the ability to examine contemporary events – the development of performance measurement framework in FM for the public hospitals in Nigeria by dealing with a wide range of evidence (Creswell 2013). For the purpose of this research, an important criterion was the selection of case studies based on areas with significant population (i.e. more than 70% of the Nigerian populations use the case study hospitals selected). The existence of FM practice was another criterion to compare the current and “best practices” (Yin 2014). A multiple case study design was adopted to achieve more robust conclusions by looking at a range of similar and contrasting cases to strengthen the reliability of the findings of the research (Miles and Huberman 2014).

KEY FINDINGS AND DISCUSSIONS

A summary of case study organisations and findings from the outcome of interviews with the senior and middle management and operational staff is provided below. Their contribution was acknowledged although specific names were avoided throughout the text following an agreement about the confidentiality of information. Most of the organisations provided feedback on the practical validity of case study findings. The feedback was incorporated into the final research which was the basis for development of performance measurement framework for the public hospitals in Nigeria.

Summary of case study organisations:

<p>Lagos University Teaching Hospital: Lagos State University Teaching Hospital popularly known as LASUTH is a state owned teaching hospital in Lagos, Nigeria attached to the Lagos State University. It is strategically located in Ikeja - the states capital. LASUTH also share structure with the College of Medicine, Lagos State University. The hospital was established in 1955 from a small cottage health centre by the Old western region. It was converted to a teaching hospital in July 2001.</p>
<p>National Hospital Abuja: National Hospital Abuja is a hospital in Abuja, FCT, Nigeria. Maryam Abacha founded the institution. The institution was formally established under Decree 36 of 1999 (Act 36 of 1999). Abdul salami Abubakar commissioned the hospital on 22 May 1999. Originally National Hospital for Women and Children, the hospital opened on 1 September 1999. The hospital received its current name on 10 May 2000.</p>
<p>University Teaching Hospital Enugu : The University of Nigeria Teaching Hospital (UNTH) Ituku/Ozalla Enugu, has come a long way. The Hospital began early in the 20th century as a standard general Hospital for Africans built by the colonial administrators. It later metamorphosed into a general hospital on the attainment of Nigeria’s independence in the 1960’s. However, at the end of the Nigerian civil war in 1970, the then government of East Central State transformed it into a Specialist Hospital with effect from July 1, 1970.</p>
<p>University College Hospital Ibadan: The University College Hospital, (UCH) Ibadan was established by an August 1952 Act of Parliament in response to the need for the training of medical personnel and other healthcare professionals for the country and the West African Sub-Region. The establishment of the Hospital followed a Visitation Panel in 1951 to assess the clinical facilities for the clinical postings of medical students registered for M.B.B.S. degree of the University of London. The visitation panel, led by Dr. T.F. Hunt of the University of London rejected the enhanced facilities provided by the Government/Native Authority Hospital at Adeoyo, Ibadan following the establishment of a Faculty of Medicine in the University College, Ibadan (now University of Ibadan) in 1948.</p>
<p>University Teaching Hospital: The hospital was established in 1955 from a small cottage health centre by the Old Northern region. It was converted to a teaching hospital in July 2016.</p>

Main findings from analysing the responses

Insufficient Resources and Lack of Performance Measurement Tools

A key challenge noted was a shortage of budget allocated to FM maintenance. Relating to other resources available in maintenance, it was agreed that there was a shortage of resources in the form of methods and analytical tools. Respondents also agreed there were no FM performance measurement tools and the FM departments are poorly equipped with no advanced instruments and machines to carry out inspection, maintenance work and other aspects relating to the management of the assets effectively.

Problems with Leadership, Co-ordination and Understanding of the Scope of FM

Respondents disagreed that there was effective leadership in their organisations as there was no clear vision advocated and the mission was not clearly addressed to deal with employee loyalty and employee confidence which were both low. The respondents disagreed that there was co-ordination and co-operation between the different departments within the hospitals and maintenance managers were empowered to do their jobs. The respondents also asserted that top management had no clear understanding of the scope of FM and maintenance requirements and disagreed that there was a good housekeeping system. The lack of training programs, critical in FM particularly in areas of maintenance was raised by respondents. The responses showed that public sector hospitals have not clear rules for updating of FM checklists. Furthermore, the effect of culture on the delivery of quality programs was also noted so was the lack of a customer feedback system, essential for driving any improvement in services.

PROFESSIONALISATION OF FM: THE NEED FOR A PERFORMANCE MEASUREMENT FRAMEWORK

Given the catalogue of problems identified in the case studies, there is need for the professionalization of FM for continuous improvement. A performance measurement framework provides the basis for the public hospitals in Nigeria to understand their own processes. A further benefit of performance measurement framework is that it can lead to a set of “best practices” and “lessons learned” that can be used internally to improve the Nigerian public hospital’s management practices activities. These lessons learned and best practices can also be shared with other government public agencies, thereby facilitating the development of tools and ideas that can benefit the broader government public agency in Nigeria (Then 2016). First, the case studies clearly demonstrated that the scope of FM is not well understood. The definition of FM is poorly understood and it is not being practiced in an appropriate way. The traditional narrow approach of maintenance is applied compared to integrated FM systems to drive strategic operations. The lack of understanding in FM definitions and functions is possibly the root problem of the passive development of FM as a professional cadre in public hospitals in Nigeria. FM practice is not guided and most often its importance is neglected in business strategies (Pitt 2014), hence there is a need for the professionalization of FM.

Second, performance measurement ensures that decisions are based on facts, not on emotions, hence there is a need for redefining standards and performance benchmarks for FM in public hospitals in Nigeria. It means that decisions by the public hospitals to take any action in improving business or healthcare delivery are based on defined

standards to be measured using measurement of tools or models for measuring performance supported by a professional cadre of FM specialists.

The key FM standards should therefore be redefined in terms of ‘soft FM’ and ‘hard FM’ based on best practices. In the context of public hospitals in Nigeria it is important to redefine ‘what’ is required in terms of standards for hard facilities management (FM) services (e.g. building maintenance, groundwork, landscaping, etc.) and soft FM services (e.g. cleaning, catering, security, etc.) and how it supports core services (non-FM) such as teaching, nursing, surgical and medical services in public hospitals. The level of requirement (performance benchmarks) for each soft and hard FM service category should be stated with a pass or fail criteria for assessing performance and rectification periods if service fails. The soft and hard FM service performance standards as part of an integrated FM system should both be linked to the performance measurement framework for monitoring and feedback and taking appropriate actions (see figure 2 below).

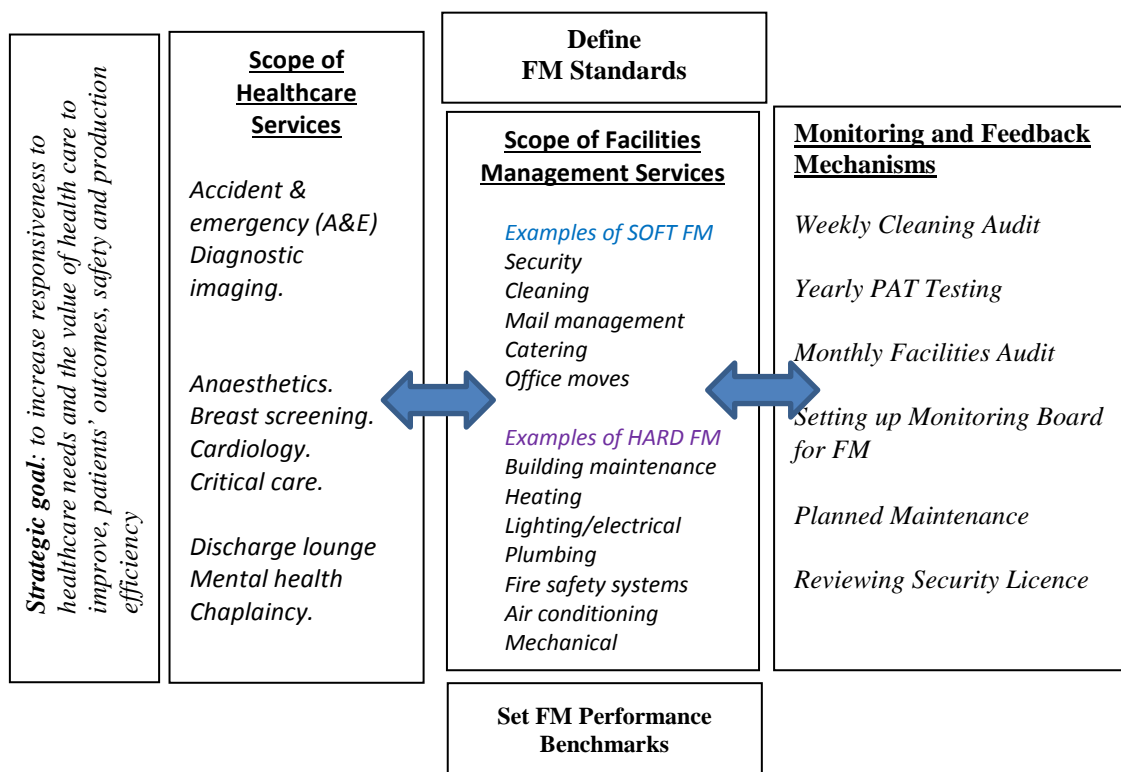


Figure 2: Conceptual FM Performance Measurement Framework

Hinks (2009) argues that the success criteria for FM are more likely to be associated with innovation. He further suggests that predominant features of good FM in the future may major on value, adaptability, novelty, support for new processes, and timelines, and herein lies the performance assessment challenge for FM. In terms of value for money, the FM performance plan should describe how to meet business needs and how optimising cost may be measured.

The proposed framework will serve as a management tool that will enhance the management and reporting of the FM activities by measuring the level of achievement and results in public hospitals with respect to both soft and hard FM to support core healthcare service delivery. It will enable top management and the government to make more informed and effective choices and decisions about FM practices. By

developing such a framework, the Nigerian public hospitals will be in a position to utilise concrete, objective information and data on which to make sound management decisions and report to clients, stakeholders and government. Another important aspect will be the professionalization of FM as a distinct discipline in Nigeria with the knowledge and skill sets required. Development of standards and benchmarks for good FM practices will encourage specialised training in FM and codification of best practices.

CONCLUSION

The existing research has highlighted the increasing importance of performance measurement. However, the literature in the FM area is still evolving given the lack of clarity over many concepts. There are existing performance measurement frameworks but they do not capture the context and specific challenges of public hospitals in Nigeria. There is therefore a need for the development of performance measurement framework in FM for the public hospitals in Nigeria. This research can therefore contribute to addressing the knowledge gap through the development of a systematic evidence-based framework with identification of the elements to be taken into consideration in redefining standards and developing performance benchmarks for continuous improvement of public hospitals in Nigeria. Adoption of the performance measurement framework in FM 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 FM for the optimal delivery of healthcare services. The outcome will also provide policy makers in public hospitals in Nigeria with tools for accountability.

REFERENCES

- Abel, M H (2014) Competencies management and learning organizational memory. *Journal of Facilities Management*, **25**(1/2), 68-80.
- Abukhder, J and Munns, A K (2013) Attributing management problems on Construction projects to project information. In: Greenwood, D J (Ed.), *Proceedings 19th Annual ARCOM Conference*, 3-5 September 2003, Brighton, UK. Association of Researchers in Construction Management, **2**, 543–552.
- Adeyeye, K, Pasquire, C, Bouchlaghem, D and 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 and 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.
- Akhlaghi, F (1997) How to approach process benchmarking in facilities management: catering services in the UK National Health Service. *Facilities*, **15**(3/4), 57-61.
- Anderson, K and McAdam, R (2004) A critique of benchmarking and performance measurement: Lead or lag?. *Benchmarking: An International Journal*, **11**(5), 465-483.
- Amaratunga, D and Baldry, D (2002) Moving from Performance Measurement to Performance Management. *Facilities*, **20**(5/6), 217-223.

- Bell, J (1992) Facilities management and changing professional boundaries. *Facilities*, **10**(10), 161-173.
- Becker, F D (1990) *The total workplace: Facilities management and the elastic organisation*. New York: Van Nostrand Reinhold.
- Bootle, R and Kalyan, S (2002) *Property in Business - a waste of space?: A study for RICS*. London: Royal Institute of Chartered Surveyors.
- British Institute of Facilities Management (2013) *Investors in FM Excellence*. BIFM Bulletin, No. 183, November.
- Chotipanich, S (2004) Positioning facility management. *Facilities*, **22**(13/14), 364-372.
- Creswell, J W (2013) *Research Design: Qualitative, Quantitative and Mixed Method Approach*. 2nd edition, Thousand Oaks CA: Sage
- Djerdjouri, M (2015) Assessing and benchmarking maintenance performance in manufacturing facility: a data envelopment analysis approach. *INFOR*, **43**(2), 121-133.
- Easterby-Smith, M, Thorpe, R, Jackson, P R, Jaspersen, L J (2018) *Management and Business Research*. 6th edition, London: SAGE Publications Ltd.
- Goyal, S and Pitt, M (2007) Determining the role of innovation management in Facilities management. *Journal of Facilities Management*, **25**(1/2), 48-60.
- Hinks, J and McNay, P (1999) The creation of a management-by-variance tool for facilities management performance assessment. *Facilities*, **17**(1/2), 31-35.
- Hronec, S M (1993) *Vital signs: Using quality, time and cost performance measurements to chart your company's future*. New York: Amocon.
- 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.
- Jensen, P A (2008) The origin and constitution of facilities management as an Integrated corporate function. *Facilities*, **26**(13/14), 490-500.
- Kirkham, R J, Boussabaine, A H and 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
- Loosemore, M (2004) Aligning business, property, facilities and services. In *Conference Proceeding of Future in Property and Facility Management*, 17-22 University College London.
- Matthew, T and Michael, P (2010) Improving service provision through better management and measurement of customer satisfaction in facilities management. *Journal of Corporate Real Estate*, **12**(4), 220-33.
- Miles, M B and Huberman, A M (1994) *Qualitative Data Analysis: An Expanded Sourcebook*. Thousand Oaks, CA: Sage Publications.
- Mole, T and Taylor, F (1992) Facility Management: Evolution or Revolution, In Barrett, P (Ed) *Facilities Management: Research Directions, the second international symposium on Facilities Management*, 19-22 May 1992, University of Salford.
- Mudrak, T, Wagenberg, A V and Wubben, E (2014), Assessing the innovative ability of FM teams: a review. *Facilities*, **22**(11), 290-295.
- Neely, A (2008) *Performance Measurement System Design - Third Phase Draft of the Fourth section of the Performance Measurement System Design Workbook*. Cambridge: Centre for Business Performance, Judge Institute of Management Studies.

- Nutt, B (2010) Four competing futures for facility management. *Facilities*, **18**(3), 124-132.
- Okoroh, M I (2002): Risk management in healthcare facilities. *The 2002 Global Symposium*, CIB W70 Symposium, 18-20 September 2002, Glasgow, Scotland.
- Orubuloye, O (2008) Hospital Management in Nigeria. *Nigerian Institute of Social and Economic Research Journal, The 2008 National Conference*, 12-17 March 2008, Ibadan, Nigeria.
- Pati, D, Park, C, and 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**(3/4), 87-99.
- Reeves, R (2000) Repositioning Facility Management, In Nutt, B and McLennan, P (Eds.) *Facility Management: risks and opportunities*. Oxford: Blackwell Science.
- Robinson, H S and Scott, J (2009) Service delivery and performance monitoring in PFI/PPP projects. *Construction Management and Economics*, **27**(2), 181–197
- Santos, A. (2009) *Application of Production Management Flow Principles in Construction Sites*. Unpublished PhD Thesis. University of Salford.
- Then, D (2016) The role of real estate assets in supporting the fulfilment of corporate business plans: key organisational variables for an integrated resource management framework, *Facilities*, **18**(7/8), 273-281.
- World Health Organization (2017) *Global Health Observatory data repository* <http://apps.who.int/gho/data/view.main.CM1320N?lang=en>. Accessed 24/10/18
- Yin, R K (2014) *Case Study Research: Design and Methods*. 5th edition, London: Sage Publications Ltd.