

Facility Management Practice and the Organizational Effectiveness of Nigerian Tertiary Institutions in the North-West Region

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Abstract

This study aims to empirically investigate the relationship between facility management practice and organizational effectiveness in the Nigerian tertiary institutions. To achieve the aims of the study, cross-sectional survey research design was adopted. Primary data were collected through questionnaires administered to 138 senior academics and technical staff in charge of FM and conversant with organizational effectiveness in the tertiary institutions in Kaduna, Kano and Katsina state. The study employs multi-stage sampling techniques: purposive, convenience, stratified and simple random sampling techniques for sample selection and multiple linear regressions for data analysis. Findings from the study revealed that workspace facilities are the strongest predictor of organizational effectiveness of Nigerian tertiary institutions in the north-west region followed by information technology facilities, operational facilities, workforce facilities and maintenance facilities. The findings have contributed to filling an important knowledge gap by not only exploring in-depth relationships between the variables but also to clearly indicate the degree of extent to which facility management practices relate to university effectiveness. Consequently, educational facilities managers could re-engineer the plans and processes to keep pace with the changes in teaching and research facility requirements to meet the needs of the facilities users. This would be of practical benefit to the facility managers in formulate appropriate response based on the significant important of the facilities with a view to achieving more effectiveness in their organizations.

Background to the Study

Research efforts to enhance firms' potential to prosper in volatile commercial climate and ensure functionality of the quality of working environment and quality support service by integrating people, place, process and technology have witnessed the advent of facility management practice (FMP). It has long been firmly established that FMP offers really added-value improvements to an organization's core business through efficient management and improved technology (Centre for Facilities Management, 2000). As an emerging discipline, FMP contributes up to 5% of the global gross domestic product (GDP) by improving the long-term worth of the nation's infrastructure asset through proper maintenance, adaptation and upgrade (IFMA, 2016), creates a conducive workplace that promotes productivity and worker's health and safety (Kamarazaly et al, 2013) and supports corporate objectives, reduces resource waste, maximizes profit, adds quality and competitive edge to business (Best et al, 2003). Without a doubt, organization can achieve high levels of competitiveness and success by leveraging the potentials of FMP (Kamarazaly & Mbachu, 2007), allocate its resources in a way that allows it to flourish in competitive and dynamic market (Alexander, 2003) and accomplish its corporate goals and core objectives (APPA, 2013).

Facility management (FM) is central to actualization of the educational goals and objectives by satisfying the physical, emotional and intellectual needs of the staff and students of the higher institutions. Knezevich (1975) emphasized that the institution physical needs are met through provision of safe structure, adequate of sanitary facilities, a balanced visual environment, appropriate thermal environment, and sufficient shelter space for work and leisure while emotional needs are met by creating pleasant surroundings, a friendly atmosphere, and an inspiring environment. Nwagwu (1978) and Ogunsaju (2000) maintained that the quality of education that learners receive bears direct relevance to the availability or lack thereof of physical facilities and overall atmosphere in which learning takes place. The school facilities consist of all types of buildings for academic and non-academic activities, equipment for academic and non-academic activities, areas for sports and games, landscape, farms and gardens including trees, roads and paths. Others include laboratories, electricity, water supply, audio visual media, classrooms, lecture theatres, recreational facilities, administrative offices ventilation and air conditioning, furniture and toilet facilities, acoustics, storage facilities and packing lot, security, transportation, ICT, cleaning materials, food services, and special facilities for the physically challenged persons.

Tertiary institutions create and communicate knowledge for the benefit of wider society to promote sustainable growth and global competitiveness (McMahon, 2009). The institutions exist to serve socio-economic and political needs of the ever-changing society; consequently, they are in constant interaction with their external environment. They receive inputs from the external environment in the form of human and material resources, process them and empty same into the society as finished products and services. The quality of the products bears a direct relationship with the quality of the facilities deployed in the process of the production. This demands that state of the art

facilities is provided in schools to prepare school leavers for life in the global village. Notwithstanding these significant roles of higher academic institutions, there is increasing concern that educational institutions suffer from several major drawbacks that constraint effectiveness of their crucial role to meet increasing demand placed on them by learners, the society and the government. So now, more than ever, tertiary academic institutions face critical diversity in workplace, challenges of meeting the workforce development, space management, and upgrade and maintaining existing facilities, all owing basically to inadequate FMP (Alexander, 2003; APPA, 2010; Booty, 2009; Ogbeifun, 2011; IFMA, 2006). For instance, in the area of workforce inadequacy, many qualified lecturers and researchers leave Nigeria for better opportunities in abroad. Tribune online (2020) reported that Ethiopia has already recruited 200 professors from Nigeria while South Africa, Ghana, Egypt, etc have a sizeable number of Nigerian professors. In 2006, Ethiopia engaged the services of 600 professors, according to Olusegun Akinsanya, the former Nigeria's Ambassador to Ethiopia. On the 8th of December 2023, Prof. Tanko Ishaya, the Vice Chancellor of the University of Jos (UNIJOS), reported that over twenty (20) lecturers on specialist fields died owing to severe stress from an acute workforce shortage (Othman, 2023).

Corroborating these challenges, NUC reveals that both academic and physical facilities at the Nigerian universities are in deplorable states. Higher education system in Nigeria is grappling with a significant capacity issue, as the country's universities can only accommodate seven hundred thousand (700,000) students out of the two million (2,000,000) applicants seeking admission annually (nairametric, 2023). Ikediashi et al. (2012) affirm that in the early days of Nigerian tertiary institutions, there were enough facilities for both students and staff, and funding for teaching, research and even community service was adequate. The story has changed dramatically over the years (Ekundayo & Ajayi, 2009). It is against this background that this study empirically investigates FMP-organizational effectiveness nexus in the Nigerian tertiary institutions.

Statement of Research Problem

Avalanche of studies around the facility management practices-organizational effectiveness nexus have heavily reinforced the adoption of facility management practices (FMP) in businesses as a mechanism for sustainable performance. In fact, several studies have supported the notion that FMP improves corporate image and enhances institutional performance (Adewunmi, 2007; Asiabaka, 2008; Baker, 2002; Barret & Baldry, 2003; Brian & Brook, 2009; Chika, 2008; Egboluche, 2009; Ekundayo & Ajayi, 2009; Gbadegesin & Aluko, 2014; Keith, 2009; Moore & Finch, 2004; Price & Pitt, 2011).

Despite prior evidence upholding the interrelatedness between FMP and organizational goals, there is remarkable lack of a more robust statistical evidence to support the relationships. Besides, no known studies have also incorporated holistic FM metrics which integrate proper maintenance, management of people, support processes and innovative technology with physical infrastructure in the attainment of organizational

mission and goals at the best combination of institutions effectiveness, cost and quality. Hence, the current study aims to empirically investigate FMP-organizational effectiveness nexus in the Nigerian tertiary institutions.

Research Questions

This study seeks to address the following research questions:

- i. To what extent does workspace facility significantly relate to organizational effectiveness in the study area?
- ii. To what extent does workforce facility significantly relate to organizational effectiveness in the study area?
- iii. To what extent does operational facility significantly relate to organizational effectiveness in the study area?
- iv. To what extent does information technology facility significantly relate to organizational effectiveness in the study area?
- v. To what extent does maintenance facility significantly relate to organizational effectiveness in the study area?

Aim and Objectives of the Study

The primary aim of this research is to empirically study the relationship between facility management practices and the organizational effectiveness of Nigerian tertiary institutions in the north-west region. The specific objectives of the study are as follows:

- i. Investigate whether workspace facility is significantly related to organization effectiveness in the study area.
- ii. Examine whether workforce facility is significantly related to organization effectiveness in the study area.
- iii. Determine whether operational facility is significantly related to organization effectiveness in the study area.
- iv. Explore whether information technology facility is significantly related to organization effectiveness in the study area.
- v. Evaluate whether maintenance facility is significantly related to organization effectiveness in the study area.

Research Hypotheses

This study postulates that:

- i. Workspace facility is not significantly related to organization effectiveness in the study area.
- ii. Workforce facility is not significantly related to organization effectiveness in the study area.
- iii. Operational facility is not significantly related to organization effectiveness in the study area.
- iv. Information technology facility is not significantly related to organization effectiveness in the study area.
- v. Maintenance facility is not significantly related to organization effectiveness in the study area.

Research Significance

The study contributes immensely to the growing body of knowledge on facility management practices to foster and enhance varsity effectiveness. Significance of the current study cannot be overemphasized in that it carefully unveils the holistic facility management metrics that would help tertiary institutions, facilities managers, and policymakers guide their decisions hinged on the espousal of people, place, process and innovative technologies during policy formulation. Besides, the study is to enable educational institutions facilities managers re-engineer the plans and processes and hence shape their organizations to keep pace with the changes in teaching and research requirements, consequently to satisfy the real mission and goals of the institutions, and the needs and objectives of the facilities users. Furthermore, the study serves as a solid theoretical base for further studies showcasing a roadmap for deep insight into the conceptual understanding of the FMP and tertiary institutions effectiveness.

Literature Review

This section undertakes a review of the study concepts which are FMP and university effectiveness. The review of literature, in addition, provides detailed account of earlier empirical studies as well as identifies the gaps that exist in the literature. Finally, the review covers theoretical literature and framework.

Concept of Facilities management

The term, "facilities management" was coined in the 1960s by Ross Perot and origins date back to the United State (U.S) in the 1970 with the formation of International Facility Management Association. The 1980s was a decade of rapid growth. In 1988, Facility Management Association of Australia was formed and similarly a European network of academics, users and associations – Euro Facility Management was formed. Later in United Kingdom, Association of Facilities Management and Institute of Facilities Management were formed and subsequently merged to become British Institute of Facilities Management in 1993 (IFMA, 2003). The first serious discussions of FM emerged during the 1970s with a focus on work space and building infrastructure. By the 1980s, FM function has expanded beyond the connections between work space and place but covers the people and the organization and is related to work psychology and occupational physiology. The past thirty years have seen increasingly rapid advances in the field of FM as business entities have now come to realize that maintaining a well managed and highly efficient facility is critical to organizational success. FM involves managing the outsourced non-core functions aim to minimize cost, improve productivity and to add value to the core business of public or private sector client organizations by coordinating the physical workplace with the people and work of the organization (Murray, 2020). A review of FM literature over recent years indicates a trend towards strategic initiatives, benchmarking, process capability assessment and performance.

Facilities in the Portuguese word 'facilidade' or the Spanish word 'facilidad' means 'ease' or 'easiness'. The idea of 'ease-of-use' is fundamental to the facilities management role. In

real estate and building construction business, it implies something that is built, installed or established to serve a purpose. According to IFMA (2003), facility is every "tangible asset that supports an organization." Examples include real estate property, buildings, technical infrastructure, lighting, transportation, IT-services, furniture, custodial, grounds maintenance and other user-specific equipment and appliances. The "management" in FM entails proper planning and coordination of service delivery. To put it briefly, FM refers to an ease of co-coordinating with the purpose of delivering any range of support services in order to ensure the successful running of core business. FM is a complex phenomenon for which there is no standard definition because various professional bodies and scholars around the globe adopt different definitions that suit their local associations and priorities.

In general terms, IFMA (2016) defines facilities management as a profession that incorporates multiple disciplines to ensure functionality of the built environment by integrating people, place, process, and technology. Succinctly, the US Legal Dictionary (1982) sees FM as the coordination of the physical workplace with the people and the work of an organization. It is the integration of business administration, architecture, and behavioral and engineering sciences. In the most basic terms, facility management encompasses all activities related to keeping a complex operating. It furthermore states that it is the job of the facility manager to create an environment that encourages productivity, is safe, is pleasing to clients and customers, meets government mandates, and is efficient. This definition is however very broad, whilst inadequate, as a direct basis for constructing a working model for FM.

According to the British Institute of Facilities Management (2011), FM denotes the practice of coordinating the physical workplace with the people and work of an organization. To put it in another way, FM is the integration of multidisciplinary activities within the built environment and the management of their impact upon people and the workplace. This simple and well-focused expression of FM does not, however, stress the contribution that well-managed facilities can make to an organization. FM, a term that Becker (1990) uses to encompass the activities in planning, designing and managing complex facilities such as offices, hospitals, and schools, differs from architecture and interior design, at least as they have been practiced historically, in the following way: facility management refers to buildings in use, to the planning, design, and management of occupied buildings and their associated building systems, equipment, and furniture to enhance the organization's ability to meet its business objectives. FM thus refers to organizational effectiveness.

The Facility Management Association of Australia adopted what appears to be a community focused definition: Facilities management involves the management, operation and maintenance of buildings, precincts and community infrastructure. In all cities and regional areas, facilities management provides safe, healthy, productive environments, protecting the wellbeing of the Australian community (FMAA, 2004). The Hong Kong Institute of Facility Management (2004) conceptualized the term FM as the

process by which an organization integrates its people, work process and physical assets to serve its strategic objectives. The institute further stated that facility management is the science and art of managing this integrative process from operational to strategic levels for promoting the competitiveness of organizations.

The National Standards bodies under the auspices of the CEN Organization (the European Committee for Standardization), to which almost all European states belong, initiated the European Standard series: EN15221 Facility Management, in which facility management is defined as the integration of processes within an organization to maintain and develop the agreed services which support and improve the effectiveness of its primary activities. FM is further explained as the basic concept to provide integrated management on a strategic and tactical level to coordinate the provision of the agreed support services (facility services). This requires specific competencies and distinguishes Facility Management from the isolated provision of one or more services.

In the view of the Centre for Facilities Management (1992), FM refers to "the process by which an organization delivers and sustains a quality working environment and delivers quality support services to meet the organization's objectives at best cost". The working environment includes the physical, administrative and social setting for productive activity and the definition includes all the systems and services that support the business operation and suggests that FM is essentially demand driven and should be closely related to strategic planning in an organization. In 1993, the Royal Institution of Chartered Surveyors (RICS) FM skills panel considered FM as the effective management of place and space, integrating an organization's support infrastructure to deliver services to staff and customers at best value whilst enhancing overall organizational performance.

Aligning with the FM professional core definitions of the four national institutions of facility management in North America, Britain, Australia and Hong Kong, the present study conceptualizes FMP as the practice of coordinating physical workplace, engaging competent workforce, proper maintenance of infrastructural assets with innovative technology and effective operations of the organization to sustain a quality working environment and delivers quality support services to accomplish corporate goals and core objectives of the organization at best cost. The study holistically incorporates five fundamental measures of FM in order to have a balance view of FMP in the public and private sectors.

Organizational Effectiveness

The concept of organizational effectiveness has been an interesting subject of discourse in organizations from time immemorial. The need to have a clear understanding of what constitutes an effective organization has culminated the interest in the subject matter, making it almost impossible to judge an organization as being more effective than the other especially as what constitutes effectiveness in an organization may be viewed differently in another organization. In the light of this, several authors have written on

the concept of organizational effectiveness on the basis of their perception of the subject matter. For instance, Mott (1972) defined organizational effectiveness as “the ability of an organization to mobilize its centers of power, for action, production and adaptation”. In fact, effective organizations tend to produce better quality products and are resilient in the face of adversities. In the words of American Public Human Services Association (APHSA, 2009), organizational effectiveness (OE) is 'a systemic and systematic approach to continuously improving an organization's performance, performance capacity and client outcomes.'

Historical roots of the term organizational effectiveness in academic research can be found in the works of Georgopoulos and Tannenbaum (1957), who have often been regarded as the academic parent of organizational effectiveness movement. Georgopoulos and Tannenbaum (1957) posit that organizational effectiveness is the extent to which an organization as a social system, given certain resources and means, fulfills its objectives without incapacitating its means and resources, and without placing undue strain upon its members. This conception of effectiveness subsumes the following general criteria: (1) organizational productivity; (2) organizational flexibility in the form of successful adjustment to internal organizational changes and successful adaptation to externally induced change; and (3) absence of intra-organizational strain, or tension, and of conflict between organizational subgroups. These three criteria both relate to the means-ends dimension of organizations and, potentially, apply to nearly all organizations. The first relates to the movement of the organization toward its goals; the others relate to the requirements of organizational survival in the face of external and internal variability, and to the dimension of preservation (or incapacitation) of organizational means.

Researchers in organizational sciences have acknowledged that organizational effectiveness is a complex and multi-dimensional concept. Hence, different scholars have adopted various dimensions of effectiveness contingent upon its suitability to a given circumstance. For instance, Quang (2002) proposes seven measurement criteria of organizational effectiveness. These measurement criteria are: i) employee's satisfaction, ii) profitability, iii) growth rate of sales or revenue, iv) financial growth, v) competitiveness of the company's products and services, vi) public image and good will and vii) leader in Technology. The measurement criteria postulated by this scholar is quite impressive and cuts across a wide range of issues. It is not restricted to financial performance of any organization as was the case in the past.

In this context, this study adapts Georgopoulos and Tannenbaum definition because of its objectivity, flexibility, dimensionality, adaptability and comprehensiveness. Ultimately, OE is defined according to the study as a measure of how well an organization achieves its desired outcome without incapacitating its means and resources nor placing undue strain upon its members through alignment of its mission, goals, and objectives with its strategy, structure, processes, resources, and people. It encompasses all aspects of an organization's capacity, from leadership development to

customer. Besides this definition, the current research also incorporates the following constructs to measure organizational effectiveness in educational establishments: productivity, competitiveness, cost reduction, value advantage and infrastructure stability so as to take holistic view of how every components of an academic institution and work together toward success.

Empirical Studies

A large and growing body of empirical literature (Adewale, Abiola & Foluso, 2022; Ahmodu & Salaam, 2022; Gbesoevi, 2021; Shehu, Ezenwegbu, Kabiru & Alfa, 2020; Fadahunsi, Utom, Ochim, Ayedun, & Oloke, 2019; Rufai, Olaniyonu & Mohammed, 2018; Rashidul, Saraju, Abdul & Tasnia, 2017; Comfort & Veronica, 2016; Okafor & Onuoha, 2016; Karibo & George, 2015; Chandrashekar & Gopalakrishnan, 2008; Lavy, 2008; Shah, 2007; Barrett & Baldry, 2003) has investigated the contribution of facility management practices to organization effectiveness. To the best of the researchers' knowledge, this study is the first in the north-west states, Nigeria that tested multiple independent variables with major emphasize on all categories of facility management practices that is facility workplace, workforce, work process, maintenance and technology. The literature is replete with inexhaustible constructs of university effectiveness as dependent variable. However, a major gap in the literature is the paucity of studies on holistic indicators of facility management practices and university effectiveness and a clear lack of indication of the degree of extent to which facility management practices relate to university effectiveness. This knowledge gap constrains the findings of the earlier studies. Hence, drawing clear-cut conclusion on the available of literature is complicated and could be misleading further by the fact that the various studies focus on different parameters of facility management practice and constructs of organizational effectiveness. This study, therefore, aims to contribute to filling this knowledge gap by exploring in-depth relationship between facility management practices and university effectiveness.

Theoretical Review

Theorists have postulated a number of approaches to measuring organizational effectiveness. Each approach has its strength and weakness with different ideological basis. The approaches include: the goal model, system resources model, competing value model and strategic constituency model. Argument for this study is built around these models as explained below:

Goal Model

The most widely used model in assessing organizational effectiveness is the goal approach. It was developed by Price in 1968 in the US to measure whether a company achieves its defined goals. It is a traditional model of OE but less actionable than other approaches because of its sole focus on output, not input or processes. The approach assumes that organizations are planned, logical, goal-seeking entities and they are meant to accomplish one or more predetermined goals. Goal approach is concerned with the output side and whether or not the organization attains its goals with respect to preferred

levels of output. This model seeks to figure out the essential operating objectives like productivity, profit, innovation and finally product quality through direction and goals (Schermerhorn et al., 2004). A critical limitation to the goal attainment approach to evaluate OE is that it does not take cognizant of the very human nature of organizations, nor the outside influences that affect the efforts to reach the goal. Besides, dynamic nature of the goals and varying scope of long-term and short-terms make it slightly challenging to use goal model to assess OE.

System Resources Model

This theoretical model was propounded by Georgopoulos and Tannenbaum in 1957. The systems approach to effectiveness views the organization as an open system, whereby the organization acquires inputs, engages in transformation processes, and generates outputs. It assumes that the organization is composed of interrelated subsystems (Kast & Rosenzweig, 1985). If any of these sub-systems performs inadequately, it will affect the performance of the whole system. It has been argued that defining the effectiveness of an organization solely in terms of the goals achieved is only a partial measure of effectiveness (Molnar & Rogers, 1976). The system resources model emerges to surmount the challenges of the goal attainment approach. While the latter focuses only on the end, the system approach takes into account the means to the end. To adopt this model, it is necessary to understand that success of any organization depends not only on the goal it achieves, but how it achieves the goal. Therefore, system resources model focus on how effective an organization is able to acquire the resources needed to achieve the desired goals or outcomes. Consequently, effectiveness is not only a result of goal attainment, but rather depends on resource acquisition (Seashore, 1983).

This perspective attributes effectiveness to organizations that exhibit productivity; relations with the environment to assure continued receipt of inputs and favorable acceptance of outputs; flexibility of response to environmental changes; the efficiency with which the organization transforms inputs to outputs; the clarity of internal communications; the level of conflicts among groups; and the degree of employee job satisfaction, so long as they are able to acquire the necessary resources (Robbins, 1990). However, the challenge majorly lies in the dilemma that higher resource acquisition does not always translate to greater performance or inadequate means sometimes yield outstanding outcomes. Robbins (2003) suggests that measuring specific goals may be easily compared with trying to measure the process variables such as “flexibility of response to environmental changes” or “clarity of internal communications.” While each of these terms may be simple to understand, the development of valid and reliable measures of means may not be possible. Whatever measures are used they may be constantly open to question.

Competing Values Model

The competing values approach was postulated in 1981 by R. E. Quinn and J. Rohrbaugh as a result of their research into organizational culture and leadership. Traditionally, the model assumes that organizations have diverging goals and therefore cannot arrive at a

consensus on which goals take precedence over others. Typically, this is because goals may be based on personal values, preferences, and interests (Scott, 1987). For instance, an organization might want to induce structure and discipline, but at the same time, might wish to promote autonomy, flexibility, increase profit and customer satisfaction. Therefore, OE according to this approach, assesses an organization ability to simultaneously promote competing goals and strike the right balance between such competing values to create a win-win situation for the goals.

Quinn and Rohrbaugh (1981) as cited in Merlyn and Michael (2017) identified certain variables that could be coupled together to create three basic sets of competing values. These are as follows: *flexibility versus control*; these two variables are incompatible dimensions of an organization's structure (Robbins, 1990). Flexibility values innovation, adaptation and change, whereas control favors stability, order and predictability. Next is, *people versus the organization*; these two variables place an emphasis on the wellbeing and development of *people* in the organization, or whereas the organization is concerned with its own well-being and development. The people-organization is also an incompatible dimension of an organization's structure: the concern for the feelings and needs of the people within the organization *versus* the concern for productivity and task accomplishment (Robbins, 1990). Further, we have, *means versus ends*; these two variables relate internal processes and final outcomes. The former can be considered to be a long-term variable, the latter final a short-term variable. This set of competing values can be compared to the goal-attainment approach which focuses on the *ends* and the systems resource approach which emphasizes the *means*. Each one of these competing value sets can be defined and consolidated into an OE model. The fundamental weakness of this approach is that it does not respond to the needs of the stakeholders either in the internal or external environment.

Strategic Constituency Model

The strategic constituencies approach assesses effectiveness by measuring the degree to which it satisfies those in the environment who can threaten the organization's survival that is the owners, management, employees, customers, suppliers, local community and government (Schermerhorn *et. al.*, 2004). Each constituency has a degree of power and pursues different goals. It is key to identify the relevant strategic constituencies, their expectations, and the way to meet these expectations. This approach suggests that an efficient organization is one which fulfills the demands of those constituencies in its environment from whom it needs support for its survival. The strategic constituencies approach is most closely related to feedback process. It is through feedback that the organization learns how well it has met the demands and expectations of its strategic constituencies.

Dalton and Dalton (1988) noted that in academic and research environments in which it is not quite easy to define the cost-benefit relations, it is sensible to make use of the strategic constituency approach. This approach assumes an exhaustive attitude toward effectiveness and evaluates the factors both in the environment and within the

organization. In this outlook, the concept of social responsibility is taken into consideration. This is the notion that was not formally paid attention to in the traditional approaches, but it is of crucial importance for academic and research institutions which are financially supported by national money. Policy makers continuously pay attention to social responsibility because the resources which are available for research and development have been growing smaller and smaller at all levels (Ashraf & Kadir, 2012). However, the job of isolating the strategic constituencies from their environment within which they function is a challenging and tricky task. Because the environment swiftly changes, what was a crucial goal today might not be so tomorrow (Tricia, Cabrey, Haughey & Cooke-Davies, 2014). Individual constituents may create significantly diverse ratings of organizations effectiveness. These constituents may use diverse factors or weight the same criteria in a different way.

Theoretical Framework

The strategic constituency approach is adopted in building a holistic effectiveness measurement framework for educational research organization facilities. This model emerges to surmount the limitations of the earlier OE theoretical approaches. It assesses the effectiveness to satisfy multiple strategic constituencies both internal and external to the organization. Strategic constituencies approach is ideal for organizations which rely highly on response to demands and does not negate the significance of means-end dimension of the goal-oriented and system resources model. Rather, the approach views them as important elements among complex criteria necessary to increase the long and short-terms survival of the organization. Besides, strategic constituencies approach acknowledges the importance flexibility-control dimension as well as the people-organization dimension and organizes them into an OE model in order to maintain a balance effect on the constituencies' stakeholders and their interest in the organization.

Methodology

Research Design

The research design for this study is a cross-sectional survey research design to analyze the relationship between facility management practices and the organizational effectiveness of Nigerian tertiary institutions in the north-west region. This design was adopted as it enabled the researchers to obtain a robust data from different sources at a wide population and at one point in time. Primary data were collected through questionnaires administered on members of staff in charge of FM and conversant with organizational effectiveness in the institutions. Data generated from the questionnaires were used to answer the research questions while multiple regression technique was employed to test the hypotheses. The units of analysis include two focus groups; senior academics staff in the Faculty of Administration and Management and senior technical staff in the Directorate of Physical Planning and Works, Faculty of Administration and Management, Procurement, Maintenance & Quality Assurance, and Information Communication Technology.

Population, Sample and Sampling technique

The target population for this study comprises tertiary institutions (Federal, state and private universities, polytechnics and colleges of education) in the north-west (Kaduna, Kano, Katsina, Kebbi, Jigawa, Sokoto and Zamfara state), Nigeria. A multi-stage sampling technique is incorporated for the research sample selection. The stages comprise purposive, convenience, stratified and simple random sampling techniques. In the first stage, purposive sampling is used in selecting all the seven states in Nigeria because the region is the study area. Similarly, a convenience sampling is adopted to select three states out of the seven states as the study units of analysis are conveniently available within the states. Consequently, this study is limited to Kaduna, Kano and Katsina states. The third stage of the sampling technique involves stratified sampling based on states and selected tertiary institutions (Kaduna State University, Kaduna State Polytechnic; Skyline University Kano, Yusuf Maitama Sule University Kano, Federal University Dutsin-Ma, Katsina, and Federal College of Education Katsina). In the next stage, this study deliberately adopts sample size technique for unknown population size because of the subjective nature of the study and aim to surmount study bias arising from reluctance to release certain information which might be deemed highly classified, or which the respondent might not want to disclose to the third party. Therefore, Charan and Biswas (2013) model is used to determine sample size for an estimated proportion of the study variables or constructs of 90% while the study wants to be 95% confident that acceptable margin of error is within 5%. Consequently, adequate sample is one hundred and thirty-eight (138) senior academics and technical staff. The sample size is distributed equally to each state and tertiary institution since population size is unknown. Consequently, each state/institution has a sample size of twenty-three (23) senior academics and technical staff. In the final stage, the sample units are drawn by simple random sampling technique. The use of this method is to give every member of the population a chance of being selected and to reduce bias to the barest minimum.

Research Instrument, Validity and Reliability

A structured questionnaire with closed ended questions is used to gather the study data with a two-point categorical scale and a five-point rating scale. The survey questionnaire is administered on senior academics and technical staff in tertiary institutions located in Kaduna, Kano and Katsina states in the north-west region. A total of one hundred and thirty-eight (138) questionnaires are distributed to the sample units in the three states under the study areas. The questionnaire consists three sections and is accompanied by a covering letter to introduce the research focus and instructions to be followed by the respondents. Section A examines the demographic information about the respondents including their gender, employment status, job category, faculty/ directorate, job rank, academic qualifications and years of work experiences. In contrast, section B and C address the questions raised under specific objectives of the study.

Two major instruments are used to collect data for this study. The instruments include Facility Inventory Checklist in line with the common indices of facilities approved by Federal Ministries of Education and National University Commission (CCMAS, 2022) in

Nigeria, constructed on a five-point rating scale which was responded to by senior technical staff and Organizational Effectiveness Survey designed on a two-point categorical scale adapted from previous studies and was responded to by senior academic's staff. The two instruments are validated through face, content and construct validity to ensure they suit the purpose of the study. Face and content validities are determined through the review of the instrument by management scholars and pilot test is conducted to ensure clarity and understandability of the questionnaire, and to affirm the consistency of all the items in the questionnaire. In addition, the reliability of the research instrument is ascertained using Cronbach's alpha to measure the internal consistency of the instrument

Method of Data Analysis, Model Specification and Measurement

Descriptive and inferential statistics are utilized in the analysis of data. Descriptive statistics tools include frequency table, percentage, minimum, maximum, mean, standard deviation and Pearson correlation while multiple linear regression model is employed as inferential statistics tool to predict probability of organizational effectiveness from a combination of each predictor variable multiplied by its respective regression coefficient via SPSS version 23.

The study model is specified as follows:

$$y_i = \beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4 + \beta_5x_5 + u \dots\dots\dots(1)$$

Where:

- y_i = Organization effectiveness
- β_0 = Intercept
- β_{1-5} = Parameter associated with x_{1-5}
- x_1 = Facility workspace
- x_2 = Facility workforce
- x_3 = Facility operations
- x_4 = Facility information technology
- x_5 = Facility maintenance
- u = The error term or disturbance.

Therefore, the model becomes:

$$\text{Organization effectiveness}_i = \beta_0 + \beta_1\text{Facility workspace} + \beta_2\text{workforce} + \beta_3\text{operations} + \beta_4\text{information technology} + \beta_5\text{maintenance} + u \dots\dots\dots(2)$$

Organizational effectiveness is measured through two-point categorical scale adapted from Georgopoulos and Tannenbaum (1957). The survey instrument is classified into five sub-constructs: productivity, competitiveness, cost reduction, infrastructural stability and value advantage. On the other hand, facility management practice is measured with the extensively validated 37-items scale which comprises facilities indices approved by Federal Ministries of Education and National University Commission (CCMAS, 2022). The scale measures five sub-dimensions of FM that is

facility workspace (13 items), workforce (4 items), operations (6 items), information technology (9 items) on a five-point rating scale ranging and maintenance (5 items) on a two-point categorical scale. The overall Cronbach alpha for organizational effectiveness scale is 0.83 while FMP is 0.79. The results of Alpha Coefficients for the two instruments are satisfying and fit with threshold value of 0.70 of Nunnally and Bernstein (1994).

Data Presentation and Analysis

This section presents and analyses the data obtained in the course of this study. The section key components include demographic analysis, descriptive statistics, inferential statistics and discussion of findings.

Demographic Analysis

Demographic information of the respondents reveals that only one hundred and twenty-nine (129) questionnaires representing (93.47%) were the total validly filled and returned questionnaires for the purpose of this study out of the one hundred and thirty-eight (138) distributed questionnaires. The remaining eight (6.7%) questionnaires included three (37.5%) respondents who returned blank questionnaires; 3 (37.5%) participants who picked more than one option; and 2 (25%) respondents who returned incomplete responses.

Demographic analysis further reveals that out of the study population of one hundred and twenty-nine (129), one hundred and seventeen respondents (90.6%) were male and twelve respondents (9.3%) were female. In terms of employment status, seventy-one (71) senior academic staff recorded the highest with 55% followed by the remaining fifty-eight (58) non-teaching staff who are senior technical staff. In the categorization of respondents by the highest academic qualification attained, Ph.D recorded the highest with 55%, followed by B.Sc with 18.6% and M.Sc with 13.9%. 12.4% had HND/PGD. Years of work experience registered highest years of experience within the age bracket of 11 - 15 years with 27.9%. Furthermore, the analysis indicates that that majority of the respondents are serving in the Faculty of Administration and Management (56.5%), followed by Directorate of Physical Planning and Works (12.4%), Maintenance and Quality Assurance (11.6%), ICT (10%) and Procurement (9.3%). This implies that majority of the respondents for this study comprise male, senior academic and technical staff who are serving in key directorate related to FMP and have acquired higher academic qualification with moderate years of work experience.

Table 1: Demographic Characteristics of the Respondents

Demographic Characteristics		Frequency	Percentage %
Gender	Male	117	90.6
	Female	12	9.3
	Total	129	100
Employment status	Academic staff	71	55
	Non-teaching staff	58	44.9
	Total	129	100
Job categories	Academic	71	55
	Technical	58	44.9
	Administrative	-	-
	Non-technical	-	-
	Total	129	100
Job rank	Senior cadre	129	100
	Junior cadre	-	-
	Total	129	100
Academic Qualifications	Ph.D	71	55
	M.Sc	18	13.9
	B.Sc	24	18.6
	HND/PGD	16	12.4
	National Diploma	-	-
	Total	129	100
Years of work experience	Above 25 years	19	14.7
	21 - 25 years	21	16.2
	16 - 20 years	28	21.7
	11 - 15 years	36	27.9
	Below 10 years	25	19.3
	Total	129	100
Faculty/Directorate	Administration & Management	73	56.5
	Physical Planning and Works	16	12.4
	Procurement	12	9.3
	Maintenance & Quality Assurance	15	11.6
	ICT	13	10
	Total	129	100

Descriptive Statistics

Table 1 presents the summary statistics of minimum, maximum, means, standard deviations and correlations of the study variables. The total validly observed sample comprises one hundred and twenty-nine (129) senior academic and technical staff of the tertiary institutions. Organizational effectiveness had a mean of 16.54264 with a standard deviation of 2.847718. This indicates a fairly high increase in terms of productivity, competitive advantage, cost reduction, additional value and infrastructural stability. Similarly, workspace, workforce and operational facilities signify a relatively high extent of keeping up with NUC minimum academic standard requirements with mean scores of 38.53488, 12.9845 and 19.03101 respectively. However, both information technology and

maintenance facilities recorded mean scores of 23.75194 and 12.8062 implying a fairly low extent of adequacy of technological facilities and active maintenance culture in the institutions. In addition, all variables standard deviation shows low variability to the mean of all variables signifying that all variables means are good representation of sample data.

Table 2: Descriptive Statistics

Variables	Obs	Mean	Std. Dev	Minimum	Maximum
OE	129	16.54264	2.847718	9	23
FWS	129	38.53488	8.363842	19	57
FWF	129	12.9845	2.833903	7	18
FO	129	19.03101	4.606276	9	28
FIT	129	23.75194	5.976557	12	38
FM	129	12.8062	3.333255	7	22
Valid N (List wise)	129				

The correlation matrix of the study variables suggests that the relationships among variables are in expected direction. A moderate to strong positive and significant relationship has been observed between facility management practice and organizational effectiveness on an over-all basis with the calculated $r =$ ranges from 0.4314 to 0.9339 (significant at 0.05 level). This clearly states that higher facility management practice in tertiary institutions is associated with increased organizational effectiveness.

Table 3: Correlate OE FWS FWF FO FIT FM

Variables	OE	FWS	FWF	FO	FIT	FM
OE	1.0000					
FWS	0.8009*	1.0000				
FWF	0.7939*	0.6243*	1.0000			
FO	0.5931*	0.8705*	0.4573*	1.0000		
FIT	0.7098*	0.9339*	0.5145*	0.8587*	1.0000	
FM	0.7132*	0.7402*	0.4314*	0.6695*	0.8635*	1.0000

(Obs=129), *. Correlation is significant at the 0.05 level (2-tailed).

(Obs=129), *. Correlation is significant at the 0.05 level (2-tailed).

Inferential Statistics

Multiple linear regression (MLR) model was incorporated to establish relationships between facility management practice and organizational effectiveness. MLR analysis consists R^2 , F-test, and t-test statistics. In this analysis, five hypotheses were formulated. The result revealed that the model had an R -squared = 0.8859, adjusted $R^2 = 0.8812$, $F(5, 123) = 190.97$. R -squared = 0.8859 indicating that 88.5% of the variations in organizational effectiveness are explained by the five variables (workspace, workforce, operational, information technology and maintenance facilities). Adjusted R square suggests that the

cross validity of this model is very good. Similarly, the F-statistics = 190.97, with a p-value = 0.000 shows that the overall model is a significant predictor of the organizational effectiveness. The results further revealed all unstandardized coefficients with positive b-values signifying positive relationships between facility management practice (workspace, workforce, operational, information technology and maintenance facilities) and organizational effectiveness. This implies that as each predictor increase by one unit, organizational effectiveness increases by 0.3664129, 0.3896754, 0.5465053, 0.4206625 and 0.1182024 respectively. The standardized coefficients (beta) weight indicated that workspace is the strongest predictor ($\beta = 1.076167$, $P = 0.000$), followed by information technology (0.8828521), operational facilities (0.6396846), workforce (0.3877851), and maintenance facilities (0.1911962) respectively. Finally, the t-test statistics established a statistically significant relationship between facility management practice (workspace, workforce, operational, information technology facilities) and organizational effectiveness with workspace facility (t-test = 9.64, $p < 0.001$), operational facility (t-test = 9.61, $p < 0.001$), workforce facility (t-test = 9.39, $p < 0.001$), and information technology facility (t-test = 6.70, $p < 0.001$). However, the result showed that only maintenance facility is not statistically significant related to organizational effectiveness with maintenance facility (t-test = 2.91, $p > 0.001$). Consequently, statistical evidence was found to support all alternative hypotheses except hypothesis for operational facility relations to organizational effectiveness.

Table 4: Regress OE FWS FWF FO FIT FM, Beta

Source	SS	df	MS	Number of obs =129
Model	919.561514	5	183.912303	F(5, 123) = 190.97
Residual	118.45399	123	.963040566	Prob> F = 0.0000
Total	1038.0155	128	8.10949612	R-squared = 0.8859
				Adj R-squared = 0.8812
				Root MSE = .98135

OE	Coeff	Std. Err.	t	P > t	Beta
FWS	.3664129	.0379985	9.64	0.000	1.076167
FWF	.3896754	.0414844	9.39	0.000	.3877851
FO	.5465053	.0568499	9.61	0.000	.6396846
FIT	.4206625	.0627474	6.70	0.000	.8828521
FM	.1182024	.0406132	2.91	0.061	.1911962
_cons	2.60562	.4804	5.42	0.000	

Discussion of Findings

The present study was designed to explore the connection between facility management practice and organizational effectiveness. It is interesting to note that the findings of the study hypotheses show a statistically significant positive relationship between facility management practice (workspace, workforce, information technology and maintenance facilities) and organizational effectiveness. Remarkably, the finding is supported by the strategic constituency theory, which affirms that organization effectiveness is contingent upon fulfilling diverse demands of workplace, workforce, and work operations

dimensions in its environment from which it needs support for its survival. Contrary to expectations, relationship between operational facilities and organizational effectiveness was not significant. Consistently, the current study produced results which corroborate the findings of a great deal of the previous work in this field such as Adewale, Abiola and Foluso (2022); Ahmodu and Salaam (2022); Gbesoevi (2021); Shehu, Ezenwegbu, Kabiru and Alfa (2020); Fadahunsi, Utom, Ochim, Ayedun, and Oloke (2019); Rufai, Olaniyonu and Mohammed (2018); Rashidul, Saraju, Abdul and Tasnia (2017); Comfort and Veronica (2016); Okafor and Onuoha (2016); Karibo and George (2015); Chandrashekar and Gopalakrishnan (2008); Lavy (2008), Shah (2007); and Barrett and Baldry (2003).

It appears from the aforementioned open literature that much attention has been paid to investigating the link between facility management practice and organizational effectiveness. Interestingly, a clear understanding of the degree of extent to which facility management practices relate to university effectiveness is essential and missing in a number of previous studies as a growing body of earlier literature are qualitative in nature. This knowledge gap constrains the findings of the earlier studies. The present study, however, makes several noteworthy contributions to the findings of prior studies and adds to the existing body of empirical literature by providing a more comprehensive investigation with robust statistical analysis of the connection between the study variables as revealed in the unstandardized coefficient and standardized beta analysis.

Conclusion and Recommendations

The evidence from this study has explained the central importance of facility management practices in organizational effectiveness. Results have suggested a positive and significant contribution of facility management practices towards organizational productivity, competitiveness, cost efficiency, value advantage and infrastructural stability. Consequently, the current study concludes that facility management practice is significantly related to organizational effectiveness. Therefore, this study provides the following recommendations:

1. As significant relationship is established between and FMP and organizational effectiveness. The standard of workspace facilities, workforce facilities, operational facilities and IT facilities should be enhanced to strictly adhere to the National University Commission minimum standard requirements in order to match the staff and student population in the tertiary institutions.
2. Only maintenance of educational facilities revealed an insignificant relationship to workplace effectiveness. The implication is that maintenance culture generally fall short of expectation. Hence, management should develop a regular and preventive maintenance culture for college staff and student to follow. A committee to inspect workplace facilities from time to time should be constituted. This goes a long way to eliminate unexpected disruptions, reduce failure and improve efficiency.
3. Facility evaluation committee should be constituted to carry out periodic in-depth reviews of the present state of educational institution facilities, identify

and prioritize areas of urgent facilities needs and services, and make recommendations to the college management for the strategic direction and implementation of facilities priorities to ensure that campuses are functional and well-maintained. Besides, the committee should ensure thorough assessment of the quality, adequacy and currency of educational facilities and resources in the institutions and ensure compliance to academic brief, staff-student ratio, quality and mix, teaching and research quality.

4. The management must ensure that facilities goal and strategy are aligned with the institutional goal and strategy, and demonstrate facilities value as a key medium for the achievement of the university goals and vision.
5. Institution autonomy should be encouraged, specifically in reference to teaching, learning, research, innovation and in combination with proper funding to equip tertiary institutions in terms of operational and learning facilities.
6. Mock accreditation exercise should be encouraged and properly conducted to provide the educational institution an opportunity for critical analysis leading to improvement in quality, services and operations.

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