

Harnessing the Benefits of Contemporary Information Technology for the Transmogrification of Property Market Operations in Ibadan, Nigeria

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Abstract: The benefits of Information Technology (IT) on the Ibadan property market operations was investigated in this study. Primary data were collected from 72 estate surveying and valuation firms through structured questionnaires. The response rate was 67 percent, and descriptive and inferential statistics were used to analyze the data. The results indicate that estate surveying and valuation firms engage in the general practice of estate management and prioritize the adoption of specific IT tools based on their perceived importance. The adoption of IT tools has been beneficial to their practices as it promotes cashless operations, reduces the risk of fraud amongst staff, reduces the risk of robbery attacks on practicing firms, creates a clutter-free workplace, promotes efficient record keeping, ensures efficient inter-office communication, virility of marketing of services to the widest audience beyond and across borders, among others. The study also found a statistically highly significant relationship between IT adoption level and IT level of benefits, which suggests that integrating IT can augment operational efficiency, customer satisfaction, and overall performance in real estate transactions and management. The study recommends that the Nigerian Institution of Estate Surveyors and Valuers (NIESV) in alliance with the Estate Surveyors and Valuers Registration Board of Nigeria (ESVARBON) through her Mandatory Continuing Professional Development (MCPD) should be updating and orientating its members on innovations and technologies that would enable them to meet with best global practices.

Keywords: Information technology, Property market operations, Ibadan, Nigeria.

1. INTRODUCTION

As oxygen in the air is highly imperative for the survival of man, so also the tremendous importance of information technology (IT) towards the efficiency of the property market operations cannot be over-emphasized. According to Kakulu (2008); Babawale (2012), and Otieno (2022), IT is capable of transmogrifying real estate operations in particular as well as the generality of professional services delivery. Before the advent of IT, the Nigeria property markets has long been in existence at different locations bringing the key market players (i.e. buyers and sellers of interest in land, landlords, tenants, governments, investors and developers) in close contact. During that conventional period, real estate practitioners both skilled and unskilled engaged crude means/traditional media for real estate services. For instance, in real estate agencies, practitioners engaged in crude marketing strategies such as firm-to-firm exchange of property bulletin; advertisement in the homes and property sections of national dailies; postages; advertisement in property-related magazines; and marketing via on-the-site boards/banners. Despite the high cost associated with the adoption and utilization of the aforementioned crude marketing means, advertisements and operations were not cut across frontiers but confined within borders (Ayinde and

Olatundun, 2014). Moreover, in property valuation, the estate surveyors and valuers were confronted with mounting accusations of significant disparities and inconsistencies in the valuation estimates they provided. Indigenous researchers like Igboko (1992), Ogunba and Ajayi (1998), Bello and Bello (2007), Ajibola (2010), and Idowu, Babawale and Anyakora (2012) noted that Nigeria's property valuation is characterized by inconsistency, inaccuracy and variation which was attributed to non-availability of databank where the estate surveyors and valuers can obtain relevant and reliable data for more reliable and dependable value opinion. Furthermore, Olatundun and Bello (2023), and Olatundun, Ayinde, AbduRaheem, and Oladeji (2024) stated that prompt collection of rent and other statutory charges, and writing of management correspondences among others are essentials for a successful property management. Most often, the management correspondences were manually type-written and dispatched by hand or through postages to tenants while tenants went about with cash to pay rent to landlords or property managers which exposed the landlords, tenants and property managers to attacks by armed robbers (Ayinde and Olatundun, 2014). Crowston, Wigand and Allbritton (2003) noted that the deployment or adoption of contemporary IT in real estate practice not only accords better corporate image but also influences business efficiency and profitability.

IT is an agent of change which of no doubt has impacted virtually all facets of human endeavours including real estate (Ibisola, Oni, and Peter, 2015, Babatunde and Ajayi, 2018, Mohammed, Bello, Saidu, and Maikudi, 2019). In the United States, real estate practice revolves around contemporary ICT as observed by Wingand, et al. (2001); Kirkwood (2003); Sawyer, Wingand and Crowsnow (2005); and Reijo, Elias, Jouko, Miettinen and Gersberg (2007). Moreover, Peansupap and Walker (2005) noted that real estate practice in Australia is computerized for a more robust service delivery. With particular reference to Nigeria, Adebisi (2003) opined that most real estate practitioners are not ICT compliant and see ICT as a complex and expensive technological threat that requires intensive training and re-training, and brings unnecessary hurdles to professional spheres. Similarly, Udechukwu and Somerekun (2006), and Ayinde and Olatundun (2014) noted that IT is not significantly adopted and utilized for the marketing of real estate services amongst professional estate firms in Lagos and Osogbo respectively, despite its inherent benefits which in tandem with the opinion of Adebisi (2003), and contrary to the observations of Nwanekezie and Okeahialam (2019), Ayeni, Mas'udd and Usman (2020), Adedamola, Oyedeji and Faturoti (2021), Akeju, Olapade and Babatunde (2021), and Ifediora, Obineme and Ezeonyeche (2021) that the use of IT in real estate industry has had a substantial impact. The contrary opinions of the researchers on the adoption and usage of IT in Nigeria might be influenced by factors such as study time, study location and IT literacy level amongst study groups. For instance, the study of Ayinde and Olatundun (2014) was conducted in Osogbo, an emerging property market in Nigeria. The studies of Adedamola, Oyedeji and Faturoti (2021), Akeju, Olapade and Babatunde (2021), Ayeni, Mas'udd and Usman (2020), Babatunde and Ajayi (2018), Adebisi (2003) were conducted in Lagos, a sophisticated property market in Nigeria while less or no attention has been paid on whether the deployment of IT has made the Ibadan property market better-off in its operations and services delivery.

Furthermore, several studies have established the constraints to the adoption and usage of IT which may vary from one location to another. Ayinde and Olatundun (2014) established that the low level of computer literacy, erratic power supply and deplorable state of IT infrastructures are major constraints to IT usage in the Osogbo property market, Nigeria. Oyetunji, Ojo and Oyetunji (2018) stated that the rapid advancement in IT technology was a major barrier to deploying IT in real estate practice in Lagos, Nigeria. Nwanekezie and Okeahialam (2019) reported that the estate surveyors and valuers in Uyo, Nigeria face challenges in using social media platforms due to network problems, high data cost, low awareness of the platforms, and power unavailability. Adedamola, Oyedeji and Faturoti (2021) noted that rapid changes in IT, shortage of skilled manpower, fear of virus attacks, consumption of time and inadequate power supply are some of the barriers that limit IT usage in the Lagos property market, Nigeria, and there is need to ascertain the challenges associated with the adoption and usage of IT in the Ibadan property market. However, this study intends to examine the level of adoption of IT, ascertain the areas where contemporary IT has transmogrified property market operations and factors impeding its adoption and utilization in metropolitan Ibadan, an emerging property market in south-western Nigeria.

2. LITERATURE REVIEW

Information Technology (IT) connotes the use of computers to process and manage data. Kasim and Ang (2010) see it as a technology dedicated to the storage of information, processing and communications. It comprises computer hardware, computer software, auxiliary infrastructure and services to manage and disseminate information for efficient retrieval (Gaith, Khalim and Ismail, 2009). In the opinion of the National Science Foundation (1998), IT was taken to represent the

confluence of telecommunication, video, and computing technology which support a diversity of applications. Moreover, the online Business Dictionary revealed that “IT is a set of tools, processes, and methodologies (such as coding/programming, data communications, data conversion, storage and retrieval, systems analysis and design, system control) and associated equipment employed to collect, process, and present information. In broad terms, IT also includes office automation, multimedia, and telecommunications”.

On the other hand, the property market which can otherwise be called the “real estate market” is any arrangement where a bundle of rights is being exchanged. Dugeri (2011) stated that the property market involves the exchange of property rights among various parties, including owners, users, developers, and investors, either directly or through intermediaries, within a given society or state. The property market functions as a significant repository of foreign direct investment, and its level of development plays a pivotal role in influencing a nation’s economy (Dugeri, 2011). The Nigerian property market has played a significant role in the nation’s economic growth and development in the area of employment opportunities, investment opportunities, and increased government internally generated revenue (IGR) at the three levels of government.

The Nigerian property market like other sectors of the economy is fast driven on the wheels of modern IT. According to Ogunsola and Aboyade (2005), the deployment of IT has led to the re-organization of work patterns, skills and job re-training in virtually all professions. Oyetunji, et al. (2018) noted that the ability of real estate professionals to utilize information determines how they bring together landlords, tenants, buyers, and sellers of interests in properties in close contact and according to Reijo, et al. (2007), the practitioners are leveraging on contemporary IT to maintain a competitive edge over other professionals.

Contemporary IT is internet-driven. The Internet is a vast network of a myriad of interconnected networks spread globally. All computers that are connected to the Internet communicate with each other using a standard protocol known as Transmission Control Protocol/Internet Protocol suite (TCP/IP). As an internet user, one can access a wide range of services such as email, file transfer, access to a vast array of information resources, membership to interest groups, interactive chat rooms, multimedia displays, live broadcasting, online shopping, breaking news, and much more. Today, the Internet enables manufacturers and service providers to advertise on contemporary IT platforms such as websites, email, and social media applications.

The website is a digital IT platform owned and operated by an individual or organization. It consists of interconnected HTML pages and serves various purposes such as conducting business transactions, providing customers with company information, granting suppliers access to company systems, and enabling purchasers to compare quotes from different suppliers. Email is a tool that allows users to send text messages either within an internal network or across external networks like the Internet. This method has replaced traditional mailing lists with targeted mail-shots that are both cost-effective and prompt. Social media, on the other hand, enables people to virtually interact with one another within and beyond borders by generating, distributing and exchanging information and thoughts. According to Kaplan and Haelein (2012), social media refers to a collection of internet-based platforms and applications that enable users to create and share content generated by themselves. Today, clients no longer rely on Yellow Pages to find products or services; instead, they conduct quick online searches. Social media platforms for businesses include LinkedIn, Twitter, Facebook, Google+, Blogs, CompanyLoop, DoMyStuff, DOOSTANG, Fast Pitch, Konnects, PairUp, Ryze, Spoke, XING, Instagram, Pinterest, Foursquare, YouTube, etc. Furthermore, Oyetunji et al. (2018) observed that contemporary application software, including general and specialized software, has been developed to enhance operational efficiency.

The adoption and utilization of contemporary IT have been influenced by individuals in response to the availability of IT (Crowston, Sawyer and Wigand, 2001) and according to Dixon and Thompson (2005) the advent of IT has impacted all areas of real estate and has brought significant benefits to the industry. Oyetunji, et al (2018) opined that despite the inherent benefits of contemporary IT as established by Thompson (2005), its adoption and utilization are yet to be fully harnessed by some real estate practitioners, evident through continual usage of contemporary approaches which encompasses the use of manual typewriters and paper-based filling systems in cabinets. Ayinde and Olatundun (2014) noted that most practitioners are constrained to adopting and utilizing contemporary IT as a result of low computer literacy, epileptic power supply and the deplorable state of IT infrastructures in Nigeria.

Kakulu (2003) posited that those who have been using IT have been deploying the same to various categories of real estate services ranging from property and facility management, property valuation, real estate investment appraisal, real estate

agency/marketing, construction design and management portfolio management, etc. Similarly, Owasanoye (2001), Akomolede (2002), and Udechukwu and Soremekun (2006) noted that contemporary IT tools are used in real estate agencies, obtaining data for valuation exercises, and transmission of correspondences in property management. The study of Ayinde and Olatundun (2014) noted that real estate agency (i.e. marketing of real estate products and services) has gone beyond the distribution of complementary or business cards, distribution of property bulletin, firm-to-firm sourcing, print media advertisements to a more sophisticated internet marketing afforded by modern IT.

Several studies have been carried out on the relevance of IT to the profession of estate surveying and valuation in Nigeria. Udechukwu and Somerekun (2006) studied information technology and how it impacted the practice of property management in Lagos. The study used Chi-square to analyse the significance of the deployment of IT in the practice of property management in the study area. It was established that the estate surveying firms in Lagos are not significantly deploying IT in their professional property management practice. Aside from the fact that the study is dated, it focused only on the practice of property management. The study did not consider how beneficial IT was to the general practice of estate surveying and valuation.

Halim (2010) assessed IT application amongst the real estate practitioners and practice in Lagos, Nigeria using both frequency tables and chi-square statistics. The study observed that IT integration significantly expanded and facilitated the emergence of contemporary real estate practice in the country. This study was carried out in Lagos and therefore, it became necessary to carry out a similar study in the Ibadan property market, Nigeria.

Ayinde and Olatundun (2014) examined the adoption and utilization of IT for real estate marketing in Osogbo. The study adopted the total remuneration or census method i.e. sample frame is equal to the sample size. Chi-square was adopted to analyse the significance of IT in real estate marketing. The findings from the study corroborate the study outcomes of Udechukwu and Soremekun (2006) i.e. that IT is not significantly adopted and utilized for the marketing of real estate services amongst professional estate firms in Osogbo. Although all professional firms of estate surveying in the study area have computers, the study established that the computers are not used for internet marketing. Aside from the fact that the study was conducted in a different market location (Osogbo), the study only considered real estate marketing (estate agency) out of the myriad of services rendered by real estate practitioners.

Babatunde and Ajayi (2018) adopted descriptive (mean, relative importance index) and inferential (analysis of variance) statistics to assess the impact of IT on the practice of real estate agencies in Lagos, Nigeria. It was observed that ICT usage increases level of patronage on real estate agency transactions and consequently, increases the level of income of the real estate agents which is in tandem with the position of Halim (2010) it expands and facilitates the development of contemporary real estate practice in Nigeria. Both studies were conducted in Lagos, Nigeria and there is a need to carry out a beneficial study of ICT in the Ibadan property market in Nigeria.

Oyetunji, Ojo and Oyetunji (2018) conducted a study in the Lagos metropolis, which analyzed the data collected from real estate services firms, practitioners, and clients. The study observed that the sudden upheaval in IT technologies was a significant barrier to the deployment of ICT in real estate practice in Lagos. Also, Nwanekezie and Okeahialam (2019) conducted a study on the deployment and usage of social media for real estate agency practice amongst the estate surveyors and valuers in Uyo, Nigeria. The study revealed that all firms and their clients have made use of social media, with Facebook, WhatsApp, and Twitter being the social media platform that is used the most by real estate firms. However, network issues, data subscription costs, and non-availability of power were a few of the challenges confronting the estate surveyors and valuers while using these platforms.

Ayeni, Mas'udd and Usman (2020) evaluated the impact of IT on real estate management in Nigeria. The study reported that IT usage in property management has the potential to increase productivity, improve activities, and reduce overall costs. In a similar study, Adedamola, Oyedeji and Faturoti (2021) assessed the usage of IT in estate management practice in Nigeria using descriptive statistics and relative importance index (RII). The study established that IT is extremely significant to real estate service delivery.

Akeju, Olapade and Babatunde (2021) assessed the awareness and usage of mobile technology in real estate service delivery in Lagos, Nigeria. The study established that the awareness level of real estate firms on mobile technology is somewhat high, while its adoption was restricted to a small number of mobile applications, particularly social media apps, emails, and Google Maps. Moreover, Ifediora, Obineme, and Ezeonyeche (2021) assessed the estate surveyors and valuers' responses

to the use of contemporary technology in Anambra, Nigeria. The study indicated that many practitioners were aware of contemporary software for valuation and drone deployment to real estate but were not accessible to them.

In a similar study, Mohammed and Bello (2021) conducted a systematic review of the potential of ICT in real estate management and valuation practice. It was observed that IT applications are commonly used in real estate practice, with a focus on software applications. However, the utilization of sensors, drones, and artificial intelligence in this field has been limited. Anoma and Kemiki (2023) assessed the effect of IT on estate agency practice in Abuja, Nigeria and adopted the multiple linear regression analysis. The result shows that website marketing, phone calls, SMS, Microsoft Office packages, and other social media platforms are significantly used and adopted in agency practice amongst estate surveyors and valuers. However, these studies did not establish whether IT in general or the deployment of social media in particular has made real estate firms better off in their operations and service delivery.

3. THE STUDY AREA

The study area is Ibadan, situated in southwestern Nigeria, which is the largest indigenous city in West Africa. It comprises 11 Local Government Areas and covers an area of approximately 3,100 square kilometres, representing 0.34% of Nigeria's territorial land mass. The city is geographically located around longitude 3051 East of the Greenwich Meridian and latitude 70231 North of the Equator with an elevation range of 150m in the valley area to 275m above sea level on the major north-south ridge that crosses the central part of the city. Ibadan is located at a distance of 530 km from Abuja and 128 km from Lagos, the administrative capital and commercial nerve centre of Nigeria, respectively. The Ibadan property market is a significant contributor to the state and nation's economic development and job creation, generating revenue for the three tiers of government. The property market has experienced an increase in the rates of all categories of properties with persistent demand, offering unique investment opportunities for personal use or investment. The study area has been chosen for its sophisticated property market in Nigeria and its accessibility and availability to IT infrastructures.

4. METHODOLOGY

The Ibadan property market is home to both professional and non-professional firms in estate management. However, this study focused on professional firms of estate surveying and valuation only. The criteria used to determine professional firms in the Ibadan property market is based on the Estate Surveyors and Valuers Act; Decree No. 24 of 1975, which defines them as anyone who has acquired knowledge in the field of Estate Management and is registered with the Nigerian Institution of Estate Surveyors and Valuers (NIESV) and the Estate Surveyors and Valuers Registration Board of Nigeria (ESVARBON).

The data required for this study is primary and it was solicited from estate surveying and valuation firms through a well-structured questionnaire. At the time of the study, there were 72 registered firms of estate surveying and valuation in the study area. As such, the study adopted a total enumeration (census approach) since the 72 registered and operational firms fall within a manageable size. 72 questionnaires were administered, out of which 48 were returned completed, representing a 67% response rate, and are valid for analysis. The data was analyzed with descriptive statistics, such as Percentage Frequency Tables (PFT), and Mean Item Score (MIS).

The MIS was used to analyze the responses of the respondents and rank the variables in the order of priority. This involves assigning a numerical value of Likert to rank the given factors. The analyzed data for this study was presented in a well-coordinated manner (tables) showing the numerical and non-numerical data for an easy view of the analyzed information on a 5-point Likert scale. This is detailed in the formula below.

$$MIS = \frac{5n_5 + 4n_4 + 3n_3 + 2n_2 + n_1}{n_5 + n_4 + n_3 + n_2 + n_1} \text{----- (1)}$$

Where n_5 is the number of respondents who answered “strongly agree”

n_4 is the number of respondents who answered “agree”

n_3 is the number of respondents who answered “undecided”

n_2 is the number of respondents who answered “disagree”

n_1 is the number of respondents who answered “strongly disagree”

A mean category according to Oke and Aigbemen (2018), Olatundun and Bello (2023), and Olatundun, Ayinde, AbdulRaheem, and Oladeji (2024) (5.00-4.50: Always; 4.49-3.50: Frequently; 3.49-2.50: Occasionally; 2.49-1.50: Rarely; and 1.49-0: Never) was adopted to determine the level of agreement and disagreement of the respondents on the analyzed variables.

Moreover, Chi-square was used to test if there is a relationship between IT adoption level and IT level of benefits. Mathematically, it is expressed as:

$$\chi^2 = \sum \frac{(O-E)^2}{E_i} \text{-----} (2)$$

Where,

O_i = Observed value (actual value)

E_i = expected value

5. DATA ANALYSIS AND RESULTS

Table 1: Descriptive Analysis of Firms'

S/N	Factor	Category	Frequency	Total	Percentage	Total
1.	Gender	Male	42	48	87.5	100.0
		Female	6		12.5	
2.	Educational Qualification	ND	-	48	-	100.0
		HND/B.Sc	35		72.9	
		M.Sc	13		27.1	
		PhD	-		-	
3.	Professional qualification	Probationer	10	48	20.8	100.0
		Associate	32		66.7	
		Fellow	6		12.5	
4.	Status of the respondents	Estate assistant	-	48	-	100.0
		Estate surveyors	16		33.3	
		Managers	28		58.3	
		Others	4		8.3	
5.	Firm's year of existence	1-5	5	48	10.4	100.0
		6-10	23		47.9	
		11-15	8		16.7	
		16-20	2		4.2	
		20 and above	10		20.8	
6.	Firm's status	Branch office	19	48	39.6	100.0
		Head office	29		60.4	
7.	Firm operations	Property management only	-	48	-	100.0
		Real estate agency only	-		-	
		Property development only	-		-	
		Property valuation only	-		-	
		Investment appraisal only	-		-	
		General real estate practice	48		100.0	

Source: Author's field survey (2023)

The demographic characteristics of the respondents are shown in Table 1. A total of 48 questionnaires were retrieved which was valid for analysis. 88 per cent of the respondents are male while 22 per cent are female. This indicated that there are more male practitioners in the study area than their female counterparts. The majority of the respondents have Bachelor of Science (BSc) degrees as their minimum qualification with only a few having additional degrees. 68 per cent of the respondents are associate members of the Nigerian Institution of Estate Surveyors and Valuers (ANIVS). 12 per cent are fellow members while the remaining 20 per cent are probationers. Most of the respondents (59 per cent) are in the manager's

cadre at various levels of the organization, another 33 per cent are estate surveyors while the remaining 8 per cent did not indicate their position. The implication is that 92 per cent of the respondents are key staff and they could be relied on for reliable data for the study. 90 per cent of the respondents' firms have been in existence above 5 years. Any data obtained from the firms would be a true reflection of the study area. 60 percent and 40 percent respectively of the respondents' firms are head offices and branch offices. All the firms (100 per cent) considered in the study are involved in general real estate practice (i.e. property management, real estate agency, property development and finance, real estate investment appraisal and property valuation).

Table 2: Ranking the Operational Challenges before the Adoption of contemporary IT

S/N	Challenges	Absolute Frequency						N	Mean	Rank	Remark
		SA	A	UD	D	SD	LA				
1.	High cost of manual operation	18	23	1	2	4	193	48	4.02	1 st	A
2.	Fraud amongst staff since clientele usually pays in cash	16	21	0	2	9	177	48	3.69	5 th	A
3.	Likelihood of robbery attacks when cash is received from clientele	15	22	0	1	10	175	48	3.65	7 th	A
4.	Market information is limited within borders	18	21	1	3	5	188	48	3.92	2 nd	A
5.	Clutter workplace	16	21	0	2	9	177	48	3.69	5 th	A
6.	Payment of rent and other charges can only be done within working hours and working days (not 24/7)	16	21	0	3	8	178	48	3.71	4 th	A
7.	Difficulty in retrieval of records	15	22	0	1	10	175	48	3.65	7 th	A
8.	Poor inter-office communication	13	21	1	3	9	167	48	3.48	9 th	U
9.	Delay in delivery and receipt of correspondence	16	22	0	3	7	181	48	3.78	3 rd	A

Strongly Agree (SA); Agree (A); Undecided (UD); Disagree (D); Strongly Disagree (SD)

Source: Author's field survey (2023)

Table 2 shows the ranking of the operational challenges before the adoption of contemporary IT on a 5-point Likert Scale (strongly agree, agree, undecided, disagree and strongly disagree). A scale value was assigned to each of the responses and a mean score was employed in ranking the responses to determine the precedence of the challenges. High operational cost, market information is limited within borders, delay in delivery and receipt of correspondences are ranked 1st, 2nd and 3rd respectively with mean of 4.02, 3.92 and 3.78, while poor inter-office communication was least ranked with a mean of 3.48. Other challenges are: market transactions are limited to working days, cluttered workplace, fraud amongst staff since clientele usually pays in cash, the likelihood of robbery attacks since clientele usually pays in cash and difficulty in retrieval of records. Adopting a mean categorization (5.00-4.50: Strongly agree; 4.49-3.50: Agree; 3.49-2.50: Undecided; 2.49-1.50: Disagree; and 1.49-0: Strongly disagree) according to Oke and Aghimien (2018), Olatundun and Bello (2023), Olatundun, Ayinde, AbdulRaheem, and Oladeji (2024), the result shows that high operational cost (M=4.02), limitation of market information within borders (M=3.92), delay in delivery and receipt of correspondences (M=3.78), payment of rent and other charges can only be done within working hours and working days [not 24/7] (M=3.71), clutter workplace (M=3.69), fraud amongst staff since clientele usually pays in cash (M=3.69), likelihood of robbery attacks when cash is received from clientele (M=3.65), and difficulty in retrieval of records (M=3.65) were in agreement as the operational challenges before the adoption of contemporary ICT among the estate surveyors and valuers in the study area except poor inter-office communication (M=3.48) which was undecided. This implies that before the deployment and utilization of contemporary ICT, the firms were faced with a myriad of challenges which by implication caused financial setbacks, operational disruptions, and increased stress among employees and management.

Table 3: Respondents' Views on the Adoption of IT

S/N	Factor	Category	Count	Percentage
1.	Are you aware of modern IT	Yes	48	100.00
		No	-	-
		Total	48	100.00
2.	Ownership of computer/communication gadgets	Yes	48	100.00
		No	-	-
		Total	48	100.00
3.	Access to internet	Yes	41	85.42
		No	7	14.58
		Total	48	100.00
4.	Ownership of the official website	Yes	09	18.75
		No	39	81.25
		Total	48	100.00
5.	Ownership of official email	Yes	38	79.17
		No	10	20.83
		Total	48	100.00
6.	Adoption of social media	Yes	48	100.00
		No	-	-
		Total	48	100.00
7.	Deployment of drones (multimedia content creation) for property inspections	Yes	2	4.17
		No	46	5.83
		Total	48	100.00

Source: Author's field survey (2023)

Table 3 shows the respondents' views on the adoption of modern IT. 48 respondents representing 100 per cent of the total responses posited that they are aware of modern IT. All the respondents (100 per cent) have computers/communication gadgets while only 85 per cent of the respondents' computers/communication gadgets have internet connectivity. The majority of the respondents (79.17 per cent) have email while only a few (18.75 per cent) have an official website. All the respondents (100 per cent) use social media such as Facebook, WhatsApp, Twitter, Instagram, LinkedIn, etc. for the marketing of real estate services. This implies that the majority of respondents are leveraging on the cutting-edge afforded by modern IT to cut a niche in the saturated Ibadan property market.

Table 4: Ranking of IT tools adopted and utilized by respondent firms

S/N	Classification	Absolute Frequency					LA	N	Mean	Rank
		MF	FU	UD	RU	NU				
1.	Website	-	-	-	5	43	53	48	1.10	6 th
2.	Email	12	16	0	20	0	164	48	3.42	4 th
3.	POS terminal	1	1	0	0	46	55	48	1.15	5 th
4.	Electronic funds transfer platform	14	21	0	3	10	170	48	3.54	3 rd
5.	Telephone	42	6	0	0	0	234	48	4.88	1 st
6.	Social media platform	36	7	0	5	0	218	48	4.54	2 nd
7.	Drones (multimedia content creation)/ application software	-	-	-	2	46	50	48	1.04	7 th

Most Frequently Use (MF); Frequently Use (FU); Undecided (UD); Rarely Use (RU); Not Use (NU); Likert Aggregation (LA); No. of Respondents (N)

Source: Author's field survey (2023)

Table 4 shows the ranking of IT platforms adopted and utilized by practising firms in the study area on a 5-point Likert Scale (i.e. most frequently in use, frequently in use, undecided, rarely in use and not in use). Meanwhile, a scale value was assigned to each of the responses and a Mean Interval Score (MIS) was employed in ranking the responses in order of

precedence. Telephone, social media platforms and electronic funds transfer platforms are ranked 1st, 2nd and 3rd respectively. Other platforms are electronic funds transfer (4th), and POS terminal (5th) while website and drones [multimedia content creation]/application software were the least ranked (6th and 7th position respectively). This ranking implies that the Estate Surveyors and Valuers prioritize the adoption of specific IT tools based on their perceived importance for real estate service delivery. However, since websites and drones/real estate application software are the least ranked, it shows that the respondents may not be aware of the potential benefits these technologies offer.

Table 5: IT Adoption Levels

Level	Frequency	Percentage
High level	10	20.83
Medium level	34	70.84
Low level	04	8.33
Total	48	100.00

Source: Author's field survey (2023)

Table 5 shows the IT adoption levels among the respondents in the study area. The result shows that 10 respondents representing 20.83 per cent, 34 respondents (70.84 per cent), and 4 respondents (8.33 per cent) adopt IT on the high, medium, and low levels respectively. This implies varied levels of IT adoption which suggests differences in accessibility, comfort, and preferences.

Table 6: Ranking the Benefits of ICT to Real Estate Practice

S/N	Benefits	Absolute Frequency					LA	N	Mean	Rank	R
		SA	A	UD	D	SD					
1.	Cost-effective	8	18	16	6	0	172	48	3.58	10 th	A
2.	Create job opportunities	-	-	-	7	41	55	48	1.15	15 th	D
3.	Promote cashless operations	10	19	5	5	9	160	48	3.33	13 th	U
4.	Reduces risk of fraud among staff	9	22	9	3	5	171	48	3.56	11 th	A
5.	Clutter-free workplace	42	4	2	-	-	232	48	4.83	7 th	A
6.	Quick retrieval of clientele information with less stress	42	5	1	-	-	233	48	4.85	6 th	A
7.	Reduces risk of robbery attacks	10	19	5	9	5	164	48	3.42	12 th	U
8.	Efficient record keeping	45	2	1	-	-	236	48	4.92	5 th	A
9.	Information easily accessible to the public	46	2	-	-	-	238	48	4.96	1 st	A
10.	Efficient inter-office communication	46	2	-	-	-	238	48	4.96	1 st	A
11.	Access to property market database for valuation exercise	28	19	1	-	-	219	48	4.56	8 th	A
12.	Virility of marketing services to widest audience beyond and across borders	46	2	-	-	-	238	48	4.96	1 st	A
13.	Tasks accomplished within a limited time	45	3	-	-	-	237	46	4.94	4 th	A
	Round-the-clock transactions can be done	19	29	-	-	-	211	48	4.40	9 th	A
15.	Property inspection by clientele within the confine of their homes and without boundaries to working days	7	19	1	3	18	138	48	2.88	14 th	U

Strongly Agree (SA); Agree (A); Undecided (UD); Disagree (D); Strongly Disagree (SD); Likert Aggregation (LA); No. of Respondents (N); Remarks (R); Agreement (A); Disagreement (D); Undecided (U)

Source: Author's field survey (2023)

Table 6 shows the benefits of modern IT to the real estate practitioners in the study area. Questions were asked that required the respondents to rank the benefits on a 5-point Likert scale. Their responses were ranked 5, 4, 3, 2 and 1 with 5 being strongly agree, 4 being agree, 3 undecided, 2 being disagree, and 1 being strongly disagree, depending on their perceived level of importance. The virility of marketing of services to the widest audience beyond and across borders (M=4.96), information easily accessible to the public(M=4.96), and efficient inter-office communication (M=4.96) were ranked 1st respectively while creating job opportunities (M=1.15) was least ranked, that is 15th on the Table.

Adopting a mean categorization (5.00-4.50: Strongly agree; 4.49-3.50: Agree; 3.49-2.50: Undecided; 2.49-1.50: Disagree; and 1.49-0: Strongly disagree) according to Oke and Aghimien (2018), Olatundun and Bello (2023), Olatundun et al. (2024), the result shows that the Estate Surveyors and Valuers in the study area agreed that virility of marketing of services to the widest audience beyond and across borders (M=4.96), information easily accessible to the public(M=4.96), efficient inter-office communication (M=4.96), tasks accomplishment within limited time (M=4.94), efficient record keeping (M=4.92), quick retrieval of clientele files/information with less stress (M=4.85), cluster-free workplace (M=4.83), access to property market database for valuation exercise (M=4.56), round-the-clock transaction can be done (24/7) without boundaries to working days (M=4.40), cost effectiveness (M=3.58), and reduces risk of fraud amongst staff are benefits they derived from the adoption and utilization of contemporary IT while promoting cashless operations (M=3.33), reduces risk of robbery attacks (M=3.42), and property inspection by clientele within the confine of their homes and without boundaries to working days (M=2.88) were undecided. The agreement implies that there is an increased efficiency in real estate service delivery. The result further shows a disagreement with the creation of job opportunities (M=1.15) as a benefit of contemporary IT in the real estate practice This implies that contemporary IT does not in any way create job opportunities in real estate practice rather, could result in job loss since the tasks that could be executed by two or more employees for days can be achieved by a single employee within a short space of time.

Table 7: IT Benefit Levels

Benefits	Frequency	Percentage
High benefit	36	75.00
Moderate benefit	06	12.50
Minimal benefit	06	12.50
Total	48	100.00

Source: Author's field survey (2023)

Table 7 shows the IT benefit levels among the respondents in the study area. The result shows that 36 respondents representing 75.00 per cent, 6 respondents (12.50 per cent), and 6 respondents (12.50 per cent) derive high, moderate, and minimal benefits respectively. This suggests varying levels of impact by individuals, indicating diverse perspectives.

Table 8: Cross Tabulation of IT Adoption and Benefit Levels

Adoption Levels	Benefits Levels			Total
	High benefit	Moderate benefit	Minimal benefit	
High level	6	3	1	10
Medium level	29	2	3	34
Low level	1	1	2	4
Total	36	6	6	48

Source: Author's field survey (2023)

Table 8 shows the cross-tabulation of IT adoption and benefit levels. The result shows that out of the 10 respondents who adopted IT on a high level, 6 derived high benefits while the remaining 3 and 1 respondents derived moderate and minimal benefits respectively. Additionally, out of the 34 respondents who adopted IT on a medium level, 29 derived high benefits while the remaining 2 and 3 respondents derived moderate and minimal benefits respectively. Furthermore, out of the 4 respondents who adopted IT on a low level, only 1 derived high benefits while the remaining 2 and 3 respondents derived moderate and minimal benefits respectively. This provides insights into how the extent of IT adoption and utilization aligns

with the resulting advantages. Furthermore, a Chi-Square Test was conducted to further test the degree of relationship between IT adoption level and IT level of benefits, and the result is presented in Table 9.

Table 9: Chi-Square Test of Relationship between IT Adoption Level and IT Level of Benefits

N	χ^2	Df	P-value
48	11.17	4.00	0.024692*

*Statistically significant at 0.05

Source: Author's Field Survey, 2023

Table 9 shows if there is a statistically significant relationship between IT adoption level and IT level of benefits. A p-value of 0.024692 was derived which indicates the rejection of the null hypothesis (there is no relationship between IT adoption level and IT level of benefits) since the p-value is less than 0.05 significance level. This suggests a statistically highly significant relationship between IT adoption level and IT level of benefits. This implies that integrating IT can augment operational efficiency, customer satisfaction, and overall performance in real estate transactions and management.

Table 10: Ranking the challenges with the Adoption and Utilization of IT

S/N	Challenges	Absolute Frequency					LA	N	Mean	Rank	R
		SA	A	UD	D	SD					
1.	High cost of adoption	16	21	0	3	8	178	48	3.71	4 th	A
2.	High cost of maintenance	16	21	0	3	8	178	48	3.71	4 th	A
3.	Low level of IT literacy among staff	15	22	0	1	10	175	48	3.65	7 th	A
4.	Cost of training and re-training of staff	14	22	0	1	11	171	48	3.56	8 th	A
5.	Low level of IT literacy in the target market	18	23	1	2	4	193	48	4.02	1 st	A
6.	The deplorable state of IT infrastructure	18	21	1	3	5	188	48	3.92	2 nd	A
7.	Epileptic power supply	16	22	0	3	7	181	48	3.80	3 rd	A
8.	Cybercrime	15	22	1	1	9	177	48	3.69	6 th	A

Strongly Agree (SA); Agree (A); Undecided (UD); Disagree (D); Strongly Disagree (SD); Likert Aggregation (LA); No. of Respondents (N); Remarks (R); Agreement (A); Disagreement (D); Undecided (U)

Source: Author's field survey (2023)

Table 10 shows the challenges in the adoption and utilization of IT for property market operations on a 5-point Likert Scale (i.e. strongly agree, agree, undecided, disagree and strongly disagree). A scale value was assigned to each of the responses and a mean score was employed in ranking the responses to determine the precedence of these challenges. The low level of IT literacy in the target market (M=4.02), deplorable state of IT infrastructure (M=3.92), and epileptic power supply (M=3.80) were 1st, 2nd and 3rd respectively while the cost of training and re-training of staff was least ranked, that is 8th on the Table.

With the use of mean categorization (5.00-4.50: Strongly agree; 4.49-3.50: Agree; 3.49-2.50: Undecided; 2.49-1.50: Disagree; and 1.49-0: Strongly disagree) according to Oke and Aghimien (2018), Olatundun and Bello (2023), Olatundun et al. (2024), the result shows that the respondents agree with the eight (8) challenges considered by this study. This implies that the utilization of IT in real estate practice faces challenges stemming from a myriad of above-identified factors which by implication may result in operational inefficiencies, competitive disadvantage, limited scalability and lower customer satisfaction.

6. DISCUSSION OF FINDINGS

1) The study found that all the estate surveying and valuation firms in metropolitan Ibadan engage in general real estate practice (i.e. property management, real estate agency, property development and finance, real estate investment appraisal and property valuation) and that IT has been beneficial to their general practice which is in tandem with the studies of

Ayeni, Mas'udd and Usman (2020), Babatunde and Ajayi (2018), Halim (2010) which revealed that IT has been beneficial because it expands and facilitates development of contemporary real estate practice.

2) The study found that before the adoption and usage of ICT, the respondent firms engaged manual means for service delivery and the study observed that high operational cost, limitation of market information within borders, delays in delivery and receipt of correspondences, cluttered workplace, fraud, difficulty in retrieval of records amongst others are the identified challenges associated with the manual means of service delivery in the general practice of estate surveying and valuation. This corroborates the results of Ayinde and Olatundun (2014), and Oyetunji et al. (2018) that real estate practitioners used unconventional methods to deliver their services, and despite the high expenses involved, there is difficulty in obtaining information from the paper-based filing systems, and the property market operations not expanded beyond national borders, but rather kept them within the confines of the country.

3) The study also found that all the firms adopted and use computers/communication gadgets (IT tools), but not all the gadgets have internet connectivity. Moreover, telephone, social media, email, electronic funds transfer, POS, website, and drones/real estate software were ranked in order of precedence as the IT platform adopted and utilized by practising firms in the study area. Social media, Facebook, WhatsApp, Twitter, Instagram, LinkedIn, etc., were used by all for marketing real estate services which is in tandem with the studies of Ifediora, Obineme and Ezeonyeche (2021), Akeju, Olapade and Babatunde (2021), and Nwanekezie and Okeahialam (2019) that all firms use social media while Facebook, Whatsapp and Twitter are the most used amongst them all. The justification is that the majority of the respondents are leveraging the cutting-edge afforded by social media platforms to cut a niche in the saturated property market. In addition, the result stated further that websites and drones/real estate software are not used by the respondents possibly they may not be aware of the potential benefits these technologies could offer. This aligns with the results of Mohammed and Bello (2021) that sensors, drones, and artificial intelligence were insignificantly utilized in real estate practice.

4) The study identified fifteen (15) benefits of which eleven (11) were established to be the benefits derivable by the respondents for adopting and utilizing IT in the property market. The benefits encompass the virility of marketing of services to the widest audience beyond and across borders, information easily accessible to the public, efficient inter-office communication, tasks accomplishment within a limited time, efficient record keeping, quick retrieval of clientele files/information with less stress, cluster-free workplace, access to property market database for valuation exercise, a round-the-clock transaction can be done (24/7) without boundaries to working days, cost-effectiveness, and reduces the risk of fraud amongst staff. This is in tandem with the Dixon and Thompson (2005), Nwanekezie and Okeahialam (2019), Ayeni, Mas'udd and Usman (2020), Adedamola, Oyedeji and Faturoti (2021), Akeju, Olapade and Babatunde (2021), and Ifediora, Obineme and Ezeonyeche (2021) that the impact of IT on the real estate industry has been significant, and it has brought various benefits to the property market. In addition, the result further shows that the creation of job opportunities is not a benefit of IT in real estate practice in the study area, rather it could result in job loss since the tasks that could be executed by two or more employees for days can be achieved by a single employee within a short space of time.

5) The result from the chi-square found a statistically highly significant relationship between IT adoption level and IT level of benefits. When IT is integrated, it promotes operational efficiency, customer satisfaction, and overall performance in real estate transactions and management.

6) Moreover, the study found that some respondents who use IT are often discouraged since some of their clients have little or no knowledge of internet-based services and likewise, the unstable power supply discourages some of the respondents from adopting and utilising internet-based services. On the other hand, the high cost of IT acquisition, installation, web-hosting and maintenance are constraints to IT adoption and usage as observed by the study which is in tandem with the results of Ayinde and Olatundun (2014), Nwanekezie and Okeahialam (2019), and Adedamola, Oyedeji and Faturoti (2021) high cost of adoption and maintenance, low computer literacy, erratic power supply and deplorable state of IT infrastructures, high data cost, shortage of skilled personnel are constraints of IT in Nigeria.

7. IMPLICATION TO RESEARCH AND PRACTICE

The study extended the frontiers of knowledge on the impeding factors and inherent benefits of IT to real estate practice in Nigeria's context by identifying the IT tools adopted in practice, constraints with its adoption and its benefits towards transmogrification of the Property market operations. This study will enable real estate practitioners who might have been

seeing IT as an unknown technological threat to adopt and promote it to enhance their competitive capabilities as well as influence their profitability level.

8. CONCLUSION AND RECOMMENDATIONS

This study highlights the significant potential for Information Technology (IT) to transmogrify property market operations. Incorporating cutting-edge technological solutions has proven to enhance efficiency, customer satisfaction, and overall performance. Real estate professionals who strategically adopt these tools can effectively navigate market changes, streamline processes, and unlock new growth opportunities. As we stand at the crossroads of innovation and tradition, this study emphasizes the importance of ongoing investment in IT infrastructure, continuous training, and a progressive mindset. The future of real estate services presents vast possibilities for those who harness IT strategically, enabling a paradigm shift that not only meets current demands but also pioneers a more adaptable and resilient industry.

Given the foregoing, the study recommends that the Nigerian Institution of Estate Surveyors and Valuers (NIESV) in collaboration with the Estate Surveyors and Valuers Registration Board of Nigeria (ESVARBON) through her Mandatory Continuing Professional Development (MCPD), should be updating and orientating her members on innovations and technologies that would enable them to meet with best global practice. Moreover, the government as a matter of urgency, should address the epileptic power situation in the country since IT infrastructure is power dependent. Stability in power supply would attract direct foreign investment to IT infrastructure in the country and would also encourage its usage in all categories of professional services. Lastly, the government through the National Orientation Agency (NOA) should embark on media orientation on the inherent benefits of IT and why Nigerians should be IT compliant. This will encourage all categories of professional services to leverage IT since their target markets (i.e. populace) are IT compliant.

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