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A DECISION SUPPORT PACKAGE FOR LOCAL GOVERNMENT ADMINISTRATORS

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ABSTRACT

The paper designs and describes the operational characteristics of a software package which can be used to enhance the efficiency and productivity of Local Government administrators. It focuses on the Local Government functions, namely revenue generation, primary education and works services. The design and implementation procedures of the package are presented. The result shows list of teacher's promoted, those retired and the effective dates of their promotions and retirement, amount of revenue generated and the roads under construction through direct labour and under contract with contractors names and addresses.

KEY WORDS: Decision support, decision making, education, revenue generation, works services.

INTRODUCTION

In the past decade, innovations in information and communication technologies have fundamentally changed the way individuals, businesses and governments conduct their daily activities Snakeye Designs (2003). Consequently, the world itself is changing. The integration of capital, technology and information across national boundaries into portable digital knowledge ware has created a new global environment where markets and risks are inextricably linked Snakeye Designs (2003). To survive and thrive in this complex and rapidly evolving world, organizations (and indeed all decision-making units in an economy, individual household, governments and businesses) must make an effective transition into the digital age and develop the capability to deploy information and communication technologies(ICT) effectively rather than being overwhelmed Snakeye Designs (2003).

Decision Support System (DSS) has become an important computer based tool for supporting user decisions. Local governments were created to provide and deliver services to various communities within their respective jurisdictions. Decision-making in local governments, just like any other organizational set-up, has its problems requiring decisions which are not routine but which require further insight and judgement regarding the specific conditions of each problem. The solution of these decision problems will be aided and guided by appropriate information derived from a comprehensive data base.

The objective of a local government information system is to facilitate effective analysis and solution of specific problems by supporting human decision makers. A DSS therefore describes a system that supports, but does not replace decision making activities. This system depends on information management and data processing. This enables both rapid and accurate decisions to be taken on problems of an organization.

The design of a DSS depends on the needs of the individual organization. This is mainly because the individual organization's problems are specific and therefore, the basic methodology for development, use and management of DSS differ depending on the organization. For instance, some modern DSS provide decision support for assisting accounting and financial managers. Many have been developed for finance and marketing while others are specific to an industry. We want to develop a DSS for the local government administrators. Local government has become an important third tier of government in Nigeria. They have been saddled with a number of important functions and responsibilities necessitating taking important decisions and planning for effective performance.

PROJECT DEFINITION

This paper concentrates on DSS to aid the local government chairmen and administrators on the decision making concerning the problems of local governments with respect to staff strength, vacancies, revenue collection, education and works services but it can be expanded to cover more areas. Unfortunately, a DSS package has not been introduced in local government administration in Nigeria. Considering the roles the local government are supposed to assume, which may increase with the recent proposed reforms, it is necessary that a DSS be introduced to help in their decision making.

In summary, the study tries to provide local government administrators with key information products which will:

a) facilitate their decision making process
b) improve their efficiency in terms of speed of decision making and cost reduction. Administrators would naturally be inhibited by delayed actions thereby increasing performance cost.

DESIGN CONSIDERATIONS

To formulate a generalized design framework

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for a DSS one has to follow the evolution of design systems that support managers to solve problems in the B_3 x Z set, where B_3 is the set of problems at the strategic planning level and Z is the set of all problems (Sprague 1980) . In the literature, Alter (1977) surveys different DSS and classifies them into two categories: data-orientated and model-orientated systems. Data-orientated systems provide functions for data retrieval analysis and presentation. Model oriented systems on the other hand, provide accounting, simulation and optimization models. Carlson (1979) argues that the decision makers need not have trouble describing a decision process and feels that a DSS should not require a decision maker to describe the decision making process before the system is built. However, the complex nature of problems encountered by DSS users demand some types of analysis and modeling tools. To support this assertion, Sprague and Carlson (1982) advocate the need of modeling tools in a DSS. Sprague (1987) describes the broad context in which the relevance of DSS can be assessed. DSS, he argues, deals with a class of information handling activities that are goal or problem driven rather than procedure driven. With this foundation, DSS are portrayed as systems resulting from the convergence of an evolution in data processing development and an evolution in modeling efforts and techniques.

According to Patel (1989) the significance of DSS lies in blending together of three approaches to management decision making. The three approaches are:

- Computer-based approach. Patel summarized the approach thus: 'the computer expert is given the necessary support to indicate priorities and to control the process of providing automated procedures to alleviate problems. The user is peripheral to the needs of the data processing department and acts as a problem object to computer expert'
- The management science/operations research approach. This approach focuses on making mathematical models to find optimum decision.
- The behavioural science approach: This focuses on human judgement and intuition. As Patel puts it, 'The user is the centre of the system. The user is given the necessary support to indicate priorities and to begin the process of providing automated procedures to alleviate problems. The computer expert is the peripheral and acts as a counsel and support to the user.'

Although the above works can be done generally for industries we are interested in developing a DSS for the local governments. We are aware that local

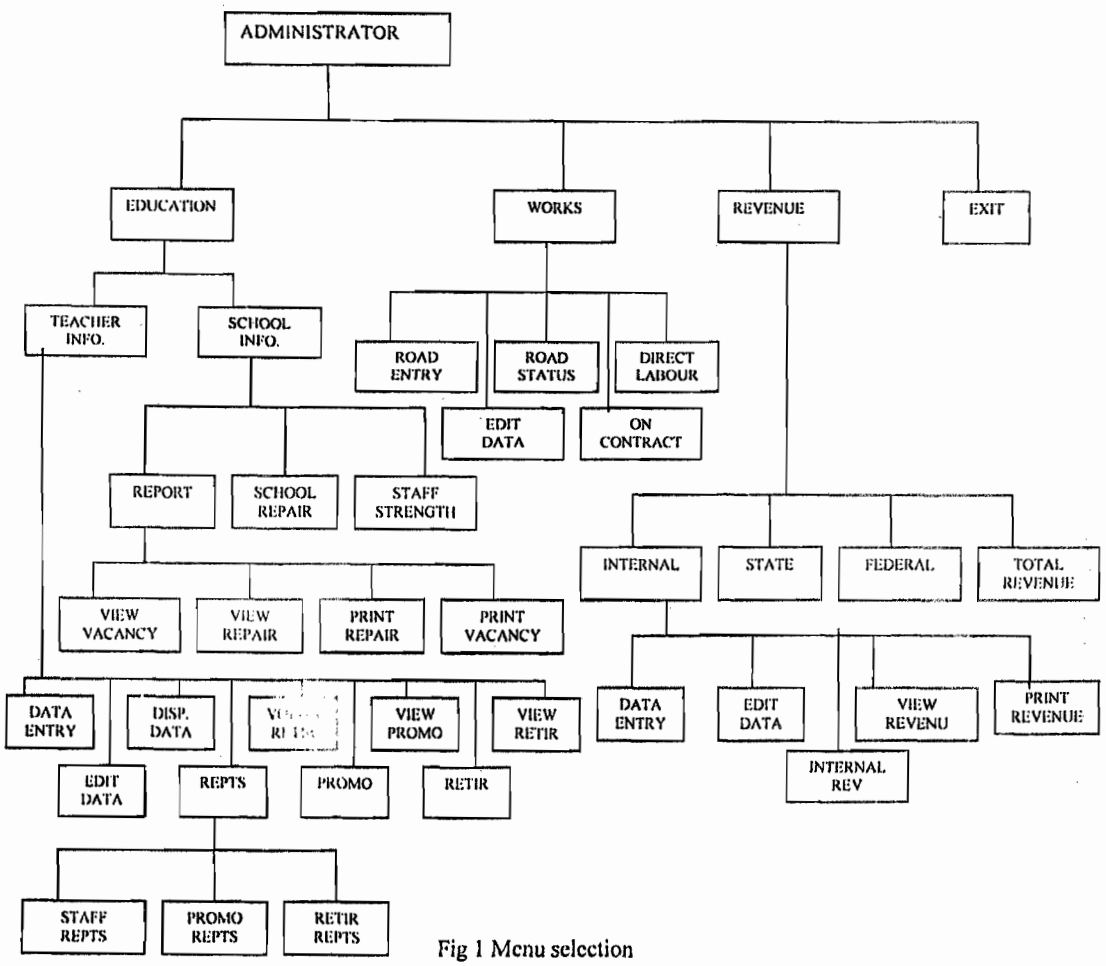
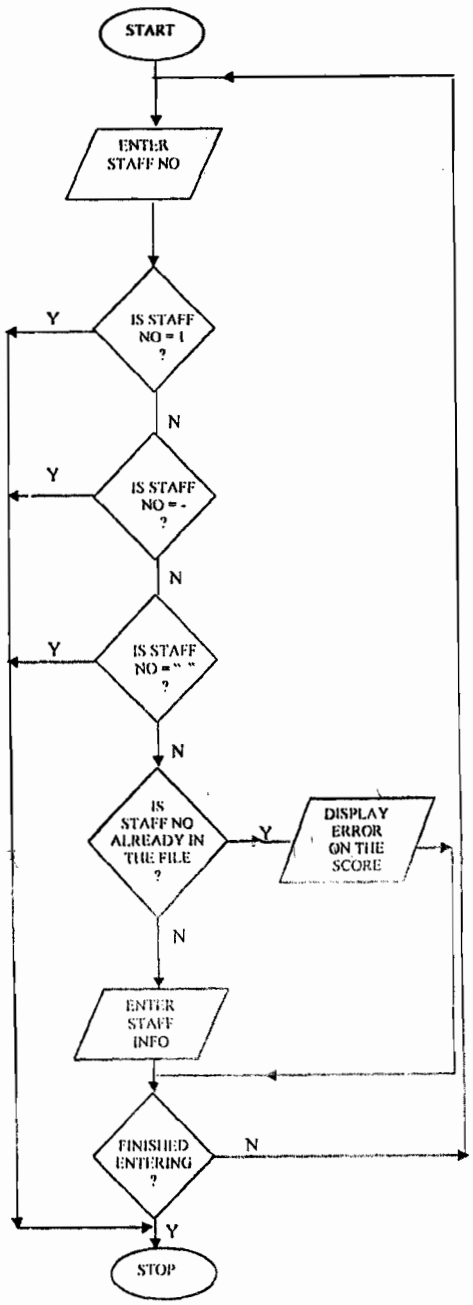


Fig 1 Menu selection

FLOWCHART FOR DATA ENTRY



FLOWCHART FOR PROMOTION DATA

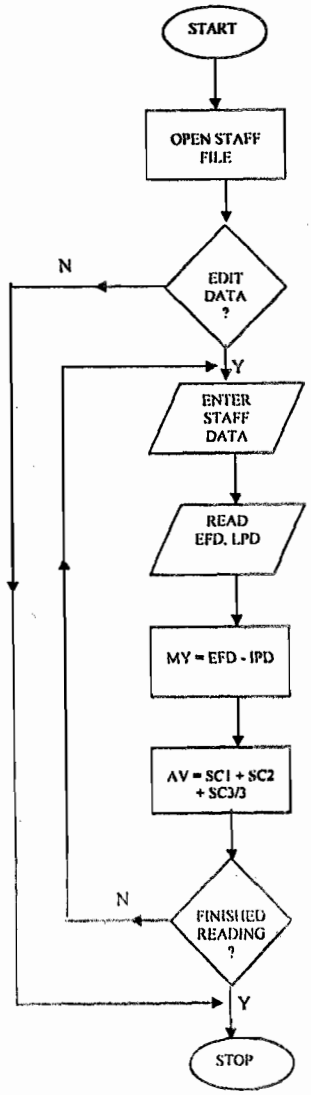


Fig. 2

governments were created to deliver different kinds of services to the community from that of industries. Some of the problems in the local government require decisions which are not routine. Rather they require the professional insight and judgement of human decision makers who consider the specific condition of each problem. Although much work has not been carried out in this area, we hope that this study will be a contribution to the development of DSS in other organization that may not be classified as industries.

DESIGN PROCEDURE

The design of this package concerns the different sections in the LGA in which the administrators are bound to take crucial decisions. The job specifications of each section are used in the design to reflect several different areas.

The detailed procedures for the design of each section are presented starting from the menu design to the real program writing. This provides a list of options for the different functions. The overall systems have subsections. These subsections are also divided into different functions. The program at the highest level is a simple process that guides the user to the lower level functioning. Each section has its own program which organizes the files needed in that section.

- **System study**

The sample local governments involved in this study are local governments in Nsukka and environs. The local government council is divided into sections and each section is headed by an administrator who is directly in charge of the day to day running of the section. The chairman of local government bears the responsibility of the overall performance of the council.

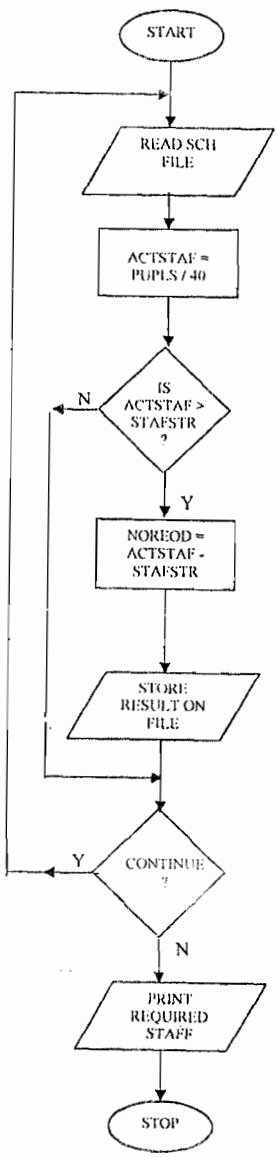
- **Data Collection/Input – Output Design**

Data was collected through personal interviews with the chairmen/administrators of the different sections to find out their specific duties and the type of outputs needed. Secondary data was also got through the forms used by the different sections of the local government.

Figure 1 shows the block diagram for the menu design. Options available on the menu list are displayed on the screen and the user chooses the needed option. For each selection made there may be other series of the options from which to choose depending on the type of information needed. For example, taking the Education option, it has another pull-down menu attached to it. This gives Teacher Information and School Information. When Teacher Information is chosen again, it gives other series of options as shown in Figure 1. The same applies to any other option chosen. Similarly, Revenue and Works options in the main menu have the same structure as Education option.

The programs operate on a number of files – staff file, promotion file, retirement file, revenue file and works file. All the files are direct access files. For example, the staff file contains information on all the teachers in a local government. Some of the fields in the

FLOWCHART FOR STAFF STRENGTH



FLOWCHART FOR SCHOOL REPAIR

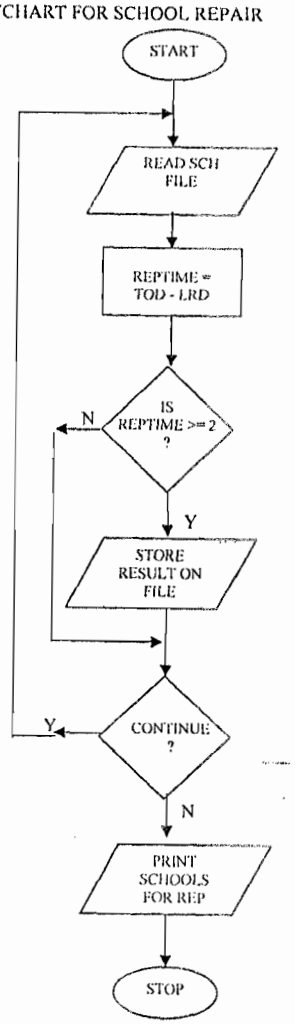


Fig. 3

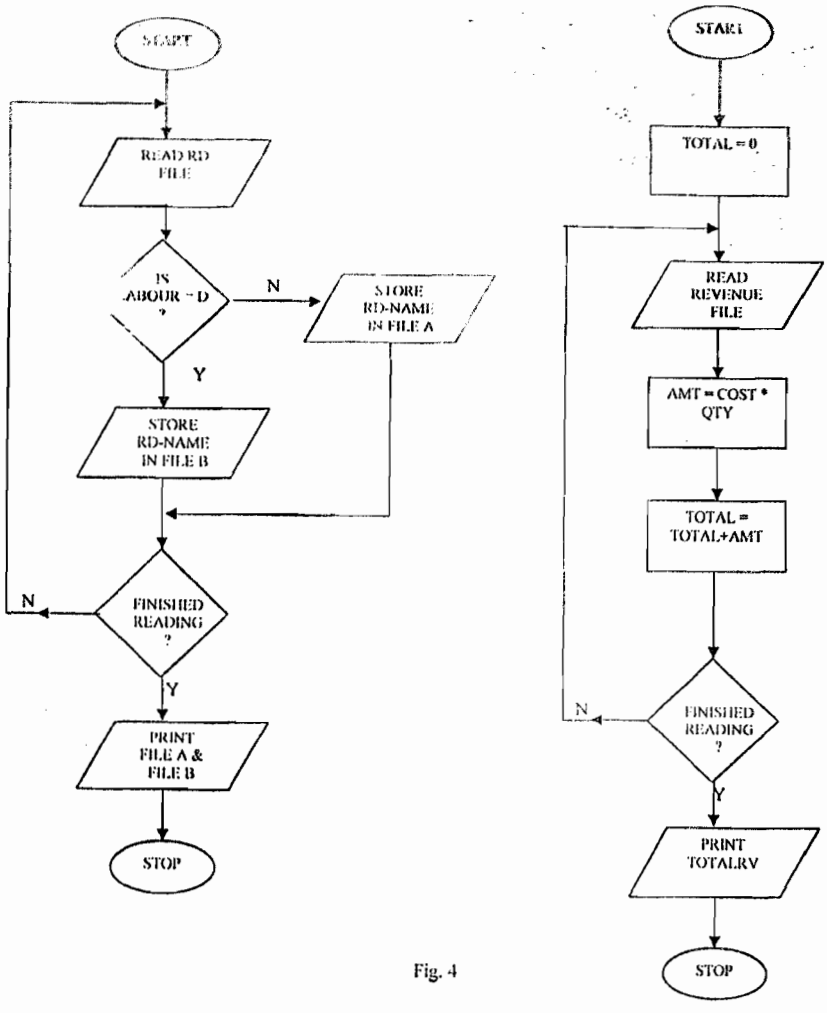


Fig. 4

record of this file include: teacher number, school identity, staff names, date of appointment. sex and so on.

All the programs are written in Foxbase. It is user-friendly since the user is only dealing with the options available to him/her in order to make a choice. Some of the flowcharts for the programs are shown in fig. 2, 3 and 4.

IMPLEMENTATION ENVIRONMENT

To get this package running there should be a FoxBASE compiler installed in the user's
Personal computer since the language used for the programming is FoxBASE. .A system with a hard disc of 3giga can be used and it can run on any operating system. A fox directory which contains this package should be created.

RESULTS

When Education option is chosen, the following results are obtained: the list of teachers according to schools, list of promoted staff in a local government in a particular year, the list of retired staff, the number of staff required in each school, and list of schools that need repairs in the local government.

For the revenue option the results show the sources and the amount of internally generated revenue from the state and federal governments and the sum total of all revenue accruing to the local government from all sources in a particular year.

For the works option we were able to know the roads under contract, the contractor's names and addresses and the roads under direct labour in a particular year.
Some of the results are shown in appendix 1-5.
Those interested in acquiring the decision support package can contact the author for further details.

SUMMARY AND CONCLUSION

Although DSS has been widely designed and applied in industries, there are no known such design for an organization such as the local government councils in Nigeria. Thus, the objective of this paper is to design and describe the operational characteristics of a

software package for local government which will provide them with the key information products for their decision making.

The whole design method is presented using appropriate language for the programs. The sample local governments involved in the study are local governments within Nsukka environs. The study focuses on key functions of the local government, namely education, revenue collection and works services. The results show the anticipated outcomes.

It is believed that, if well adapted, a DSS in local government function will definitely improve their performance, by removing any delayed actions and reducing performance costs.

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APPENDIX 1

PROMOTED STAFF

S/NO	STF NO	TEACHERS NAME	OLD GRADE	NEW GRADE	OLD POST	NEW POST	EFFECTIVE DATE
1	AA-36	UDEH K.	6	7	TG2A	TC1	05 / 07 / 92
2	AA-38	OZOAGU E.	5	6	TG2	TG2A	05 / 29 / 93
3	AA-06	KENE C.	7	8	TC1	HM2	06 / 14 / 93
4	AA-07	AGU C.	4	5	HG2	TG2	04 / 07 / 93
5	AA-08	ADAMA E.	7	8	TC1	HM2	03 / 07 / 93
6	AA-09	AGU L.	6	7	TG2A	TC1	06 / 09 / 94
7	AA-10	OKE O.	7	8	TC1	HM2	06 / 07 / 92
8	AA-12	ANEKE R.	6	7	TG2A	TC1	06 / 08 / 93
9	AA-13	AGU M	5	6	TG2	TG2A	07 / 04 / 93
10	AA-14	OGBU I.	7	8	TC1	HM2	10 / 04 / 94
11	AA-15	OKENYI N.	7	8	TC1	HM2	04 / 07 / 94

APPENDIX 2

RETIRED STAFF WITH EFFECT FROM 02 / 06 / 95

S/NO	STAFF NO	TEACHER'S NAME	NAME OF SCHOOL	RETIREMENT BY SERVICE	RETIREMENT BY AGE
1	A-11	OKEKE M.	CENTRAL SCH		70
2	A-24	NWOKIKE J.	URBAN SCH.1.	40	
3	AA-27	ALICHE A.W.	URBAN SCH.2.	36	

APPENDIX 3

INTERNALLY GENERATED REVENUE AND AMOUNT GOT FROM EACH SOURCE IN NAIRA

REVENUE SOURCE	QUANTITY	ITEM COST(₦)	AMOUNT
CATTLE DEALERS	40	50	2000
AMBULANCES	30	10	300
POULTRY LINCENSE	50	200	1000
DAN GUN	40	30	1200

TOTAL REVENUE GENERATED = ₦ 4500.00

APPENDIX 4

ROADS UNDER CONTRACT WITH THE CONTRACTOR'S NAME AND ADDRESS

ROAD TYPE	NAME OF ROAD	KM OF ROAD	TYPE OF MAINTANCE	COST	NAME OF CONTRACTOR	A DDRESS OF CONTRACTOR
OLD	FULTON/ZIKS	60	CULVET	12000	CHIKE NIG.	COMP. CENTRE
NEW	UMUNKAKA	76	CLEARING	7600	AGU &SONS	10 0FULONU
OLD	OBOLLO	56	PORT-HOLES	7500	CHIEF BEN	WOLIWO OSHA

APPENDIX 5

ROADS UNDER DIRECT LABOUR

TYPE OF ROAD	NAME OF ROAD	KILOMETER OF ROAD	TYPE OF MAINTANCE	COST OF MAINTANCE
NEW	EZE OPI STR.	45	GRADING	4500.00
NEW	OGURUGU ROAD	80	CLEARING	80000.00
OLD	ALVIN LOVING	90	LATERITE	63000.00
OLD	ONUIYI HAVENS	25	GRADING	12500.00
OLD	IBAGWA ROAD	70	PORT HOL	