



Digitalizing Land Transactions in Post Covid-19 Pandemic Period

Mikail O. Olaniran

Department of Estate Management and Valuation, School of Environmental Studies,
The Federal Polytechnic, Ilaro, 111101, Nigeria mikail.olaniran@federalpolyilaro.edu.ng

Luqman D. Ojuawo

Department of Estate Management and Valuation, School of Environmental Studies,
The Federal Polytechnic, Ilaro, 111101, Nigeria luqman.ojuawo@federalpolyilaro.edu.ng

Abstract: *Property sale transaction is part of human activities that occurs on daily basis in urban areas across the globe. Sale and purchase of landed property synchronise, involve many stakeholders and activate great deal of movement and consultation in both formal and informal markets that still subsists in many countries, during period of tranquility and free movement to conduct business as usual. However, during pandemic period, and for instance, pandemic period of covid-19, there was lockdown of the national and global economies in 2020 and human movement was severely restricted, thus pronounced digitalization of doing business. This paper, using secondary data, presents an overview of procedures of land sale transaction and means of conducting them before, during and post covid-19 pandemic period with a view to enhancing smartness of estate surveyors or land agents and giving maximum satisfaction to real estate buyers at all times. The paper also expounds benefits and risks of and barriers to use of appropriate applications and software and future trends in land transaction procedure in Ibadan, Nigeria. Structured questionnaire was used to generate data from 20 firms of estate surveyors and valuers and 14 ministries and agencies on digitalization of property sale transaction operation. Frequency and percentage were used to conduct data analysis which showed that 100% of the respondents were fully aware of digitalization and its risk and had superficially gone digital in their operations but government organizations in charge of land administration and management were yet to digitalize their systems.*

Keywords: Digitalization, Enhanced proficiency, Estate Surveyors and Valuers, Land transaction, Smartness.

Introduction

Land transaction occurs mostly in urban centres across the globe as land is very germane to continuous existence of man being the platform for all human activities that are all geared towards satisfaction of human needs. Land tenure system in Nigerian is governed by Land Use Act of 1990 (formerly Land Use Decree of 1978) which has also created dual land markets, formal and informal, for landholding and transaction (Federal Government of Nigeria (FGN), (1990). Informal land “is held together by cultural and traditional heritage, personal relationship, private marketing networks and unregulated transaction which often fail to protect the interest of individuals who are mostly non-indigenes and indigenes as well as government at all levels” (Harrison, 2000 and Olaniran, 2012). There are absence of property records, no free flow of market knowledge and information. The real estate business is shrouded in secrecy and sellers always keep many facts that negatively affect their properties being offered for sale. Such facts usually encumber ownership, legality, functionality, management, indebtedness, and disposal. Explicitly, these adverse facts could be design or structural defects, imperfect title, easement, trespassing, encroachment, pending debts, unresolved dispute, environmental liability or nuisance,

etc. It is worrisome that many of the problems become headache to the unwary buyers after the purchase of such affected properties.

The informal land market is still thriving albeit much with avoidable but persistent challenges which cause loss of money and at time lives of many buyers. The large patronage emboldens unscrupulous people and impostors among land sellers to grow wing and unleash their dubiety, cunning and dud to dupe unwary land buyers. These challenges could be due to a failed transaction or breach of contract among the parties involved (Oluleye, Oyetunji, and Ogunleye, 2020). This is simple to handle and resolve if it is attributable to pure mistake and with no attempt to capitalize on it thereafter. However, it becomes a tangle if it was a product of deliberate action of deceit and if there is an attempt to make quick gain therefrom by a strongly dubious party to the transaction. Thus, “let the buyer beware”, a slogan that is coined to warn, generally, market participants, is apt for land or real estate buyers and whosoever is/are acting for them to be smart and take necessary precaution before deciding to give a nod to his buyer-principal to exchange money for any land or landed property. In the same vein, transaction is also held to be subject to contract and without prejudice until money is exchanged and probably



the deed of assignment is signed, sealed and delivered. Caveat emptor also targets avoidance of buyer's risk. It is the commercial principle that the buyer is responsible for making sure that goods bought are of a reasonable quality (Microsoft Corporation, 2009). For instance, what conveyance law implies in this section is that "the purchaser on a sale examines into the vendor's title and approves of the conveyance at his sole cost" (United States of America, 1889).

All the above warnings to intending buyers notwithstanding, land management policies in all countries ensure through conveyance law that the real estate seller is offering a guarantee of their quality by inserting a covenant in deed of assignment. It is usually worded in the deed of assignment like "The assignor hereby covenants and undertakes to indemnify the assignee against any loss or losses the assignee may incur as a result of any defect in the assignor's title". More so, seller is also expected to observed "standard of proper disclosure", that is, the disclosure to potential buyers of all relevant information that applies to a security issues (Investopedia, 2020). Although, offering a guarantee of the quality of articles of trade and standard of proper disclosure are provided by the law, buyers and their real estate agents must take necessary care as prevention is surely better than cure and remedy is costly, time consuming and not usually certain.

All these precautionary measures are expected to be upheld in an arm's length transaction in the open market that is full of assumed willing and knowledgeable sellers and buyers who are free to move about at will and with ease, intermingle together and inspect subject property for the purpose of business transaction. The theory of open market as relates to real estate business entails open display of land or property by sellers for unrestricted inspection of intending buyers. The buyers and their agents are at liberty to follow procedure of land or property transaction and satisfy themselves or their clients respectively before they release their money.

The procedure leading to the transaction includes: idea inception or declaration of intention to buy a type of property, appointment of an agent, scouting for and selection of ideal property, physical inspection of probable property and its neighbourhood, investigation about the history of property, initial negotiation, collection of photocopy of title and related documents, appointment of lawyer, perusal of the documents, charting and verification of survey plan, title search at Land Registry, further negotiation (if there is need for it), preparation of deed of assignment, payment, signing-sealing-delivery of deed, release of original title and related documents including energy card, tax card and other related objects and physical delivery of property and keys.

Procedure after the transaction includes re-survey of land, processing of change of title at lands registry, inspection and assessment of the property for capital gains tax by tax officials, tax payment, follow up of change of title

process and final collection of the new title document. The procedure is lengthy and involves many people who interact with one another until the goal of buying is achieved. Person-to-person contact is rife from beginning to the end of land and property transaction. Lawyers, property agent, bankers, government land officers, etc. get involved.

This lengthy procedure and participation of many people demands in part, skill, experience and thoroughness on the part of the buyers and especially those agents who act for and on their behalves. Buyers and agents must be very knowledgeable and wise to identify truth and falsehood that are part of the social cognition to make informed decisions before acting. To achieve this, thoroughness of agents requires them to be able to read attitude of sellers and their agents, their body languages, facial expressions, verbal utterances as these may betray their ulterior insincerity about the transactions.

On the other part, it requires the skillfulness in handling the various tools used in executing the required jobs of those who partake in the procedure. Man has developed many scientific tools that have aided him to do a specific kind of work by either directing manually applied force or by means of a motor or machine, a mechanical device with moving parts, often powered by electricity, used to perform a task (Microsoft Corporation, 2009). Thus, before 2020, land surveying, survey plan verification, property and neighbourhood inspection and environmental studies that are stages in the land sale transaction procedure were carried out with limited instruments such as surveying equipment and technologies, remote sensing and spatial data processing technologies and other related approaches that were available then. In the past, the lack of a homogenous co-ordinate system has led to dubiety of multiple sales of a single plot of land to many people and the high cost of access to land for development (Hofgartner, 2006).

Smartness of the land agents in dealing with many people and organizations, such as seller of property and his agent, lawyer, bank, government agencies, for long period and proper handling of the few technologies in the open market is germane to the hitch free land sale transaction and overall efficiency of land administration and management in a nation. Estate Surveyors or land agents need to acquire the scientific tools and training on their usefulness, operations and maintenance and governments are required to provide enabling digital land records and data system for efficiency to be achieved. In the past, providence, personal skill, experience and carefulness, practical procedure with little equipment were used to verify genuineness of land ownership, location and boundary among others before and after transaction when there was free and unrestricted human movement in the economy.

However, there was a sudden appearance of coronavirus disease (convid-19) in 2019 which was declared pandemic by World Health Organisation (WHO) in 2020 as a result of its widespread attack across the world. It



spread through person-to-person contact, infected millions of people and killed thousands. Governments in many countries took measures to contain it and eventually ordered total lockdown of nations and global economy. No movement was allowed and person-to-person contact was discouraged except for those on essential duties and transportation of medicals and foodstuff (Lehan, Razak and Kamarudin, 2020). Thus, the world becomes “unstable, uncertain, and unpredictable” to live, work and play (FIG, 2020).

International industry managers started counting their corporate loss with no end in sight. The fear of further risk that could devastate their operations and continuous existence pushed them to conceive and adopt work-from-home theory to assuage the unfriendly situation (Savills, 2020 and Uchehara, Hamma-adama, Obiri, Jafarifar, and Moore, 2020). This theory has been embraced by operators of all sectors of the economy, real estate inclusive.

Furthermore, internet and social media such as WhatsApp have been prompted for use in daily activities and real estate business in combination with contemporary equipment and applications such as Geographical Information System (GIS), Global Positioning System (GPS), remote sensing, drone, robot, Artificial Intelligence (AI), Virtual Reality (VR), Computer modelling, artificial neural network, automated valuation modelling (AVM) and Building Information Modelling (BIM) which have been adopted for use in land administration, management and transaction and analytical applications within the valuation profession that produces property value – an input in decision making. (Palm, 1976, Wahab, 2020, Valentine, 2019, Do, and Grudnitski, 1992. Sarip, 2005 and Bryde, Broquetasb, and Volm, 2012).

Thus, the world has greatly moved away from old methods of doing things to “New Normal”, that is, Internet of Things (IoT). More clearly, the transition to a digitally stimulated work-from-home creativity which cleverly adopted geospatial tools in combination with ICT, internet facility and scientific equipment for business operations including real estate activities. It generates, processes, stores, retrieves, uses and transfers big data. This modification to human lives and work style, has expected, continues beyond covid-19 pandemic period. This collectively has its advantages such as facilitation of business operation. It saves time and cost and enhances accuracy, reliability, decision making and satisfaction in land sale transaction and related aspects and the smartness of estate surveyors and valuers who practice real estate agency. (Ashaolu and Olaniran, 2016, Alkali, Sipan, and Razali, 2019, Kang, Lee, Jeong, Lee, and Oh, 2020 and Olaniran and Onakoya, 2020 and

Uchehara, Hamma-adama, Obiri, Jafarifar, and Moore, 2020). For instance, Valentine, (2019) reported that in the USA property market over \$300 million had been spent on BIM annually and \$1 million in the UK and opined that a combine BIM with virtual reality would lead to more achievement in marketing building improved sales opportunities.

Its disadvantages such as huge cost of data and maintenance expenses, cybercrime or wired fraudulence and loss of information are very rampant and deals devastating blow to many individuals, organizations and governments on global scale. Everyone must note that dubious people are on the prowl and lurk around to sprint a surprised attack on unwary ones (Lehan, Razak and Kamarudin, 2020).

The paper, therefore, examined the digitalization of landed property sale transaction in the city of Ibadan, Nigeria with a view to enhancing smartness of estate surveyors and valuers beyond covid-19 pandemic period. Equally, it identified pitfalls and remedies that could be used as antidotes in order to enhance professional proficiency.

The scope of this paper excludes letting and leasing and is limited to open market sale transaction of land and buildings. Other modes of land or real estate transaction such as sale by auction that offers limited chance in marketability of the product are not considered herein this paper. It extended to Ministry of Land and Housing of both state and Federal Governments, Oyo State Housing Corporation and Estate Departments of local government but excluded lawyers and banks. Ibadan, Nigeria is chosen as scene of study because apart from being a very large city, it has been a place of real estate transaction for more than a century and sale of bare land, land ripe for redevelopment as well developed land is very active in the city till date.

Nota bene: land, property and real estate sale transaction, herein this paper, are used interchangeably and held to mean the same thing. Estate surveyor, estate agent and property agent are also used interchangeably and held to mean the same thing.

Materials and Methods

The first method is scooping, from the literature, means of conducting procedures of land sale transaction before, during and post covid-19 pandemic period.

Procedure for Land Purchase and Means of Conducting Each

The media being used or that would be used in post Covid-19 pandemic period were searched and collected from literature and are stated in Table 1 below.

Table 1: Juxtaposition of Media of Performing Land Sale Transaction Before, During and likely Covid-19

Procedure	Purpose	Medium used in the past	New normal in COVID-19 period	Post COVID-19 period
Identification of suitable land or	To choose a suitable property in a right location	Personal contact and communication through	Communication through bill board, bulletin, poster,	Google earth, Communication



property		bill board, bulletin, poster, newspaper, telephone, Short Message Service (sms) and social media, and through internet, e. g. website.	newspaper, telephone, Short Message Service (SMS), social media, mobile video, and through internet, website, AI (Compass). GPS, drone, etc.	through bill board, bulletin, poster, newspaper, telephone, Short Message Service, social media, mobile video, and through internet, website, GPS, drone, AI (Compass) plus any new applicable technology and procedure.
Identification of owner of the said property or representative of the owner	To contact person that has the right to sell in order to avoid fraud.	Personal contact and communication through telephone, sms and social media, and through internet, e. g. website.	Communication through telephone, Short Message Service, social media and through internet; website and video meeting and conference	Google search, Communication through telephone, sms, social media and through internet; website and video meeting and conference, drone, plus any new applicable technology and procedure
Inspection and survey of the property	To establish the boundary, facility provided, accommodation details, structural and maintenance conditions of the building, facility and any other defect, easement and rights of way binding on the property. Local environment situation (area liable to flood or closeness to canal), nuisance and likely cause of injurious affection	Joint physical inspection by the parties and photograph taking.	Photograph taking, Geospatial tools. Video presentation, Building Information Modeling (BIM), Artificial Intelligence, Virtual Reality, Big Data and the Internet of Things (IoT),	Google earth, photograph taking, geospatial tools, Video recording and presentation, Building Information Modeling (BIM), Artificial Intelligence, Virtual Reality, Big Data and IoT, Unmanned Aerial Vehicles (UAVs) drones plus any new applicable technology and procedure
Negotiation, offer and acceptance	To haggle and establish acceptable price.	Letters of offer and acceptance, verbal communication and telephone, sms, social media.	Telephone, sms, social media, video meeting, Artificial Intelligence (Veros), GIS	AI (Veros), AI genetic algorithm (GA) and an artificial neural network (ANN), GIS.
Collection of photocopy of title documents such as deeds of assignment, certificate of occupancy, governor's consent, will, gift inter vivos, letter of administration, etc.	To verify or establish genuineness of title, ownership, easement, trespassing, encroachment, litigation, accessibility, restriction, encumbrances such as subsisting debt, lease, advance rent payment	Physical collection and sending through telegraph,	Sending through telegraph and sending copy through social media	Sending through telegraph and sending copy through social media
Examination of title documents.	To confirm genuineness of title, ownership and clarify inhibiting easement, encumbrances, trespassing and encroachment, trespassing, litigation, accessibility, restriction, subsisting debt, lease, advance rent payment.	Cash lodgment at the bank, physical verification of survey plan, at survey section and title search at the Lands Registry	Cash lodgment at the bank, physical verification of survey plan and title search at the Lands Registry	e-payment, telegraph, Google search of state's data,
Preparation of deed of assignment	To consolidate and seal the transaction	Physical delivery of seller's title to lawyer and returning both old and new ones to the client.	Scan and telegraph sending, posting through post office or DHL.	Scan and telegraph sending, posting through post office or DHL.
Payment and receipt of agreed price	To pay and receive money for land or property	Direct cash payment, cash lodgment into bank account, payment by cheque or draft	e-payment	Sending of seller's account details through sms, WhatsApp, E-payment and e-generated receipt through bank mobile app. Forwarding of payment receipt to the seller who latter e-confirms the payment.
Signing, sealing and delivery of deed of assignment. Collection of original title documents, passports and tax	Finalize and close the transaction	Physical meeting to deliver the documents Posting through post office or DHL.	Posting through post office or DHL.	Passport taken with handset, webcams, Posting through post office or DHL.



receipts of the seller.				
Handing over of the property	Delivery of the property to the buyer.	Physical meeting of the two parties at the location of the property and introduction of the new owner to the occupier(s).	WhatsApp video conference meeting involving seller, buyer and (occupiers).	WhatsApp video conference meeting involving seller, buyer and (occupiers).
Processing change of title.	Registration of title in the name of the new owner.	Physical presence at the ministry for submission of required documents. Payment at bank, collection of receipt and monitoring of the process.	Physical presence at the ministry for submission of required documents, payment at bank, collection of receipt and monitoring of the process.	E-submission of required documents, e-payment, e-collection of receipt and e-monitoring of the process and e-collection of new title document.

Source: Literature Review, 2023.

Empirical Study

In this study, only 20 firms of estate surveyors and valuers were sampled using simple random selection technique that gave equal chance of selection to all firms that had head or branch office in the city of Ibadan as at the time of the survey in December, 2020. The study also beamed its light on Federal Ministry of Land, Housing and Urban Development and Oyo State Ministry of Lands, Survey and Physical Planning, Oyo State Housing Development Corporation, Estate and Town Planning Departments of all 11 Local Governments and Ibadan Local Governments' Properties Company Limited that were dealing with land administration and management in the study area to elicit data through two sets of structured questionnaires.

Results

Data analysis and discussion of results cover 3 sub-topics through which the study was conducted. They are:

- digitalization of land sale transaction in the study area.
- Antidotes for cybercrime and fraudulence in digital operation of real estate transaction.
- Efforts of government bodies on digitalization of land and property data and processing.

The results are presented in tabular and bullet formats as shown in Tables in 1 and 3 and subsection b. under discussion respectively.

Discussion

a. Digitalization of Land Sale Transaction in the Study Area

The estate firms were given a set of 10 questions on digitalization of land sale transaction in the study area. The questions focused on key stakeholders in land sale transaction such as estate surveyors, lawyers, banks and ministry and parastatals of government. Data analyses are presented in Tables 2 and 3 below and discussion of results follow respectively.

Table 2: Digital Operation of Property Sale Transaction by Estate Surveyors and Valuers in Ibadan, Nigeria.

S/N	Variable	Frequency			Percentage %		
		Yes	No	Total	Yes	No	Total
1	Awareness of digitalization of land sale transaction	20	0	20	100	0	100
2	Acquisition of training in	12	8	20	60	40	100

	computer application to real estate						
3	Full adoption of digitalization of land sale transaction	0	20	20	0	100	100
4	Medium adoption of digitalization of land sale transaction	0	20	20	0	100	100
5	Superficial adoption of digitalization of land sale transaction	20	0	20	100	0	100
6	Digitalization of land sale transaction is fraught with challenges	20	0	20	100	0	100
7	Readiness for full adoption of digitalization of land sale transaction	12	8	20	60	40	100
8	Have lawyers gone digital and helpful in transaction?	4	16	20	20	80	100
9	Have banks gone digital and helpful in e-banking?	20	0	20	100	0	100
10	Have government organisations gone digital and helpful?	0	20	20	0	100	100

Source: Field Survey, 2023.

Table 2 above displays that 100% of the respondents were fully aware of digitalization of land sale transaction and its attendant challenges but only 60% had acquired training in computer application to real estate and 100% had superficially adopted digitalization in land sale transaction while none had neither medium nor full adoption. In spite of full awareness only 60% was ready to go for full adoption as at the time of this study. Estate surveyors agreed that banks had gone digital and e-banking had been helpful in property sale transaction. Only 20% of respondents agreed that lawyers in Ibadan had gone digital and helpful in property sale transaction and 100% submitted that government organisations had neither digitalized lands records and data nor being helpful.

b. Antidotes for Cybercrime and Fraudulence in Digital Operation of Real Estate Transaction

Furthermore, the respondents were asked to give antidotes for cybercrime and fraudulence in digital operation of real estate transaction. Answers generated from the respondents are enumerated below without any explanation.

- Do not divulge your Bank Verification Number (BVN) and personal identification number (PIN) to anybody in the process of any transaction.



- Have dealing with real owner of the property offered for sale and/or his estate surveyor and lawyer only and none with any unauthorized person.
- One must make sure that photograph of the property owner at the Lands Registry conforms to his physical appearance or facial features.
- In the process of any transaction, engage or relate with only registered lawyers and estate surveyors as they can be easily held responsible for their actions or negligence.
- Verify details of purported owner of the property for sale, his account number must bear his true name; his phone number must be registered in his name and his address and/or change of address could be traced.
- Buy registered property only and those which be verified easily.
- Pay or advise release of money only when you are satisfied with all righteousness.
- *Endeavour to collect originals and/or copies of all related documents to the purchased property such as survey plans, certificate of occupancy, deeds of assignment, deed of release of mortgage or any other lien, will or letter of administration (if any), etc.
- *Endeavour to collect from the seller personal documents such as tax receipts for three most recent years, recent passports, etc.
- Whether registered or unregistered property is purchased, buyer's title must be registered immediately to safeguard buyer's interest therein.

Nota Bene, *These could be arranged to be kept with seller's lawyer or estate surveyor with agreement that he releases them to the buyer when and where the deed of assignment is signed, sealed and delivered in order to ease collection of same as sellers usually relax after collection of selling money and prove difficult to attend to pending issues.

c. *Efforts of Government Bodies on Digitalization of Land and Property Data and Processing*

Analysis of data collected from the government bodies are shown in Table 3 below.

Table 3: Digitalization of Official Records and Data of Land by Local, State and Federal Governments in Ibadan

Digitalisation	Frequency	Percentage (%)
Attempt	1	6.67
Complete	0	0
Not at all	14	93.33
Total	15	100

Source: Field Survey, 2023.

Table 3 reveals that the Federal Ministry of Land, Housing and Urban Development and Oyo State Ministry of Lands, Survey and Physical Planning, Oyo State Housing Development Corporation, Estate and Town Planning Departments of all 11 Local Governments and Ibadan Local Governments' Properties Company Limited that were dealing with land administration and management in the study area had not digitalized their records and data. Oyo State Ministry of Lands, Survey and Physical Planning only made abortive attempt in the

past but Survey Department was already making use of google earth or map in searching or charting location of plot for those who came for verification of the registration of the survey of the various plots in the city. Documentation of land survey, land registry, etc. were still done manually. During the covid-19 pandemic lockdown between March and June 2020 in the city, there was no access to Oyo State's Land records and data to facilitate land transaction then. This continued partially in June 2020 when officials on grade 12 and above resumed as they only offered skeletal services at work. Manual documentation of land records and data cannot ensure smart land administration and management in this digital world and especially during any future pandemic or crisis or emergency that may warrant economic lockdown

Conclusion and Recommendations

This paper examined the smartness of estate surveyors and valuers in land transactions in the past and during covid-19 pandemic period in the city of Ibadan, Nigeria and identified some pitfalls and recommended remedies that could be adopted for use in order to enhance proficiency beyond COVID-19 period. The recommendations are as follows:

The estate surveyors, land surveyors and government officials have to embrace total adoption of digital equipment for use in performing their crucial duties as regard land survey and its verification to facilitate smartness of land transaction and land administration and management in the study area and admirably the whole country.

Government at all levels are stakeholders in national land administration and management in the country, it therefore behooves them to integrate together in acquiring digital equipment and training of their staff on how to handle and use the equipment and applications in order to increase efficiency and smartness of land administration and management in the country.

References

Alkali, M. A., Sipan, I. and Razali, M. N. (2019). A review of ARIMA Forecasting Modelling and its Application in Nigerian Real Estate Market, *GBES 2019 Conference Proceedings, First International Graduate Conference of Built Environment and Surveying, "Towards Continuity and Livability Revolution"*, Universiti Teknologi, Bahru, Johor, Malaysia, 24th - 25th June, pp. 60-67.

Ashaolu, T. A. and Olaniran, M. O. (2016). Valuers' strategies for coping with death of data among valuers in two Nigerian cities: Ibadan and Abeokuta, in *Pacific Rim Property Research Journal*, (22)2, 1-13 Available on <http://dx.doi.org/10.1080/14445921.2016.1225150>

Bryde, D., Broquetasb, M. and Volm, J. M. (2012). The project benefits of Building Information Modelling (BIM), *International Journal of Project Management* 31- 971-980 Downloaded



- from: www.sciencedirect.com on Thursday 31/12/2020
- Do, A.Q. and Grudnitski, G. (1992) A neural network approach to residential property appraisal. *The Real Estate Appraiser*, (58) 3, pp. 38-45. Downloaded from: Monday 4 January, 2021 FIG, (2020). A Call for Papers Downloaded from: on Thursday 31/12/2020 <https://www.unissu.com/proptech-resources/how-building-information-modelling-will-help-the-real-estate-industry>
- Federal Government of Nigeria (FGN), (1990). Land Use Act of 1990 (formerly Land Use Decree of 1978).
- FIG, (2021). Smart Surveyors for Land and Water Management: Challenges in a new Reality. FIG Working Week 2021 call for paper. Downloaded on Wednesday 06/03/2021 from: www.fig.net/fig2021
- Harrison, N. (2000). Linking Africa's Farm and Cities in the *Urban Age*, Winter Vol. (7) 3 page 4 Margaret Bergen (ed.) World Bank Publication, Washington D. C.
- Hofgartner, K. (2006). Economic Benefits of Global Positioning System (GPS) Technology in Developing Countries for Land Management, Geographic Information and Agriculture, *Trimble Navigation Limited* June. Downloaded on 1/1/2021 from: 7_6_hofgartner.pdf
- Investopedia, (2020). What is Disclosure? How it Works and Laws on Transparency. Downloaded on Wednesday 20/09/2020 from: <https://www.investopedia.com>
- Kang, J., Lee, H. J., Jeong, S. H., Lee, H. S., and Oh, K. J. (2020). Developing a Forecasting Model for Real Estate Auction Prices Using Artificial Intelligence, *Sustainability*, 12, 2899; doi:10.3390/su12072899. Downloaded on 1/1/2021 from: www.mdpi.com/journal/sustainability
- Lehan, N. F. A. M., Razak, K. A. and Kamarudin, K. H. (2020). COVID-19 Pandemic: The New Normal in Business Continuity Plan for Real Estate Firms in Malaysia *International Journal of Real Estate Studies INTREST* (14)S2 137-144 Downloaded on Wednesday 30, 2020 from: https://www.utm.my/intrest/files/2020/11/4_Final MS CRES-Covid-026.pdf
- Microsoft Corporation (2009). Encarta Dictionary. Olaniran, M. O. and Onakoya, T. (2020). Importance of Corporate Assets' Valuation in Performance Evaluation: A Review of Literature, in *Ilaro Journal of Environmental Research and Development*, School of Environmental Studies, The Federal Polytechnic Ilaro, Ogun State, (4)1, 119 – 133. Available at: <https://fpisesjournal.federalpolyilaro.edu.ng/articles.php>
- Olaniran, M. O. (2012). A Study of Residential Land Affordability in Ibadan Land, being M. Sc. Dissertation submitted to the *Department of Estate Management, Obafemi Awolowo University, Ile-Ife*.
- Oluleye, I. B., Oyetunji, A. K. and Ogunleye, M. B. (2020). Dispute Resolution in Real Estate Transactions: Examining Factors Determining the Selection of Strategies Used, *International Journal of Real Estate Studies* (14)S1, 1-8. Downloaded on Wednesday, 30/12/2020 from: https://www.utm.my/intrest/files/2020/06/1_Oluleye EtAl 2020 Updated.pdf
- Palm, R. (1976). Real Estate Agents and Geographical Information, *Geographical Review* 66 (3): 266–80. doi:10.2307/213885. Downloaded on Thursday 31/12/2020 from: <https://core.ac.uk/download/pdf/194848108.pdf>
- Sarip, A. G. (2005). Integrating Artificial Neural Networks and GIS for Single-Property Valuation, 1-16 Downloaded on Monday 4 January, 2021 from: http://prres.net/Papers/Sarip_Integrating_Artificial_Neural_Networks_And.Pdf
- Savills. (2020). Tipping points: How climate, politics, demographics and technology are transforming real estate. Impacts: The Future of Global Real Estate. Retrieved on Monday 4 January, 2021 from: https://www.savills.com/impacts/Impacts3_pdfs/Savills_Impacts_2020_complete-v2.pdf.
- Uchehara, I, Hamma-adama, M., Obiri, K. A., Jafarifar, N. and Moore, D. (2020). Impacts and Risk Management of COVID-19 Pandemic on Real Estate Supply Chain, *International Journal of Real Estate Studies (INTREST)*, (14)S1 41-53. Downloaded on Wednesday, 30/12/2020 from: https://www.utm.my/intrest/files/2020/11/5_Final MS CRES-Covid-006 Latest.pdf
- United States of America (1889). *The Conveyancing Act*. Section 4 (f), Cap. 73. Law 51 of 1957. Act 1 of 1979, 1st Sch. paper 8. Downloaded on 20/09/2021 from: <https://www.fid.gov.jm>
- Valentine, J. (2019). How building information modelling will help the real estate industry.
- Wahab, A. B. (2020). Applications of Drone Technology in the Management of Disaster and Risk Associated with COVID-19 Pandemic in the Built Environment: The Nigerian Experience *International Journal of Real Estate Studies INTREST* 14:S1 73-81. Downloaded on Thursday 31/12/2020 from: https://www.utm.my/intrest/files/2020/11/8_Final MS CRES-Covid-002 Latest.pdf
- World Health Organisation (WHO), Europe, (2023). Coronavirus disease (COVID-19) pandemic.



July 30. Downloaded on Thursday 20/09/2023
from: <https://www.who.int>.