

RESEARCH ARTICLE

## Digital Transformation in Estate Surveying and Valuation: An Explanatory Study of ICT Utilisation in Lagos Metropolis

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### ABSTRACT

The study assesses the significance of digital transformation in the built environment, focusing on Information and Communication Technology (ICT) adoption among Estate Surveyors and Valuers in Lagos metropolis. The aim of the study is to examine the nexus between ICT adoption and sustainable land management practices. Despite the growing and increasing sophistication of ICT and its opportunities worldwide, Estate Surveyors and Valuers in developing countries including Nigeria are yet to fully embrace ICT in their operations. The purpose of the study is to contribute to academic discourse on digital transformation, and highlighting opportunities for innovative and sustainable land management. Online survey of 86 Estate Surveyors and Valuers was conducted. Descriptive statistics of Frequencies, Percentages and Mean scores were used for the analyses. The finding revealed widespread adoption of basic ICT tools like Microsoft Office Suite and email to enhance service delivery and competitiveness. However, specialized tools such as Geographic Information System are underutilized. Specific challenges were identified, and these include high costs of ICT, insufficient technical skills and inadequate infrastructure. The study concludes that targeted interventions are necessary to improve ICT adoption and promote sustainable land management. The study also recommends capacity building, infrastructure, enhancements and strategic ICT policy interventions to improve professional efficiency and competitiveness.

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**Keywords:** Digital transformation, ICT adoption, estate surveying and valuation, sustainable land management

### 1.0 Introduction

The advent of digital technologies has revolutionized various industries, transforming traditional practices, and fostering sustainable development. Digital transformation and resultant business model innovations have fundamentally altered consumer's expectations and behaviours of traditional firms. (Peter, Broekhuizen, Bart,

Bhattacharya, Dong, Fabian, & Haenlein, M, 2018). The estate surveying and valuation profession is not impervious to this digital wave. The increasing complexity of land management, coupled with the need for efficient and accurate service delivery, necessitates the adoption of information and communication technology (ICT) in the built environment. Lagos metropolis, Nigeria's biggest economic hub, presents a unique

context for exploring the intersection of ICT adoption and sustainable land management practices among estate surveyors and valuers. The real estate sector is also noted to contribute substantially to the economy of many nations and plays a crucial role (Naeem, Rana & Nasir, 2023). For example, it contributed 12% to United States of America's GDP in 2020, 10% to Europe same time, while to Africa, it is between 5-10%. For Nigeria, the contribution of real estate, in the first quarter of 2023 is 5.31%, according to Bureau of Statistics cited in (Ifediora, 2023). This has dropped to 5.20% as at Q1, 2024.

The benefits of digital transformation in estate surveying and valuation industry are multifaceted. ICT adoption can enhance professional efficiency, improve data management, and facilitate improved decision making. However, the pace of technological change poses significant challenges for practitioners, including the need for targeted capacity building and infrastructure enhancements. It has also been observed that despite the contribution of the real estate industry to the global economy in recent times, the digital transformation of the real estate industry is lagging behind other industries (Wang, 2023). This should call for some concern to unravel the cause. Hence, this study is undertaken to investigate the prevalence patterns and challenges of ICT usage among estate surveyors and valuers in Lagos metropolis, with a view to contributing to the academic discourse on digital transformation in the built environment.

## **2.0 Literature Review**

The focus of this study is on digital transformation and efficiency of estate surveying and valuation firms. The theoretical background is underpinned by Technology-Organization Environment (TOE), Resourced Based Value (RBV), Institutional Theory (IT), and the Absorptive Capacity Theory (ACT), which are some of the theories in literature that are relevant to the study.

TOE explains how the use of technology are influenced by various factors-including the external environment and the technology itself, which eventually impact the organizational performance. Resource Based Value identifies the ability of an organization to use a firm's resources and its unique

capabilities to produce distinct goods or values to meet customers' needs. On the other hand, Institutional Theory is concerned about how external pressures and other institutional factors affect digital transformation in the organization. Further, Absorptive Capacity theory, explains how an organization can utilize both new knowledge and technology for its organizational operations. These theories provide the platform for discussions surrounding the concept of digital transformation, benefits of ICT and the challenges associated with digital transformation within the various fields of endeavour. This study has therefore found the relevance of the various theories and have adopted them for its digital transformation on estate surveying and valuation.

Digital transformation is the process of integrating digital technology into business operations (Westerman, Bonnet & McAfee (2014). In another words, it helps organizations to operate and deliver value to customers in a more dynamic way. In recent times, there has been an increasing interest of scholars in digital transformation (Kraus, Durst Ferreira, Veiga, Kailer & Weinmann, 2022). It is a way of doing business that is diametrically different from the old way of doing business. Both digitalization and digital transformation are used interchangeably (Mikalef & Parmiggiani, 2022). The strategies in use in the context of digital transformation is more distant from what was earlier used, where most activities were done using the manual method. Within the context of digital transformation, there is a radical change which involves the use of new technologies, business elements that affect business strategies, business models, processes, organizational structures and culture.

Digital transformation has been widely used in various fields, including the education sector where the United Nations Educational Scientific Cultural Organization (UNESCO, 2017) has adopted it to increase access to education and improving education. In the same way, UNESCO has promoted the use of ICT in urban planning and development, enhancing sustainability and efficiency. Other places where ICT according to UNESCO can be of benefit include cultural heritage preservation, sustainable tourism and disaster risk

reduction. These benefits significantly influence real estate activities.

A study by Ariyo, Ayinde and Olatundun (2018) in Ibadan metropolis revealed fifteen benefits of leveraging contemporary information technology, notably and including property marketing, enhanced information accessibility, optimized inter-office communication, improved time management and more efficient record-keeping practices. In summary, the main benefits of ICT in real estate are usage of automated systems for property maintenance, energy control, security, virtual property tours and videoing, online advertisement, property listings, pricing, documentation, electronic payments, security of document, property inspections and valuations etc.

Digital transformation has been around for decades, with many companies now adopting its use. Digital transformation of society is not new, also technology is not new. They exist in gadgets as watches, smart phones and other objects in homes (Mahraz, Benabbou, & Berrado, 2019). These technologies often come with high upfront costs for installation, integration, and ongoing maintenance, which can be prohibitive for many estate firms, especially those with limited financial resources. Also, the rapid pace of technological advancements can lead to obsolescence of newly installed systems. Application may be further hampered by this unwillingness to change among estate practitioners (Aihie, 2019).

The challenges of adaptation of digital technology are many: it includes the issue of adaptability, most companies face the issues of changing their business strategies to the digital age, rapid pace of technological advancements can lead to obsolescence of newly installed systems, why further complicate financial planning. Top management support is a key challenge. Other challenges include cyber security threats, unequal access and digital divide, issue with digital ethics and bias, job displacement, leadership/organizational change, skills, data privacy and security (Okorodudu & Okorodudu, 2017; Latesh & Leena, 2020; Singh, 2022; Singh 2023, Khan, Ikram & Saleem, 2024; Juneja, Goswami & Mondal, 2024). It needs being emphasized that cybersecurity is of much concern

in today's business world, as organizations rely on digitalization to ease their operations, they are at the same time exposed to cyber-attacks that can result in loss of data, money. To prevent this, most organizations would require much capital to ensure their confidentiality. Despite this, there have been glaring breaches due to malware and phishing attacks which can only be solved by encryption firewalls and user education. Generally, estate surveying and valuation has been facing myriads of challenges arising from property management to valuation, agency, accounting, feasibility and appraisal, data losses etc. There has been divergent opinion of market values among estate surveyors due to inconsistent valuation. It is believed that with the arrival and adaptation of technology, some of these problems will be reduced if not totally eliminated. However, this seems not so as literature has also identified some peculiar problems of ICT adoption viz; initial installation cost, high operational cost (energy) etc.

### **3.0 Methodology**

Research methods consists of specific techniques, instruments and procedures adopted to collect data (Creswell, 2022). Leedy and Omrod (2021) noted that there is no specific choice for a research design. This study is a web-based survey method (N = 86), conducted to investigate the prevalence, patterns, and challenges of ICT usage. This study adopts the research method, as it is the most appropriate and convenient based on the cost, time and ease of collection. Due to certain constraints, a purposive sampling technique was employed for selecting the respondent estate surveyors and valuers across the entire 20 local government in Lagos State.

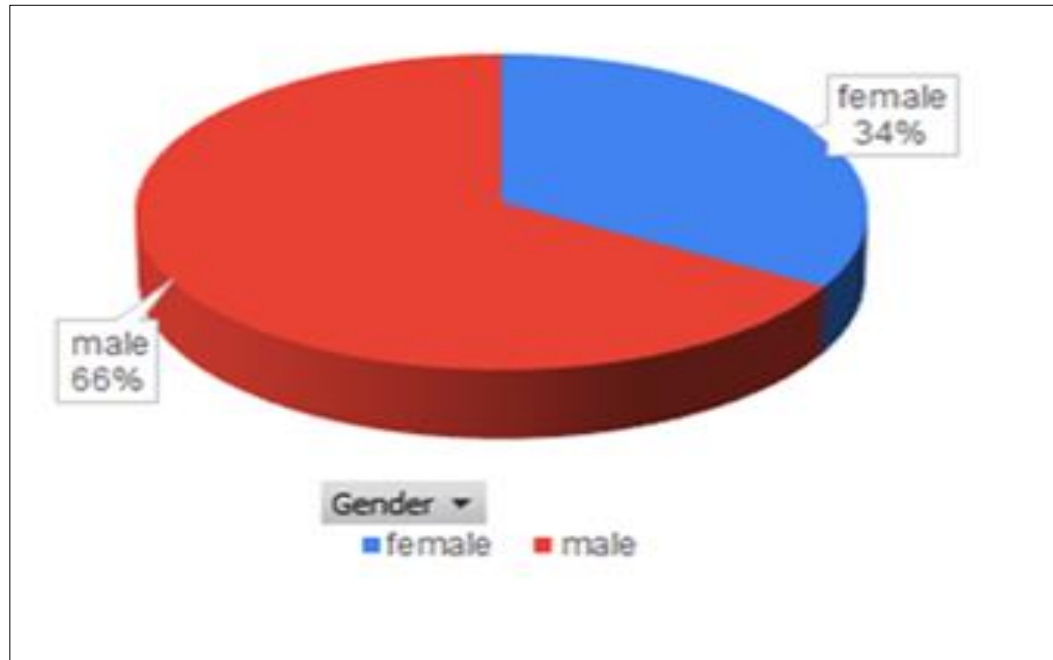
Among the various respondents, 86 responses which were properly answered were adopted for analyses. The study adopts a cross sectional design using questionnaire via Google form served to collect data. The respondents provided information based on their experiences. It is a non-experimental study technique. The result is presented in simple tables which involved the use of descriptive statistics of frequencies, percentages and mean scores, which were used to carry out the quantitative analyses.

### Demographic Distribution of Respondents

This section presents the general characteristics of the respondents sampled. Questions such as gender,

age group, Designation at work, high academic qualification, years of experience in real estate practice, and highest professional rank.

#### Gender of Respondents



**Figure 1:** Source: Field Survey, 2024

The above shows the gender of the respondents in the study area, (66%) of the respondents were male and (34%) of the respondents were female. This

gender disparity where the proportion of male is more than female historically, shows the field is presently male dominated.

**Table 1:** Distribution showing the Age group of respondents

Age group	Frequency	Percentage
Below 25	10	11.6
26-34	55	64.0
35-44	20	23.3
45-54	1	1.2
Total	86	100.0

**Source:** Field Survey, 2024

Descriptive statistics were used to analyse the age group of the respondents. The majority of respondents (64.0%) are in the age category of 26-34, followed by 23.3% in the 35- 44 age group. Younger respondents (below 25) account for 11.6%,

while only 1.2% are aged 45-54. The implication of this result is that young professionals now dominate the industry while the elderly group seems to be retiring, leaving the profession for upcoming ones.

**Table 2:** Distribution showing the respondent designation at work

Designation at Work	Frequency	Percentage
Managing Partner	7	8.1
Senior manager	3	3.5
Manager	20	23.3
Estate surveyor and Valuer	56	65.1
<b>Total</b>	<b>86</b>	<b>100.0</b>

**Source:** Field Survey, 2024

Descriptive statistics was also used to obtain the result for the designation. The summary reveals that the majority of respondents (65.1%) are Estate Surveyors and Valuers, indicating a strong representation of professionals directly involved in valuation and surveying tasks. Managers make up 23.3% of the respondents, while Senior Managers and Managing Partners are less represented, comprising (3.5% and 8.1%) of the sample, respectively. This distribution suggests that the survey primarily revealed that operations level is loaded and that is where there is more activities. The result showing less people at the top management succinctly explains that there is room for growth for the lower cadre of staff. The implication of this for

the organization's digital transformation is that there seems to be limited strategic vision which may potentially hinder the ability of the firm to adapt to changing market demands and technological advancement. Also, without adequate leadership, digital transformation initiatives might be in danger because it is at that level that direction on funding, personnel or support will be given. Its absence therefore will slow down the organizational progress. Consequently, without sufficient training for middle level manpower, there is bound for resistance from them of any digital transformation. The middle level manpower will therefore require training and development to effectively utilize digital equipment in their operations.

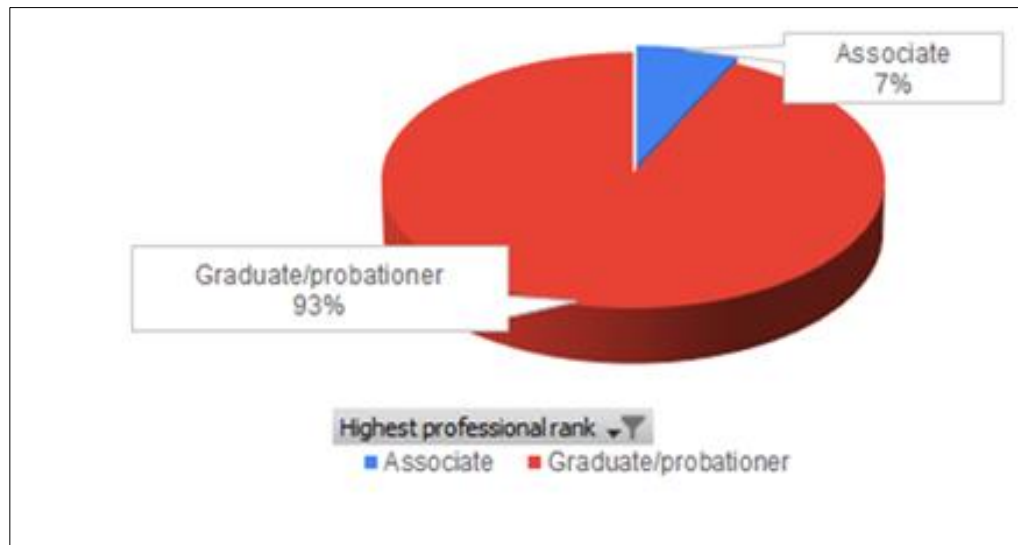
**Table 3:** Distribution showing the highest academic qualification

Highest academic qualification	Frequency	Percentage
MSC/PHD	26	30.2
BSC/HND	56	65.1
ND/SSCE	4	4.7
<b>Total</b>	<b>86</b>	<b>100.0</b>

**Source:** Field Survey, 2024

The data on academic qualifications indicates that the majority of respondents (65.1%) hold a BSc or HND, reflecting a strong prevalence of undergraduate-level education. A significant portion (30.2%) had attained advanced degrees (MSc/PhD), highlighting advanced expertise which will have positive impact on the profession, as the

gap between the towns and gown is gradually being closed. The implication is that education and specialisation is highly valued in the industry. This means better service delivery and customer satisfaction, indicating less supervision and cost of staff training and development.

**Figure 2:** Highest professional rank

**Source:** Field Survey, 2024

The implications of Figure 2 with 93% Graduate/Probationers and 7% Associate Members on digital transformation in Estate Surveyors and Valuers practices may indicate a strong foundation in digital literacy for the Graduate cadre, potentially driving digital transformation. On the other hand, the 7% Associate Members being professional grade might require additional training to adapt to digital transformation. Also, the dominance of Graduate tends to safeguard the industry in ensuring familiarity with digital technologies, thus accelerating digital adoption in estate surveying practices. As it is, the industry might need to address

skill gaps between Graduate/Probationers and Associate members. The study's findings could indicate a shift to a more digitally literate profession.

#### ***Use of Technology in Real Estate Practice***

In this section, respondents are made to express their thoughts on the use of technology in real estate practice using, a 5-point Likert scale of (SD = Strongly Disagree, D = Disagree, N = Neutral, A = Agree, and SA = Strongly Agree) was used to solicit questions from the respondents.

**Table 4:** Use of Technology in Real Estate Practice

Description	Frequency	Mean	Rank
Usage of spreadsheets for calculating and managing service charges.	86	4.4884	1 <sup>st</sup>
Used statistical analysis software for data analysis in most reports	86	4.2907	2 <sup>nd</sup>
Real estate market analysis tools help me provide more accurate valuations	86	4.2791	3 <sup>rd</sup>
Store and access all data with cloud-based platforms	86	4.1047	4 <sup>th</sup>
Use property management software to track and manage client information	86	4.0814	5 <sup>th</sup>
Regularly use of Computer-Aided Design (CAD) software for property surveys and valuations	86	3.9884	6 <sup>th</sup>
	86	3.9767	7 <sup>th</sup>

Drones are useful in conducting property inspections and surveys			
Geographic Information System (GIS) technology is integral to my valuation processes	86	3.7674	8 <sup>th</sup>
I use Building Information Modeling (BIM) in my valuation	86	3.6047	9 <sup>th</sup>
Virtual reality (VR) or augmented reality technologies are beneficial in presenting properties to clients	86	3.5465	10 <sup>th</sup>

**Source:** Field Survey, 2024

Based on the rankings, respondents informed that the use of technology in real estate practice demonstrates varying levels of adoption among professionals. Spreadsheets, which ranked 1st, are the most commonly used tools, essential for calculating and managing service charges. Statistical analysis software, ranked 2nd, is widely utilized for data analysis in reports, while real estate market analysis tools, ranked 3rd, are crucial for providing precise property valuations. Cloud-based platforms, ranking 4th, are heavily relied upon for storing and accessing large volumes of data. Property management software, ranked 5th, is commonly used for tracking and managing client information, Computer-aided design (CAD) software, ranked 6th, is primarily used for property

surveys and valuations, though less universally used than higher-ranked tools. Drones, ranked 7th, are useful for property inspections and surveys, with moderate usage-influenced cost considerations. Geographic information system (GIS) technology, ranked 8th, is integral to the valuation process for some professionals, though its usage is less widespread. Building information modeling (BIM), ranked 9th, specializes in valuation work but sees lower usage compared to other technologies, indicating a more niche application. Finally, virtual reality (VR) and augmented reality (AR), ranked 10th, are beneficial for presenting properties to clients but are still in the early stages of usage among real estate professionals.

**Table 5:** The extent of adoption of ICT tools in real estate

Description	Frequency	Mean	Rank
To what extent has your firm adopted word-processing software	86	4.6047	1 <sup>st</sup>
How useful do you find templates and automation features in word-processing software?	86	4.5814	2 <sup>nd</sup>
Effectiveness of cloud storage adoptions for managing and accessing client records?	86	4.5698	3 <sup>rd</sup>
To what extent do you use data analysis software to analyze appraisal data and generate reports?	86	4.5465	4 <sup>th</sup>
My Organization Encourages the Adoption of ICT Tools For Valuation Processes	86	4.5116	5 <sup>th</sup>
To what extent do you use spreadsheets for calculating and managing service charges?	86	4.4651	6 <sup>th</sup>
To what extent has your firm adopted digital marketing tools for advertising real estate properties?	86	4.4302	7 <sup>th</sup>
The adoption of ICT tools is essential for modern estate surveying and valuation	86	4.3372	8 <sup>th</sup>
Utilization of GPS-enabled devices for documenting the exact location of properties during inspections?	86	4.3256	9 <sup>th</sup>
Adoption of content management systems in creating and managing your website content for marketing purposes?	86	4.3023	10 <sup>th</sup>

**Source:** Field Survey, 2024

According to the above table, the top-rated application is word processing software, scoring an average of 4.6047 mean. The implication of this result on digital transformation as it affects Estate Surveyors and Valuers practices is that the topmost ranking of word processing software suggests that Estate Surveyors and Valuers prioritize administrative tasks such as documentation in their day to day operation. This is followed by templates and automation capabilities that ranked 2nd with 4.5814 mean. This shows a desire to streamline processes and improve productivity. Cloud storage solutions rank 3rd (mean = 4.5698), indicating data security and accessibility. Data analysis software (Excel, SPSS), ranked 4th is extensively used for valuation appraisals. It also assisted in report writing. The result also portends the use of (ICT)

tools for assessing property values, ranked in the 5th-place position. Following in order of ranking is the use of spreadsheets for computing and overseeing service fees, which facilitates efficient financial management scoring and content management systems for website management, ranked 10th, are also in use, though to a somewhat lesser extent.

The relative lower rankings of some tools such as spread sheets suggest opportunities for growth and adoption of more advanced digital tools in the estate surveying industry. In conclusion, the study revealed the need for the Estate Surveyors to invest in training, retraining and development in order to ensure that their staff have necessary skills to effectively utilize digital tools.

**Table 6:** Challenges Faced by Estate Surveyors and Valuers in the Use of ICT

Description	Frequency	Mean	Rank
Technical issues and glitches with ICT tools cause delays in my work	86	4.4070	1 <sup>st</sup>
The high cost of ICT tools is a significant barrier to their adoption in practice	86	4.3372	2 <sup>nd</sup>
There is a lack of comprehensive training on the use of ICT tools	86	4.2093	3 <sup>rd</sup>
ICT usage has given a competitive edge in real estate market	86	4.1977	4 <sup>th</sup>
Inadequate technical skills among staff members limit the use of ICT tools	86	4.1860	5 <sup>th</sup>
Data security concerns discourage me from fully utilizing ICT tools.	86	4.1628	6 <sup>th</sup>
The rapid pace of technical change makes it difficult to keep up pace with new ICT tools	86	4.1279	7 <sup>th</sup>
Resistance to change within the organization affects the adoption of ICT tools	86	4.0465	8 <sup>th</sup>
Limited access to reliable internet hinders the effective use of ICT tools	86	3.9762	9 <sup>th</sup>

**Source:** Field Survey, 2024

Descriptive statistics was used to obtain the frequency and mean score, following the survey responses. The table 6 above, indicates that mean scores of respondents range between 4.4070 and 3.9762 on the different items relating to challenges confronting the Estate Surveyors and Valuers in the use of ICT tools. Technical issues and glitches with ICT tools (Mean score of 4.4070) that cause delays in execution of work is the most significant challenge, with a majority of respondents highlighting it as a major barrier to ICT tool adoption, while high cost of ICT tools is the second critical issue, with a (Mean score: 4.3372). This is followed by others in sequence. The least in the

order of ranking is the issue identified with mean score of 3.9767 i.e. Limited access to reliable internet. This also hinders the effective use of ICT tools and ranked 8th position.

#### 4.0 Discussion of findings

High adoption of word processing software that ranks 1st, indicates widespread use among estate practitioners, next in rank are template automation and cloud automation with the 2nd and 3rd position respectively, showing they are considerably valued. Others also follow in ranks to demonstrate their moderate adoption. However, the two items at the lowest ebb are GPS-enabled devices and content



management systems adoption to manage web contents. It can be deduced that estate firms prioritize efficiency, also have varying technology adoption, this indicates room for improvement. The result also shows that digital marketing requires enhanced attention. To conclude, it can be seen that digital transformation is underway in the estate profession.

## 5.0 Conclusion and Recommendations

It can be deduced that ICT adoption results in increased efficiency, improved data management and data security, enhanced organizational decision making, improved and effective communication between customers, agents and clients, and simplified financial computation. However, it is without some negative consequences such as technical glitches, high cost of usage, decreased critical thinking and loss of discretion due to over reliance on technology, cyber security vulnerabilities that can result in financial losses, increased cost due for staff training cum increased operational expenses.

This study recommends the followings for ICT adoption:

1. That Estate Surveyors and Valuers should invest in ICT infrastructure development to support its digital transformation. This will help in sustainable ICT usage
2. Organisations should enroll their staff on ICT trainings and also sponsor them to participate in conferences and workshop organized by professional bodies, as well collaborations between organizations should be encouraged
3. Professional bodies in the industry should also provide technical support for members of the Nigerian Institution of Estate Surveyors and Valuers and the Estate Surveyors and Valuers Registration Board of Nigeria.

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