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Teleworking Alternative to Real Estate Practice in Nigeria: Findings from Literature

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Abstract: Organisations in different industries across the world including education, medicine, finance, information technology, engineering, amongst others have their workforce engaged in telework as the primary mode of operation. This mode of operation became even more prevalent during the COVID-19 pandemic. The adoption of telework in these industries is evidenced by the availability of published literature and guidelines. However, similar published evidence on telework as an alternative approach in the real estate profession is very limited, both in Nigeria and globally. It is in this light that this research sought to examine teleworking as an alternative to real estate practice in Nigeria with a view to identifying the tools and techniques applicable for the mode of practice. Via a review of literature, this study investigated the characteristics of telework in three major industries which included: education, medicine and Information Technology (IT). The characteristics identified were: the central use of ICT, remote communication with stakeholders, remote data acquisition and remote accessing and sharing of files. From these discoveries, and through further literature review, tools and techniques such as: Remote sensing and GIS, Property Management Software, Facilities Management Information System, property marketing platforms amongst other, were identified for remote real estate practice. It

was however recommended that the Nigerian Institution of Estate Surveyors and Valuers (NIESV) performs a deeper investigation into the application of telework to real estate practice in Nigeria so as to provide institutional-backed guidelines needed especially in situations similar to the COVID-19 pandemic.

Keywords: Telework, remote work, real estate practice, Nigeria

1.0 Introduction

The landscape of industrial practice has continually changed over the years. With credit due to the evolution of computer technology, employers and employees of the modern age have shifted from labour intensive practice to a more organized, technical and physically convenient mode of operation (De Jonge, Scherer, & Rodger, 2006). The current trend of technological advancements has not only made work more convenient in the workplace but has transformed the workplace itself such that a physical location of operation is no longer a requirement for many jobs. At present, many workers in specific industries are able to carry out their jobs from practically any geographical location without the need for a physical and central workplace. This is referred to as telework or remote work, where individuals perform job activities from various physical locations via the use Information and Communication Technology (Leung & Zhang, 2017).

Telework is performed with different modes of application in different industries such as education, healthcare, engineering, banking, insurance, Information Technology amongst others. In education, remote learning and teaching is a possibility through students' access to internet teaching channels including digital lecture materials, tutorial videos, webinars and video-conferencing (Ali, 2020). In medicine and healthcare, telework is practiced under the term telemedicine, in which clinical services, through the use of Information Technology, telecommunication and video imaging linkages, enable doctors to provide healthcare services to their patients from distant locations (Weinstein, Lopez, Joseph, Erps, Holcomb, Barker & Krupinski, 2014). Telework is also applied in the Information Technology industry such as in software and gaming industries due to the abundance of computing equipment and communication, allowing many companies to operate on a remote-work-only basis (Pulido & Lopez, 2015). In the engineering industry, while

much AR is used in education, as explained earlier in this study, it is also used to provide field engineering services especially in through-life engineering. Activities such as asset management, damage detection and condition monitoring of high value systems, can performed remotely (Dini & Mura, 2015). According to Maillu (2002), only in some parts of the world, telework is also adopted in the banking industry due to the use of financial information. The Bank of America in the US is an example, which adopted teleworking amongst its employees as a means to acquire the most technically skilled and brightest workers and associates. These are but a few examples of the various fields where telework is actively being performed in varying capacities.

In the real estate industry however, evidence of the application of teleworking for real estate practice is considerable limited as can be discovered from the severe unavailability of published works on the subject matter. This may be due to fact that most real estate operations are viewed as needing a more 'hands-on' approach by scholars and professionals, especially in Nigeria. This reason, however is only assumed. Despite this, there still remains insufficient investigation into the adoption of this mode of work as an alternative approach for real estate practice. It is in this light that this research sought to examine teleworking as an alternative to real estate practice in Nigeria with a view to identifying the tools and techniques applicable for telework in practice. This research was undergone with the hope that the findings can serve as published academic reference for remote practice for both real estate scholars and professionals in the field. This is especially needed in situations where remote practice may become necessary, such as the COVID-19 pandemic.

2.0 Methodology

This study utilised a literature review approach to achieve its aim. A review was conducted on the application of teleworking to three major industries which included: education, medicine and Information Technology (IT). The discoveries from this review were used to identify tools and their modes of application (techniques) for teleworking in real estate practice. These tools and their modes of application were derived from further literature review and investigation and therefore, formed the main findings of this study.

3. 0 Literature Review

3.1 Concept and evolution of telework

Telework, also known as remote work, is described by Leung and Zhang (2017) as mode of work involving a flexible arrangement

that enables employees, typically through the use of electronic information and communication devices, to perform their activities from various locations as against a central worksite. They also mention that telework can be performed full-time or part-time, however the latter is more prevalent in recent times. Whichever way companies adopt remote work, according to the authors, telework is performed through the medium of Information and Communication Technology (ICT). This enables the workers to collaborate and perform organisational tasks over a large physical distance without the need for in-person interactions. Over the years, telework has gradually moved workplaces to a virtual environment where parties can communicate, collaborate and operate via information and communication channels. Even in the early 2000s, telework was available in its various forms allowing employees and managers to operate away from each other. However, telework actually started evolving in the 1980s were it was merely a topic of discussion amongst researchers and practiced by only a handful of technological gurus. In the mid-1990s individuals with capable resources and authority took over teleworking, since they were able to make their own working decisions without discretion from any higher decision maker. Teleworking majorly took off in 1997 to 1998, when a large number of decision makers (who saw the economic benefit of telework) and workers (who saw the personal advantage to their work life) had meetings of minds and objectives, leading to large scale adoption. From 1999 telework became in flux, and penetrated different industries via different techniques (Maillu, 2002). According to Cascio (2001), at the time of 2001, the mode of operation was a reality for many of the workforce around the world and was believed to remain for a very long time and continue to evolve, and become even more prevalent in the future.

Brumm (2016) stated that, as at the year 2016, 37% of the United States' workforce were engaged in telework. This can be attributed to popular polls at the time, which showed that employees of all ages were more concerned with work flexibility than pay and promotion. In the 2020's, telework became a necessity for many organizations in Nigeria and globally due to the COVID-19 global pandemic, further increasing its popularity (Mogaji, 2020). This was to prevent the spread of the disease in physical worksites between closely working people. Beyond the period of the pandemic, and on a global scale, telework is still expected to grow and spread. This is evidence by the fact that it is beginning to be adopted on a more permanent basis by companies such as Microsoft. As a primary

example, the technology giant put measures in place to have more of its employees working remotely on a permanent basis as was reported by Forbes and The Verge (Warren, 2020).

3.2 Benefits and drawbacks of telework

The adoption of telework is accompanied by advantages and disadvantages, however, whichever outweighs the other is dependent on the organization's teleworking culture. Brumm (2016) summarized in her study the positive and negative effect of telework on individual workers and organizations as follows:

a. ***Benefit to the teleworker***

According to the author, teleworkers are less stressed in the job than their office-working colleagues, as such they are much better off. Due to the fact that they enjoy more flexibility, they can better manage their work-family balance, an issue that has emerged as a major work culture concern. As a result, they see their jobs in a more positive light and are less prone to searching for new jobs or places of work.

b. ***Benefit to the organization***

Due to the fact that individual teleworkers are more comfortable in their job roles, it becomes easy for organizations to retain them. These organizations thereby experience lesser turnover rates. This is also caused by the fact that organizations tend to engage teleworkers more than they do office workers due to their need for greater supervision. Eventually these teleworkers feel more valuable to the organization and are more satisfied with their jobs causing them to add more value to the organization. Eventually the organization will be able to retain its workforce for longer periods of time.

c. ***Drawback to the teleworker***

While teleworkers tend to enjoy greater flexibility in their roles, they can also feel isolated and lonely as they are not in the office with their colleagues. They feel unable to socialize and collaborate with coworkers when they desire to. This entails that while teleworkers may feel satisfied with their jobs, their relationships with their colleagues become strained due to distance, causing friction in teamwork and affecting teleworkers productivity.

d. ***Drawback to the organization***

Due to the isolation of teleworkers, teamwork in the organization may be impaired. This affects the productivity of the workplace and establishes social barriers amongst its workforce which causes social disconnect

and affects job out. Also, the primary mode of communication of teleworkers is via phone, email, messaging or internet platforms. When these mediums are faulty, proper communication is impaired, and the functionality of the workplace will be negatively affected.

3.3 Telework in different industries

As explained earlier in this study, telework is currently being applied to different sectors of economies of countries. Such sectors include education, medicine, Information Technology (IT), engineering, insurance, banking amongst others (Toquero, 2020; Weinstein et al, 2014; Pulido & Lopez, 2015; Maillu 2002). This review covers the state of teleworking in three major industries: education, medicine and Information Technology (IT) in order to provide insights for the adoption of telework in the real estate industry.

a. ***Education***

The education sector has been very responsive to technological advancements. In fact, according to Toquero (2020), it was believed as far back as the year 2000 that technology was going to bring about changes in global teaching and learning processes. With the availability of online courses in the forms of video, text, interactive and live streaming as well as lectures being held via video conferences, remote teaching and learning is actively adopted today. During the COVID-19 pandemic, Ali (2020) noted that schools had started adopting online lectures via Zoom and started having lecture materials and assessments uploaded on the Moodle platform. This enabled remote teaching and learning in a pseudo-classroom manner, where the teachers could communicate with the students and share teaching materials live, via screen-share capabilities. On platforms like Moodle, teachers could provide students with periodic lecture materials and could have them complete assignments and take assessments when needed. This showed that a combination of internet platforms such as these can take care of basic classroom activities remotely.

Asides these internet platforms, more advanced technology involving the use of Artificial Intelligence (AI) and Augmented Reality (AR) have their place in remote education as well. According to Holmes, Bialik, Fadel & Charles (2019), Artificial Intelligence in education, which they referred to as AIED, can provide learners with a step-by-step instructional guide on academic subjects personalised to their learning styles which can take the place of an actual teacher's guide during learning process. Among the most common

uses of artificial intelligence in education is the use of Intelligent Tutoring Systems (ITS) which provides step by step tutorials individualised for each learner in various topics. This is done by drawing on academic knowledge about the subject. After analysing the student success rate, the system determines the best pathway through the learning materials for the student. Augmented Reality (AR) on the other hand uses other types of technology. AR is described by Carmigniani & Furht (2014) to be a direct or indirect view of a space with computer generated virtual information added to it. This essentially places visual information on the physical space viewed via a device. In education, Kesim & Ozarslan (2012) expressed that, with AR, learners can view and move around practical objects in real-space. This is useful when students need to study physical objects and collect information from it or need to assemble the objects. AR can even provide learners with augmented reality textbooks and can generate visualisations and interactions to aid comprehension. AI and AR are examples of more evolving technology which foster remote learning and change the academic landscapes of schools and institutions.

b. ***Medicine***

Telework in medicine is practiced via two modes. One popular mode is referred to as telemedicine. Weinstein et al (2014) described telemedicine as a medical field in which clinical services, through the use of Information Technology, telecommunication and video imaging linkages, enable doctors to provide healthcare services to their patients from distant locations. The other mode is mobile health which has also been discussed by the authors as another remote healthcare method. The authors however covered both areas of remote healthcare practice in their study. Facts they provided are as follows:

i. *Telemedicine*

The most common form of telemedicine is teleradiology where X-rays, MRI scans and other scans are taking at one point and sent to a radiologist at a different geographical location where he or she interprets the scan. Another application is teleneurology where neurologists are available at virtual call centers to provide remote neurological diagnosis treatment recommendations. Other similar applications include telecardiology, teledermatology, telepediatrics, telepathology amongst others which use remotely gathered data to provide medical insights for diagnosis, treatment recommendation and medical consultancies by the medical professional without the

need for an actual visitation by the patients.

ii. *Mobile health*

The authors described mobile health as a form of remote healthcare through the use of mobile devices, remote monitoring devices, personal digital assistants, tablets, computers amongst others. Mobile applications and companion mobile devices or sensors are also used as parts of mobile health. Mobile health apps provide relevant software for patient engagement where they foster direct care provision, vital sign monitoring, communication of patient information to medical experts and collection of community health data. The apps are now widely available on a global scale due to the widespread use of smart mobile devices. This creates medical telework for the back-end medical professionals who view this information gathered by the apps and sensors for patient monitoring, diagnosis and provision of real time treatment recommendations and care and the liaising with other medical experts when treatment referrals are necessary.

Telemedicine has now been integrated into the healthcare strategies of many nations (Khemapech, Sansrimahachai, & Toachoodee, 2019). This suggests that it and mobile health will likely continue to expand into the future as viable and efficient means for provision of remote medical services.

c. *Information Technology*

According to Ramasamy (2018), telework was initially familiar with the IT industry due to the fact that physical interaction was not always necessary and the delivery of digital products could be done remotely through computer systems. The authors also made mention of IT companies which encouraged their employees to work from home such as: Amazon, Dell, Infosys, IBM, Appen, LiveOps amongst others. In her study, Lopez (2016), assessed the culture of teleworking in the IT industry. In order to shed light on the techniques and methods which IT firms adopt for efficient remote working, the author exposed how a Barcelonian web and mobile software development company, MarsBased required its employees to perform remote work in their capacities. MarsBased is an example of several types of IT consultancy companies which provide web and mobile app solutions for clients in various countries. From the study, the author discovered the following in the teleworking approach of the company:

i. *Remote communication and activities organisation*

According to the author, for remote communication with

clients, the company used Skype as a video calling program. For follow up commination, the company used Skype but also used Appear to communicate with customers. MarsBased also sends reports and asks and answers client's questions via Basecamp, a project management and team communication software, purposely built for teleworking. With Basecamp, the company was able to organise its activities for each of its clients via work lists and scheduling, shared documents via upload features and communicate via chats rooms. For internal communications, the teams used similar software, meant for organisation staff interaction. These software included Trello, Screen Hero & Slack.

ii. ***Information storage and accessibility***

The author stated that the company had used web-based file storage platforms such as GitHub, developed for programmers and Google Drive, for generic file sharing. GitHub is a code management and version control platform intended for web and software developers while Google Drive is a platform among Google's arsenal used for backup, sharing and security of files. This not only provided central points for each worker to be able to access and work with organisational files and information from any location, but provided security for these files as against physical files that can be mishandled, damaged or lost.

iii. ***Working equipment***

The equipment used were Personal Computers, which were provided by the company for its teleworking personnel. Also provided by the company were ergonomic chairs and desks. The author however did not state whether the premium software used by the teleworkers were provided by the company or were acquired by the individual workers themselves.

MarsBased is an example amongst a multitude of IT firms that adopt telework, but it provides a detailed expression of what the remote working culture in IT organisations need to ensure seamless workflow. Teleworking is popular in the IT industry so much that many companies adopt a remote-only mode of operation. Pulido & Lopez (2015) stated that this could be due to the abundance of computing equipment and communication across organisations in the industry. The authors however also mentioned other reasons such as the need for decentralised working, and a change in the system of management to Management by Objectives (MBO). According to Ntanos & Boulouta (2012), MBO is a systematic approach to

organisational management where the objectives of the workforce are aligned with the overall goal of the company, achieving the best results from available resources. Lastly, the authors mentioned the use of a project-oriented approach to working as a reason for the adoption of teleworking in IT organisations.

4.0 Findings from the Literature

4.1 Characteristics of the teleworking practice of the different industries.

From the review of the modes of application of telework to the education, medical and Information Technology (IT) industries, there are common characteristics that could be found across these applications that could serve as insights for identifying tools and techniques for teleworking in the real estate profession. These characteristics include:

a. ***Use of Information and Communication Technologies (ICTs)***

This is in-line with Leung's & Zhang's (2017) opinion about ICT being central to any form of telework. As such ICT serves as the medium through which remote job activities are performed. This was noticeable in all three industries reviewed above. For the education industry, a variety of web and software tools were used in remote education which included video conferencing platforms like zoom, lecture sharing platforms such as Moodle and technologies such as Artificial Intelligence (AI) and Augmented Reality (AR). In the medical industry, healthcare workers use virtual call centres to provide real time medical services. Also, through mobile devices, mobile applications, sensors amongst others, these health workers collect accurate readings of patients' vital signs and other information to aid in diagnosis and provision of treatment recommendations over large distances. In the IT industry, software platforms are used for the organisation, and communication of work-related affairs with team members and clients, and is also used in the delivery of products to the clients. All show that IT tools, equipment and platforms are required and serve as channels for the performance of remote work activities and the delivery of organisation products to stakeholders.

b. ***Remote communication with stakeholders***

In the modes of application of telework in the reviewed industries, all workers and stakeholders involved in a particular job communicate with each other virtually. In the education industry, the teachers remotely communicate with the students and vice versa, via the platforms discussed earlier to teach and learn respectively. The

same occurs in the medical industries where, in telemedicine, the practitioner is able to communicate with the patient and provide his medical expertise to him or her. For IT companies, the team members remotely communicate with each other to plan work activities. They also communicate with the clients to provide feedback on the projects and to ask and answer question.

c. ***Remote data/information acquisition***

Across the reviewed industries, data and information have been found to be acquired by particular members of the stakeholders to perform their work activities via the teleworking platforms. In education, teachers collect test answers from students and use them in their assessments. Telemedical and mobile medical practitioners collect data from the mobile phones and remote medical devices to assess conditions, make medical findings and perform diagnostics. IT personnel collect data from the clients to use in building and designing the products. Organisations in these industries use the data and information they acquire to render their services and produce and deliver end-products.

d. ***Remote file access/sharing and storing***.

Another trend apparently common in the industries is that teleworkers and job stakeholders have remote access to company files. In education the students have access to class lecture materials through sharing platforms like Moodle. In telemedicine, especially in branches such as teleradiology, files (x-rays in this case) are shared with the medical practitioner who uses these to perform his/her diagnosis. In IT companies such as MarsBased, file backup platforms like Google Drive facilitate the sharing of these files to team workers. Clients can also receive project reports via similar platforms. With platforms such as this, important documents are essentially accessible at any location to teleworkers. File storing is also possible in many of these cases which provide secure backup and storage of relevant documents.

For this study, these characteristics are able to advise on what is needed for teleworking to be performed in the real estate profession. The characteristics serve as insights to identifying the type of tools to use for various real estate activities and how to apply the tools for remote practice of the profession.

4.2 Techniques for teleworking in real estate practice

As the primary aim of this study, the characteristics identified across the mode of telework in in the three industries serve as

insights on the required tools and techniques (the mode of applying these tools) for real estate practice. Having established the relevance of ICTs for remote practice, it has been discovered that the computing equipment and platforms that can foster telework in the real estate profession are first of all required. This is also in-line with the first characteristic which discusses the need for ICT to perform remote work.

Due to the fact that the real estate practice in Nigeria comprises of various sub practices which according to Ayandeji (2016) include: property valuation, property management, facilities management and real estate agency, it is pertinent that the ICTs that can foster telework in each of sub-practice be first of all identified. Based on the other insights, a combination of these ICTs should be able to: facilitate remote communication, remotely acquire data and/or serve as a medium for sharing of important company documents. From further investigation on this and via further review of publications, this study has been able to identify these ICTs and the ways they should be used for teleworking. They have been classified by the profession's sub-practices and are discussed below.

a. ***Valuation***

In a valuation exercise, in order to arrive at an estimated opinion of value, the valuer will need to have considered and assessed all variables that affect property values, and as such will need to have gathered data on these variables, numeric and otherwise. These variables include the size of the property, its number of storeys, location, condition, finance, accessibility amongst others (Bello & Bello, 2007). Any tool or software and associated approaches that can provide telework in this regard will need to be capable of remote data acquisition. Other tools for communicating with stakeholders and sharing documents such as reports can also aid in remote valuation practice.

i. Remote Sensing and GIS (Data Acquisition)

Remote sensing is defined as the collection of information about an object, area or event without being in physical contact with it. As Dabrowski & Latos (2015) explained and showcased in their study, via process of picking up on reflected or emitted energy by spatial features, remote sensing can acquire data about the environment and things on it. In real estate it can be used to acquire the data on the size and shape of land, the number of buildings, the use of the land, number of stories and the condition of the buildings amongst others. The channels of remote sensing can include aerial photography (using aircrafts or drone technology), LIDAR (Light

Detection and Ranging) data, satellite images and multi- and hyperspectral data displayed on a computer system. LIDAR data is topographic data acquired via laser scanning of the earth surface using a LIDAR Sensor aboard an aircraft (Lohani & Ghosh, 2017). An example of how remote sensing can be used to gather valuation data is the study of Dabrowski & Latos (2015) who were able to conduct an assessment of real estate features from raw spatial data that they acquired via multispectral satellite imaging, aerial photography and LIDAR data. They were able to determine the length and breadth of a building and produced a surface area in square meters from orthoimages taken via aerial photography on board a drone. They also determined the height of the building, stating that this could be acquired from analysis of LIDAR data and inclined photographs captured by the drone. Also, via high spatial resolution of the orthoimages, the assessment of the technical condition of the structure was possible and images on roofing elements, lightning protection amongst others could be visibly seen. In terms of the land, they were able to determine the shape, length and breadth, size, vegetation cover and extent of parking spaces. These property data would then be included in a valuation exercise whether manually or using property valuation software.

Geographical Information System (GIS) involves the use of a computer system though special software and hardware, methods and by capable users, to acquire, manipulate, analyze and present spatial data (Ali, 2020). GIS also has its input in valuation exercises, as it uses map-based data that is derived via remote sensing. While remote sensing already satisfies data gathering needs, the application of GIS in this case is that GIS is capable of storing this spatial data in databases in which this data can be manipulated and presented if required.

ii. ***Google Drive/OneDrive/Dropbox. (File access, sharing and storage)***

Valuation documents such as valuation reports can be shared through Google Drive which provides a cloud-based file storage platform that can be synced with PC folders (Gallaway & Starkey, 2013). Here, the valuer only needs to upload the valuation report to a Google Drive, and share the drive link to the client to access the report. This also provides a way to securely store valuation reports which can later be accessible if needed. Similar platforms include OneDrive, Dropbox amongst others which function the same way.

iii. ***Slack/Trello/ScreenHero. (Team communication, File access and sharing)***

Slack is a web-based team collaboration and work organization platform Lopez (2016). Slack can be effectively used for team communication, especially in large scale valuation exercises where a team of valuers is required. Here, Slack offers members of the valuation team avenues to remotely discuss on valuation exercises, ask and answer questions or provide updates to supervisors on the progress of the valuation exercise, all in a structured manner. Team members can also share documents pertaining to the valuation exercise such as locational maps, plans, title documents or reports. Other similar platforms include Trello (described under IT industry in the literature review segment) and ScreenHero.

iv. ***Emailing (File sharing, Stakeholder Communication)***

The usual email is already widely used in estate firms to communicate with clients, landlords, partnering firms, project stakeholders amongst others (Oyetunji, Ojo & Oyetunji, 2018). For a valuer, emailing is a simple way to send valuation reports and communicate with a client.

b. ***Property Management***

In property management, telework has its applications especially when property management information is already available. This information can be stored in Property Management Software. Property management activities such as rent accounting, communication with landlords and tenants and recruiting of maintenance and repair workers can also be teleworked. Tools useful for telework in property management and their modes of application include:

i. ***Property Management Software (Data storage, File sharing and storage)***

Property Management Software (PMS) are real estate specialized software that are used in modern property management organizations, to help streamline the wide range of activities of property manager by providing functionality such as rent management, reporting, integrated accounting, web portals and centralized databases and maintenance activities (Halvitigala & Gordon, 2014). These software are able to integrate and automate many of the manually performed activities involved in property management. PMS consists of Database Management System (DBMS) and are capable of forward planning, rent and service charge accounting, and features supporting strategic management. The DBMS makes provision for

information concerning the property (building information, credit control, lease agreement administration, cashflow control etc.), the tenant (general information, rent billing and collection data, payment handling and general ledger functions), the space or unit data (unit number, unit size, letting rate, responsible date, key number, parking, space management, cleaning and security contracts etc.) and the landlord (general information and shareholding data, if applicable). In forward planning, a good PMS is able to provide maintenance and repair schedules. It also provides diaries allowing the property manager to flag the tenant's special dates such as rent review, lease renewal and dates for tenant's work. In rent and service charge accounting, the PMS provides rent invoicing and income assessment features, disbursements and outgoings, recovery of expenditure, service charge costing and apportionment, report production and accounts for both the tenant and landlord. Lastly for strategic management support, the PMS provides information to aid in the property decisions making such as valuation and appraisals of individual properties or property portfolios. Features for this include: tenancy and tenure details, calculation of yields, discounted cash flows, tax implications, cost and financing and valuation of freeholds and leaseholds (Van den Berg, Cloete 2012).

Many PMSs are capable of allowing the user to operate them via the internet as they have web platforms or are integrated with the developers' or companies' websites. Here the DBMS will be available via the web and property, tenant and landlord data can be stored on and retrieved from the database server (Halvitigala & Gordon, 2014). This data can be accessed by all personnel of the property management organization from any location and on any device. Also, the accounting capabilities of the PMS including: tenant's income, outgoings, tax liabilities, service charge accounting amongst others can be utilized anywhere and on any device.

ii. ***Emailing (File sharing and Storage, Stakeholder Communication)***

Emails can be used to send notifications to the tenant such as rent notices, rent review notifications and other messages pertaining to the lease agreement. They can also be used to inform the landlord on issues concerning the property and the tenant. Copies of lease agreements can also be sent to the parties as an attachment. This is useful as to inform the landlord and tenant of the contents of the lease agreement. Emails can also securely store lease documents,

making them accessible anywhere and anytime.

iii. ***Google Drive/OneDrive/Dropbox (File access, sharing and storage)***

Documents such as the lease agreement can be stored and shared on Google Drive and similar platforms for security remote access.

c. ***Facilities Management (FM):***

Many of the activities of the facility manager can be teleworked using special systems called Facility Management Integrated Systems (FMIS). This is discussed below. Other tasks of the property manager can be performed with team collaboration platforms.

i. FMIS (Data collection and storage, file access and sharing)

Facilities Management Information Systems (FMIS) are specialised FM software that are used to effectively manage facilities information. Through the combination of human, technology and organisational based resources, FMIS can generate effective collection, storing, retrieval, communication and utilisation of information either in a database or as a visual model. Via the implementation of FMIS, organisations expect a more efficient use of information across all levels, better decision making, increased responsiveness of management and greater learning capacity. Examples of FMIS include Computerised Maintenance Management System (CMMS), Computer Aided Facilities Management (CAFM), Building Energy Maintenance (BEM), Agile Software and Building Information Modelling (BIM) (Azmi, Nawawi and Ariff, 2016). CAFM as an example can store FM information in one database which every department of the organisation has access to and can manage appropriately. Information can be updated or changed and all departments will be aware and, in the case where this information is to be managed and used by a facilities manager, he has adequate access to quality data to use in for example, preventive maintenance, asset management, space management, facilities operations, room reservations amongst other FM services (El-Deeb, Montaser, Abdel-Rashid & Abdelal, 2017).

CAFM and some other FMIS are capable of physical building administration, where they can control the actual infrastructure in buildings. Here, they can be linked to HVAC systems, security systems, electricity and lights and can be used to remotely monitor and control these systems when required by the facilities manager (Adair, 2020). They are also capable of lifecycle management,

ensuring an organisation's assets are being utilised in the most cost-effective ways. Many of the current FMIS are web-based or cloud-based where information can be stored privately online and accessed from multiple internet-connected devices, giving the facility manager the opportunity to use them anywhere away from the premises, effectively creating telework for the professional. This way, he/she can adequately monitor the facilities of the organization from his devices without needing to be available on the premises of the organization.

ii. Slack/Trello/ScreenHero (Team communication, File access and sharing)

Using Slack, the facilities manager can communicate with fellow facilities managers, engineers, security and other staff of the organization concerning facilities management plans that span across these roles. They can collaborate on ways to implement the facilities management objectives to suit the goal of the organization. In the event that managers and supervisors are present on the platform, it can be used to submit facilities reports and discuss on ways to improve the FM department.

d. Real Estate Agency

Due to the abundance of real estate marketing platforms online, a good number of practitioners are already performing a form of remote real estate agency work, being able to release information on properties for let or sale without having to erect sign posts, distribute print media or use word-of-mouth marketing. Asides these platforms, emailing serves a good purpose in communicating with interested purchasers, tenants or the owners or landlords.

i. Property marketing platforms (stakeholder communication)

Ayodele, Babajide, & Oluwatofunmi (2015) stated that the use of online property marketing platforms were the first efforts of real estate agents to market their properties. In Nigeria, from an internet survey, there is found to be a good number of credible digital marketing platforms on the such as PropertyPro, Private Property, Property24, Nigerian Property Center amongst others. The authors however stated that the popularity in using these platforms is dwindling, due to issues with meeting client's needs, links to non-functional website pages amongst others. Non-the less, these platforms enable real estate agents to market their portfolios to a large number of visitors that could include interested buyers or tenants, or other agents.

ii. Social Media (stakeholder communication)

Social media works similarly to the above platforms but are not specialized to real estate alone. It serves as another channel to access the property market that has gained popularity over the years (Ayodele, Babajide, & Oluwatofunmi, 2015). Real estate agents can take advantage of their social media accounts to post property advertisements. The platforms can also be used to communicate with interested buyers/tenants through chats on property dealings. Examples include: Twitter, Facebook, Instagram amongst others.

iii. ***Emailing (File sharing and Storage, Stakeholder Communication)***

Communications can be made between real estate agents and potential buyers/tenants via emails. If the real estate agent is in the process of adding a property to his portfolio, he could also administer the agency contract to the property owner or landlord via email. Other documents such as lease agreements may be sent as well as attachments to landlords and tenants.

From reviews of the application of telework in the three industries and the characteristics identified across each industry's approach to teleworking, this research has been able to suggest tools and techniques by which telework can be adopted in the different aspects of the profession. These tools and their methods of application for remote real estate practice have formed the findings of the research and to the most possible way, achieved the aim of this study.

5.0 Conclusion and Recommendations

Telework has grown from a concept to a reality for many organisations in different industries, becoming more and more prevalent (Brumm, 2016). Companies in these industries have established guidelines for remote work, some of which had to quickly develop theirs in response to the COVID-19 pandemic. However, the paucity of published literature and information for real estate organisations is an indication of the absence of such guidelines for real estate practice, prior to and during the global pandemic. Through a review of the adoption of telework in three other industries which included: education, medicine and IT, this research has been able to discover characteristics in the approach to teleworking in the industries. The characteristics discovered included: the central use of ICT, remote communication with stakeholders, remote data acquisition and remote access to and sharing of work files. These characteristics were used as insights to guide the study's selection of tools and techniques for remote work in the different

aspects of real estate practice in Nigeria including property valuation, property management, facilities management and real estate agency.

This study however recommends that the Nigerian Institution of Estate Surveyors and Valuers (NIESV) performs a deeper investigation into the application of telework as an alternative approach to real estate practice in Nigeria so as to provide official nation-wide guidelines for remote practice needed especially in situations similar to the COVID-19 pandemic. The reason for this is the fact that the NIESV is the nationally and internationally recognised institutional body for the real estate profession in Nigeria, as such, guidelines released by the institution will be better received, considered and adopted by responsive Estate Surveyors and Valuers. Furthermore, while this study has been able to identify tools and approaches for telework in the profession, there is need for further investigation into the actual practicability in using these approaches by firms in Nigeria, as different factors may affect the adoption of these approaches by Estate Surveyors and Valuers.

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