



## **e –LAND DOCUMENT MANAGEMENT SYSTEMS: A CASE STUDY OF NIGER STATE GEOGRAPHIC INFORMATION SYSTEM AGENCY.**

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### **Abstract**

*The most crucial part of e-land document management system is to represent land information in such a way that splitting, merging and querying updating and retrieving of land information become easier, and also collecting and digitizing land data should be cost effective. This paper analysed all tools used in land documents management and Examine the challenges encountered in the process of e-land documentation and Develop possible ways to enhance effective e-land documentation. methods of data collection adopted was questionnaire to staff and applicant for title registration, Five point Likert rating scale was used to analysed data and The study discovered that inadequate public education and enlightenment on new digital certification process is one the challenges and The study found that enactment of the right legislation to make e-land titling accessible is major head way forward to sustainable e-land documentation in NIGIS at 96% relative important index. Despite the benefit associated with e-land document, it has also been understood that challenges in the process is inevitable. E-land document as tool for settling land related matters, it is therefore recommended that the process must ensure simplicity and easiness in digital certification.*

**Keyword:** *e –Land Document Management*

### **Introduction**

A document management system could also be considered as the software that controls and organizes documents throughout an organization. It incorporates document and content capture, workflow, document repositories and output systems, and information retrieval systems. Also, the processes used to track, store

and control documents (ISO, 2012). Beginning in the 1980s, a number of software sellers began to develop software system to manage paper-based documents. These systems dealt with paper documents, which included not only printed and published documents, but also photographs, prints, etc (Oboli, & Akpoyoware, 2010). Later developers began to write a second type of system which could manage electronic documents, i.e all those documents, or files, created on computers, and often stored on users' files.

Before the installation of the Niger State Geographic Information System (NIGIS), the management of paper-based documents in land transaction was manually done, file jackets were the only means of storing the documents through a system of tagging the documents onto the file jackets. The files were coded and numbered serially and put into shelves, kept in a room called the land registry. This system created a lot of challenges for land administrators in tracking and subsequent transactions on the file documents.

Population growth is directly associated with an increase in pressure on land and the environment. The effect of the pressure on land and other natural resources is that communities develop a need to own land exclusively. This requires the new tenure arrangements that emerge with modernization and sophistication of society. As a result, cadastral models should be dynamic and adaptive rather than static (Zevenbergen, 2002; Barry *et al.*, 2013). Collecting, recording and retrieval of land and related transaction information in the course of implementing land policies cannot be achieved without a proper data management system. This study seeks to unravel the effectiveness or otherwise of NIGIS operation with a view to ascertaining its operations technologies deployed, benefit and challenges encountered. The study examine the effectiveness of e-land documentation management system in Niger state geographical information system (NIGIS). With Examine the challenges encountered in the process of e-land documentation and Develop possible ways to enhance effective e-land documentation.

### **Literature review**

Process of digitalization of land records using Blockchain technology by focusing on two contrasting land-registry Blockchain implementation initiatives: A digital land documentation requires more than just personal computers, but also servers to house the databases (Oboli & Akpoyoware, 2010). More efficient backup has been made possible through the advent of cloud computing whereby information and servers can be hosted on the cloud. Personal computers are required as the desktop

access points to the system within the use of client server technology to enable communication with the database.

Through interviews and analysis of secondary data, we provide evidence of the origin, trajectory, and eventual stoppage of a promising project in some country, which at the time was the forerunner in the area of land registry (Colindres et al. 2016; Lemieux 2016). The administration of land and property involves a vast array of documents and supporting data. Existing land information systems are typically centralized ledgers (databases) that provide a system of record of a nation's land transactions. A digital repository affords greater capabilities than the paper-based counterpart but, by itself, digitalization provides no intrinsic transformation to the land registration process. Nevertheless, digitalization of paper-based land records adds redundancy, concurrency, and consistency, characteristics of database systems. Ultimately this can lead to automation and introduce efficiencies to the process at the application layer (e.g., availability of information, protection against catastrophic loss or man-made disasters (Glaser 2017).

Any record keeping system may be regarded as an information system. Information technology facilitates the process of transforming raw data into information that is useful to the recipient see figure 1.1. The transition from a digital to a paper based to a digital land information requires many considerations such as human, technological (hardware, software, peripherals), social and organizational factors including change management.

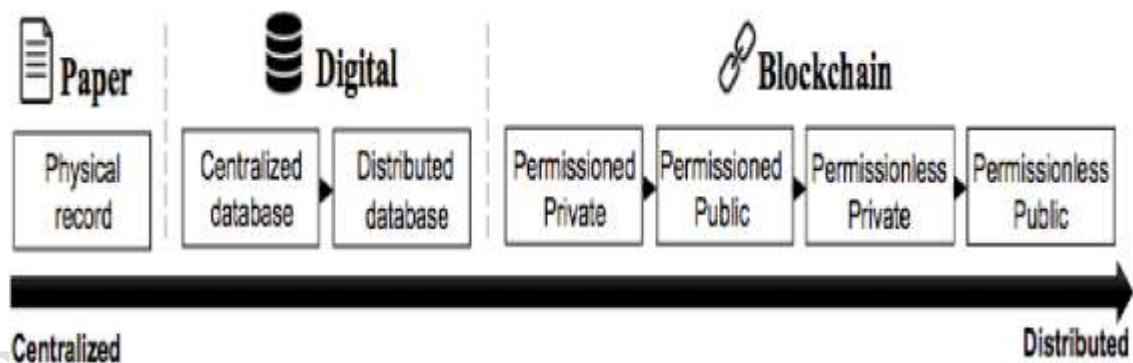


Figure: Land Registry digitization

Source: Glaser 2017

Kurwakumire (2013) develops a pilot webGIS application to enhance spatial data availability and sharing within and outside municipalities. Modernization of

cadastral processes in the context of this paper relate to the adoption of ICT in the automation of the cadastre (see figure 1.1). The basis of the modernisation is the transition from a manual and now inefficient cadastral system to an automated system which can incorporate new tenure arrangements. This proposed implementation attempts to resolve problems such as security, information management, access, storage, compatibility, interoperability and sharing of cadastral information. The modernized system should be extended to digital lodgement of cadastral data.

### **E-Land Document Registration and Challenges**

Sandberg (2010) argues that e-conveyance enhances the accessibility of the general public to land registration and may have a fundamental impact on the efficiency of land transactions. A number of countries have implemented e-registration and these include South Africa, UK, Canada and Australia. Sandberg (2010) has indicated the main challenge in e-registration is the problem of identifying parties to transactions and the authentication of documents. He states that an electronic system might be more vulnerable to hackers and electronic fraud or disruption.

It can be argued that these challenges are inherent in any electronic system but it does not stop people transacting on e.g. the stock market. In Botswana, another challenge is with respect to the legal framework which in its current form does not allow the submission of e-documents. Bramate and Jones (2006) have discussed various methods of recording documents to be used for registration to include semi-automated methods using scanned images of documents, to use of XML and finally to the use of XHTML which allows for data to be automatically checked, accepted or rejected and also allows for electronic signatures.

### **E-Land Document Management and Information in Nigeria**

The idea of Geography Information System is believed to have been conceived in the early 1960's. It is a common view that Canada Geographic Information System was the first full scale GIS to be implemented. In Nigeria, according to Ibraheem (2008) opined that GIS Technology is relatively new in this country. It starts filtering into the Nigeria society in the 1980's. Notable users of GIS in Nigeria are United Nations especially UNICEF, IFAO, UNDP and UNESCO, oil prospecting industries especially Shell, Chevron, Total Oando and Mobil, and some Federal Ministries and Parastatals such as Federal Ministry of Environment, Housing and Urban Development, Defense, Agriculture, and National population Commission. Some private establishments and individuals are also known to use and/or market

GIS facilities/software in various parts of the country. Some studies have been conducted with positive result on the use of GIS for property related matters and land administration”.

### **Methodology**

The methods of data collection involve the use of observation and field survey, interview and administration of questionnaire in order to explore the various avenues to get reliable data for the study. The population for this study is determined using a sample size model. The number of questionnaires to be administered and the sample size for the study population was determined using Yamma's formular model expressed as follows:

$$n = \frac{N}{1 + N(e)^2}$$

Where;

n= Sample size

N= Sample population

e= confidence level (0.05)

Based on the population of digitized land owners in Minna at approximate 5000, sample size to be administered is 370. The number of retrieved questionnaires 340 which constituted about 92% of total samples were analysed and 30 questionnaires were not returned which constituted about 8%. Analysis of data will be done using a statistical formula to calculate the mean item score (MIS). The higher the value of MIS, the more important is the factor becomes.

Five point Likert rating scale will be used in the analysis of collected data from the questionnaire. The rating is as follows;

Strongly agree = 5, Agree = 4, Undecided = 3, Disagree = 2, Strongly Disagree =1.

The data will be analyzed utilizing the frequency table and Mean Index Score (M.I.S)

This is given as:

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

Where: n<sub>5</sub>= Strongly Agree (SA); n<sub>4</sub>= Agree (A); n<sub>3</sub>= Unsure (US); n<sub>2</sub>= Disagree (DA); n<sub>1</sub>=Strongly Disagree (SDA); and N = number of respondents.

Values from questions will be weight and composite index will be obtained to serve as the consensus opinion of the respondents. The sum on each item will be divided by the total number of respondents to arrive at the average or mean value.

**Results and discussions**

**Table 1.1 Effectiveness of the e-land document in NIGIS**

<b>Effectiveness of the e-land document</b>	<b>N</b>	<b>Sum</b>	<b>Mean</b>	<b>RII</b>	<b>RK</b>	<b>Ch-sq</b>	<b>p-value</b>
Time-saving in the Process of e-land document in NIGIS	340	576	1.69	0.56	3	25.44	0.000
Cost-saving of e-land registration and documentation	340	596	1.75	0.58	2		
Avoidance of fraudulent activities of land grabber and speculators	340	423	1.24	0.41	6		
Reduction in bureaucracy in the process	340	393	1.15	0.38	8		
Reduce the problem of analogue land document in the registry	340	424	1.24	0.41	6		
Easy digital certification process	340	438	1.28	0.43	4		
Operation of e-land document in settling dispute	340	412	1.21	0.40	7		
e-land document has been able to reduce the problem of analogue land document in the registry	340	430	1.26	0.42	5		
simplification in the digital land system	340	599	1.76	0.59	1		
Valid N (listwise)	340						

**Source:** Field survey, 2019

The Effectiveness of the e-land document is presented in table 1.1. the analysis of three-point likert scale (very effective, effective and not effective) revealed that simplification in digital land system is ranked first as one the effectiveness of e-land document in NIGIS at 59% relative important index. Cost and time saving in process of e-land documentation is ranked second and third at 58% and 56% relative importance index. This is also followed by easy certification process ranked 4<sup>th</sup> at 43% relative importance. The relative importance level of effectiveness is found very low in area of reducing the problem of analogue land document in the registry, avoiding fraudulent activities of land grabber and

speculators, Reduce the problem of analogue land document in the registry and Operation of e-land document in settling dispute. The result of chi-square statistics revealed that the value of chi-square at 25.44 is statistically significant at p-value 0.000 is less than 0.05, therefore the opinion of respondents on the effectiveness of the e-land land document process in NIGIS is related significantly.

**Table 1.2 Challenges In The Process Of E-Land Documentation**

<b>Challenges</b>	<b>N</b>	<b>Sum</b>	<b>Mean</b>	<b>RII</b>	<b>RK</b>	<b>Chi-sq</b>	<b>p-value</b>
<b>inadequate security in land registry</b>	<b>340</b>	<b>1551</b>	<b>4.56</b>	<b>0.91</b>	<b>4</b>	<b>33.06</b>	<b>0.00</b>
<b>Inadequate public education and enlightenment</b>	<b>340</b>	<b>1636</b>	<b>4.81</b>	<b>0.96</b>	<b>1</b>		
<b>poor identification of parties to transactions and the authentication of documents</b>	<b>340</b>	<b>1570</b>	<b>4.61</b>	<b>0.92</b>	<b>3</b>		
<b>Non anticipation of technological advancement that makes EDMS less reliable</b>	<b>340</b>	<b>1609</b>	<b>4.73</b>	<b>0.95</b>	<b>2</b>		
<b>Non recognition of land administration experts such as Estate Surveyors and Valuers as Registrars of Titles</b>	<b>340</b>	<b>1707</b>	<b>4.02</b>	<b>0.80</b>	<b>8</b>		
<b>Inadequate funding of the land registry</b>	<b>340</b>	<b>1552</b>	<b>4.56</b>	<b>0.91</b>	<b>4</b>		
<b>Inadequate land transaction document at land registry</b>	<b>340</b>	<b>1447</b>	<b>4.25</b>	<b>0.85</b>	<b>6</b>		
<b>Lack of openness and trust in land administration process</b>	<b>340</b>	<b>1508</b>	<b>4.43</b>	<b>0.89</b>	<b>5</b>		
<b>Encroachment into right of ways</b>	<b>340</b>	<b>1632</b>	<b>4.80</b>	<b>0.96</b>	<b>1</b>		
<b>Lack of cadastral infrastructure</b>	<b>340</b>	<b>1409</b>	<b>4.14</b>	<b>0.83</b>	<b>7</b>		
<b>Valid N (listwise)</b>	<b>340</b>						

**Source:** Field survey, 2019

The challenges to the process of e-land documentation are presented in table 1.2. the analysis of five-point likert scale (strongly agree, agree, indifferent, disagree and strongly disagree) revealed that Inadequate public education and enlightenment on new digital certification process is ranked first as one the

challenges to the process of e-land documentation in NIGIS at 96% relative important index. Non anticipation of technological advancement that makes EDMS (e-document management system) less reliable and poor identification of parties to transactions and the authentication of documents were ranked second and third at 95% and 92% relative importance index. This is also followed by inadequate security in land registry and Inadequate funding of the land registry were ranked 4<sup>th</sup> at 91% and 91% relative importance respectively. The relative importance is found high in area of Lack of openness and trust in land administration process, inadequate land transaction document at land registry, Lack of cadastral infrastructure, and Estate Surveyors and Valuers as Registrars of titles. The result of chi-square statistics revealed that the value of chi-square at 33.06 is statistically significant at p-value 0.000 is less than 0.05, therefore the opinion of respondents on the identified challenges to the process of e-land documentation e-land land document process in NIGIS is related significantly.

**Table 1.3 Way Forward To Sustainable E-Land Documentation**

Ways	N	Sum	Mean	RII	RK	Chi-sq	p-value
e-Land title registration be made compulsory especially to deemed grand title	340	1577	4.63	0.93	2	22.76	0.000
Reservation of the registrar of title position to legal practitioners and Estate surveyors	340	1587	4.66	0.93	2		
Computerization of the land registry court	340	1518	4.46	0.89	5		
continuous training of staff	340	1528	4.49	0.90	4		
adequate enlightenment on documentation system	340	1704	4.01	0.80	5		
Decentralization of the land registry;	340	1442	4.24	0.85	6		
deployment of modem technological system such as geographical information system (G.I.S), GPRS	340	1523	4.47	0.89	5		
enactment of the right legislation to make e-land titling accessible	340	1613	4.74	0.95	1		



<b>consultation with all stakeholders in land title registration systems</b>	<b>340</b>	<b>1548</b>	<b>4.55</b>	<b>0.91</b>	<b>3</b>		
<b>Valid N (listwise)</b>	<b>340</b>						

**Source:** Field survey, 2019

The ways forward to sustainable e-land documentation are presented in table 1.3. the analysis of five-point likert scale (strongly agree, agree, indifferent, disagree and strongly disagree) revealed that I enactment of the right legislation to make e-land titling accessible is ranked first as one the ways forward to sustainable e-land documentation in NIGIS at 96% relative important index. Reservation of the registrar of title position to legal practitioners and Estate surveyors and Land title registration be made compulsory especially to deemed grand title were ranked second at 93% and 93% relative importance index. This is also followed by consultation with all stakeholders in land title registration systems and continuous training of staff were ranked 4<sup>th</sup> at 91% and 91% relative importance respectively. The relative importance index is found high in area of adequate enlightenment on documentation system, deployment of modem technological system such as geographical information system (G.I.S), GPRS, and Decentralization of the land registry. The result of chi-square statistics revealed that the value of chi-square at 22.76 is statistically significant at p-value 0.000 is less than 0.05, therefore the opinion of respondents on the identified ways forward to sustainable e-land documentation in NIGIS is related significantly.

### **Conclusion**

The study e-land document has open up the nature of process in e-land document in NIGIS. The process has been found to be time-saver and cost-effective to low income group. The study understood that time and cost saving benefit in e-land document has made easiness in digital land certification and in reducing the activities of grabbers and fraudulent translation in land. The study has understood that e-land document is a tool for settling land dispute in other word, it has become inevitable tool forsettling land dispute.

Despite the benefit associated with e-land document, it has also been understood that challenges in the process is inevitable. Inadequate public education and enlightenment on digital certification process has challenged the application e-land document in NIGIS, in that, majority of the land owners have no knowledge of new method land digitization. Lack of technological advancement has also challenged

smooth process of digital documentation and certification process. Every technology required to be updated regularly, otherwise ineffectiveness becomes inevitable. Lack of cadastral infrastructure has also challenged e-land document digitization processes, the information about a parcel of land required for proper capturing and regularly updated without this e-land document application may not be able to achieve the objectives of the process. Conclusively, e-land document in NIGIS has been challenged on the ground of inadequate cadastral infrastructure and information capable developing effective database e-document for addressing land –human related problems.

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