**WORKSPACE UTILISATION INDICATORS THAT INFLUENCE USERS’ PERFORMANCE WITHIN WORKSPACES OF GOVERNMENT OFFICE BUILDINGS IN LAGOS, NIGERIA.**

Deborah Oluwabunmi Alonge1, Stella Zubairu2, Gafari Olabamiji Adebisi3

1-3Federal University of Technology, Minna, Niger state, Nigeria.

o.alonge@futminna.edu.ng, stellazubairu@gmail.com, a.olabamiji@futminna.edu.ng

**ABSTRACT**

*Space utilisation is a phenomenon under space management used in evaluating space performance in buildings, office buildings in the context of this paper. Office space utilisation refers to how many individuals occupy a specific space in an office building. Measuring space utilization is done to determine how the office space is currently being used and how it might be used in the future, to sustain existing facilities and help office users and office owners in managing building space as part of the space management process. The workspace has however over the years experienced changes that have affected the way work is carried out within the workspaces as well as the office as a whole. As these changes occur, job description changes, and the users of the spaces keep increasing, there is a need for an examination into workspace utilisation, to improve user’s performance as well as flexibility in office buildings. This paper aims to examine workspace utilisation indicators that influence the performance of workers within the workspaces of government offices in Lagos. Therefore, the quantitative method approach was considered for data collection, hence data collected was quantitative. Consequently, a total number of 322 respondents were surveyed from 105 offices found in six office buildings through random sampling using questionnaires to evaluate utilisation indicators that influence work performance within the workspace. When analyzing the data obtained from respondents, inferential statistics were used to gain empirical evidence. This led to the generation of four indicators namely; workspace design, employee engagement, collaborative capabilities, and organisational components. The study concludes by generating a statistically significant relationship between the four important utilisation indicators. This is expected to guide Architects, planners, and developers in proposing a workspace that is effective, sustainable, and geared toward the work performance of office users.*

*Keyword: Employee engagement, Performance, Utilisation, Workspace, Workspace design.*

 **INTRODUCTION**

The office space and environment have generated a lot of research interest lately. According to Steer (2016), the modern era of office work and design is a hot topic of conversation. Researchers, space managers, facilities managers, as well as design professionals are aiming at ways to use the workspaces more efficiently as a means to reduce the overall space cost by reducing the amount of space occupied and used by organisations (Workplace Consulting Organisation, 2013). The office building comprises various types of spaces and a work environment to facilitate daily work activities. According to Hassanain (2015), the main goal of an office building is to make it easier for people to process information and create a work environment for tasks like organizing, planning, analyzing, and communicating. However, the spaces to work for employees as well as their job activity need to match the spatial characteristics of the space provided to work.

1. The optimal use of workspace by architects, space planners, and facilities managers has received a lot of attention because, in addition to pay and benefits, workplace design now influences employee performance (Waber *et al.,* 2014). A well-designed workspace can benefit employees, but a poorly designed workspace can also have unfavorable impacts, Thus, stress, job discontent, absenteeism, and high turnover result from this (Salama and Courtney, 2013); According to studies, employees' productivity, job happiness, and well-being are significantly correlated with the quality of their workspace design (Ricciotti et al., 2014).
2. Recent developments in workplace design and planning have highlighted the necessity of having a well-planned office, designed, and equipped carefully to maximize the efficiency of the employees to be able to create value for their organizations (Owen 2003, Hassanain, 2015, Steer 2016). Increasingly, there is a growing interest in the new office design concept of the 21st century for more optimum use of office space, to improve user satisfaction, maximize the potential of employees, performance, and productivity and to reduce facility cost and have better organizational planning and policies (Hartog, 2015; Waber *et al.,* 2014). It is therefore imperative that the utilization design of workspaces, environment, and operation is planned to optimize the workforce's adaptability and efficiency (Owen, 1993; Nik Lah *et al.,*2015).

In the study carried out by Naharuddin and Sadegi (2013), it was found out that when workplace design and atmosphere are employed well, employees' performance is greatly impacted. The study also looked at the interactions between supervisor support, the physical workspace, job aids, and job performance. The strongest relationship existed among job performance and the work environment. According to a different study conducted by Haynes (2008), modernizing the physical layout of the workplace can increase performance inside the organization by 5 to 10%. Better employee performance leads to this greater organizational performance (Kamarulzaman *et al*., 2011).

This paper aims to evaluate workspace utilization indicators that influence users’ performance within workspaces of government public offices. This will provide insights into the factors that influences work performances significantly within the office. To achieve this aim, the office types was identified and evaluated together with four indicators, workspace design, employee’s engagement, collaborative capability and organizational management culture. This is discussed in the subsequent section.

### WORKSPACES AS ACCOMMODATION FOR ORGANISATION

The design of an office plays an integral part in the success of the owners of the office building. According to Visher (2008), the space and spatial decisions of an office transit and mediate the social-cultural principles that affect how humans behave and relate with each other in a given space. Space was considered as a communicator that symbolizes an organisational value and culture. Therefore, an organization can use space to serve as a tool and an intermediary between its employees and the company they work for (Jing, 2015). Based on literature evaluations, the office building's only function is to house workplaces and work settings where users and organizations can generate capital. This is why, a well-designed office plays a critical role in achieving business success. Some factors have been found to contribute to achieving the goal of the workspace being an accommodation for organizations, they are discussed in the following sub-sections.

***Employees Engagement***

Any corporation that wants to succeed must prioritize employee engagement since it benefits equally employees and the organization. Office users use the provisions in their contracts to assist their firm in achieving its goals and vision, and in any type of organization, management's ability to deploy employee engagement strategies is essential (Osborne & Hammoud, 2017). One of the main issues in today's workplace is employee engagement. As long as this continues, firms will struggle with employee engagement, mostly because of the complexity and stringent regulations present in many organizations (Mishra, Boynton, & Mishra, 2014). It has been discovered that one of the fundamental needs of satisfaction is strongly related to how committed employees are (Vandenabeele, 2014). Consequently, putting in effort and doing worthwhile work makes employees realize their worth to the organization, which raises employee engagement. (Osborne & Hammoud, 2017).

Studies have indicated that companies with highly engaged employees typically generate higher returns than those without (Society for Human Resource Management [SHRM], 2014). In addition, businesses with workers who are dedicated to their job description report higher profitability, happier customers, and more output from staff members (Ahmetoglu *et al*., 2015; Vandenabeele, 2014).

***Collaborative capability***

According to Osborne & Hammoud (2017), collaboration is the process by which two or more people or organizations cooperate to achieve the same common goal. As a result, a collaborative work environment needs room, furnishings, and technology to facilitate both individual focus and group engagement. Thus, the capacity to collaborate improves interaction and communication. Collaboration, according to Schein (2004), is the process by which individuals with disparate perspectives on an issue may constructively explore their differences and look for answers that go beyond their own constrained ideas of what is feasible. When individuals from both inside and outside of an organization work together, fresh perspectives, experiences, and information are exchanged, leading to the development of new ideas and solutions that facilitate task completion (Schein, 2004). Determining the best strategies for assisting with both solo and group work requires an understanding of social and cognitive processes.

#### *Organisational management culture*

It is the role of an organization in ensuring proper work is done and a comfortable work environment that works well is provided for their employees cannot be over-emphasized. To increase employee engagement, organizations need to establish a psychologically secure environment for their employees (Kompaso & Sridevi, 2010). Leaders who create a psychologically safe environment also initiate a culture of psychological ownership and involvement inside the organization (Dollard & Bakker, 2010). Organizations must therefore create programs that emphasize skills to affect worker engagement, productivity, and teamwork. Competitive work conditions and ongoing improvements can be fostered by a favorable organizational culture (Morgeson et al., 2013). Consequently, management executives who cultivate a generative organizational culture promote personal and professional development for both themselves and their staff. The basic ideas, views, and accepted practices of an organization's leader are inferred to be part of its culture, according to Fehr & Gelfand (2012).

**METHODOLOGY**

The study adopted the questionnaire survey which focuses on the factors that influence the performance of users in their workspaces. The emphasis is on users and how important they think each of the aspects that have been found to affect employee performance at work is. Questions asked were based on the literature related to office designs including questionnaires from previous studies related and beneficial to this study. Users in the 105 offices evaluated from the six office buildings chosen for the survey were given a total of 400 questionnaires. 322 filled questionnaires were returned, 43 were returned unfilled and 33 were void. The questionnaire has two (2) sections. The respondents' demographics—that is, their background information was requested in the first section. The data obtained is known as categorical data. This is due to the fact that it only included binary variables, which are two classes on a two-point scale (Taherdoost, 2016). The Likert scale, which ranges from "Strongly Agree" to "Strongly Disagree," was used in the second section. Likert scale assessments are often used in surveys to assess the general quality, weight, and relevance of variables. As a result, the study's unit of analysis was the office users. Analysis of the data collected in the first section was on characteristics of the users, it demonstrated the ratio of men to women among those surveyed to be 69.6% to 30.4%. According to UN figures from 2008, women make up 35.4% of the labor force in Nigeria, hence these percentages are fairly indicative of the country's overall society. In a similar vein, 39.2% and 60.8% of the adult male and female populations in the nation, respectively, are employed (UN data, 2011). It appears that the study's opinions are pretty well-represented for both genders because the survey's dispersion was about equal.

Inferential statistics were used to analyze the data from the questionnaire forms in the second segment. The four main categories of 34 variables are the "workspace design," "employee engagement," "collaborative capability," and "organizational management" categories which was used to measure utilization indicators. Subsequently, an assessment of the correlation between the variables designated for use in the office buildings is provided.

#### UTILISATION INDICATORS THAT INFLUENCE USERS’ PERFORMANCE

The study included four primary categories of factors, including "Workspace design," "employee engagement," "Collaborative capability," and "Organisational management." 34 workspace utilization indicators were highlighted in this study under the four main categories. Of the 34 measures, 8 (eight) fall under the category of workplace design, 8 (eight) fall under the category of employee engagement, 7 (seven) fall under the category of collaborative capabilities, and 11 (eleven) fall under the category of organizational management (Table 1.1). Therefore, an abbreviation of the name of the suitable category is added in a bracket with each variable to make it easier to identify which group the variable belongs to. Hence, WD was used to categorize measures in the workspace design category, EE for the employees’ engagement category, CC was used for the collaborative capability category and OM was used for the organisational management category.

First, the examination of the respondents yielded the mean values to rate how significant the measures of the indicators are; therefore, the variables were ranked based on the obtained mean values using cut-off points based on the scale of measurement. The cut-off point is as follows; Strongly agree (1.0-1.49), Agree (1.50-2.49), Disagree (2.50-3.49), Strongly Disagree (3.50-4.49), and Undecided (> 4.50).

According to the results (Table 1.1), “Interaction is enhanced because of workspace design”, “access to storage spaces enhances job description” and “there is space within my workspace to hold meetings suitability were among the first ten variables that had the highest ranking from the respondents. These ten variables all fall within the four categories where WD is 2, EE is 5, CC is 2 and OM is 1. The remaining twenty-four (24) variables showed a high response from the respondent that these variables affect their utilisation within their workspaces as shown in Table 1.1. The result also showed that the four categories of factors were fully captured, where WD captured six (6) variables, EE showed three (3) variables, OC showed five (5) variables and OM showed ten (10) variables.

This implied that in comparison, organisational management of the offices has tried in their management responsibilities. However, from the assessment, some of the organisational management categories still needed to be looked into. An example is the ‘’level of privacy’’ and ‘protection from external distraction affects my daily task’. The result also showed that some variables under the workspace design factor needed to be put in check as this was seen to affect the utilisation of the workspace which in turn affects the level of performance of employees. Some of these include, the office often feeling overcrowded by respondents and the space surrounding the workstation being inadequate.

Table 1.1 **Descriptive statistics of measures of utilisation indicators**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Measures** | **Mean** | **Std. Deviation** | **Rank/****decision**  |
| CC22 | Interaction is enhanced because of workspace design | 2.76 | .833 | 1(D) |
| CC21 | Access to storage spaces enhances the job description | 2.76 | .833 | 2(D) |
| EE10 | There is space within my workspace to hold meetings | 2.76 | .949 | 3(D) |
| WD6 | Suitability for users' needs is ensured by the sufficient flexibility of furniture, fittings, and equipment placement. | 2.75 | .839 | 4(D) |
| EE12 | I occupy my workspace all-day | 2.75 | .844 | 5(D) |
| EE11 | Hours spent in the office affect my job task | 2.63 | .848 | 6(D) |
| WD8 | The office feels very spacious | 2.61 | .918 | 7(D) |
| EE9 | The number of users does not affect my job description | 2.60 | .879 | 8(D) |
| OM29 | There is overall suitability of building to organisational need | 2.57 | .955 | 9(D) |
| EE14 | Ability to alternate use of various workspaces | 2.51 | 1.083 | 10(D) |
| OM24 | Circulation space within workspaces affects the daily work schedule | 2.49 | .873 | 11(A) |
| EE16 | Managers communicate with staff members regarding significant choices, modifications, or future goals. | 2.45 | .893 | 12(A) |
| WD7 | The office often feels overcrowded | 2.33 | .978 | 13(A) |
| EE13 | Equipment is adequate such as computer, printer, copiers, software | 2.18 | .994 | 14(A) |
| CC20 | Access to filling cabinets and shelves suits my Job | 2.18 | .978 | 15(A) |
| WD1 | Office size suits my job description | 2.15 | .883 | 16(A) |
| EE15 | My job requires the performance of a wide range of task | 2.03 | .896 | 17(A) |
| CC23 | There is ease of retrieving stored work material and records from the archive | 2.01 | .929 | 18(A) |
| OM30 | Safety and security of doors and gates are assured | 1.97 | .925 | 19(A) |
| WD4 | Furniture type and quality enhance my job description | 1.96 | .835 | 20(A) |
| OM34 | The use of colour and interior decoration is considered within workspaces | 1.93 | .765 | 21(A) |
| OM28 | There is adequate freshness of natural ventilation | 1.93 | .823 | 22(A) |
| CC17 | There is always space and a conference room available. | 1.92 | .833 | 23(A) |
| CC18 | Space and seats for visitors are adequate | 1.91 | .923 | 24(A) |
| WD2 | My workspace supports my job description | 1.88 | .811 | 25(A) |
| OM31 | There is adequate access to the use of conveniences | 1.79 | .751 | 26(A) |
| OM30 | Natural lighting is sufficient for daily work | 1.73 | .783 | 27(A) |
| OM32 | There is distraction by internally generated noise | 1.73 | .731 | 28(A) |
| OM27 | Protection from external distractions affects my daily task | 1.69 | .783 | 29(A) |
| OM25 | The level of privacy in the office affects my work | 1.66 | .689 | 30(A) |
| WD3 | Furniture layout and arrangement suit daily work | 1.66 | .689 | 31(A) |
| WD5 | The space surrounding my workstation is inadequate | 1.66 | .690 | 32(A) |
| CC19 | The space for work equipment and materials suits daily requirements for work | 1.56 | .768 | 33(A) |
| OM26 | Speech privacy affects daily work schedule | 1.54 | .679 | 34(A) |

Note: 1.0-1.49-SA, 1.50-2.49-A, 2.50-3.49-D, 3.5-4.49-SD, 4.5-> U.

Source: Authors fieldwork, 2020.

**Important latent elements that underlie the metrics of the utilisation indicator**

The analysis and findings of the search for important variables or latent dimensions that underlie the 34 different utilisation indicator measures that were employed in this study are presented in this section. It also presented the result to determine the relationship between these key factors using correlation analysis. Indicators for utilisation were subjected to a reliability test so that Cronbach’s alpha is determined.

A group of interrelated variables' underlying dimensions is referred to as factors that underpin certain constructs, like the one in this study which is evaluating utilisation indicators for users’ performance in their workspaces. Therefore, factor analysis utilizing the principal component analysis (PCA) approach was used to identify the relevant essential dimensions. Using the fewest number of variables possible, factor analysis explains the greatest amount of shared variance in a correlation matrix (Field, 2009). As a result, factor analysis was carried out on each variable. In doing so, the risk of significant latent dimensions in one category being absorbed by those in other categories is avoided.

The first step of factor analysis is to determine the factorability of the sample and the data available. This indicates that to avoid highly misleading results from factor analysis, sample size and data that do not match the required factorability criteria should not be employed. The factorability test was conducted using four accepted techniques, the first of which compares the ratio of the number of variables with the sample size or cases to ascertain whether the sample is sufficient for this activity. According to Kass and Tinley (1979), each variable should include a minimum of 5 participants and a maximum of 10 participants. There are 322 cases (user respondents) in this study, which equates to 10 participants for each of the categories that were used. This is seen as sufficient. The second test is that of Keiser Meyer Olkin (KMO) as shown in Table 1.2, also a test of sampling adequacy. KMO measures the ratio of the squared correlation between variables to the squared partial correlation and this helped to identify the data with the highest strength. A value of zero indicates that the partial correlation is large relative to the sum of the correlation and is an indication that the data may not be suitable for factor analysis. A value closer to one (1) should yield distinct and reliable factors and it is recommended that a KMO of 0.5 to 0.7 are mediocre values, those between 0.7 and 0.8 are good, above 0.8 to 0.9 are very good, and above 0.9 are superb (Field, 2009).

Table 1.2: **KMO and Bartlett's Test for Measured Variable**

|  |
| --- |
| **KMO and Bartlett's Test** |
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy 0.883 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 705.367 |
| Df | 94 |
| Sig. | .001 |

Source: Authors fieldwork (2020)

Table 1.2 provides the details of the KMO tests performed on the data obtained on the four categories of factors used in the study. These categories are workspace design, employee engagement, collaborative capabilities, and organisational management factors. The table also shows that the KMO value is 0.883 which indicates that the sampling adequacy of the variables to be measured is very good.

#### Bartlett's test of sphericity was the third factorability test used in the present study. This served as a test for the identity matrix (zero correlation), which was the study's initial correlation matrix. Since factors must have some kind of correlation for factorization to be useful, an identity matrix, which has zero correlation, is unsuitable for factorization. Table 1.2 verifies that the correlation matrix sets are not identical matrices with a 94% probability. The fourth factorability test, referred to as the multicollinearity test, is triggered by the requirement that the variables do not exhibit high correlation. Factor analysis data must not indicate a high correlation (multicollinearity). This suggested that the study's data are regarded as being more than sufficient for factorability.

#### Factor analysis for utilisation indicator measures

Factor analysis as earlier stated describes the variability among observed and correlated variables. Hence, the purpose of factor analysis is to reduce all the variables observed into fewer dimensions and examine the underlying features of constructs within a large number of variables (Hair et al., 2010). Determining the number of components to extract following the correlation was necessary to go on to the next stage of the study. There are two accepted methods for choosing factors from data. These are Cartell's scree plot and Kreiser's criteria. According to Keiser's criterion, each component or factor with an eigenvalue of at least one (X ≥ 1) should be extracted. Cartell finds the point of inflection—the abrupt leveling off or dropping of the plot—by plotting each subsequent eigenvalue in the data in descending order. Only Kreiser's criterion was applied in the present study. The number of factors to be extracted is the number of factors before to this point. Utilisation indicators Principal Component Analysis (PCA) identified thirteen (13) factors (Table 1.3) with eigenvalue of more than 1. This suggests that thirteen (13) components should be extracted using Keiser’s criterion.

Table 1.3: **Correlation Matrix of utilisation indicators**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 1 | 1.000 |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 | .107 | 1.000 |  |  |  |  |  |  |  |  |  |  |  |
| 3 | -.023 | -.035 | 1.000 |  |  |  |  |  |  |  |  |  |  |
| 4 | -.017 | .001 | -.008 | 1.000 |  |  |  |  |  |  |  |  |  |
| 5 | -.060 | -.020 | .021 | -.041 | 1.000 |  |  |  |  |  |  |  |  |
| 6 | -.045 | .045 | -.022 | -.007 | -.072 | 1.000 |  |  |  |  |  |  |  |
| 7 | .077 | .008 | .010 | .080 | .010 | .023 | 1.000 |  |  |  |  |  |  |
| 8 | .030 | .006 | .034 | .001 | .087 | -.032 | .009 | 1.000 |  |  |  |  |  |
| 9 | .009 | .017 | .075 | .038 | .111 | -.005 | -.056 | .004 | 1.000 |  |  |  |  |
| 10 | .000 | .003 | .069 | .024 | .093 | -.068 | .003 | .042 | .083 | 1.000 |  |  |  |
| 11 | -.011 | -.010 | -.010 | -.031 | .023 | .004 | .008 | .043 | -.031 | -.068 | 1.000 |  |  |
| 12 | -.046 | -.034 | .026 | .008 | -.026 | .075 | -.016 | -.057 | .037 | .001 | .012 | 1.000 |  |
| 13 | .046 | .034 | -.031 | -.001 | .020 | .031 | .001 | -.036 | .009 | -.010 | -.017 | .051 | 1.000 |

Extraction Method: Principal Component Analysis.

 Rotation Method: Oblimin with Kaiser Normalization

As shown in Table 1.4, the initial and extraction statistics were the same which is considered normal in Principal component analysis (Pallant, 2013). After rotation, the percentage of total variance accounted for by all factors did not change. However, the percentage accounted for by each factor did change. As was previously said, the number of factors was ascertained by applying the criterion of "eigenvalues>one," and it was observed that factors 1 through 13 satisfied this requirement. A linear variance of 3.568, 2.651, 2.276, and 2.145 was explained by factors 1–13, whilst 1.056 and 1.009 were revealed by the final two. The percentage of the variations in the thirteen (13) variables explained by these factors is, 10.49%, 18.29%, 24.98%, 31.29%, 36.60%, 41.41%, 45.85%, 50.06%, 53.86%, 57.32%, 60.45%, 63.56% and 66.53% for the components respectively giving a total cumulative variance of 67%.

Table 1.4: **Initial Eigenvalues of utilisation indicators**

|  |  |  |  |
| --- | --- | --- | --- |
| Component | Initial Eigenvalues | Extraction Sums of Squared Loadings | Rotation Sums of Squared Loadingsa |
| Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total |
| 1 | 3.568 | 10.493 | 10.493 | 3.568 | 10.493 | 10.493 | 3.229 |
| 2 | 2.651 | 7.797 | 18.290 | 2.651 | 7.797 | 18.290 | 2.971 |
| 3 | 2.276 | 6.695 | 24.985 | 2.276 | 6.695 | 24.985 | 2.147 |
| 4 | 2.145 | 6.309 | 31.294 | 2.145 | 6.309 | 31.294 | 2.117 |
| 5 | 1.807 | 5.314 | 36.608 | 1.807 | 5.314 | 36.608 | 1.661 |
| 6 | 1.636 | 4.810 | 41.418 | 1.636 | 4.810 | 41.418 | 1.651 |
| 7 | 1.507 | 4.433 | 45.852 | 1.507 | 4.433 | 45.852 | 1.524 |
| 8 | 1.432 | 4.212 | 50.063 | 1.432 | 4.212 | 50.063 | 1.385 |
| 9 | 1.293 | 3.803 | 53.866 | 1.293 | 3.803 | 53.866 | 1.591 |
| 10 | 1.176 | 3.460 | 57.326 | 1.176 | 3.460 | 57.326 | 1.338 |
| 11 | 1.065 | 3.134 | 60.459 | 1.065 | 3.134 | 60.459 | 1.113 |
| 12 | 1.056 | 3.105 | 63.564 | 1.056 | 3.105 | 63.564 | 1.274 |
| 13 | 1.009 | 2.966 | 66.531 | 1.009 | 2.966 | 66.531 | 1.193 |
| 14 | .987 | 2.902 | 69.433 |  |  |  |  |
| Extraction Method: Principal Component Analysis. |

This makes the result quite reliable because it shows a very good significant outcome of the relationship between the variables and it adequately captured the variance structure of the original data.

#### Utilisation indicator factors

Twenty-seven variables loaded highly on the utilisation indicators and it spread across the four major factors that were used to measure the indicators. This implies that these variables will enhance and be used in the development of the framework. These variables included ‘occupying workspace all day’, ‘the number of users does not affect job description’, ‘there is space within the workspace to hold meetings’, and ‘hours spent in the office affects job description’. These four variables all fall under the Employee engagement factors. For collaborative capability factors, variables with high loading included ‘interaction is enhanced because of workspace design’, ‘access to storage spaces enhances job description’, ‘there is always a meeting room’ and ‘access to filling cabinet and shelves. Other variables such as ‘circulation space within workspaces influences daily work schedule’, ‘natural lighting is sufficient for daily work’, and ‘level of privacy also loaded high. They fall under the organisation management factors. The remaining two variables fall under the workspace design factor, ‘furniture layout and arrangement suit daily work’ and ‘space surrounding workstation is adequate’.

The meaning of these variables and their loadings thus suggest that the factors measured are dominated by variables associated with the utilisation indicators that influence performance within workspaces. This suggests that the utilisation indicators significantly influence the users’ performance within workspaces of government office buildings in Lagos.

#### UTILISATION INDICATORS THAT INFLUENCE USERS’ PERFORMANCE

This section shows how the performance of users is influenced by the utilisation indicator measures of this study. Four indicators’ measures were used, Workspace design, employees’ engagement, collaborative capability, and organisational management. The results of the principal factor analysis show that these indicators significantly influence the utilisation of users within their workspaces hence affecting their level of performance. The four indicators are workspace design, employee engagement, collaborative capability, and organisational management. They are further discussed in subsequent sub-sections.

1. **Workspace design**

The design of the workspace and the office work environment plays a major role in how users of these workspaces perform within their office workspace and job tasks. This study has shown that employees will feel a “sense of pride” about their work environment when the design of the office and the architecture is well thought out and this implied that employees were more likely to be more efficient, productive, and perform better. Having flexibility in terms of use of space (always have available space, adequate types of space, and flexibility to rearrange furniture) for different work needs (meetings, conversations, or collaborative work) is significantly associated with work performance. This confirmed that workspace design is one of the significant features of utilisation in this research. This aligns with and supports the study carried out by Jing (2015). They discovered that the ideal work environment was thought to foster flexibility and circulation as well as interactions with others.

1. **Employee engagement**

The number of users, occupancy rate, and hours spent within the office have shown the highest level of significance in influencing the engagement of employees within their workspaces. According to Menguc *et al* (2013), the main purpose of employee engagement is for workers to align with organizational goals and go above and beyond what is required of them. Performance is improved by an employee's willingness to commit emotionally and rationally inside their organization, their willingness to stay as a result of that commitment, and their level of dedication to their task. Consequently, studies conducted by highly engaged employee organizations have demonstrated an increase in profits, employee productivity, and customer satisfaction (Ahmetoglu et al., 2015; Carter, 2015; Cooper-Thomas et al., 2014; Vandenabeele, 2014). Employee engagement improves both individual and organizational performance. Based on the study's findings, employers seek out individuals who are open to working with them; this raises employee engagement levels, which in turn boosts profitability. Because job performance is directly impacted by employee motivation, an organization that lacks this motivation is less effective.

1. **Organisational management**

### This study has shown that organisations must provide a safe, conducive, and suitable workplace to improve the performance of their employees. The establishment of a psychologically safe workplace by leaders of an organization is the first step toward fostering a culture of psychological ownership and belonging (Dollard and Bakker, 2010). This study has also shown that there is a need for organisations to pay attention to the need of their employee. Office density, furniture, and privacy were the major factor of concern to the employees; hence organisations should develop a system that allows for utilisation assessment of their office buildings to manage density within the office, improve furniture use and arrangement as well as create better privacy by ensuring adequate enclosure for the spaces created to work.

### CONCLUSION

This research has given insight into how the workspace is designed and has shown more about how people work. The study concludes by generating a statistically significant relationship between four important utilisation indicators. These workspace utilisation indicators can be predicted from the level of optimal utilisation of the office building as a whole. The study also recommends that the overall design and space planning of the office space should keep users in mind and be flexible enough to adapt to work changes. Designing the office around the needs of employees improves success in making the space functional, it also helps to identify space problem that arises within the workspace and what best resolves the workspace problem, this will help employees accomplish their work objectives. It will also assist office building owners and occupants in realizing the necessity of increasing the efficiency of space utilization. This will inevitably increase user productivity and help the organization meet its goals.

**REFERENCES**

Ahmetoglu, G., Harding, X., Akhtar, R., & Chamorro-Premuzic, T. (2015). Predictors of Creative Achievement: Assessing the impact of entrepreneurial potential, perfectionism, and employee engagement. *Creativity Research Journal*, 27, 198–205.

Carter, B. (2015). 4 dramatic shifts in the workplace that will positively affect employee engagement [Blog post]. Retrieved from http://blog.accessdevelopment.com/4-dramatic-shifts-in-the-workplace-that-will-positively-affect-employee-engagement.

Cooper-Thomas, H. D., Paterson, N. L., Stadler, M. J., & Saks, A. M. (2014). The relative importance of proactive behaviors and outcomes for predicting newcomer learning, well-being, and work engagement. *Journal of Vocational Behavior,* 84.

Dollard, M. F., & Bakker, A. B. (2010). Psychological safety climate as a precursor to conductive work environments, psychological health problems, and employee engagement. *Journal of Occupational and Organizational Psychology, 83*, 579–599.

Fehr, R., & Gelfand, M. J. (2012). The forgiving organization: A multilevel model of forgiveness at work. *Academy of Management Review*, 37, 664–688.

Field, A. (2009). *Discovering Statistics Using SPSS* (3rd Ed.). London Sage Publications.

Hair J. F., Black, W. C., Babin, B. J and Anderson, R. E. (2010). *Multivariate Data Analysis: A Global Perspective*. (7th Ed.) Upper Saddle River, N.J.; London: Pearson Education.

Hartog, L.M. (2015). User satisfaction in multi-tenant offices; the relation between personality and demographic characteristics of users and their satisfaction with physical characteristics of multi-tenant offices. Eindhoven University of Technology, Department of Architecture.

Hassanain, M. A. (2015). Analysis of Factors Influencing Office Workplace Planning and Design in Corporate Facilities*. Journal of Building Appraisal.* 6(2): 183-197.

Haynes, B. P. (2008). An evaluation of the impact of the office environment on productivity. *Facilities*, *26*, 178-195.

Jing, L. (2015). An Investigation of Workplace Characteristics Influencing Knowledge Worker’s Sense of Belonging and Organizational Outcomes. Phd Dissertation

Kass, R. A., and Tinsley, H. E. A. (1979). Factor Analysis. *Journal of Leisure Research,* 11, 120-138.

Kamarulzaman, N., Saleh, A. A., Hashim, S. Z., Hashim, H., & Abdul-Ghani, A. A. (2011). An Overview of the Influence of Physical Office Environments towards Employees. *Procedia Engineering* (20), 262-268.

Kompaso, S. M., & Sridevi, M. S. (2010). Employee engagement: The key to improving performance. *International Journal of Business and Management, 5*, 89–98.

Menguc, B., Auh, S., Fisher, M., & Haddad, A. (2013). To be engaged or not to be engaged: The antecedents and consequences of service employee engagement. *Journal of Business Research, 66*, 2163–2710.

Mishra, K., Boynton, L., & Mishra, A. (2014). Driving employee engagement: The expanded role of internal communications. *International Journal of Business Communications*, 51, 183–202.

Morgeson, F. P., Aquinis, H., Waldman, D. A., & Siegel, D. S. (2013). Extending corporate social responsibility research to the human resource management and organizational behavior domains: A look to the future. *Personnel Psychology*. 66, 805–824.

Naharuddin, N., and Sadegi, M. (2013). Factors of Workplace Environment that Affect Employees Performance: A Case Study of Miyazu Malaysia. *International Journal of Independent Research and Studies*, 2(2), 66-78.

Nik Lah, N. M. I., Mohammed, A. H., & Mohd Asmoni, M. N. (2015). Office Space Study: A Review from Facilities Management Context. *Jurnal Teknologi*, *75*(10), 85-96.

Osborne, S., & Hammoud, M. S. (2017). Effective Employee Engagement in the Workplace. *International Journal of Applied Management and Technology,* 16(1), 50-67.

Owen, C. L. (1993). A Critical Role for Design Technology. *Design Management Journal,* 4(2), 10-18.

 Pallant, J. (2013). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS.* 5thedition. McGraw-Hill Education (UK)

Ricciotti, H. A., Armstrong, W., Yaari, G., Campion, S., Pollard, M., & Golen, T. H. (2014). Lessons from Google and Apple: Creating an open workplace in an academic medical department to foster innovation and collaboration. *Academic Medicine*, 89(9), 1235-1238.

Salama, A. M., & Courtney, L. (2013). The Impact of the Spatial Qualities of the Workplace on Architects’ Job Satisfaction. *International Journal of Architectural Research,* 7 (1), 52-64

Schein, E. H. (2004). *Organizational Culture and Leadership* (San Francisco: Jossey-BassPublishers.

Society for Human Resource Management (SHRM). (2014). Employee job satisfaction and engagement: The road to economic recovery. Viewed on 24th May, 2022. Retrieved from <https://www.shrm.org/hr-today/trends-and-forecasting/research-and-surveys/Documents>

1. Taherdoost, H. (2016). Sampling Methods in Research Methodology; How to Choose a Sampling Technique for Research. *International Journal of Advance Research in Management,* 2, 236 - 239.

 Vandenabeele, W. (2014). Explaining public service motivation: The role of leadership and basic needs satisfaction. *Review of Public Personnel Administration*, 34, 153–173.

Vischer, J. C. (2008). Towards an environmental psychology of workspace: How environments for work affect people. *Architectural Science Review,* 51(2), 97-108.

Waber, B., Magnolfi, J., & Lindsay, G. (2014). Workspaces that move people. *Havard Business Review,* 92(10), 68-77.

Workplace Consulting Organisation (2013). The WCO Guide to a Glossary of Workplace Terms. Berkhamsted, Hertfordshire United Kingdom.