DEVELOPING AN EFFICIENT DATABASE FOR PROPERTY VALUATION IN ANAMBRA STATE, NIGERIA

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ABSTRACT: *It has been observed that it takes quite a lot of time to carry out professional real estate valuation practice in Anambra State due to dearth of relevant property market data. This results to undue delays in execution of valuation jobs, even when information and communication technology have made things faster and easier. This has also made many a valuer to carry out property valuation without minding the authenticity and accuracy of sources of market information. Sequel to this, the study developed a database for efficient property valuation in Anambra State. Survey design was used to generate data. A market data generation form was developed in line with professional format, and was used to generate data about property type, location, structural details, condition, accommodation and use, neighbourhood characteristics, market value and date of property transaction. The form aided in developing the database of market transactions in the study area using MySQL (My Structured Query Language) database software package .The result of the study showed that the causes of inaccessibility to property market data are lack of organized records, lack of regular market surveys, use of traditional filing systems and non use of computer technology. Similarly, the research proved that the use of MySQL database system can indeed ensure speed and accuracy of valuation exercises and reliability of valuation figures and opinions. Finally, a customized functional property market database was developed; and the database can be accessed on www.anambrapropertydatabase.com.The study, therefore, recommended that the database should be commercialized. Further studies should be carried out to include specialized properties in the development of this database in the area.*

KEYWORDS: database, property valuation, information technology, DBMS

INTRODUCTION

We are in the era of a digitized globe and the relevance of Information and Communication Technology (ICT) to virtually all areas of human endeavour cannot be overemphasized. But there is a gross digital divide between developed economies and developing economies. One area of interest for the purposes of this study is property valuation. The researcher believes that every valuation should be Specific, Measurable, Achievable, Realistic and Time-bound (S.M.A.R.T.). It has been observed that it takes quite a lot of time to carry out professional real estate valuation in practice due to difficulty in obtaining relevant property market data or the dearth of it. This causes undue delays in executing especially time-bounds jobs, more so now that information and communication technology has made things faster and easier. The aforementioned difficulty has also made many a Valuer to carry out property valuation using unreliable and unprofessional sources of market information with the belief that nobody will wake up someday to question the standard of work done. They will fail the S.M.A.R.T. Test especially with respect to reliability and Time.

However, it is believed that, through the use of database technology (e.g. Microsoft Access, My Structured Query Language—MySQL, etc), property valuation can be speedily or effectively carried out without compromising professional standards and best practices. One may not appreciate the use and relevance of this technology until one sees the difficulty involved in executing a valuation especially at locations which one is not familiar with. The database, which is online in nature, will contain property market data on values, location characteristics, property type, use (or zoning), neighbourhood characteristics, age, structural details, rental evidence, comprehensive pictorial views etc., without necessarily mentioning the name of the client who owns the property or disclosing the identity of parties in a contract or deal. Because the database is online, it can be accessed by authorized users from any location in the world.

Outside the world of professional information technology, the term *database* is sometimes used casually to refer to any collection of data (perhaps a spreadsheet, maybe even a card index). (Ullman, 1997). This research is concerned only with databases where the size and usage requirements necessitate use of a database management system. Indeed, the objective of this research falls in line with Ullman's view because the Estate Surveyors and Valuers need enough dosage of information in valuation practice and this fact necessitates the use of softwares which enables the interaction of users and the database that such softwares support. Property Valuation is a complex issue which requires an in-depth knowledge of the subject property, its nature, comparables, trends, neighbourhood characteristics, risk, return and a general understanding of the local, national, regional and international economies, etc. (Ifediora, 1993, Richmond, 1994; Olusegun, 2008). With the current trend of *jet speed* business environment, it becomes important for the kind of database discussed here to be in place.

Statement of the Problem
It has been observed that it takes quite a lot of time to carry out professional real estate valuation practice in Anambra State due to dearth of relevant property market data. This causes undue delays in execution of valuation jobs. This should not be the case considering that information and communication technology has made things faster and easier. This has also made many a valuer to carry out property valuation in the study area using unreliable and unprofessional sources of market information with the belief that nobody will question the standard of work done. This portrays the need to develop a database for efficient property valuation in Anambra State, hence the study.

Anambra State has a lot of economic activities with many establishments in it. This results in the ownership of assets by individuals and establishments. From time to time, all of such establishments want to know the monetary worth of their fixed assets, especially for book-keeping, credit facilities and other reasons. Again, there is need for them to have a reliable knowledge of the value of their property. But it takes a consultant estate surveyor and valuer to determine such values. But one major challenge which affects many professionals in the real estate sub-sector in the area is poor access to relevant information which should facilitate accurate cost and value opinions.

Again, accessibility to property market data in the area such as cost of construction, rental and sales data, depreciation rates, yields, etc in valuation practice is a typical problem and there is, therefore, an urgent need to develop a valuation-inclined database for easy access to such data. This will ensure

speed and more reliable value opinions. Many estate surveyors and valuers do rely on their colleagues' opinions of values to conclude a valuation exercise. It is a very risky trend for instance to ask a fellow estate surveyor and valuer to tell one of the unit construction rate he used for certain class of property and at a particular time. Who bears the risk of wrong or faulty root of information? That is why a pool of market data is needed as a basis for quality decision making. Most of the time calls are made; text messages are sent, and so on. Such methods are not reliable because most frequently the sender of the information may be doing an academic guess or repeating figures which may also be wrong. The risk of having an unreliable data is increased where the professional carrying out the valuation is not familiar with the subject location. The kind of database muted here is not one based on mere transportation of information or "copy-and-paste" exercise but gathered from the field. However, apart from the need for a database, emphasis must be laid on speed and reliability which brings to bare the computerization of property market data gathered from the field.

Many valuation jobs are secured and executed in Anambra State especially in Onitsha, Awka and Nnewi. Most valuation briefs come from lending institutions like banks. It is very risky to carryout property valuations without much information about relevant property market data from market surveys. Such risks are manifest in terms of undervaluation and overvaluation of subject properties. Some valuations may end up in court of law due to gross disparity between the value opinion in the report and the value at time of sale or purchase. Intuition is another risk. For instance, a valuer carries out the valuation of a property for a bank in favour of a mortgagor and because he does not have the current construction cost or yield, assumes some figures for capitalization. The value he arrives at may not be reliable because there is no adequate data for comparison. A professional estate surveyor and valuer may not know the implications of not having enough market data until such a time when the subject property becomes a subject matter in dispute or litigation. Again the yield used in practice many a time is based on the theory learnt in school. The unit construction cost is not left out. A valuation-inclined database will equip the valuer with a framework that will facilitate reliable value opinions.

From the foregoing, the same problem seen on ground was also evident. This is because some authors wrote only on database application to property valuation in terms of displaying property market data (e.g. constructional details, rent passing, sale/purchase values, yield, etc) to professional estate surveyors and valuers who want to rely on such data to complete a valuation. However, no work has been done to develop an online customized database to ensure efficiency and easy access to relevant market data for property valuation.

Aim and Objectives of the Study
The aim of this study is to develop an online customized database to ensure efficiency and easy access to relevant market data for property valuation.
The objectives of the study include the following:
i.   To determine the problems/challenges encountered by practicing Valuers with respect to accessing property market data within the study area
ii.   To provide a digital framework for carrying out valuation with ease and speed.
iii.   To develop a property market databank of construction costs per square metre, rental and sales evidence and yields for practicing Valuers
iv.   To make the database accessible in the study area.

Research Questions

This study will address the following questions:

  i.   What are the causes of inaccessibility to property market data?

 ii.   What methods do practicing Valuers adopt where there is inaccessibility to property market data?

iii.   In what ways can databank of construction costs, yields and sale/rental evidence be gathered in the field?

iv.   What is the level of the mean responses of the years of experience for Estate Surveyors and Valuers in Anambra State?

Hypotheses

The following hypotheses will be tested in the course of this dissertation:

Ho$_1$:   Lack of speedy access to property market data is not caused by absence of databank information

Ho$_2$:   Estate Surveyors and Valuers do not resort to intuition in gathering relevant property market information.

Ho$_3$:   Estate Surveyors and Valuers in Anambra State do not need database systems in which to store and retrieve property market data

Ho$_4$:   There are significant differences in the mean responses of Estate Surveyors and Valuers in Anambra State in their years of experiences.

REVIEW OF RELATED LITERATURE

Database Management System

Database

A database is defined as an integrated collection of logically related records or files that are stored in a computer system which consolidates records previously stored in separate files into a common pool of data records that provides data for many applications. It is also a collection of information that is organized so that it can easily be accessed, managed and updated. It should be understood that database, in this context, refers to computer database. This is so because a layman may classify database to include filing cabinet, card file or inventory listing. A database has also being defined as a large collection of data organized especially for rapid search and retrieval (as by a computer, *an online database). (*Merriam-webster, 2017).

Also, Kakulu (2003) quoting Rolland (1988) defined a database as a system where the data that supports that system may be shared. In one view, databases can be classified according to types of content: bibliographic, full-text, numeric, and images. The structure is achieved by organizing the data according to a database model. The model that is most commonly used today is the relational model. Other models include hierarchical model and network model. However, the database which is specifically referred to in the study is an online database which will support the storage and retrieval of property market transactions in Anambra State. The views of Kakulu, Rolland and Merriam-webster are in line with the intent of this study.

Database Management Systems (DBMS)

A Database management System (DBMS) is a set of computer programs that controls the creation, maintenance, and use of the database of an organization and its end users. Put differently, a DBMS is software on which computer databases rely to organize the use and storage of data. DBMS's are categorized according to the database model that they support. The model tends to determine the query languages that are available to access the database.

A DBMS makes it possible for end users to create, read, update and delete data in a database. The DBMS essentially serves as an interface between the database and end users or application programs, ensuring that data is consistently organized and remains easily accessible. (Techterms.com, 2017)

The DBMS manages three important things: the data, the database engine that allows data to be accessed, locked and modified -- and the database schema, which defines the database's logical structure. These three foundational elements help provide concurrency, security, data integrity and uniform administration procedures. Typical database administration tasks supported by the DBMS include change management, performance monitoring/tuning and backup and recovery. Many database management systems are also responsible for automated rollbacks, restarts and recovery as well as the logging and auditing of activity.The DBMS is perhaps most useful for providing a centralized view of data that can be accessed by multiple users, from multiple locations, in a controlled manner. A DBMS can limit what data the end user sees, as well as how that end user can view the data, providing many views of a single database schema. End users and software programs are free from having to understand where the data is physically located or on what type of storage media it resides because the DBMS handles all requests.

DBMS can be used to

- Store client details
- Record sales/leases
- Record employee details, and
- Record property market data in general, etc (Kakulu, 2003)

i.   Creating the database proper

After carefully designing the pages, the next thing is to create a database using, for example, MySQL database package. The database control and manages all the information on the website (Okoche, 2009). The database is like the "storage warehouse" for all data on the website. Some images and pages from the database developed in this research are as follows:

Home Page One,
Source: www.anambrapropertydatabase.com Researcher's © 2016

Home Page Two
Source: www.anambrapropertydatabase.com Researcher's © 2016

Home Page Three
Source: www.anambrapropertydatabase.com Researcher's © 2016

These pages display banners which are animated pictures and contain information ranging from dialogue boxes (e.g. login box) and icons which are hyperlinked to other pages of the website namely the sales/rental values and unit construction costs of real life transactions which have recently taken place in the property market. It is actually possible to get details of all properties in an area but it requires huge financial commitment from all stakeholders in the property sub-sector. Some of this information (i.e. property market data) which is also thoroughly detailed on the website are as follows:

1.   **Awka Database**
Culled From www.anambrapropertydatabase

S/N	PROPERTY TYPE	LOCATION	STRUCTURAL DETAILS	CONDITION	ACCOMMODATION / USE	NEIGBOURHOOD CHARACTERISTICS	VALUE	DATE OF TRANS-ACTION
1	LAND(PER PLOT)	30M AWAY FROM YAHOO	**Floor:** **Walls:** **Doors:** **Windows:** **Ceiling:**				N9,000,000	2016

		JUNCTIO N, IFITE	**Roof:** **Paved Area:** **Others:** FENCED WITH GATE					
2	LAND(PE R PLOT)	BEHIND WHITE VIEW HOTEL, IFITE	**Floor:** **Walls:** **Doors:** **Windows:** **Ceiling:** **Roof:** **Paved Area:** **Others:**				N4,500,000	2016
3	LAND (A PLOT)	ALONG JOY HOSTEL,I FITE AWKA	**Floor:** **Walls:** **Doors:** **Windows:** **Ceiling:** **Roof:** **Paved Area:** **Others:**				N6,000,000	
4	LAND	BEHIND GOD IS ABLE LODGE, ALONG MIRACLE JUNCTIO N, IFITE	**Floor:** **Walls:** **Doors:** **Windows:** **Ceiling:** **Roof:** **Paved Area:** **Others:**				N3,000,000	2016
5	LAND (1 PLOT)	ALONG MIRACLE JUNCTIO N, IFITE AWKA	**Floor:** **Walls:** **Doors:** **Windows:** **Ceiling:** **Roof:** **Paved Area:** **Others:**				N6,000,000	2016
6	LAND (3 PLOTS)	BEHIND COMPUTE R HOUSE, COMMISS IONERS QUARTER S, IFITE	**Floor:** **Walls:** **Doors:** **Windows:** **Ceiling:** **Roof:** **Paved Area:** **Others:** FENCED WITH GATE				N21,000,00 0	2016
7	LAND	CLOSE TO LIVING FAITH CHURCH AT OBI OKOLI AVENUE	**Floor:** **Walls:** **Doors:** **Windows:** **Ceiling:** **Roof:** **Paved Area:** **Others:**				N5,000,000	2015
8	LAND	BEHIND SEAFLOW GARDEN AT	**Floor:** **Walls:** **Doors:** **Windows:** **Ceiling:**				N4,500,000 P.A	2016

		EZINIFITE, OKPUNO	**Roof:** **Paved Area:** **Others:** FENCED WITH GATE					
9	BLOCKS OF FLATS	AKAJIAKU AGRICULTURAL INDUSTRY ALONG OKPUNO ROAD	**Floor:** TILES **Walls:** EMULSION PAINTED THROUGHOUT **Doors:** IRON DOOR **Windows:** ALMACO **Ceiling:** ABSVESTORS **Roof:** MASS CONCRETE **Paved Area:** ALUMINIUM **Others:** FENCED AND GATE	GOOD CONDITION	RESIDENTIAL NUMBERS FLATS, 3 BEDROOM FLATS WITH KITCHEN TOILET AND DINNING	MEDIUM	N300,000 P.A	2016
10	BLOCK OF FLATS	OPPOSITE GENEVAL PHARMACY, SEMINARY AVENUE, OKPUNO	**Floor:** TILED **Walls:** EMULSION PAIN **Doors:** CORROGATED IRON DOOR **Windows:** ALMACO **Ceiling:** POP **Roof:** ALUMINIUM **Paved Area:** INTERLOCK **Others:** FENCED WITH GATE	FAIRLY NEW	6 NOS OF 3 BEDROOM FLAT WITH 2 TOILET,KITCHEN SITTING ROOM, RESIDENTIAL	MEDIUM	N280,000 P.A	2016

Next is the Onitsha Database:

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S/N	PROPERTY TYPE	LOCATION	STRUCTURAL DETAILS	CONDITION	ACCOMODATION / USE	NEIGBOURHOOD CHARACTERISTICS	VALUE	DATE OF TRANSACTION
1		AGULU LAKE CLOSE BY PREMIER ROAD, CLOSE TO GOOD HOPE INTL. SCHOOL, HOUSING	**Floor:** MASS CONCRETE/D.P.C/ RE-INTRODUCED CONCRETE **Walls:** SANDCRETE BLOCKWALL, PLASTERED AND PAINTED **Doors:** WOODEN DOORS AND METAL DOORS **Windows:** LOUVRES	FAIRLD OLD	4 NOS OF 3 BEDROOM FLAT	MEDIUM	N300,000 P.A	

		ESTATE, FEGGE	**Ceiling:** ASBESTOS **Roof:** CORRUGATED IRON SHEET **Paved Area:** MASS CONCRETE **Others:**				
2		AGULU LAKE CLOSE BY PREMIER ROAD, HOUSING ESTATE, FEGGE	**Floor:** MASS CONCRETE/D.P.C/ RE-INTRODUCED CONCRETE **Walls:** SANDCRETE BLOCKWALL, PLASTERED AND PAINTED **Doors:** WOODEN DOORS AND METAL DOORS **Windows:** LOUVRES **Ceiling:** ASBESTOS **Roof:** CORRUGATED IRON SHEET **Paved Area:** MASS CONCRETE **Others:**	FAIRLY OLD	4 NOS OF 3 BEDROO M FLAT	MEDIU M	N300,000 P.A	JANUA RY ,2016
3		AGULU LAKE CLOSE BY PREMIER ROAD, HOUSING ESTATE, FEGGE	**Floor:** MASS CONCRETE/D.P.C/ RE-INTRODUCED CONCRETE **Walls:** SANDCRETE BLOCKWALL, PLASTERED AND PAINTED **Doors:** WOODEN DOORS **Windows:** LOUVRES **Ceiling:** ASBESTOS **Roof:** CORRUGATED IRON SHEET **Paved Area:** MASS CONCRETE **Others:** BOREHOLE WATER. FENCED	FAIRLY OLD	2 NOS OF BLOCK OF 4 NOS OF 2 BEDROO M FLAT		N250,000 P.A	

			ROUND WITH A GATE					
4		ELECTRONIC MARKET ALONG ONITSHA/ASABA EXPRESS ROAD, OPPOSITE PREMIER BREWERIES	**Floor:** MASS CONCRETE/D.P.C/ REINTORCED CONCRETE **Walls:** SANDCRETE BLOCK, PLASTERED AND PAINTED **Doors:** METAL DOOR **Windows:** **Ceiling:** RE-INTORCED CONCRETE/ASBESTOS **Roof:** ALUMINIUM LAY SPAN **Paved Area:** MASS CONCRETE **Others:** BORE-HOLE WATER, CONVENIENCE BUILDING, ALL FENCED ROUND WITH GATE	STILL IN USE AND OK	40 NOS OF SINGLE SHOP	HIGH	DOWNSTAIR - N240,000 P.A UPSTAIRS - N120,000 P.A	JANUARY, 2016
5		ELECTRONIC MARKET ALONG ONITSHA/ASABA EXPRESS ROAD, OPPOSITE PREMIER BREWERIES ONITSHA	**Floor:** MASS CONCRETE/D.P.C/ RE-INTORCED CONCRETE **Walls:** SANDCRETE BLOCK, PLASTERED AND PAINTED **Doors:** METAL DOOR **Windows:** **Ceiling:** RE-INTORCED/ ASBESTOS **Roof:** ALUMINIUM LAY SPAN **Paved Area:** MASS CONCRETE **Others:** BOREHOLE WITHIN THE COMPOUND,	STILL OK AND USE	40 NOS OF SINGLE SHOPS	HIGH	DOWNSTAIR - N240,000 P.A UPSTAIRS - N120,000 P.A	JANUARY, 2016

			FENCED ROUND WITH GATES AND WITHIN A CONVENIENCE BUILDING					
6		ONWUGBENU CRESCENT/ROCK FOUNDATION SCHOOL, G.R.A ONITSHA	**Floor:** TILED **Walls:** SANDCRETE **Doors:** METAL **Windows:** ALUMINIUM SLIDING **Ceiling:** POP **Roof:** ALUMINIUM LONG SPAN **Paved Area:** INTER-LOCKED **Others:** OVER HEAD TANK	FAIRLY NEW	4 NOS OF BEDROOM (ALL IN SUITE), 2 NOS OF SITTING ROOMS, TOILET, BATHROOM AND KITCHEN	LOW	N1.2 MILLION P.A	MARCH
7		OTIGBA CRESCENT OPPOSITE REDEEM CHRISTIAN SCHOOL, G.R.A ONITSHA	**Floor:** SCREEDED **Walls:** SANDCRETE **Doors:** CARVED WOODEN **Windows:** ALUMINIUM **Ceiling:** ASBESTOS **Roof:** ALUMINIUM **Paved Area:** NIL **Others:** SURROUNDED WITH FLOWERS	OLD	2 NOS OF 3 BEDROOM	LOW	`N600,000 P.A	JUNE, 2015
8		OTIGBA CRESCENT OPPOSITE REDEEM CHRISTIAN SCHOOL, G.R.A ONITSHA	**Floor:** SCREEDED **Walls:** SANDCRETE **Doors:** CARVED WOODEN **Windows:** ALUMINIUM **Ceiling:** ASBESTOS **Roof:** **Paved Area:** SURROUNDED WITH FLOWERS **Others:**	OLD	2 NOS OF 3 BEDROOM	LOW	`N600,000 P.A	JUNE, 2015
9		ONWUGBENU CRESCE	**Floor:** TILED **Walls:** SAND CONCRETE	FIRLY NEW	4 NOS OF BEDROOM (ALL IN	LOW	N1.2 MILLION P.A	APRIL, 2015

		NT/ROCK FOUNDATION SCHOOL, G.R.A ONITSHA	**Doors:** METAL **Windows:** ALUMINIUM SLIDING **Ceiling:** POP **Roof:** ALUMINIUM LONG SPAN **Paved Area:** INTER-LOCKED **Others:** OVER HEAD TANK		SUITE), 2 NOS OF SITTING ROOMS, TOILET, BATHROOM AND KITCHEN			
0		ONWUGBENU CRESCENT/ROCK FOUNDATION SCHOOL, G.R.A ONITSHA	**Floor:** TILED **Walls:** SAND CONCRETE **Doors:** CARVED WOODEN **Windows:** ALUMINIUM **Ceiling:** ASBESTOS **Roof:** ALUMINIUM **Paved Area:** MASS CONCRETE **Others:**	FAIRLY OLD	5 NOS OF BEDROOM (ALL IN SUITE), SITTING ROOM, TOILET	LOW	N500,000 P.A	DEC, 2015

Next is the Nnewi Database:

S/N	PROPERTY TYPE	LOCATION	STRUCTURAL DETAILS	CONDITION	ACCOMODATION / USE	NEIGBOURHOOD CHARACTERISTICS	VALUE	DATE OF TRANSACTION
1	SHOPS	HYJOES STREET UMUDIM	**FLOOR:** SCREEDED **WALLS:** SANDCRETE EMULSION **DOORS:** CORRUGATED IRON DOOR **WINDOWS:** **CEILING:** ABSESTOS **ROOF:** CORRUGATED IRON SHEET **PAVED AREA:** **OTHERS:**	12% DEP	1 UNIT 8 SHOPS	MEDIUM	N1,500 PER MONTH	2015

| 2 | 2 STOREY BUILDING | DULA UCHA STREET OFF UMUISIE DO SHOPPIN G PLAZA OKPUNO N-EGBU, NNEWI | **FLOOR:** TERRAZZO **WALLS:** SANDCRETE BLOCK WALL WITH EMULSION **DOORS:** FLUSH PANEL **WINDOWS:** LOUVER **CEILING:** ABSESTOS **ROOF:** ABSESTOS **PAVED AREA:** NOT PARCED **OTHERS:** FENCE WITH GATE, NO PRIVATE WATER SUPPLY | 67% DEP. | 1 UNIT OF 6 NOS 3 BEDROO M FLAT. RESIDENT IAL | HIGH DENSITY | N18,000 P.A | CURRENT |
| 3 | 1 STOREY BUILDI NG | DULA UCHA STREET OKPUNO N-EGBU, NNEWI | **FLOOR:** TILE **WALLS:** SANDCRETE BLOCK WALL WITH TEXTCOTE EMULSION **DOORS:** WOODEN PANEL **WINDOWS:** ALUMINIUM SLIDE **CEILING:** ABSESTORS **ROOF:** LONG SPAN ALUMINUINM **PAVED AREA:** DAMP PROFILE COURSE (DPC) **OTHERS:** WELL FENCED WITH GATE, PRIVATE BOREHOLE | 12% DEP | 1 UNIT OF 4 NOS 2 BEDROO M FLAT. RESIDENT IAL | MEDIUM DENSITY | N160,000 P.A | CURRENT |

4	BUNGA LOW	NWOKO CRESEN T URU COMMU NITY UMIDIM, OFF ROUND ABOUT NNEWI	**FLOOR:** TILE **WALLS:** SANDCRETE BLOCK WALL WITH EMULSION **DOORS:** WOODEN PANEL **WINDOWS:** LOUVERS **CEILING:** ABSESTORS **ROOF:** CLS **PAVED AREA:** NOT PAVED **OTHERS:** PRIVATE WALL, WELL FENCED WITH GATE	28% DEP	1 UNIT OF 4 NOS 1 BEDROO M FLAT. RESIDENT IAL	MEDIUM DENSITY	N100,000 P.A	CURRENT
5	3 STORE Y BUILDI NG	MBANA NO NNEWI-ICHI OPPOSIT E CHRIST THE KING MINISTR Y	**FLOOR:** NORMAL CEMENTED FLOOR **WALLS:** CEMENTED WALL **DOORS:** WOODEN **WINDOWS:** LOUVERS **CEILING:** ABSESTORS **ROOF:** ZINC **PAVED AREA:** NORMAL FLOOR **OTHERS:** FENCED WITH GATE	23 YRS	8 BEDROO M FLATS	MEDIUM DENSITY	N25,000,000	2014
6	2 STORE Y BUILDI NG	INNOSO N DRIVE OFF MINISTR Y OF WORKS AREA OFFICE UMUDI M, NNEWI	**FLOOR:** SCREEDED **WALLS:** SANDCRETE BLOCK WALL WITH EMULSION **DOORS:** WOODEN PANEL DOORS **WINDOWS:** ALMACO **CEILING:**	16% DEP.	1 UNIT OF 16 NOS SPACES	HIGH DENSITY	N120,000 P.A	CURRENT

			ABSESTORS **ROOF:** ALUMINIUM **PAVED AREA:** NOT PAVED **OTHERS:**					
7	SHOPS (5FT/7FT LONG)	UMUDIM NNEWI G.O.D STREET OFF CHIKASON INDUSTRIES	**FLOOR:** TERRAZZO **WALLS:** IEXTCOAT **DOORS:** IRON DOORS **WINDOWS:** SINGLE WINDOWS (ALUMINIUM GLASS) **CEILING:** CONCRETE **ROOF:** **PAVED AREA:** BEAR GROUND **OTHERS:** NOT PAVED, NO PRIVATE BOREHOLE	ABOUT 15 YEARS OLD 45% DEPRECIATION	6 SHOPS	MEDIUM DENSITY	N60,000 P.A	JUL-15
8	SHOPS	NNEWICHI, ALONG ONITSHA ROAD	**FLOOR:** NORMAL CEMENTED FLOOR **WALLS:** NORMAL CEMENTED WALL **DOORS:** WOODEN DOORS **WINDOWS:** LOUVERS **CEILING:** ABSESTORS **ROOF:** ZINC **PAVED AREA:** NORMAL FLOOR **OTHERS:** 9 CAR PARK SPACE	18 YEARS OLD	20 SHOPS	HIGH DENSITY	N2,500 PER MONTH (N30,000 P.A)	EARLY 2015

9	SHOPS (BUNG ALOW)	ALONG THE AXIS OF OWERRI ROAD NNEWI, TOO UMUDI M NNEWI	**FLOOR:** CEMENTED **WALLS:** CEMENTED **DOORS:** METAL DOOR **WINDOWS:** METALS FLUSH WINDOWS **CEILING:** ABSESTORS **ROOF:** ZINC **PAVED AREA:** SAND FILLED **OTHERS:** NOT FENCED AND NO MAIN ENTRANCE	3% DEPRE CIATI ON OF 5 YEARS	8 SHOPS, COMMER CIAL PURPOSE	MEDIUM DENSITY	N200,000 P.A	2014
0	SHOPS	7 OKPUNO STREET UMUDI M	**FLOOR:** SCREEDED **WALLS:** SANDCRETE EMULSION **DOORS:** CORRUGATD IRON DOOR **WINDOWS:** **CEILING:** ABSESTORS **ROOF:** CORRUGATED IRON SHEET **PAVED AREA:** **OTHERS:**	8 YEARS	1 UNIT 12 SHOPS	MEDIUM DENSITY	N1,500 PER MONTH (N18,000 P.A)	2013

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Property Valuation Practice

Property valuation is broad and varied. It involves the determination of the monetary worth of properties for whatever purpose taking into account the nature of the property and the state of the property market. Now that Nigeria is experiencing a recession, property owners are willing to cut the prices of their properties. Property Valuation is a complex term because it involves a lot of economic, physical and legal considerations. That is why valuers are usually conservative when drawing conclusions about the capital value of a property. It can also be defined as a model for determining price and that value is the end result or a quantification of an understanding of the market. The legal impact; physical constraints; the planning regime; the availability of finance; the demand for the product and the general economy all influence the value of the subject property.

Millington (2000) gave a definition of valuation as the art and science of estimating the market value of an interest subsisting in a particular landed property, for a specific purpose, and at a particular time, taking into account all the features of the property and also considering all the underlying economic factors of the market including the range of alternative investments. This view agrees to an earlier statement about the complex nature of valuation especially when external factors that are economic are considered—things acting outside the control of the property investors such as demand and supply, taste and present fashion and also population shifts.

Treasury Board of Canada (2006) in Kuye (2008) defines appraisal (equivalent name of valuation in US, Canada and some other countries) as,"An adequately written opinion of the market value of the real property on a specified date that evaluates the real property rights involved according to accepted appraisal practices, and is obtained from, and signed by, a person who is a real property appraiser accredited by a provincial, national, or international real property appraisal organization, or who is experienced as an appraiser or real property and is either established in a real property-real business or is employed in the federal public service."The various definitions really capture most aspects property valuation in terms of the making of the professional who is qualified to carry out a valuation. However, the valuation procedure is of importance here no matter the method of valuation or approach used for instance market data, income, replacement cost, residual and profit method. For each method, the valuer needs to have data on property market transactions at his disposal. The unavailability in good quantities of such data is capable of undermining the valuation opinion. Again such data must be sustainable over a long period of time to make for comparison and analysis of the variations that could occur as a result of unstable economic environments.

Relevance of Database Management Systems (DBMS) To Valuation Practice
Valuations are required to determine the values of interests in land and landed property, such exercise may be carried out at familiar and unfamiliar terrains, to the valuer. DBMS will do the magic in tracking large volumes of relevant property market data at any location, online, making them available to valuers who want to inquire about the data. Ordinarily, it might take weeks or even months to gather such information through field enquiry or ransacking of file cabinets but with just a click of the mouse, the valuer will have more than enough updated property data.According to Kakulu (2003), computer database programs provide tools that keep track of large amounts of data filtering through the data and providing the answers people need. In addition, she presented the differences between database technology and traditional file-based systems as follows:-

	Traditional File Problems	**Database solutions**
1.	Data cannot be stored in a manner that represent the real world relationships	Database solutions consist of comprehensive data structuring facilities which enables real world objects and relationships to be presented in the data model.
2.	Traditional filling systems show low responsiveness to change	Databases have data independence facilities which enable the effects of changes to be minimized. Data is separated from programs and multiple views of data are permitted
3.	Traditional filling systems involve high development costs	High-level database manipulation languages make it easier to build applications
4.	Difficulty is experienced in information search	Database queries make data searching and retrieval simple, quick and reliable
5.	Low data reliability and integrity due to the decentralization of data and decentralized control of information.	Controlled data entry makes information contained in databases more reliable.

Culled from *A Computerized Approach to Real Estate Practice in Nigeria* by Ibimina Kakulu

It is believed that analogue or traditional file-based systems will soon be naturally overtaken by database technology. The database developed in this study through MySQL database package is such that is user friendly; it has a search panel that can speedily take the user to specific property types and their specific locations for example land only, 2 bedroom flat only etc. This is further illustrated as follows:

The plate which was lifted from Appendix III shows among other things the search box. Any field that is typed into the box will automatically reset the numbering of the market data to land or buildings as the case may be. The essence is to reduce the search time. Also the user will not have to scroll down assuming he is searching for values of land in Awka metropolis.

In the above table, the third point can be criticized because; practically speaking, installation and managing databases technology could be very expensive especially in a less favourable business climate like Nigeria. This leads us to the next discourse which is the challenges of managing DBMS's.

Challenges of Managing DBMS's

It is not easy to install and manage database management systems especially in import-oriented economies like Nigeria where virtually all computer hardware are imported from far-away countries. The perceived challenges are enumerated below:-

i.   High cost of computer hardware

ii.   High cost of generating Plants and fuel

iii.   In some instances, a firm must make regular payments to internet service providers. This may be counterproductive if the firm's income is not enough to offset its expenses.

iv.   In the property sector, some member firms may be unwilling to disclose relevant property market data necessary to update the DBMS.

v.   Regular field surveys must be carried out to gather relevant property market data. This Herculean task goes to the DBMS Administrators.

Despite the perceived challenges stated above, database solution is generally affordable because when time is saved through speed, money is the end benefits and vice versa.

Contents of a Valuation-Inclined Database (VID)

What should constitute the content of a valuation-in database? The theoretical content of valuation theory itself is without limit and therefore it will be proper to concentrate specifically on the variables mentioned in chapter one of this study, namely unit construction costs, yields, and rental cum sales data. However, it's not just about showcasing such large amounts of data on the database so developed; it is necessary to use the right method of analysis in coming up with the variables. For instance, for one to state the yield of a property at a specific area, one must use the right measurement tools to give an accurate figure for yield which is reliable in valuing comparables of the subject property. We shall attempt, in the following sub-sections, to review literatures on the aforementioned variables.

Unit Construction Cost

The unit construction cost is one of the factors considered when using the replacement cost method of valuation to determine the capital values of assets. The use of inappropriate unit cost will lead to undervaluation or overvaluation of properties. How is the unit cost derived? This leads to the following explanation on the replacement cost method. It should be borne in mind that, in line with the objective of this study, what is important is showcasing the appropriate unit construction cost of different classes of properties on the already aforementioned database.

The Depreciated Replacement Cost (DRC) Method

As earlier defined the DRC method of valuation is a method of determining the value of a property or an asset by reference to the cost of replacing it or procuring an acceptable substitute. The method is often used by practicing Estate Surveyors and Valuers, which acclaims its wide acceptance as a good method (Ifediora, ibid). The Dictionary of Real Estate Appraisal (4th ed.) defines replacement cost as the estimated cost to construct, at current price as of the effective appraisal date, a building with utility equivalent to the building being appraised, using modern materials and current standards, design, and

layout. The aforementioned definition gives the DRC method a global undertone. Depreciated cost itself simply means cost less depreciation (for wear and tear, deterioration, etc) as at the date of the appraisal.

Therefore put together the DRC method can be defined as the replacement costs of an asset which is subject of a valuation or appraisal, less depreciation to allow for deterioration, physical wear and tear or other forms of depreciation.

DATA REQUIEMENTS

Valuation by the DRC method requires the following data:

- replacement cost new of subject property
- depreciation allowance to take care of age, wear and tear, etc
- value of land as though it were vacant

Replacement Cost New

In theory estimating the cost of reproducing the subject property as if new (or reproducing a new similar property or comparable) entails calculating the gross floor area of the property and then multiplying by the unit construction cost. But in practice, this is not so easy to come by as the appraiser would need to source for relevant cost information from government ministries or departments such as housing and works. On the other hand, relevant cost info can be gotten from the experience of the Valuer or by reference to comparables.

To make it scientific, unit construction rates can be gathered and published by Real Estate based Institutions like the Nigerian Institution of Estate Surveyors and Valuers (NIESV). As at the time of this analysis there has been no documentary evidence of building cost information by NIESV within the study areas of Awka and Onitsha. In places like Port-Harcourt, the Institution issues out, at different intervals, such documents (with official stamp) to its members as a working guide.

Therefore the only method available to especially young surveyors, who in most cases carry out the valuation, is assumption based on the premise used for previous valuations or phone contacts. In later chapters we shall review the method of estimating cost new as used in practice, and also generate the quantity surveyor's cost   In estimating the cost new of a property the Valuer should note the distinction between reproduction cost and replacement coast. Reproduction cost is the cost of creating a replica building or improvement on the basis of current prices using the same or closely similar materials while Replacement cost is the cost of creating a building or improvement having the same or equivalent utility, on the basis of current prices and using current standards and design (Ifediora, 1993; Kuye, 2008). However, practicing Valuers generally use the replacement cost but there is need to take note of the distinction.

DEPRECIATION

According to Kalu (2001), depreciation is the allocation of a tangible asset's cost over its useful life. In appraising, it is defined as a loss in value from any cause; the difference between the cost of an improvement on the effective date of the appraisal and the market value of the improvement on the same date (Dictionary of real Estate Appraisal, 4th ed.) Put together, it could be intended to mean some

form of gradual or rapid depletion in the value of an improvement which might be caused by physical, natural and economic forces. It is believed that depreciation beings where construction stops, and therefore, it is a key factor to analyze in any valuation by cost method if one were to arrive at an appropriate or reliable value opinion. The term is often used interchangeably with the word obsolescence.

Causes/ Types
The physical causes or types of depreciation are as follows:
a.   Physical Deterioration/Depreciation
b.   Functional Deterioration/Depreciation
c.   Economic Deterioration / Depreciation
a.   Physical Deterioration /Depreciation
This is characterized by physical (visible) wear and tear of the subject property. The Valuer should observe the different components of the subject property namely roof members, wall, doors, windows, floors etc. to visualize any physical defects on the structure. The defects observed do affect the value of the property
In practice whatever is visualized should be backed up by photography as evidence for the present time and for posterity.
b.   Functional Depreciation
Functional depreciation or obsolescence, unlike physical depreciation, is not easily noticed except through careful observation. Many a property which is subject of valuation exercise is found wanting in this type of defect, even though they may appear good looking and stable. Ifediora (ibid) affirmed that functional depreciation could result from;
•   Faulty design: ceilings too high or too low; improper location of kitchen, bathrooms, etc, wasted spaces; etc. This has been observed a couple of times due to the fact that the bulk of buildings in Nigeria are not designed by qualified Architects.
•   Dysfunctional structural facilities: external walls not water resistant; ceilings and walls not insulated; inadequate electrical wiring, plumbing, etc. One could also add visible untidy wiring.
•   Dysfunctional water cistern, soak away pits and septic tanks.
•   Water not well drained in bathrooms/ toilets. One would not want to view some bathrooms and toilets during valuation exercises. Brooms will usually be seen as back-ups to draining water after bath.
•   Old fashioned facilities, e.g. outmoded kitchen sink, coal burning kitchen sink; etc.
The list is endless. In practice, it is not enough to value a building by mere physical observation. The functional aspects of the building must be thoroughly checked because it is assumed that an informed purchaser or would-be occupant is unlikely to pay more than the property commands in terms of utility.
c.   Economic or External Depreciation
Economic depreciation is the worst of them all because it acts outside the subject property. It is beyond the containment of the property arising from the fact that the variables that warrant it are external to the property.
Therefore while the physical and functional obsolescence can be solved by carrying out appropriate remedial actions in the property that of economic obsolescence is beyond the control of lessor or occupier.
Causes of economic depreciation include

- Neighbourhood hazards and nuisance; heavy traffic flow; smoke; dust; noise; offensive odours; etc
- Infiltration of less desirable neighbours
- Road re-alignment or indexing which may cut off an area and decrease demand
- Decreasing demand; population shifts; depression or other adverse economic factors such as financial meltdown or cash scarcity/ squeeze.

⊕ Value of land (as if vacant)

The value of the land on which the subject property is situated is also important. Land in this case will be considered as though it was vacant. The Valuer will need to carry out a survey to keep abreast of current land values within the subject neighbourhood.

Valuation Procedure in the Cost Method

The procedure for valuation by the DRC method is as follows:

1. Determine the replacement cost (new) of the subject property, $C =$ unit cost $\times$ gross floor area
2. Make allowance for depreciation (Depreciation will usually be an accrued percentage over n years) D= x% (annual dep.) x n years (using the straight line method)
3. When the result of (1) is applied to that of (2), the result will be the DRC , C x D = C.D
4. Add value of land as of vacant, C.D + L
5. The final result gives us the Capital Value.

NB: In general, Unit Cost = Construction Cost divided by the total gross floor area.

i. Yield

The Concept of Property Yields

Property yield or capitalization rate, as commonly referred to, in real estate investment is one of the most important sources of information in terms of commercial property valuation and pricing. The property yields are also known as Return on Investment (ROI), and usually expressed as a percentage of the amount financed against the property's investment rather than the property's value. It thus refers to the interest or dividend from a security and it's usually expressed annually as a percentage based on the investment cost, its current market value or its face value. Kalu (2001) defines yield as the return from an investment over a period of time; a numerical representation of the relationship between net income and capital outlay or initial cost over a period of time as a percentage.

Ifediora (2005) also defined yield as the rate of interest of which all probable future net incomes from an investment are converted to capital value. It is also the annual percentage amount produced by an investment by reference to its cost or value.Property yields or the return on real estate investment (ROI) are also a measure of expected return, which reflects property market fundamentals Hoesli and Macgregor, (2000). Again according to Ifediora (2005), the real rate of interest on capital invested, termed the yield is the ratio of net income to market value. Kuye (2000) also gave an insight on the yield term as the income from investment usually expressed as a percentage of its current price.

According to the Appraisal Institute (2001), the term yield is a ratio used to estimate the value of the income producing properties which is simply expressed as the sales prices or value of a property being denoted as a percentage. Investors, leaders and appraisers use the capitalization rate or the property yield to estimate the purchase price for different types of income-producing properties. Fundamentally,

studies of real estate investment usually involve some analysis of yield. Unfortunately, one yield cannot be compared to another yield. A significant fact about yield is that it is an indicator of value and risk. Thus, the yield rises as value falls and falls as value rises.

Again, the more risky an investment is, the higher the capitalization rate or the property yield of the particular investment and vice versa.Thus, according to Hoesli and Macgregor (2000), the yield is used to make assumption about market expectation of growth, risk and depreciation. Their relationship is further expressed as follows:
  i.   The higher the expected risk associated with an investment, the higher the yield.
 ii.   The higher the expected income growth of the property investment, the lower the yield and
iii.   The higher the expected depreciation accompanied with the subject property, the higher the yield.

Property yield which is also called the capitalization rate is the rate of interest at which all the probable future net incomes from an investment are converted (i.e. discounted capital value) and compounded to capital value.

Basically, the property rate or the capitalization rate universal formula consist of net annual operating income divided by the selling price or the initial income divided by the market value and expressing it as a percentage of the annual figure. The net operating income (NOI) which is described as the numerator of the yield formula is characterized by the actual or anticipated remaining net income after deducting all operating expenses from effective gross income, but before deducting mortgage debt service.

Therefore, property yield can be expressed as follows:

$$\text{Yield} = \frac{\text{Net operating income (year)} \times 100}{\text{Capital value/acquisition cost}} \qquad 1$$

The yield formula is similar to the net capitalization which assesses market value based on market condition. According to the recommendations of the British Property Glossary (2003), the real estate yield should be represented by the percentage of operational surpluses. In other words, the yield should be the percentage of net income minus operating cost for the calculation period.

iii. Years' Purchase (YP)
This is the ratio between the sales price and value of a property and the average annual income or income expectancy; it may be based on gross or net income. Years purchase can be termed the income multiplier.

iv. Rental Value
Rental value is a key variable in income-based valuations such as income method, residual method, profit method and market comparison method. For the income method, the valuer must know the rent or get it through analysis before capitalizing it. For the residual method, rental value may be needed in determining the gross development value depending on the valuation problem at hand. For the profit method, the amount available for rent must be determined before capitalization. For the market comparison method, rental values of similar properties are compared for valuation purposes. Therefore rental value is an important data in the process of estimating the monetary worth of an interest in property. By definition, rental value is the monetary worth of a subject property within a particular period which could be weekly, monthly or annually paid by a lessee or a tenant for occupation. This is

similar to the definition put forward by Kuye (2008) who defined rental value as the worth of a lease of a property on periodic occupational basis.

The process of determining rental value is similar to the process of determining capital value of a property. (Kuye, ibid). This however depends on the approach or method adopted or used. In some big commercial properties rent is calculated on per square meter basis. This comes to play when each floor has a large quantity of partitioned spaces. Rent could also be determined by comparing the rental values of similar properties in the same neighbourhood. That is very possible in an active property market where buyers and sellers interact.

Rent can be gotten through different approaches. According to Richmond (1994), there are many ways of determining rental value. First, rental value can be determined by reference to the rent currently being paid. This may be a reasonable guide but it could be less than the rack rental value. It may have been fixed at a date in the past, and rental value has since increased due to inflationary trends. The rent paid may, at the commencement of the lease, be less than the full rental value at that time. The reason for this may be due to a special relationship that exists between the landlord and the tenant or it may be that the tenant had paid a capital sum, e.g. premium, in the past to attract a low rent. From the foregoing, field officers gathering rental data must be thorough enough to differentiate between rent paid and rack rental value. This can be achieved by comparing rents obtained in the same neighbourhood for similar properties or accommodation. It could also be determined through interviews with occupiers of properties. Again, valuers making use of rental databases can do a trend analysis of rental values over a period of time to take care of inflationary tendencies. Presently in Anambra State and Nigeria in general, rents are on a high due to increase in demand and also inflation.

Second, rental value can be determined by comparison with similar property. If properties are owner-occupied, vacant or held on long-established leases, then to determine their current values it may be necessary to compare them with the general levels of similar properties in the same neighbourhood. The practical difficulty of this method is that no two properties are exactly the same, so that the value of the comparable property or accommodation type may have to be adjusted to take into account the differences in age, location, condition and other matters (Richmond, ibid). However, such adjustments must be realistic to reflect what a prospective tenant or lessee can pay in the event of a transaction. The adjustment involves a *betterment comparison or analysis (that is, advantage or disadvantages in age, location and aesthetics which the comparables or subject properties have over themselves.)*

To make rental values sustainable there is need to systematically record them and store them on a database. This will be very helpful to trend analysis and easy retrieval for valuation purposes. An incorrect rental value is capable of negatively affecting the final value opinion in any valuation exercise. That is why a database of real estate transactions (e.g. letting of properties at various locations) is needed to make valuation especially by income method effective, efficient and reliable.

Sale/Purchase Prices
Another important content of a VID is the sale or purchase value/price (which can also be called sale or purchase value; that is value at purchase or sale) which may be different from the calculated value in a valuation report. A valuation report which embodies the value opinion (monetary worth) may not be a reliable premise for doing yield analysis for valuation purposes because the amount for which a

property is eventually sold may be lower or higher than the adopted capital value. However, the sale or purchase value stems from the estimated worth of the property carried out by a qualified valuer even though the price could differ at point of sale or purchase.

The Estate Surveyor and Valuer represents his client in a sale of purchase transaction. A sale/purchase transaction involves the transfer of property ownership from one party to another. The valuer negotiates a fair price for the assignment and it is usually based on a fair market value. He ensures that all necessary documents are obtained and properly witnessed e.g. certificate of occupancy, receipt of payments, deeds of conveyance, etc. (Olusegun, ibid). However the aforementioned view does not capture the fact that the Estate Surveyor and Valuer must exercise a duty of care in knowing whether or not the interest in the subject property is encumbered. Sale and purchase transactions are a major part of businessmen in Anambra State and the south east at large and there is need to track volumes of such transactions in a database that will help valuers in speedily executing valuation jobs in terms of yield analysis and comparison.

Issues in Developing Property Valuation Database Systems
It is not an easy task to develop a computerized approach to valuation especially one that attempts to replace human effort. Boyle (1984) attempted to develop an expert system for valuation of residential properties. Valuation is one of the most important professional skills which the General Practice Surveyor has to offer. He wondered if this skill could be transferred to a computer, by-passing the need for trained human intervention. Though computer-based valuation system is possible but the skill of the valuer is necessary.Indeed, in line with the researcher's intentions, field surveyors will be highly needed because it is the raw data obtained on ground that will eventually be uploaded on the property website for use by valuers. However, how the data gathering is done matters a lot for professional sakes. Boyle (ibid) suggested an automated property valuation by computer which enables the user of the system feed in the information available to him after which the computer automatically gives the value of the property. The focus in this study is not about automation for use by less skilled persons but about uploading real-time property market information on a computer database for use by professional estate surveyors and valuers.

However, such information that would be of help to field officers are questions about, the type of property (e.g. semi-detached, detached, link-detached, bungalow, chalet, maisonette, etc), age of the property, number of bedrooms, reception rooms, condition/state of repair, tenure, special features, etc. Data on transactions in various property markets are obtainable from many sources—estate agents, taxation offices, building societies. This is not without challenges. A problem which is common to many sources is confidentiality. The actual price paid is felt to be a personal matter between the purchaser and his financial mentors, and should not be made freely available. Estate agents may be willing to help the genuine researcher, but do not, individually, turn over a sufficient volume of properties for a satisfactory statistical sample (Boyle, ibid). This is true especially when it applies to many developing countries like Nigeria where freedom of information is limited by people's perception.

In their view on developing real estate databases, Dudek-Dyduch and Raczka (2011) opined that the main role of the real estate database is to collect information on real estate transactions. The system

should make it possible to view data included in the real estate database, add new information on real estates and export data to other formats. System configuration also allows the user to modify the form, which is filled in when new property is entered into the database—the user may define what information will be stored in the database.

However, the idea here is not to expose each individual property's features but to provide a wide range of market and other information about each type or class of property within a particular neighbourhood. This is to ensure confidentiality of owners of property assets. Google map will be of great help in terms of geographical delineation of values according to distance from the CBD or major landmarks. This will be of value to estate surveyors and valuers who want to have a good framework on which to base their value conclusions.

RESEARCH METHODS

The Sample Size
To select the sample size of study Taro Yamane formula was used. The formula is given by

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

Where,
n is the sample size
N is the total number of practicing valuers in the entire zones,
e is the error of margin which is 5%.

Therefore

$$n = \frac{606}{1 + (606 x 0.05^2)} = 241$$

Instruments for Data Collection
The major instruments used for data collection are questionnaire and a Market Data Form and also interviews. The questionnaire appears as Appendix to this report. The data form appears thus:
Data Form for Property Market Database
Data Programme for Sale/Purchase Transaction and Rental Evidence
✓ Property type (e.g. Land, duplex, Bungalow, etc)
…………………….…………………….……………………………………………
✓ Location……………………………………………………………………………
✓ Structural details………………...……………………………………….................
…………………………………………………………………………………………
Condition……………………………………………………………………….......
Accommodation and use
…………………………………………………………………………………………
✓ Neighbourhood
Characteristics…………………………………………………………………………
…………………………………………………………………………………………..

Market   Value/Rental   value
………………………………………………………………………………………..
✓ Date   of   Transaction   ……………………………………………………………………….
…………..
✓ State of the local, national, regional and global economies (as the
Affect demand and supply of property in question
……………………………………………………………………………………………
……………………………………………………………………………………………
✓ Encumbrances (if any)……………………………………………………………………………

The Form can be further developed into a table that can enable field estate surveyors capture relevant data and not leave any stone unturned. Table 1 explains the structure of the table.

Table 1
Property Market Data Collection Framework for Anambra State

S/N	Property Type	Location	Structural details	Conditions	Accommodation/use	Neighbourhood characteristics	Value (N)	Date of Transaction
		Emphasis area, neighbourhood, street and landmarks; distance from the road or properties with "goodwill"	Floor: Wall: Door: Windows: Ceiling: Roof: Paved area:	Includes nature of depreciation from physical minimum of observation	No. of units, use, no. of spaces	Density	Rental Values, sale price of concluded transaction Unit construction cost (from Quantity Surveyors)	Emphasis on recent transactions

Method of Data Analysis
The statistical techniques used for data analysis are reliability test and one-way analysis of variance.

Table 2: Proportion of Population Size

Zones	Population
Onitsha	360
Awka	176
Nnewi	70
Total	606

The table shows that 360 estate surveyors practice in Onitsha, 176 in Awka and 70 at Nnewi.
To select the sample size of study we used Taro Yamane formula given by

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

Where
N is the total number of practicing valuers in the entire zones,

e is the error of margin which is 5%.
Therefore

$$n = \frac{606}{1 + (606 x 0.05^2)} = 241$$

The value of sample size of 241 is distributed to the three zone by simple proportion as shown in the Table 3.

Table 3: Proportion of Sample Size

Zones	Population	Sample size
Onitsha	360	143
Awka	176	70
Nnewi	70	28
Total	606	241

RESULTS AND INTERPRETATIONS

Reliability Test
In order to ascertain the level of reliability of the data collected, Cronbach's Reliability Test was run as follows.

Interpretation of Reliability Test Results

Table 5

Case Processing Summary

		N	%
Cases	Valid	241	94.9
	Excluded[a]	13	5.1
	Total	254	100.0

a. Listwise deletion based on all variables in the procedure.

Table 6

Reliability Statistics

Cronbach's Alpha	N of Items
.912	17

The result showed a strong reliability test of 0.912.

Similarly, we test for the validity of the question items as shown in Table 7. All question items are supposed to be subjected to validity test. Therefore, the Varimax Rotation Principle Component method was used. According to Meredith, any component (question item) that is above 0.35 is accepted.

Table 7

Rotated Component Matrix^a

	Component			
	1	2	3	4
1. Lack of a pool of organized records.	.865	.426	.038	.005
2. Lack of regular market surveys/research.	.439	.856	.027	-.041
3. Use of traditional filing systems.	.903	.290	.035	.011
4. Non use of computer technology.	.305	.923	-.008	-.007
5. Phone contact.	.865	.386	.033	.017
6. Ransacking of file cabinent.	.432	.836	.008	-.046
7. Field work.	.899	.268	.021	.003
8. Use of stored data in computer system.	.284	.919	.007	-.014
9. Quantity surveyors' input (for unit construction cost).	.737	.302	.069	-.009
10. Assuming by experience in the field.	.351	.856	.041	-.023
11. By relying on previous figures.	.844	.187	.015	-.011
12. Publishing cost bulletins on regular basis.	.256	.870	-.060	.027
13. By calculation.	.792	.346	.041	.043
14. By calculation.	.067	-.033	.897	-.080
15. Assuming by experience.	.042	-.043	-.095	.695
16. Assuming by experience	.041	.023	.896	.054
17. Employing estate field officers to input market data in a computer database system for easy retrieval.	-.022	.009	.075	.725

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 5 iterations.

The results shows that all the items in the questionnaire were retained as the components were above 0.35 as recommended by Meredith. This implies that all the question items are reliable.

RESEARCH QUESTIONS
To answer the research questions, we shall use the mean results. To obtain the mean result we proceed as follows.

$$\bar{X} = \frac{5+4+3+2+1}{5} = 3$$

This is because we used five Likerth scale.

This means that any mean that is above 3.00 is regarded as a positive result while the contrary is a negative result.

RESEARCH QUESTION 1

What are the causes of inaccessibility to property market value?

The answer to the above research question is shown in the Table 8.

Table 8

Descriptive Statistics: Results for question one

	N	Minimum	Maximum	Mean	Std. Deviation
1. Lack of a pool of organised records.	241	1.00	5.00	4.5228	1.02901
2. Lack of regular market surveys/research.	241	1.00	5.00	4.4979	1.06897
3. Use of traditional filing systems.	241	1.00	5.00	4.3651	1.09519
4. Non use of computer technology.	241	1.00	5.00	4.3568	1.12419
Valid N (listwise)	241				

From Table 8, all the question items showed a mean result greater than 3.00 which show that lack of a pool of organized records, lack of regular market surveys/research, use of traditional filing systems and non use of computer technology are the causes of inaccessibility to property market value.

RESEARCH QUESTION 2

What methods do practicing valuers adopt where there is inaccessibility to property market data?

The answer to the above research question is shown in the Table 9.

Table 9

Descriptive Statistics: Results for question two

	N	Minimum	Maximum	Mean	Std. Deviation
5. Phone contact.	241	1.00	5.00	4.4523	1.04023
6. Ransacking of file cabinent.	241	1.00	5.00	4.4357	1.07481
7. Field work.	241	1.00	5.00	4.3195	1.09620
8. Use of stored data in computer system.	241	1.00	5.00	4.3029	1.12340
Valid N (listwise)	241				

Similarly, all the question items showed positive response.

RESEARCH QUESTION 3

In what ways can databank of property market evidence be gathered in the field?

The answer to the above research question is shown in the Table 10.

Table 10

Descriptive Statistics: Results for question three

	N	Minimum	Maximum	Mean	Std. Deviation
9. Quantity surveyors' input (for unit construction cost).	241	1.00	5.00	4.3361	1.18634
10. Assuming by experience in the field.	241	1.00	5.00	4.4274	1.13464
11. By relying on previous figures.	241	1.00	5.00	4.2282	1.19102
12. Publishing cost bulletins on regular basis.	241	1.00	5.00	4.2614	1.19466
13. By calculation.	241	1.00	5.00	4.3651	1.11405
14. Assuming by experience	241	1.00	5.00	2.3154	1.32607
15. Employing estate field officers to input market data in a computer database system for easy retrieval.	241	1.00	5.00	4.3402	1.13670
Valid N (listwise)	241				

Similarly, all the question items showed positive response except question item number 14 which sort to know the assumption of experience.

RESEARCH QUESTION 4

What is the level of the mean responses of the year of experience for Estate surveyors and valuers in Anambra State? Table 11 shows the subject factors while Table 12 shows the mean and standard deviations of the various years of experience.

Table 11

Between-Subjects Factors

		Value Label	N
Year of Experience	1.00	Less than 5yrs	17
	2.00	6-11yrs	17
	3.00	12-17yrs	17
	4.00	18-23yrs	17
	5.00	Above 23yrs	17

Table 12
Descriptive Statistics
Dependent Variable: Observations

Year of Experience	Mean	Std. Deviation	N
Less than 5yrs	4.1765	.77324	17
6-11yrs	4.0182	.78612	17
12-17yrs	4.1765	.74980	17
18-23yrs	3.5792	.69770	17
Above 23yrs	3.7412	.60318	17
Total	3.9383	.74761	85

The mean responses of the year interval of practical experience are all positive responses.

HYPOTHESIS TESTING

Here the four hypotheses presented in chapter one are tested. They include:
i.   Lack of speedy access to property market data is not associated with absence of databank information.
ii.   Estate Surveyors and Valuers do not resort to intuition in gathering relevant property market information.
iii.   Estate Surveyors and Valuers in Anambra State do not need database systems in which to store and retrieve property market data.
iv.   There are significant differences in the mean responses of Estate Surveyors and Valuers in Anambra State in their years of experiences.

Decision Rule:
The decision rule is:
 i.   Reject Ho if F-calculated is greater than F-tabulated, otherwise accept. OR
ii.   Reject Ho if P-value is less than 0.05, otherwise accept
HYPOTHESIS 1
Lack of speedy access to property market data is not associated with absence of databank information. T-Test is used to test the variables and this is shown in Tables 13 and 14 using a confidence level of 95%.

T-Test
Table 13
One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Inaccessibility	4	4.4357	.08692	.04346

Table 14
One-Sample Test

	Test Value = 0					
					95% Confidence Interval of the Difference	
	T	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Inaccessibility	102.064	3	.000	4.43565	4.2973	4.5740

RESULT: From Table 14, since the p-value of 0.00 is less than 0.05, we reject the null hypothesis and therefore we accept the alternate hypothesis—lack of speedy access to property market data is caused by absence of databank information.

HYPOTHESIS 2
Estate surveyors and valuers do not resort to intuition in generating relevant property market information.
T-Test is used to test the variables and this is shown in Tables 15 and 16 using a confidence level of 95%

T-Test
Table 15
One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
intuition of property market information	4	4.3776	.07727	.03863

Table 16
One-Sample Test

	Test Value = 0					
					95% Confidence Interval of the Difference	
	T	Df	Sig. (2-tailed)	Mean Difference	Lower	Upper
intuition of property market information	113.308	3	.000	4.37760	4.2546	4.5006

RESULT: The p-value of 0.00 is less than 0.05, therefore the null hypothesis is hereby rejected and we conclude that estate surveyors and valuers do resort to intuition in generating relevant property market information.

HYPOTHESIS 3

Estate surveyors and valuers in Anambra State do not need database systems in which to store and retrieve property market data.

T-Test is used to test the variables in this is shown in Tables 17 and 18 using a confidence level of 95%

T-Test
Table 17
One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Database systems	7	4.0391	.76292	.28835

Table 18
One-Sample Test

	Test Value = 0				95% Confidence Interval of the Difference	
	T	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Database systems	14.007	6	.000	4.03911	3.3335	4.7447

RESULT: The p-value of 0.00 is less than 0.05, therefore the null hypothesis is hereby rejected and we conclude that estate surveyors and valuers in Anambra State do need database systems to store and retrieve property market data.

HYPOTHESIS 4

There are significant differences in the mean responses of the Estate surveyors and valuers in Anambra state in their year of experience.
ANOVA is used to test the variables in this is shown in Tables 19.

Table 19
Tests of Between-Subjects Effects
Dependent Variable: Observations

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	4.890[a]	4	1.222	2.325	.063
Intercept	1318.368	1	1318.368	2507.661	.000
Experience	4.890	4	1.222	2.325	.063
Error	42.059	80	.526		
Total	1365.316	85			
Corrected Total	46.949	84			

a. R Squared = .104 (Adjusted R Squared = .059)

RESULT: The p-value of 0.063 is greater than 0.05, we do not reject the null hypothesis and therefore we conclude that there are no significant differences in the mean responses of the Estate surveyors and valuers in Anambra state and their years of practice. This means that their levels of practice are the same.

Summary of Findings

The findings of this research can therefore be summarized as follows:

iii.	Estate Surveyors practicing in Anambra State do not presently have a functional online customized database for property market valuation

iv.	The causes of inaccessibility to property market value are
➢	Lack of a pool of organized records,
➢	Lack of regular market surveys/research,
➢	Use of traditional filing systems and
➢	Non use of computer technology

iii.	Lack of speedy access to property market data is associated	with absence of databank information.

iv.	Estate Surveyors and Valuers do resort to intuition in gathering relevant property market information.

v.	Estate Surveyors and Valuers in Anambra State do need database systems in which to store and retrieve property market data.

iv.	There are no significant differences in the mean responses of Estate Surveyors and Valuers in Anambra State in their years of experiences.

CONCLUSION

As earlier noted in Chapter One of this study, it has been observed that it takes quite a lot of time to carry out professional real estate valuation in practice due to difficulty in obtaining relevant property market data or the dearth of it. This causes undue delays in executing especially time-bounds jobs, more so now that information and communication technology has made things faster and easier. The aforementioned difficulty has also made many a Valuer to carry out property valuation using unreliable and unprofessional sources of market information with the belief that nobody will wake up someday to question the standard of work done. They will fail the S.M.A.R.T. Test especially with respect to reliability and Time.

However, with a database system showing real transactions in the property market the problem of speed and reliability is eliminated. What the database displays in not just concluded valuation exercises but data which comprises concluded transactions in the open market be it sale, purchase and rental transaction. The site www.anambrapropertydatabase is the first of its kind in the study area.

Recommendations

The following recommendation will suffice:

i.	The Nigerian institution of estate surveyors and valuers should mandate her research units to implements the ideas in this research.

ii.   The database should be further developed and commercialized. This can be done by producing log-in pins for sale to member firms. Field officers should be employed and empowered to update the site on a predetermined basis.

iii.   All member firms should be mandated to be internet complaint. This will make the institution as a whole keep abreast of the goings on in the ICT world.

Area for further Research
Further studies can be carried out to include specialized properties in the development of this database in the study area.

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