

## Design and Implementation of computerized child information system

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### ABSTRACT

This project was centered on computerized child care information system. The current process of keeping of child care information records is being operated manually and due to this procedure numerous problem are been encountered. A design was taken to computerized the manual process in order to check this problem. The problems were identified after series of interviews and examination of documents after which analysis was made and a computerized procedure recommended. This project will also suggest how to successfully implement the computerized procedure and to overcome the obstacle that would hinder the successful implementation of the system. The new system was designed using Microsoft visual basic 6.0 programming language. This language was chosen because of its easy syntax and features for developing windows based applications.

## I. INTRODUCTION

### 1.1 BACKGROUND OF THE STUDY

Children are heritage of the cord and the fruit of the womb is his reward. As arrows are in the hands of the mighty man, so are children of the youth happy is the man that hath his quiver full of them (ps127:3-5) that the African child occupies a strategic position in the family and in the society and in the nation is not an over statement and cannot be underplayed. The child is considered as the life. Wire of the family and the society at large to the extent that any couple that is not blessed with a child is looked upon with pity and sometimes sympathized with.

There is the need to know who is a child and what is child care.

In traditional and even contemporary African, various ethnic groups have different concepts of who is a child while some ethnic

groups see one one as a child in so far as she can contribute to the development of the society some other see it in terms of one who has not yet attained the age of initiation into the age grade. Sven in contemporary Nigeria for examples Olukoshi etal (1990) posited that.

There is not one acceptable age, which is considered as a worthy definition of the upper limit of child hood. The age at which a child can become capable in law for his actions or her actions the age at which childhood begins in terms of the right to vote and be voted for and the age considered by the federal ministry of youth and culture and education as being the upper limit of childhood different. Even internationally there are divergent definitions as to who is a child. Where as the international labour organization and the united nations population division refers to a child as those below 18year of age the 1989 convention on the right of the child states that a child means every human being below the age of 18year. Even though there

are divergent opinions and views as to what is the age limit of child it is the views of this author that a child is anybody between birth to completion of physiologically/psychological and physical development. In order words anybody between ages zero of his/her birth to 18years is a child.

Child care in the other hand is a kind of human acts that jeopardizes the physical psychological and the featuring of the child either intentionally or unintentionally child care is characterized on the continuum by sexual care (either cast agreed or by agreement)

Child labour

Child smart

Child self control

Child honest

Child dependable

Child efficient respectable

Child not as breadwinner

Child not starving away from home

Providing a child with food and shelter

Giving of educational right to a child

Giving medical assertion of a child

Avoiding abandonment of a child

Avoiding child slavery abandonment of a child

Avoiding child slavery.

Child care is connoted acts of giving basic needs right and deeds of child by parents/guardians, which will pair the well being of a child. Caring can also take the form of adequate provision of resources for the welfare of the child both now and in future. Also they do not encounter problem of misplacement of vital information or records as a result of services not being available or rendered when needed duplications of effort due to inconsistency in activities and time that is taken in search of file when it is required for processing.

## 1.2 STATEMENT OF THE PROBLEM

In every organization there are numerous problems that they encounter. An organization like UNICEF encounter problem in their area of documentation which includes misplacement of vital information or cases as a result of the services that are available or rendered when it is needed duplications of effort due to inconsistency in activities and a lot of time is taken in search of file or reported cases when it is needed for processing.

It is actually this problem that is discovered that promoted for the design and implementation of a comprised child care information system to enable the organization to work more effectively

## 1.3 PURPOSE OF STUDY

The purpose of this study is to design and implement a system that will eliminate the above listed problems, as misplacement of important reported cases documents and records duplications of effort and a lot of time that is required or taken when searching an processing of cases and files.

## 1.4 AIMS AND OBJECTIVES

The aims and objectives of the project is to study how the organization (UNICEF) operational aims and other activities are performed.

It aimed at detecting problems that pose obstacle with a view of modifying the operations and developing a new computerized system that will be more efficient and accurate such as:

In the area of misplacement of vital documents a computer will be used to record store and retrieval of large volume of documents. Which will reduce the duplications of efforts due to inconsistency

in activities and time that is taken in search of file when it is required for processing

### 1.5 DELIMITATION/ SCOPE OF THE STUDY

This study is specifically concerned with the computerized child care and carrying of the Enugu information centre of UNICEF. Although a lot of activities are being performed by this centre. This work is therefore concerned with childcare and caring manipulation of both the care and reporter of a case.

### 1.6 LIMITATION OF THE STUDY

One to lack of time and resources the study is limited to certain area concerned with only gathering of cases on clients and personnel records and processing them using a computer.

### 1.7 ASSUMPTION

Apparently before I started this works I assumed a successful completion by division grace of God and the cooperation of workers of UNICEF in supplying me with date/information needed for the successful completion of this project.

In terms of material resources monetary and personnel resources the researcher had me up with them. In fact it is believed that facts are valid.

### 1.8 DEFINITION OF TERMS

**A child:** A child means every human being below the age of 18 years unless under the law applicable to the child majority is attained

**Childcare:** That is any kind of human act that jeopardizes the physical psychological and the futurity of the child either intentionally or intentionally.

**Child caring:** This connote the act of giving basic needs rights and deals of the child by parents/ guardians peer and government and cultural community which will pair the well being of a child. Caring can also take the form of adequate provision of resources for the welfare of the child both now in future

**Flowchart:** This is the graphical representation of the logical step and sequence involved in a procedure are program.

**Date:** This can be defined as groups of non-random symbols (words value figures) which represent things that have happened.

**Information:** This is the resource that enables the collection management control and dissemination of information throughout an organization.

**Monitoring:** This is to keep watch and see who denies children the rights and take the necessary steps to stop this.

## II. LITERATURE REVIEW

Computerization is the process of building a new system upon a computer technology for input, output, processing and storing. Computer entirely replaces the manual system that is using only paper and pencil for processing.

In Barba D.L.A (1979) in his contribution says that computerization does not only involve computer technology consisting to only hardware and software but also the communication link, that is it establishes the link for data communication devices to interact and share data as well as transferring data/information from one location to another. Besides, computers can be used for keeping records and these records are always available whenever they are needed and the need of carrying office file from one place to another is eliminated

and in most cases some document may get lost or be tampered with the transmit.

Davies D.W (1979) state that computers have replaced manual technology because of its ability to process large volume of data or even handle complex work (processing cap ability) at a very high speed. It gives out accurate result at each time except when it is fed with incorrect data, Garbage-in-garbage-out. Hence, the need for computerization is certified.

In Federal Medical Centre Owerri, computerization help to keep accurate patients records in which case one can call up a patients record to find out necessary information about the patient when needed. This also helps to reduce redundancy in collecting patient's record and also eliminate the problem of missing of some patients files.

Also French CS. (1996) states that a file is a document stored in the computer individually by name and is organized in a particular way with a well defined structure consisting of a collection of records each of which are made up of files.

Henry C.L. (commented that a typical organization has a large number of files, many of which may be stored on a computer device. We call these data machine readable because one can use computer to process them. Paper files on the other hand are much less accessible. A large organization related file as part of a database.

French C.S also defined a database as a single organization collection of structured data stored with a minimum of

duplication of data items so as to provide a consistent users of the system but is independent of programs that use the data. Databases are normally set up in order to meet the information needs of major parts of an organization. It is not possible to construct a database in a single operation; it is usually built up section. During this process it is possible to:

- Add new "files" of data.
- Add new fields to record already present in the base.
- Create relationship between the items of data.

A database requires being stored on large capacity direct access devices. The usual medium is the magnetic disk. For security purposes a copy of the database may be held on magnetic tape or disk. Like in ANC clinic and general out-patients departments, patient's data may be duplicated, it is important to realize the duplication are minimized and controlled. This is referred to as controlled redundancy.

Although to the user, the database may appear as a collection of files, data in database is organized in a more complex way than data in conventional files. Database may be classified according to the approach taken to database organization. The classes are relational, network, hierarchical and file inversions. But this project work discusses more on relational database (information system) that is it users, types of table called relations.

Data description must be standardized for this reasons a data description language (D.D.L) is provided which must be compared to the declarations and processing statement in a compared to

the declarations and processing statement in a conventional programming language.

Since complex files are processed in the database, a complex software system called database management system is required for construct, expands and maintain the database. It provides the controlled interface between the user and the data in the database. The DBMS allocated storage of data.

It maintains indices so that any required data can be retrieved and so that separate items of data in the database can be cross-referenced. The DBMS provides facilities for different types of file processing such as process a complete file (serially or sequentially) process required records (selective sequential or random) and retrieved individual records. It has the function of providing security for the data in the database.

Kent (1983), present a set of guiding to make NORMALIZATION more intensive. Firstly, normal form requires that all occurrence of a record type contain the same number of fields. As a result of record cannot contain a repeating group. Second normal forms require the design to examine the relationship between key field and other field in the record. In general, normalization creates a database in which there is minimum redundancy of data and risk of demanding the database through updating is minimized.

Most computerized systems cannot accept data informs customary to human communication such as speech or hand written documents. It is necessary therefore to present data to the computer in a way that provides easily conversion into its own electronic pulse based form. This is

commonly achieved by typing the data into keyboard devices that convert it into machine sensible forms. Data finally enters storage.

Grawhill M.C draw a distinction between data and information. By using the description information storage and retrieval rather that storage and retrieval that emphasis is firmly place upon something meaningful to a user rather than upon he technicalities of storage. He also stressed that the more the meaning that was to be represented and stored, the more complex the storage organization and structure must be. As records are stored in these system their contents are automatically indexed by the software. Subsequently, the use may be able to find every instance of selected record very quickly.

A generally conclusion drawn from this is that, the provision of suitable information and storage retrieval. In a manner suited to the kind of data and to the information needs of the user or organization. Also, the data to be processed by the computer must be collected. The process of data collection then involves getting the original data converting it from one medium to another and finally getting it into the computer.

Abudullahi, J.I defines data collection as the process involved in getting the data from its points of original collection starts at the services of raw data and ends when valid data is within the computer in a form ready for processing. The process of data collections may involve any number of the following depending on the method used which includes the following:

- \* Data creation.
- \* Transmission of data.
- \* Data preparation.
- \* Possible conversion from one medium to another.
- \* Input of data to the computer from validation.
- \* Sorting
- \* Control-all stages must be controlled

Also in processing the patient's record, data control measures should be involved. The following such as:

- Manual controls
- Data collection controls
- Validation checks

Batch controls to ensure that all data is processed preserve the integrity of maintained data, delete, correct and reprocess all error.

### III. RESEARCH METHODOLOGY

Research is an investigation in order to discover new factors through planning and systematic collection analysis and interpretation of data, where as particular task, therefore, research methodology is a detailed description of what the researcher planned and procedure adopted in gathering new facts relevant to the project work.

It is therefore an established fact that without data, there can be no analysis. This is the crux of social science research. Data can be defined simply as basic facts an figure mostly numeric in nature, resulting from business economic and social activities of man.

### 3.1 METHOD OF DATA COLLECTION

In the course of this project, the following outlines the method of data collection used.

- Primary method
- Secondary method

#### 3.1.1 PRIMARY METHOD

The questionnaire and the direct observation methods

#### THE QUESTIONNAIRE METHOD

I sent questionnaire and appeal to the health care organization and some international bodies responsible for child care. Test examination and records all in respect to this project work. Among other, the questionnaire was aimed at getting data about.

- \* The goal and objective of child care.
- \* The organizational structure of UNICEF
- \* Inputs, outputs and process forms used for children records.
- \* Finally to ascertain if computerization can be a way out of their inherent problem.

Besides thorough care was exercised to structure questions based on these aims so as to ensure that the questionnaire is developed effectively and efficiently as to:

- Achieve the objective of the system under study.
- Get the maximum information in the minimum time.

## **OBSERVATION**

Some facts were also recorded through my observation of some activities carried out on children care record in the organization.

### **3.1.2 SECONDARY METHOD (OTHER METHOD)**

Other method we used in data collection as stated was deductions from the children care record and hand book or cards in the organization.

### **3.2 PROCESS/INFORMATION FLOW ANALYSIS**

The highest profile from which information flows and are processed is “The admission while the lowest is “the children” in between this terminals are several department whose functions are definitely instrumental to the effective and efficiency processing as well as circulations of data. As you go from down (children level) to up (admission) facts and figures are passed in form of data while as you descend from highest to lowest, facts and figures are passed on as information. Below shows the trend of process information flow analysis of children’s record in the organization.

### **MANUAL LIMITATION**

Many processes demands high mental exercise and care which if not properly carried out might cause errors in the records due to complexities of the processing.

### **MISSING ITEM**

Most time children data records or even files are out of place. This can be caused by carefulness, oversight, overstress by any of such unpredictable factors.

## **TIMELINESS**

Despite the high staff turnover, information is not usually prepared on time. Comprehensive laboratory result sheet, statement of laboratory result reference list etc. are usually never ready at the appropriate time.

## **POOR SECURITY**

There is no enough security to keep data from unauthorized instruction. This means that in critical cases, records can be altered without due formalities.

## **UP-DATE IS DIFFICULT**

Due to records can only be searched out by going through file shelves, it becomes more tedious as opposed to glance some data which are operations, but mishandled the following are the inputs patients Name(surname), other Names, lab. No, provisional diagnosis, department, clinical details, investigation required, Nature of specimen, Doctor’s sign, sex , Age, Date, Health Institution etc.

### **3.4 JUSTIFICATION OF NEW SYSTEM**

The initial problem of the existing system as outlined above hinders efficiency in the Health Institutions and reduces effectiveness in data processing. That notwithstanding, initially changes and other crucial analysis require lots of labour and mathematical calculation perhaps quite numerous and complex.

A computer is known for its capability to perform complex and routine function satisfactory, notably difficult for man. Computerization therefore offers the benefits of cost and labour effectiveness, for this institution (UNICEF) in her

meeting up with challenges of modern data pressing. This has greatly motivated the design of this new system. Objectively, the system will provide computer based tools and designs, suitable and social technically, acceptable for the COMPUTERIZED CHILD CARE INFORMATION SYSTEM.

### 3.5 INPUT AND OUTPUT DESIGN

Data fed into the system tell more about the output desired for this project, the user shall input data via the keyboard, initialize command via the keyboard or with the aid of a backing storage. Then the output processed can be accessed from the VDU, floppy disk or store in the system database, the following describes the data design for the new system.

#### INPUT DATA (DESIGN)

DATA ITEM	DATA TYPE	FIELD WIDTH
Case Year	String	20
Case Name	String	15
Country	Integer	10
Region	String	15
Number of children Affected	String	13
Number of children not affected	String	15

#### OUTPUT DESIGN FOLLOWING

DATA ITEM	DATA TYPE	FIELD WIDTH
Report on children affected	String	25

Lab. No	String	10
Children ward	String	11
Investigation required	String	15
Department	String	16

### 3.6 FILE DESIGN

File are sets of records which must be retained over a number of operational cycles of the system, because of the volume of information that computer holds in storage-keeping where other storage tools are limited. Filing is adopted to hold records in this case. Specially, random are used in this project. The file structure.

#### REFERENCE FILE

RECORD ATTRIBUTE	DATA TYPE	FIELD WIDTH
Child Name (Surname)	String	20
Other names	String	15
Lab. No	Integer	10
Department	String	15
Provisional Diagnosis	String	14
Investigation required	String	13
Nature of specimen	String	14
Clinic details	String	15

### Child FILE

RECORD ATTRIBUTE	DATA TYPE	FIELD WIDTH
Child name (Surname)	String	26
Other name	String	16
Lab. No	Integer	10
Provisional Diagnosis	String	15

### PROGRAM IMPLEMENTATION

To affect a changeover into the new system, the health institution should adopt (chapter 3) steps as was discussed, to prepare the ground for the implementation and other factors which includes:

### STAFF TRAINING

With the help the program flowchart (item 4.2) the of algorithm (4.1) and system chart (3.9) staff can be wonderfully equip to use this application.

### PROGRAMMING

Though this application has been exhaustively tested to meet the user requirements. I the programmer is ready to render directives in the course of implementation.

### SYSTEM TESTING

The system has been tested on the basis of program flow and procedure flow. The information from the indexes proves the success so far. Files have also been converted to meet the user requirement as in the former system.

### CHANGE OVER

I recommend parallel conversion for this system. This is because, since the old system has been manually based, this

new one needs to be gradually absorbed before phasing out to avoid uncertainties.

### DOCUMENTATION/USER GUIDE

This system is developed in Visual Basic programming language (object Oriented). In this project, both the elementary and advanced features of VB programming language are extensively utilized to achieve the system goal. Visual Basic makes it possible to enter data in user readable form. After processing the user can get the output either in form of softcopy or hardcopy.

### Hardware and software requirement

Made simple enough, the program has been designed in order to enable the user execute on any machine with minimum hardware requirement. This is evident by the fact that its size is considerably small and it can be run even with a system which has a memory of less than 40MB. It can be run on both a standalone system as well as networked systems.

The program, though it is designed with visual Basic tools, does not require this compiler to be installed in the user's machine. But for the back end processing, it may require at least, Ms Access 2000 or higher version to be installed since the database will be stored in that format.

### USER GUIDE

The user can run application as

- Power on the computer system (booting)
- After a successful booting, load the visual basic interpreter.
- Insert the disk containing the program

- At Visual Basic environment, open the disk and double click on the program icon, this will automatically load the program into memory and display the program.
- Press from the keyboard to run the program or click RUN MENU to display list of option, click or “START” to run the program.

#### IV. SUMMARY:

According to my project topic, it is justified that computer can be adopted process data related to CHILDREN CARE RECORD.

The health institution “UNICEF” facing several approaches needs a development of this hospital that can automatically prepare.

- statement of result
- Comprehensive lab. Result sheet or list
- patient doctors report
- And as well offers accurate/effective
- Health care services or treatment system
- Maintaining security system.
- Filling /access system
- Updating /maintaining system for patients medical records (detection, update and insertion operation)
- Records outputs in the form of soft copies and hard copies with respect to achieving these outline above, the project narrows concentration down to the patients.

#### V. CONCLUSION

Computerization at large is ideal and effective towards solving this day data processing problems with indent analysis of vast activities of computerization covered

in this project, despite the limited time frame, the institution can discover it an easy task, processing patient records.

#### RECOMMENDATION

Therefore, computerization should be used in running the daily activities of data processing (as per children records) in UNITED NATION INTERNATIONAL CHILDREN EMERGENCY FUND. In this order I recommend this new system to UNICEF to be used in keeping CHILDREN RECORDS.

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