COMPUTER APPLICATION TO PUBLIC ORGANISATION OPERATION.

(A CASE STUDY OF NIGERIA TELECOMMUNICATIONS (NITEL) PLC, ABUJA).

BY

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PGD/MCS/96/97/297.

DEPARTMENT OF MATHEMATICS/ COMPUTER SCIENCE FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA

SEPTEMBER 2000

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A PROJECT SUBMITTED TO THE DEPARTMENT OF MATHEMATICS/ COMPUTER SCIENCE FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA. IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE POSTGRADUATE DIPLOMA IN COMPUTER SCIENCE.

SEPTEMBER, 2000

CERTIFICATION

This project work has been read and certified by the undersigned as meeting the requirements of the Department of Mathematics/Computer Science, Federal University of Technology, Minna.

....

PRINCE R. BADAMOSI   DATE

PROJECT SUPERVISOR

....

DR. S. A. REJU   DATE

HEAD OF DEPARTMENT

....

EXTERNAL EXAMINER   DATE

DEDICATION

This piece of work is dedicated to the glory of the Almighty Lord for his love, guidance, protection and mercy over me in the past years.

ACKNOWLEDGEMENT

Praises to the Lord for his love, care and mercies over me in the past years.

Indeed, the work of this nature involves many individuals whose contribution and concern cannot be forgotten. Such is my project supervisor, Prince R. O. Badmus. An individual whose love and concern for others is superb. The man of high excellent academic achievement. The man who wants to see others progresses in their own ways. Prince, please continue to be good and may the father continues to shower his love, concern and greatness upon you at all times. Despite your tight academic schedule, you still found time to go through this work and see to be final presentation. Thanks indeed.

To my current Head of Department, one cannot say much but to salute your stewardship. To my various lecturers. I am indeed very greatful for the knowledge imparted on me. Specially worth of mention is my darling wife. Thanks for your understanding and concern. To my children, may the Lord bless you too.

My friends, brothers, sisters and colleagues, what else can one say rather than to thank you for been supportive.

To others, you have not been forgotten.

ABSTRACT

Organisations are set up for the accomplishment of specific goals or objectives. Hence, they are often defined as the planned co-ordination of the activities of a number of people for the achievement of some common explicit purpose or goal. However, many organisations are facing a big problem in terms of information storage and retrieval. Most of the time, the confidentiality of data is not achieved. This then necessitated the need to apply computer to organisations with particular reference to Nigerian Telecommunications Limited, Abuja.

This was achieved using the Database management system programming language.

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CHAPTER ONE

1.0   INTRODUCTION:

The use of computers to do many different kinds of work is becoming the vogue in many organisations, both government and private. Infact those that have not joined the craze axe striving seriously to do so.

This situation is made possible because of the now mature awareness of the versatility of computers in terms of speed.

The development in technological worked today has replaced the outmoded, obsolete and archaic system of manual applications being experienced in most of the organisations either in private or public.

The computer business transactions in the world today and the easiness, coupled with the rate of information storage have increasingly necessitated the applications of computer in virtually every human endeavour. Thus the application of computer emanates from the simple use in domestic homes to a wider scope in most small scale and large established organisations.

According to some computer analysts the most computer and complicated problems facing industrial and scientific societies in recent times has been gainfully resolved by the application of computers. In other words the use of computer has minimised the human errors that are common in the business scientific and industrial world.

1.1   STATEMENT OF THE PROBLEM:

One of the problems bothering most working organisations either in the public or private section today is the computer application. It is either that these organisation's do not have resource to purchase computers which could ease and

reduce to a lowest minimum the errors associated with lack of computers on that computer application has been wrongly applied.

This conditions has generated a lot of concern not only to the industrial worker in these organisations but also media houses like newspapers and televisions have decried the status of any private or public organisations without the appropriate use of computer application given the import of this phenomenon at this contemporary technological world.

Apart from this major researchers, scientists and computer analysts have attested to this and indicated the havoc and mismanagement being experienced in the industrial and scientific world if these organisations do not use computer application in solving the most diminutive down to the complex human problem s associated with business and other related human endeavours.

Thus it will be pertinent at this junction to establish the gap or relationship between the time that technological world demand the use of computer and how it is able to solve the complex human problems.

To this end the research questions that might guide the objectives of this project includes what is the significance of computer applications to business and public organisations?

How has the computer application been able to reduce or totally solved the problems of mismanagement and information storage? How has the computer application been able to facilitate the overall business in the private and public organisations?

1.2 AIMS\OBJECTIVES OF THE STUDY

The aim of this study is to ascertain the significance of the computer application in the public organisations. Its objectives will be realized through the following

i.   To find out how computer application has been useful to public organisation.

ii. Secondly to find out whether the use of computer application has totally solved the problem of human error being witnessed in private and public organizations.

iii. Thirdly to find out how the use of computer application has reduced the mismanagement of resources and information storage in public organizations.

iv. Finally to advance suggestions and recommendations on how the use of computer application will improve the entire application will improve the entire working environment of the public organizations.

1.3 SIGNIFICANCE OF THE STUDY

This study will be significant in terms of its contributions to theory, knowledge and social policy.

It is significant in terms of its contributions to theory because it is a study based on empirical facts and findings, which is peculiar to most working organizations either in the private or public sector, by modifying certain theories of computer application in ascertaining its level of importance.

Secondly this study contributes to knowledge because it will enable both the researcher and other individuals to acquaint themselves with the basic idea of how the

presence or absence of computer application has its subsequent effects on working organisations with specific reference to public organization.

Finally this study will contribute to social policy because it will enable both the government parastatals, private and public organizations to formulate policies that will assist in the use of computer application which will be of benefit to private ad public organization with a view of reducing the most complex human error that are rampart in most organizations either public or private.

1.4 DEFINITION OF CONCEPTS

a) COMPUTER APPLICATION: This refers to the process whereby computers are used as aids to help in solving day-to-day life problems. In other words it is a process whereby computers are used as aids to help in carry out daily activities.

b) AUTOMATION: Is another concept, which is closely related with computer application. When a routine, which is usually done manually, is now being carried out through a computer process, that routine is said to be automated.

c) SIGNIFICANCE: This denotes importance or the consequence of something or an activity.

d) DATA: this refers to raw information yet to be processed.

e) INFORMATION: Data that have been processed into useful form for the users.

1.5   SCOPES AND LIMITATION OF STUDY.

This study will cover only the Abuja office and whatever is achieved here can be applied to other private organisation operations. However, there are certain limitations. First of such is the time factor. Time will not allow this study to be extended beyond the area specified. Coupled with this is the financial constraint, which will make it impossible to extend the study beyond the area specified.

The cost of typing and binding this work is also a limiting factor.

CHAPTER TWO

2.0   THE IMPORTANCE OF COMPUTER APPLICATION

Computers are now part and parcel of humanity. It's only better imagined what life would have been without them. For the small uses, there was a time when ready reckoner slides rule and logarithm tables were the tools for making calculations. Now computers are there to speed things up. Instead of the ground farther clocks with pendulums, we now have computerized clocks and wristwatches.

Time it was, that the typist had to correct mistakes over and over to the utter annoyance of the boss. Each time old mistake is corrected, the typist made embarrassingly new ones. The term typographic error was a rule, rather than an exception. The pencil eraser and tipex fluid were part of the typist's life. But then came the word processor and the production of documents became so joy or fun. It's thanks to the computer – based word processor, graphics and DTP software, that I was able to produce this book, with all the photo-finish diagrams in less than 3 months.

Customers with notice how fast they can obtain the balance of money in their accounts, if their bank of choice is computerized with a computer terminal in front of the cashier; the request is processed in a matter of seconds. And if the computers in the branches of the bank are worked together through the Tele-communication network, it doesn't matter in which of the branches an account is maintained – the information about you can be obtained from each and every one, even in different towns.

Even door locks are now computerized. Visit the Hilton hotel at Abuja to see how computerised coded plastics that looks like your school ID cards have replaced keys to all room, say, on the with floor without leaving the reception on the ground flood.

As for big uses, the Air Bus aeroplane that the Nigeria Airways and other airline fly is a super computer in the air. The pilot can actually go to sleep while the plane is crossing say between Lagos, and Johannesburg; and passengers will never be able to tell what is happening in the cockpit, because the computers are able to fully take charge. The space shuttle and indeed all space travel is made possible by various computerized equipments that are installed on – board and in the mission control actions around the world. And the CNN reporting crew is usually armed with various computer – based year that enables the transmission of live events from anywhere in the world.

With the Computerised Axial Tomography (CAT) scanning, X-rays are absolute. Detailed pictures of our body, and if one is cut open with a knife are now possible in three dimensions. With CAT – scan, you can be made to see the inside of your brain.

And in anything good, there is the bad. The fine that is used to ask a delicious meal can also be directed to burn the house of the occupant. So theft and stealing with computers are also everywhere.

2.1   AREAS OF COMPUTER APPLICATION

1. ACCOUNTS PAYABLE: Organisation purchases everything from paper clips to computer hardware on credit. So the accounts payable system is the other side of accounts receivable system is input to the accounts payable systems. When a company receives an invoice, the system generates a cheque and adjusts the balance. This is appropriate for manufacturing companies to enable them help to track of all requisite raw materials and pay supplier promptly.

2. GENERAL LEDGER: Every monetary transaction that occurs within an organisation must be properly recorded. Both the payment of a bill and an inter-departmental transfer of funds are examples of monetary transactions. The general ledger system keeps track of these transactions and provides the input necessary to produce an organisations financial statement. A very common output of such a system in a regular financial statement which includes the profit and loss statement and the balance sheet in fulfilment of the requirement by the (Nigeria's) corporate Affairs Commission (CAC) that private and public limited liability companies file annual returns.

3. INVENTORY MANAGEMENT AND CONTROL: walk into most organisation and you see desks, file cabinets, and cars and even computers. These items are called fixed assets. A fixed-asset inventory record is maintained for each item and includes such date purchased, cost and inventory item number. These records are maintained for asset control and tax purposes. Furthermore, manufacturing companies must also manage raw materials receipts process and finished goods despatch inventories. These inventory systems monitor the quantity on hard and the location of each inventory item.

4. HUMAN RESOURCE DEVELOPMENT: Human resource development systems are essentially personnel accounting systems that maintain comprehensive data on applicants and employers. Besides routine historical data (educational background, salary history and so on), the systems include data on periodic performance reviews, skills and professional development.

5. BUDGETING: Each year managers spend months preparing their departmental budgets for the coming fiscal year. To help in this task line-item expenditures (salaries, office equipment, office supplies and so on). Based on

this information and projected budget requirements, each manager can make requests for the next fiscal years. The budget system matches these requests ageists projected revenues and generates an exception reports showing those line items that exceed projected finding levels. The budget items are reviewed and the process is respected until the coming years budget is established.

This application is obviously of importance to the users of government in the country that has the goal of transparency and efficient management of financial transactions.

6. OFFICE AUTOMATION: Office automation refers collectively to those computer-based applications associated with general office work. It encompasses all the personal productivity software tools discussed earlier (word processing, desk top publishing, electronic spread sheet, data base and presentation graphics) plus fax systems, electron mail, image processing, voice processing and office information systems.

(A) FAX MACHINE SYSTEMS: fax equipments are now commonplace in many offices and business centres scattered all over Nigeria. Readers in may not have realised the obvious fact that far machines were produced through the mere integration of computerized digital telephones with the photocopying technology. If fax technology were to spread as it should, them it would be substation good-bye to Nipost as we know it.

(B) ELECTRONIC MAIL: Computer network enables us to route messages to one another. A message can be a note, letter, chart or even the manuscript for a book. Each person in company can be assigned an electronic mail box in which messages are received and held in secondary storage, usually magnetic disk. To "Open" and "read" electronic mail, or email, the user simply goes to

the nearest terminal and recalls the message from the storage, usually after finishing appropriate user identification.

(C) IMAGE PROCESSING: This involves the creation, storage and distribution of pictorial information. There are two levels of image processing sophistication. At the first level, fax equipment, which has been around since the 1969, transfers images of Lord-copy documents via telephone lines to other offices. The process is similar to using a copying machine except that the original so inserted in fax machine at one office and a Lord copy is produced on another fax machine in another office. This aspect of office automation has become quit popular in Nigeria. Recent technological innovations have expanded the scope of image processing. Image scanners enable any kind of image (for example, a photo, a drawing) to be digitised and the digitised image stored on a disk. Once on disk, the image can be manipulated in much the same way you would text. Image scanners frequently are used in conjunction with desktop publishing software.

(D) VOICE PROCESSING: Voice processing includes voice message switching and teleconferencing. The terminal for voice message switching (a store and forward "voice mail box" system) is a touchtone telephone. Voice message switching accomplishes the same functions as electronic mail, except the hard copy is not available. When you send a message, your voice is digitised and stored on a magnetic disk for later retrieval. The messages, is routed to the destination(s) you designate using the telephones keyboard; then it is heard upon request by the intended recover(s). A voice store and forward system permits you to send one or many messages with just one telephone call.

Teleconferencing enables people in different location to see and talk to one another and share charts and other visual meeting materials.

The telephone network supports the voice and video of teleconferencing. People who are geographically scattered can meet without the need for time consuming.

SCIENTIFIC APPLICATION

Many applications of information technology are unique to a particular type of industry or organisation. For examples the use of automatic teller machines is unique to the banking industry most of the software to accomplish the indicated tasks have to be tailor-made for each organisation or industry. Among the possibilities are:

a) ORDER-ENTRY AND PROCESSING SYSTEM: - Which automates the acceptance and processing of customer orders. If then feeds data to the were house depending on whether the order is for stock items or is a order entry and processing system also tracks orders and provides products delivered to the customer.

b) PRODUCTION SCHEDULING SYSTEM: - Allocate manufacturing resources in an optional manner. A well-designed system will minimize idle time for both workers and machines and ensures that materials are at the might place at the right time.

c) MARKET ANALYSIS SYSTEM: - Rely on historical and current data to identify fast and slow moving products, to point areas with high sales potentials to make forecast of production requirements.

d) PROJECT MANAGEMENT AND CONTROL SYSTEM: - provide management with the information necessary to keep projects within budget and on time.

Periodic reports present actual versus anticipated project cost and the number of days ahead of or behind schedule.

Apart from the above, there are two other specialized applications, which are worth discussing in greater detail. These are robotics and computer aided manufacturing. (CAM)

ROBOTICS

This is a very special application of computers to manufacturing. The majority of industrial robots are single mechanical arms controlled by computers. The arm, called a manipulator, has a shoulder, fore arm and wrist, and, is capable of performing the methods of a human arm. The manipulator is fitted with a designed to accomplish a specific dark, such as painting, welding, picking and placing and soon.

Industrial robots best perform tasks that are papititive and those that require precision movements of heavy loads, in Lozadous areas. The can manufacturing industry is the largest use of robots in the area of painting and welding followed by the electronics industry (circuit connecting chips to circuit boards). Robots are also becoming important in the medical field, especially in brain sorcery, where accuracy is of prime concern.

A computer program is usually written to control the robot, including such commands –s when to reach, in which direction to reach, how to reach, when to grasp and so on. Once programmed robots do not need much attention. One factor of in U.S.A. manufactures vacuum cleaners 24 hours a day, seven days a week.

A)   BUSINESS APPLICATION

These include the use of computer systems to carry out some clerical routines. These clerical routines are easily automated because by nature they are simple, well defined and repetitive.

The most popular business systems to be computerized or automated are the pay all and personnel records systems. This computerized system takes care of the calculation of wages/salaries including personal details of employees such as gross pay, rate of jobs, tax, loan deductions to mention these but a few. Computer systems are also made to give tax-due-date, overtime, refund/repayment etc.

Another area of business application is office automation. This involves the use of computer processes to replace or carry out daily office practice. It is worthy of note that before the evolution of computer technology, typewriters, adding machines and clerical work are used in various office functions and practices. Nowadays these have been replaced with stand-alone word processors personal computers, workstations, networks and FAX systems together with other equipment, which were used in document taking preparations and productions. Some reports that may go through duplicating machines instead word processors are used at general office level. In most business outfits, word processing systems are commonly used for producing standard letters and documents.

Desktop publishing is another area of business application. Desktop publishing refers to the process of producing a published material in an office environment. Publishing routines include creation of text, page layout, design, and production of camera-ready copy complete with outwork. There are computer systems and packages that can carry out all these tasks. This computer package has the advantage of making

the document owner/publisher to be in complete control of the operations without having had to submit a draft to another person elsewhere for artistic works.

2.2 SIGNIFICANCE OF COMPUTER APPLICATION TO PUBLIC ORGANIZATION.

The absence of computer application in public organizations has caused an untold havoc in terms of mismanagement, corruption, information storage and the overall record keeping.

Thus the introduction of computer application has helped to a great extent in reducing and checking the excesses of employee in public organizations. It is therefore suffice to conclude that the importance of computer application in public organization cannot be over emphasized but has contributed to produce the following rent of bills, Bank transaction.

The high level of mismanagement and corruption in terms of payment of salaries and all financial transactions in the public organization has reduced to the minimum with the help of computer application. This is because all records concerning financial transaction in these areas are highly computerized unlike before when it was manually calculated and recorded and record files are either lost or thrown away.

The use of computer application has helped most public organizations on the delay and slow pale of most official documents. Official documents, reports and memo are produced within a shortest possible time, unlike when it was manually done by typewriters.

Computer application also has reduced lost of information and all vital documents since it could be retrieved at any time when the demand arises for that. Especially with use of passwords in accessory any computer.

In relating the significance of the computer application to the case study (NITEL PLC Abuja) it is pertinent to conclude that the use of computer applications has reduced the crafty and corrupt the nature of both the employees and the NITEL subscribes. Before the introduction of the computer application to NITEL plc, most telephone lines were sold indiscriminately to subscribers thereby causing a colossal lost of money to the government and the parastatal itself. Secondly some subscribers of telephone lines were enjoying their lines free. On a patronage of either one staff of the corporation or the other.

Thus the computer application has barely reduced this "Waste" and siphoning coupled with the leakage of government funds to certain fraudulent individuals. This germane from the fact that all telephone lines are computerize and the excesses of these dubious individuals being put to check.

CHAPTER THREE

3.0 SYSTEM ANALYSIS AND DESIGN

3.1 INTRODUCTION

Systems analysis and design is a process similar to problem solving. The process of system analysis involves a number of procedures that can be applied to any aspect of study.

Design is the whereby the systems analysts applied his/her own judgement, skills and knowledge to interpret the requirement specification that provides detailed documentation of the new system.

For effective design to be accomplished, certain basic factors must be considered: -

(a) Production of desired information at the appropriate time, and amount with an acceptable level of accuracy.

(b) The need to minimise lost and time spent on data preparation and collection.

(c) Effective safeguards for prevention of frauds.

(d) Effective security measures to avoid loss of data store in files.

3.2 PROBLEM VERIFICATION

Certain key questions need to be answer in this process of problem verification in the computer application to public organisation. Such question include thus: -

- What is being done?

- How is it done?

- How frequent does it occur?

- How great is the volume of transaction?

- How well is the task being performed?

- Does a problem exist.

- If a problem exists, how serious is it?

To answer these questions, variety of individuals were talked to, to gather details about the organisation process and their opinions of why things happen as they do and their ideas for changing the process and improvement.

3.3 FEASIBILITY STUDY

The aim of this preliminary investigation was to find out the objectives of the present system and whether these objectives were being achieved. The objectives set accomplishes at this stage were: -

(A) To classify and understand the project request. The guiding question is in this form: -

    i.   What is being done presently?

    ii.   What is required to improve the system

    iii.   What is it needed for?

(B) Determination of the size of the project: - This was necessary so as to estimate the number of people and amount it will require to develop the project. It is therefore necessary to limit the scope to the area office to be able to meet the time schedule.

3.4 TESTING PROJECT FEASIBILITY

For testing project feasibility, the followings have to be undertaken: -

i.   Operational Feasibility

ii.   Technical Feasibility

iii.   Economic Feasibility

1. OPERATIONAL FEASIBILITY: -This is conceived with the workability of the proposed system when developed and installed. There is no complicated problem nor harm the proposed system could cause the user but rather will improve performance.

2. TECHNICAL FEASIBILITY: - This seeks to clarify if the proposed project can be done with current equipment, existing software technology and available personnel.

3. ECONOMIC FEASIBILITY: - This is undertaken to assess the cost of implementing a proposed project vis-à-vis the benefit derived from implementing the project.

3.5   INPUT SPECIFICATION

For computer to perform the task of data processing, data needs to be entered into the system. The input specification states the sources and type of data that needs to be supplied into a system. This is considered important because if the information supplied is correct, it usually follows that the result of processing would also be right. This is in consonance with the popular adage – "Garbage in Garbage out".

3.6   OUTPUT SPECIFICATION

One of the importance features of an information system is the output it produces. The output is essentially about form, types, volume and frequency of reports and documents to be generated.

There are two major forms in which the report will be produced namely: -

1. On the screen and

2. Printed report (Hard copy).

3.7   COSTS AND BENEFITS ANALYSIS

This can be viewed in the area of development and running of the new system.

Costs incurred are usually in the following categories: -

(A) DEVELOPMENT COST

Systems Analysis and Design for 4 weeks at N6,000 per week	24,000 = 00
Software Development	20,000 = 00
4 Personal computer at N120,000 per unit	480,000 = 00
Installation	40,000 = 00
Personnel Training (15staff)	150,000 = 00
3 UPS (250 volts)	210,000 = 00
Printer (Laser Jet 6L)	40,000 = 00
	₦964,000 = 00

2) OPERATING COST

i) Program maintenance	100,000 = 00
ii) Supplies for 1 year	100,000 = 00
iii) Utilities	50,000 = 00
iv) A/C (2HP)	50,000 = 00
v) Equipment maintenance	30,000 = 00
vi) Miscellaneous	50,000 = 00
	₦380,000 = 00

Grand Total   = 1, 344,000 = 00.

3.8   BENEFITS OF THE PROPOSED SYSTEM

1. Avoidance of constant problems in the organisation as being experienced with the existing system.

2. Allow for carrying out major changes in the design of the system since the new system is fully documented.

3. Maintenance of data security.

4. Automatic updating of records and maintenance.

Sorting and arranging of information in various ways can be done easily and quickly.

CHAPTER FOUR

4.0   SYSTEM IMPLEMENTATION

4.1   INTRODUCTION

Implementation involves the coordination of all activities that take place in the various sections of the organisation. System may be entirely new, replacing an existing one, automated or a modification of the existing system

Proper implementation is very important in order to have a reliable system that will meet the organisations needs.

DATABASE MANAGEMENT SYSTEM (DBMS)

A database management system is software that constructs, expands, and maintains the data contained in database. It also provides the interface between the user and the data in summary, extract, report, report on and manage data contained in a database.

A database management system is a software package that helps organisations to:

a) Create and populate a database

b) Retrieve data from the database

c) Generate report from the database

d) Update information in the database

e) Maintain integrity and consistency of data

f) Provide share ability of data to users.

There are various packages that are categorised under DBMS. They include dBase, FoxBASE, Informix, Paradox, Oracle, etc.

Specifically, the new system is developed in dbase. Because of accessibility, the proposed system is developed using the programming aspect of Dbase IV.

4.2 FEATURES OF LANGUAGE CHOSEN

The prominent features of database package are as follows: -

a) Data Integration: - In database processing environment, information from several files is co-ordinated, accessed and operated upon as though it is in a single file. Logically, the information is centralised, while physically, the data may be located in different files. In addition, it is possible for two or more applications to share compatible data.

b) Data Independency: - One important feature of the DBMS is that it ensures data independency because application programs are isolated from the physical storage of data. This feature seeks to allow for changes in the content and organisation of physical data without reprogramming the application program using it, and also to allow for modification of application program without re-organising the physical data.

c) Elimination of Data Redundancy: - Data redundancy occurs when the same data appears in one or more files. This leads to wastage of storage space and application of efforts during data entry. One basic feature of DBMS is that it eliminates data redundancy since data are not duplicated in different files.

4.3 HARDWARE REQUIREMENTS

The proposed system requires the following: -

a) Personal computer 836 main processor

b) RAM 64MB

c) Floppy Disk Drive –3.5/5.25

d) Colour Monitor

e) Laser Jet Printer (6L Model)

f) Stabilizer (1000 KVA)

g) U.P.S. (2000 KVA)

4.4   SOFTWARE REQUIREMENTS

o   MS – DOS 6.0 version

o   WINDOW 95/97 version

o   DBASE IV/FOX.PRO

4.5   FILE CONVERSION/CHANGEOVER

There are basically four methods of changeover procedures: -

1) Parallel Method: - Here the old and new systems are run concurrently, using the same inputs. The outputs are compared and reasons for differences resolved. The outputs from the old system continue to be distributed until the new system has proved satisfactory, after which the old system gives to the new system.

2) Direct Conversion: - Here an entire new system is installed. The old system is completely dismantled, and the new system becomes operational immediately.

3) Phased Conversion: - This is a gradual system of conversion. Here components of the new system are implemented one at a time into the old system, and the old system is phased out piece by piece.

4) Pilot Conversion: - It involves the changing over of part of the system either parallel or directly.

4.6 FILE MENU STRUCTURE

A computer program was designed to implement the operations in public organisations, NITEL as a case study. The major operations of NITEL is divided into major parts namely; ACCOUNTS AND LINE STATUS. The program keeps records of all NITEL lines, keeping tracks of their status and the account of customers owning those lines.

4.7 STARTING THE SYSTEM

To operate system written in DBASE IV, it could be accessed as follows: -

(1) At the DOS prompts Type: -

CD/Dbase IV Press Enter

This is to effect the change of the directory to the Dbase IV directory.

(2) When the following message appears: -

C: dbase IV

Then just type

o DO NITEL Press Enter

The full screen wills appears with messages on how to process the various records and other items of the program.

The main menu enable the users to select within the range listed thus: -

1. Add Records

2. Delete Records

3. Modify Records

4. Operations

5. Report Generation

6. Exit/Quit

The option to choose any of the listed items for processing is optimal to the users. It is indeed a user-friendly package.

1. ADD RECORDS: - The Add record option is used to add new record(s) to the database file. A record consists of data items about a line, e.g. Telephone number, customer's name, line type, customer address, line status, and data acquired. These data-items are entered each time a new record is to be added to the database. The user can add as many records as possible to the database.

2. DELETE RECORDS: - This option is used to remove unwanted records from the database. The user is prompted to supply the telephone number of the record to be deleted and this number is used to locate the record in the database. The user is prompted if he is sure before the record is removed from the database.

3. MODIFY RECORDS: - The modify record option is used to edit already entered records. The user is prompted to enter the telephone number of the record to be modified; the telephone number is then used to locate the record in the database. The record is displayed on the screen and the user is allowed to make amendments.

4. OPERATIONS: - The operations menu is used to select which operation is to be performed. When this option is selected a submenu appears

Operation Menu

Account Status

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The Account option is used to enter the charges and the payments of

customers, while the status option is used to make changes to the status of a line.

5. REPORT GENERATION: -The report generation option is used to produce requests from the program. Two reports can be generated, the account report and the status report.

6. EXIT/QUIT: - The Exit option is used to close the program.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

The continued substitution of computer-based systems for manual procedures has in modern days become a worldwide affair. This is because it is relevant in all aspects of human endeavour. In addition to speedy retrieval of information and security of data, computer operation allows for retrieval of reliable data due to the accuracy of computers.

However, a computerised procedure cannot just be put in place without going through some stages of its development. The analysis of these procedures was examined and the result was considered in the design of the computerised system. Indeed, it is a known fact that the world is in the computer age and any organisation that wants to be relevant in the future need to be computerised. Similarly, a professional without a computer touch will not be considered relevant in the future world.

It is necessary to state that an organisation does not only require to be computerised, if, in addition, demands an efficient operation of the computerised procedures and this is expected to be pursued with the necessary vigour. This is important so that the expected benefit of a computerised system will be fully maximised.

5.1 RECOMMENDATIONS

The specific recommendations to be highlighted in computer application to public organisations are that: -

1. It will enhance the efficient operation of the organisation in order to achieve the desired objectives.

2. It will create speedy procedures for retrieving all relevant information.

3. It would avoid data manipulation due to access to data, as data stored in computer are more secured than manual storage.

4. It would make for savings on staff cost that would have been incurred to meet the rapid growth of the organisation.

5. It will reduce complications that might arise as a result of increase in the organisation's records and vital information.

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```
****************************************************************
* Public Organisation Operation (Case study of NITEL) *
****************************************************************
SET TALK OFF
SET SAFETY OFF
SET SCORE OFF
SET CONFIRM ON
SET ESCAPE ON
SET MESSAGE TO ""
SET DEVICE TO SCREEN
SET STATUS OFF
CLEA ALL
SET COLOR TO GR+, G, G
CLEAR
DO MAINBUD
STOPPER = ' '
DO WHILE STOPPER = ' '
DO DEFIN
DO MAIN
CLEAR
ENDDO
RETURN


PROCEDURE DEFIN
IF ISCOLOR()
    SET COLOR OF BOX TO GR+/BG
    SET COLOR OF NORMAL TO W+/B
    SET COLOR OF HIGHLIGHT TO GR+/BG
    SET COLOR OF MESSAGES TO W+/N
    SET COLOR OF TITLES TO W/B
    SET COLOR OF FIELDS TO I B
    SET COLOR OF INFORMATION TO B/W
ENDIF


SET BORDER TO DOUBLE

*   SET BORDER TO DOUBLE
DEFINE POPUP MAINMENU FROM 1,25
DEFINE BAR 1 OF MAINMENU PROMPT " M A I N   M E N U " SKIP
DEFINE BAR 2 OF MAINMENU PROMPT "====================" SKIP
DEFINE BAR 3 OF MAINMENU PROMPT "ADD RECORD(s)";
    MESSAGE "Addition of record(s) to the database file"
DEFINE BAR 4 OF MAINMENU PROMPT "DELETE RECORD(s)";
    MESSAGE "This option allows deletion of record(s)"
DEFINE BAR 5 OF MAINMENU PROMPT "MODIFY RECORD(s)";
    MESSAGE "This option allows modificatio of record(s)"
DEFINE BAR 6 OF MAINMENU PROMPT "OPERATIONS   ";
    MESSAGE "This option allows you to perform operations"
DEFINE BAR 7 OF MAINMENU PROMPT "REPORT GENERATION";
    MESSAGE "This option allows Generation of reports"
DEFINE BAR 8 OF MAINMENU PROMPT "E X I T ";
    MESSAGE "You want to Shutdown"
ON SELECTION POPUP MAINMENU DO MAIN_PARA

*-----------> Popup for Report
DEFINE POPUP OPPOM FROM 5,45
DEFINE BAR 1 OF OPPOM PROMPT "OPERATION MENU" SKIP
DEFINE BAR 2 OF OPPOM PROMPT "==============" SKIP
DEFINE BAR 3 OF OPPOM PROMPT "ACCOUNT ";
    MESSAGE "Perform operation on customer account "
DEFINE BAR 4 OF OPPOM PROMPT "STATUS ";
```

```
    MESSAGE "Perform operation on line status "
ON SELECTION POPUP OPPOM DO OPPO_PARA


*-----------> Popup for Report
DEFINE POPUP REPOM FROM 6,45
DEFINE BAR 1 OF REPOM PROMPT " REPORT MENU" SKIP
DEFINE BAR 2 OF REPOM PROMPT "============" SKIP
DEFINE BAR 3 OF REPOM PROMPT "ACCOUNT ";
    MESSAGE "Generate report of customer account "
DEFINE BAR 4 OF REPOM PROMPT "STATUS ";
    MESSAGE "Generate report of line status "
ON SELECTION POPUP REPOM DO REPO_PARA


*-----------> Popup for Exit
DEFINE POPUP EXITM FROM 7,45
DEFINE BAR 1 OF EXITM PROMPT " E X I T   M E N U" SKIP
DEFINE BAR 2 OF EXITM PROMPT "===================" SKIP
DEFINE BAR 3 OF EXITM PROMPT "EXIT TO PROMPT";
    MESSAGE "Return to the Dbase Prompt"
DEFINE BAR 4 OF EXITM PROMPT "EXIT TO DOS ";
    MESSAGE "Shutdown and return to DOS"
ON SELECTION POPUP EXITM DO EXIT_PARA



PROCEDURE MAINBUD
* ------------------> This section design the screen
DEFINE WINDOW MAINSC FROM 1,1 TO 22,78 NONE COLOR W+/B
DEFINE WINDOW WORK_IN FROM 7,5 TO 21,75 DOUBLE COLOR W+/B
ACTIVATE WINDOW MAINSC
@0,20 to 3,60 double
@1,25 say "PUBLIC ORGANISATION OPERATIONS" COLOR W+
@2,24 say "(Case Study of NITEL Plc, Abuja)" COLOR W+*
ACTIVATE WINDOW WORK_IN
RETURN

PROCEDURE MAIN
ACTIVATE POPUP MAINMENU
RETURN


PROCEDURE MAIN_PARA
DO CASE
    CASE BAR() = 3
        DO ADDREC
    CASE BAR() = 4
        DO DELREC
    CASE BAR() = 5
        DO MODREC
    CASE BAR() = 6
        ACTIVATE POPUP OPPOM
        DEACTIVATE POPUP
    CASE BAR() = 7
        ACTIVATE POPUP REPOM
        DEACTIVATE POPUP
    CASE BAR() = 8
        ACTIVATE POPUP EXITM
        DEACTIVATE POPUP
ENDCASE
RETURN
```

```
PROCEDURE REPO_PARA
DO CASE
   CASE BAR() = 3
        DO REACC
   CASE BAR() = 4
        DO RESTAT
ENDCASE
RETURN

PROCEDURE OPPO_PARA
DO CASE
   CASE BAR() = 3
        DO OPREC with 1
   CASE BAR() = 4
        DO OPREC with 2
ENDCASE
RETURN

PROCEDURE EXIT_PARA
DO CASE
   CASE BAR() = 3
        STOPPER = 'Q'
        CANCEL
   CASE BAR() = 4
        QUIT
ENDCASE
RETURN

Procedure ADDREC
 store 'Y' to ans
 set stat off
 use nitel
 do while ans ='Y'
  clear
  store space(11) to mtelno
  @1,10 Say "Enter Telephone Number: " get mtelno pict "XXX-9999999"
  read
  locate all for telno = mtelno
  if found()
    @8,20 say 'Record already exist'
  else
  store 0 to mcharges,mpayments,mbalance
  store space (25) to mname
  store space (35) to maddress
  store space (20) to mstatus
  store space(11) to moptype
  store space (10) to mopdate
  store "Normal" to mstatus
   DO GETDATA
   READ
    clear
    append blank
    replace telno with mtelno
    replace name with mname
    replace address with maddress
    replace status with mstatus
    replace payments with mpayments
    replace balance with mbalance
    replace charges with mcharges
    replace optype with moptype
    replace opdate with mopdate
```

```
endif
   @10,10 to 12,50
   store 'N' to ans
   @11,12 say 'Are there more records? (Y/N)' get ans pict '!';
                valid ans $ 'YN' error 'Invalid entry !!!'
   read
enddo
CLEAR
close databases
return


Procedure DELREC
   store 'Y' to ans
   use nitel
   do while ans= 'Y'
     clea
     @2,15 to 4,55
     @3,20 say 'Deletion of record'
   store space(11) to mtelno
   @1,10 Say "Enter Telephone Number: " get mtelno pict "XXX-9999999"
   read
     locate all for  telno = mtelno
     if found()
    @10,10 to 12,50
     store 'N' to reply
    @11,12 say 'Are you sure? (Y/N)' get reply pict '!';
         valid reply $ 'YN' error 'Invalid entry!!!'
     read
     if reply = 'Y'
        dele
        pack
     endif
else
    @8,20 say 'Record does not exist'
    endif
    @10,10 clea to 12,50
    @10,10 to 12,50
    store 'N' to ans
    @11,12 say 'Delete more records? (Y/N)' get ans pict '!'
    read
enddo
CLEAR
close data
return


Procedure MODREC
   use nitel
   store 'Y' to ans
   do while ans = 'Y'
     clea
   store space(11) to mtelno
   @1,10 Say "Enter Telephone Number: " get mtelno pict "XXX-9999999"
   read
     locate all for telno = mtelno
     if found()
     store telno to mtelno
     store name to mname
     store address to maddress
     store status to mstatus
```

```
        store payments to mpayments
        store balance to mbalance
        store charges to mcharges
        store optype to moptype
        store opdate to mopdate
      DO GETDATA
      READ
      clear
        replace telno with mtelno
        replace name with mname
        replace address with maddress
        replace status with mstatus
        replace payments with mpayments
        replace balance with mbalance
        replace charges with mcharges
        replace optype with moptype
        replace opdate with mopdate
  else
      @8,20 say 'Record does not exist'
  endif
      @10,10 to 12,50
      store 'N' to ans
      @11,12 say 'Modify more record? (Y/N)' get ans pict '!';
                valid ans $ 'Y/N' error 'Invalid entry!!!!'
      read
  enddo
  CLEAR
  close databases
  return

  Procedure OPREC
  parameter mmm
    use nitel
    store 'Y' to ans
    do while ans = 'Y'
      clea
    store space(11) to mtelno
    @1,10 Say "Enter Telephone Number: " get mtelno pict "XXX-9999999"
    read
      locate all for telno = mtelno
      if found()
      store payments to mpayments
      store balance to mbalance
      store charges to mcharges
      store status to mstatus
      store 0 to mpay, mcharge
      if mmm = 1
          DO GETDATA2
      else
          DO GETDATA3
      endif
      read
      clear
      mbalance = (mcharges+mcharge) - (mpayments+mpay)
      replace payments with mpayments+mpay
      replace balance with mbalance
      replace charges with mcharges+mcharge
      replace status with mstatus
  else
      @8,20 say 'Record does not exist'
  endif
```

```
      @10,10 to 12,50
      store 'N' to ans
      @11,12 say 'Operate more record(s)? (Y/N)' get ans pict '!';
              valid ans $ 'Y/N' error 'Invalid entry!!!'
      read
enddo
CLEAR
close databases
return



Procedure REACC
define window user from 1,1 to 22,78 none color W+,B
activate window user
set stat off
set alternate to 'nitel1.out'
set device to screen
      set alternate on
      set space on
      DO HEADING with 2
      use nitel
      go top
      ct = 1
do while .not. eof()
   ? '|',str(ct,2),'|',telno,'|',name,'|',optype,'|'
   ?? opdate,'|',charges,'|',payments,'|',balance,'|'
   ct = ct + 1
   ? replicate .('-',116)
   skip
enddo
set alternate off
wait
close data
deactivate window user
return

Procedure RESTAT
define window user from 1,1 to 22,78 none color W+,B
activate window user
set stat off
set alternate to 'nitel2.out'
set device to screen
      set alternate on
      set space on
      DO HEADING with 1
      use nitel
      go top
      ct = 1
do while .not. eof()
   ? '|',str(ct,2),'|',telno,'|',name,'|',optype,'|'
   ?? opdate,'|',status,'|'
   ct = ct + 1
   ? replicate ('-',92)
   skip
enddo
set alternate off
wait
close data
deactivate window user
return
```

```
PROCEDURE GETDATA
CLEAR
@ 3,5 SAY "Telephone Number :" + Mtelno
@ 5,5 SAY  "Name     : " GET Mname PICT "@!"
@ 5,45 SAY "Line Type : " GET Moptype PICT "@M Individual,Company";
      MESSAGE "Press SPACE to view options and RETURN to select"
@ 7,5 SAY  "Address : " GET Maddress PICT "@!"
@ 9,5 SAY  "Line Status    :" GET Mstatus PICT "@M Normal,Tossed,Faulty,;
         Under-repair,Out-of-Service";
      MESSAGE "Press SPACE to view options and RETURN to select"
@11,5 SAY  "Date Acquired :" GET Mopdate PICT "@!"
RETURN


PROCEDURE GETDATA2
CLEAR
@ 3,5 SAY "Telephone Number : " + Mtelno
@ 5,5 SAY "Charges So Far   : " + str(mcharges,12,2)
@ 7,5 SAY "Payments So Far  : " + str(mpayments,12,2)
@ 9,5 SAY "Balance          : " + str(mbalance,12,2)
@ 11,5 SAY "New Charges  : " GET Mcharge PICT "9999999.99"
@ 11,40 SAY "New Payment  : " GET Mpay PICT "9999999.99"
RETURN


PROCEDURE GETDATA3
CLEAR
@ 3,5 SAY "Telephone Number : " + Mtelno
@ 7,5 SAY  "Line Status    :" GET Mstatus PICT "@M Normal,Tossed,Faulty,;
            Under repair,Out of Service";
      MESSAGE "Press SPACE to view options and RETURN to select"
RETURN


PROCEDURE HEADING
PARAMETER LL
IF LL = 1
? space(23),"****************************************************"
? space(23),"*  NIGERIAN TELECOMMUNICATION PLC, ABUJA  *"
? space(23),"****************************************************"
?
?
? space(33),"*************************"
? space(33),"*  LINE STATUS REPORT  *"
? space(33),"*************************"
?
? REPLICATE("*",92)
? "*    *   TELEPHONE  *                        *              *   DATE
*              *"
? "* SN *   NUMBER    *          NAME           *  LINE TYPE  *
ACQUIRED  *   LINE STATUS   *"
? REPLICATE("*",92)
ENDIF
IF LL = 2
? space(31),"*********************************************"
? space(31),"*  NIGERIAN TELECOMMUNICATION PLC, ABUJA  *"
? space(31),"*********************************************"
?
?
? space(41),"***********************"
? space(41),"* LINE ACCOUNT REPORT *"
? space(41),"***********************"
?
? REPLICATE("*",116)
```

```
? "*     *   TELEPHONE   *                              *                   *    DATE
*              *                  *              *"
? "* SN *    NUMBER    *              NAME              *   LINE TYPE  *
ACQUIRED  *   CHARGES   *  PAYMENT   *    BALANCE    *"
? REPLICATE("*",116)
ENDIF
RETURN
```

```
************************************************
*   NIGERIAN TELECOMMUNICATION PLC, ABUJA   *
************************************************


************************
* LINE ACCOUNT REPORT *
************************
```

SN	TELEPHONE NUMBER	NAME	LINE TYPE	DATE ACQUIRED	CHARGES	PAYMENT	BALANCE
1	09-244444	JOSHUA BABALADE	Company	10/12/1999	8133.00	5711.00	2422.00
2	09-673444	KOLUNDE UDARI	Individual	02/05/1994	23244.00	5556.00	17688.00
3	09-244521	YAHAYA DAUDA	Individual	04/11/1997	8700.00	7560.00	1140.00
4	09-235567	LIMAN DANBAUCHI	Company	09/09/1989	0.00	0.00	0.00
5	09-233324	HELENA KLUBER	Company	10/02/1999	25899.00	22790.00	3109.00
6	09-231112	JAMES OLUWOLE	Individual	10/10/1998	7800.00	6200.00	1600.00
7	09-233221	ABRAHAM OGO	Company	03/04/1999	57577.00	57122.00	455.00

```
*****************************************
*  NIGERIAN TELECOMMUNICATION PLC, ABUJA  *
*****************************************


*************************
*  LINE STATUS REPORT  *
*************************
```

SN	TELEPHONE NUMBER	NAME	LINE TYPE	DATE ACQUIRED	LINE STATUS
1	09-244444	JOSHUA BABALADE	Company	10/12/1999	Normal
2	09-673444	KOLUNDE UDARI	Individual	02/05/1994	Tossed
3	09-244521	YAHAYA DAUDA	Individual	04/11/1997	Out-of-Service
4	09-235567	LIMAN DANBAUCHI	Company	09/09/1989	Faulty
5	09-233324	HELENA KLUBER	Company	10/02/1999	Normal
6	09-231112	JAMES OLUWOLE	Individual	10/10/1998	Normal
7	09-233221	ABRAHAM OGO	Company	03/04/1999	Normal