A COMPUTER APPROACH TO STOCK CONTROL AND PROCESSING

CASE STUDY OF MICHELIN NIGERIA PLC, LAGOS.

BY

ODIGIE KINGSLEY
PGD/MCS/97/404

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

DECEMBER, 1999.

CERTIFICATION

Certify that this research project was carried out by Mr. Kingsley Odigie in the department of Maths/Computer Science of Federal University of Technology Minna.

_____ _____

Supervisor DATE
Mr. L. N. EZEAKO

_____ _____

Head of Department DATE
Dr. S. A. REJU

_____ _____

External Examiner DATE

DEDICATION

I dedicate this research work to God and my parents,

Prince and Mrs D.E ODIGIE.

ACKNOWLEDGMENT

It is written that a house is built invain except the lord built's it, with great reverence, I give thanks and adoration to the most high God by whose grace and provision I have been able to embark on the complete on and complete this research work.

I also acknowledge with profound gratitude to the willing cooperation and great assistance I received from numerous sources that contributed to make this project a success and particularly my parents that contributed immensely to my success in this course of study.

My appreciation and sincere gratitude also goes to my supervisor, Mr. L. N. Ezeako. Who infect took time to proof-read my manuscripts and made necessary corrections and advice. I wish to equally appreciate the unrelenting assistance of Dr. S. A. Reju, Prof. K. R. Adeboye, Mr. Badmus and all my lecturers from whom wealth of experience and knowledge I have taped and gleaned over the days of my stay in school.

I am also indebted to my numerous friends, well wishers, enemies and colleagues for their understanding which have enabled me complete the course without hitches.

Most of all my profound gratitude also goes to Uwa, Omorodon, Amadi, Yvonne, Efe, Obi among others.

I pray that God should abundantly reward you all. Amen.

TABLE OF CONTENTS

CHAPTER THREE

CHAPTER FOUR

CHAPTER FIVE

ABSTRACT

With the improved utilization of computer in our every lives, it has become more imperative to improve the standard of management processing in the Nigeria industries, which before the introduction of computer was faced with various problems such as inadequate information collection, risk of loss of information during the process of information transfer, there was slow transmission of information from one sector of the industry to another. All there problems tend to led to the slow process of development and also reduces the process of profit maximization in most Nigerian industries.

This project is focused on improving the process of stock control and processing in the michelin Nigeria PLC, which is using the manual process of stock control and process to be replaced with the computerized process so as to make the procedures of stock control and processing fast, easy and efficient.

However, the study will also investigate the disadvantages of the manual of the manual system as compared to the computerized process of stock control and processing and also to express facts on the effectiveness and usefulness of the computerized process.

A Dbase IV programme is used to analyze the process of this computerized and also to facilitate the process of stock taking, record keeping and other processes of records manipulations of stock control and processing of stock records in the michelin industries, so as to improve the process of decision making for the management by providing enough space to store information that are accurate, efficient and easy to manipulate information's at a given time, date and at a very fast speed, efficient and effectively.

The summary of my study will express the investigations so far observed and the end of my work will give some policy recommendation which I hope will help improve the process of stock control and processing in the michelin industry as well as in other industries in Nigeria if properly implemented.

CHAPTER ONE

1.1 AN HISTORICAL BACKGROUND OF MICHELIN

The beginning of Michelin dates from an afternoon in the summer of 1889 when the Tyres of an English Tourist's bicycle were repaired in a small rubber ball and brake block factory at Clermont Ferrand. At that time, cycle tyres were stuck to the rims. They had to be laboriously dismantled, then repaired, refitted, restuck and tested. On completion, Edonard Michelin tried out the cycle and realised that tyres could only be completely successful and practical if they could be easily removed, repaired and refitted by the user. Edonard and his brother Andre preserved with the idea and some months later, produced the world's first removable tyre, this mark the beginning of tyres as we know it today.

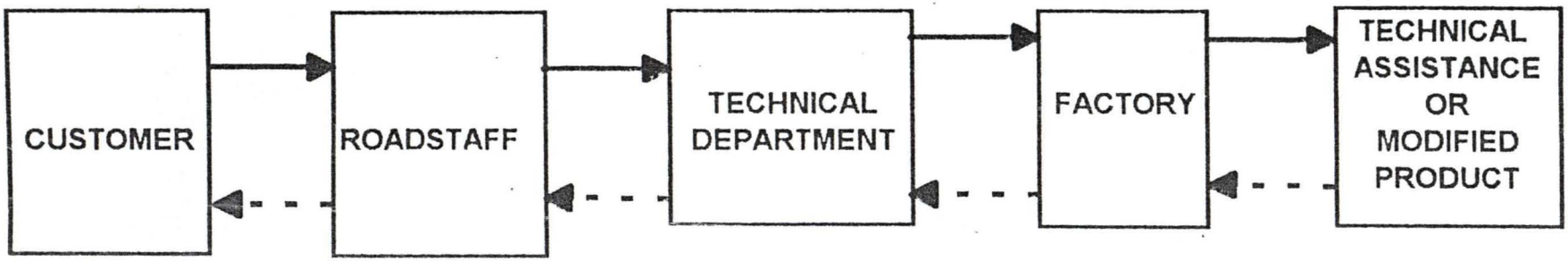
From this small beginning Michelin grew. In the year's that have followed, customer requirement, customer requirement for tyres have multiplied and diversified tremendously. It is now necessary to employ infinitely more elaborate method to meet and anticipate the needs of the customer, thereby providing more stock of tyres and tube of different variety more to meet the increasing demand.

However Michelin now is an international organisation which in Nigeria has it's manufacturing industry in Port-Harcourt and its administrative office in Lagos. For distribution of good the Michelin industry has district offices in every capital cities of Nigeria and these district offices in every are divided into regions.

Michelin District offices are situated within the promises of GBO/MDS establishment in every state capital.

The warehousing stocking and distribution of goods to customers is been undertake by the GBO/MDS organisation on behalf of the Michelin industry.

THE MICHELIN COMMUNICATION FLOW DIAGRAM



GBO/MDS is an organisation which sole function to customers of various industries, to this fact they operate on behalf of such industries as Lever Brother PLC, Dunlop, Nigerian Breweries and Michelin PLC.

For this function of distribution and warehousing to be effectively undertaken, the GBO/MDS organisation for Michelin products utilises varies method from the gate-man to Stock-keeper.

The MDS office collect and check information at every level of transaction, compile this information ant then send the reports to Lagos (weekly) the administrative office of Michelin Plc from were necessary action can be taken with regard to the report sent. But goods that are sent to this various GBO/MDS warehouses come in from Port-Harcourt there Michelin Plc has their manufacturing plant.

For effective operation of it's transaction, the Michelin industry has a communication flow procedure as shown in the diagram. Information passes from the customers concern the goods from users to the road-staff (Michelin sale representatives). From the road-staff it will get to the technical department, who will then pass the information to the factory from where it will get to the technical assistance group for any action to be taken, all to improve the products.

1.2 AN OVERVIEW OF COMPUTER AND MANAGEMENT ACCOUNTING

There has been a growing awareness of the importance of management accounting during the present century and a recognition of it's contribution to business efficiency within an increasingly complex economic environment, due to the adoption of progressively more sophisticated techniques to meet the needs of management for a reliable information service as a basis for decision making.

Management accounting is concerned with measuring the economic consequences and implications of management decisions by using money value as a measure of economic performance of a business organisation so as to help managers manage and make reasonable decisions.

Managing involves an extensive and complex range of skill, but at the end of the day all these culminate in a management decision. At all times managers must in effect live in the future and be looking ahead of time, for the instruction of a manager issue in the present must be based on what they envisage the future will present as solutions deduced from the post events. Past and present figures only have in so far as they foreshadow the future. This is made more easy, fast and efficient by the resent use of automated processes by computers as compared to the manual approach of processing information and stock control. The computer can store large quantity of information by transforming records of information into machine sensible forms that cannot be read or changed without the use of the computer, which most times has a password that can prevent easy access into the computer memory, there by providing security for information.

The evolution of computer has come a long way in enhancing the aspect of decision making by managers and other business men alike. The use of computer has become increasingly indispensable with the fact that many task both at home and in the offices, that were formally being executed manually are now being automated at a very fast pace due to the use of computer.

A computer could be seen as a machine that follow instructions in order to process data, solve a specific problem or accomplish a particular task fast and efficiently. The computer comprises of the :

Hardware	-	The physical equipment or devices that constitute the computer such as the Monitor, Keyboard, Mouse, Printer etc.
Software	-	This comprises of the system programs and application programs that enable the computer hardware to function.
Procedure	-	These are methods designed to ensure proper record transactions by the processing system.
People	-	These are the users of the system that operate or control data processing system.

The computer is classified in these various groups:

EMBEDDED COMPUTERS: These are computers that are incorporated as a part of other machines.

MECROCOMPUTERS: These are used to enhance the performance of the other computers. They are such computers as personal computer, Desktop computers, Portable computers, Notebook - size computers and the pocket computers.

MINICOMPUTERS: These are computer that are not built around microprocessors and by characteristics the stand between the microcomputers and the mainframe in size, cost and processing capabilities. This computer is often operated in a time sharing mode in which a number of terminal are connected to a major computer allowing a number of user to use the computer at the same time.

MAINFRAME: These computers are of organisational use and not for individual use. They are found in the computer rooms of large companies, Universities and Government agencies. The mainframe computer is capable of meeting all or a substantial part of the information processing requirement of a large organisation.

SUPER COMPUTERS: These computers are generally used for scientific problems requiring amounts of computation. They are very powerful, very fast and very expensive.

The computer system operate under the control of a set of detailed step by step instruction call program and this set of program control is responsible for the computer's enormous versatility by changing the program we can drastically change the information processing task that the computer carries out.

With this capabilities of the computer system it has come to be of great importance in the business management sector and mostly to managers in decision making and management accounting with the fact that profit is the fundamental criteria of business efficiency within a self-adjusting, competitive economy and indeed it is essential for business survival since profit is the source of capital growth whilst losses erode capital, so to prevent these losses the implementation of stock control is necessary and the use of computer with its capabilities will make the process of stock control fast, efficient and safe for managers to be able to carry out and arrive at solution in decision making on time.

1.3 THE RELEVANCE OF STOCK CONTROL AND COMPUTER PROCESSING

Stock control involve the managing of expenditure in an investment or organisation, since goods should be preserved as well as managed to meet the requirement of consumers when there is demand and also for the goods to be available if not sold or used when there is need to estimate opening and closing stock of an investment or organisation. Stock constitute a major asset in any industry and most times some companies suffer a great lost as a result of stock mismanagement.

During stock-taking, every single item in the raw material stores, work in progress and finished stock must be counted or measured to determine the physical quantity on hand.

This quantity must then be recorded on a stock sheet together with a full description including any relevant code number or other references of the materials concerned including the quantities and prices so as to aid in the process of stock valuation.

With today operations and development an automated computer stock control process system would play a key role in the overall financial and management reporting process that could tie a company together. The basic primary objective of a stock control processing system are

1. To provide security for the business products
2. To carry out the routine stock-taking and the record keeping required of the stock-keeper and management an organisation.
3. To measure and report the performance of the organisation in financial and other terms.

Through the use of automation, well implemented stock control processing system can achieve these objectives in a most cost-effective manner. An additional benefit the effective use of computer automation allow the organisation to process increasingly higher volumes of information without proportionally adding costs. However, it should be noted that the availability of enough stock does not actually determine the success of an investment or establishment and for the fact that stock constitute the major capital of an establishment, it should be well managed so as to generate high profit for the existence of any company.

Stock control is a major aspect of production management and management accounting in which firms or organisations determines what level of inventories can be economically maintained and these inventories may include raw materials, components part which a company procures from external sources to enhance production and goods bought for resale.

Computer can by modern development be used in the controlling of stock effectively in terms of efficiency, record taking and storing of items. Computerised stock control will produce the desire information at the right time with an acceptable level of accuracy and in the form required at an economic cost which will help to curtail business expense and also make the process of stock control easy for both the storekeeper and managers of any organisation since the computer system provide an ability to store, retrieve and analyse much more data and information than its practical in manual system.

1.4 PROBLEMS OF MANUAL STOCK CONTOL SYSTEM

1. The manual system of stock control involve a lot of paper work documentation, which may need to be supervised and controlled by a large number of staffs and clerical efforts which are capital intensive making the process very expensive.
2. The manual system is not lightly reliable since it involves a limited storage process such as filing and recording on cards in which errors could be made and remain unnoticed on time.
3. The manual process of stock-taking and control is very cumbersome since it involves a long process of activities which need always to be update by the staff involved.
4. The manual system requires a huge amount of cost (money) to undertake the process of stock control and stock-taking since the organisation will have to proved the basic requirements such as record cards, office pins, pen, stapler and also make photocopies of reports when required.
5. In the manual system there could be misplacing of stock documents or errors of transcription from one source to another without noticing.
6. There is high risk of incomplete record and loss of goods due to the easy means of reaching information or getting at records which are then easily manipulated.
7. Manual stock-taking and stock control consume a lot of time.

1.5 OBJECTIVE OF STUDY

Stock control is a necessary requirement in all business concern, to avoid the risk of quite substantial losses which is inherent in holding stock.

In order to provide a necessary and efficient solution to this problem we will like to focus the objective of study on the use of computer in stock control processing as a basic solution showing its advantages as it apply to stock control processing.

Furthermore, we will need to look at the effect and improvement this use of computer systems will be in checking stock control processing in the Michelin Industry for Michelin products.

We will also need to examine the process of using the computer system to improve the process of stock valuation in an industry.

1.6 SCOPE OF STUDY

This study will be made in five(5) Chapters and it will focus on the features of computer and the stock control processing system in an organisation, which also show how computers can be used to enhance the manual process of stock taking and stock control so as to improve this aspect of management accounting and decision making.

We will also express this by drawing and writing out programs, if used in a computer system will produce a desired work sheet for the processing of stock control and valuation of stock at any given time with any given quantity.

Michelin Industry in Nigeria

Administrative
Offices
Lagos

Manufacturing
Factory
Port Harcourt

Dealers All over the Nation
Been Organised by Sales
Representatives

CHAPTER TWO

2.1 STOCK CONTROL AND STOCKEEPING

In order to effectively control the various transaction of an organisation it is useful to keep record of the various activities that are been carried out in that organisation, this is aspect is known as stock-keeping which is a branch of management accounting.

Stock-keeping is the process of counting or measuring the total quantity or value of good or raw material to determine the physical quantity remaining in hand at a closing period. This process of stock-keeping is to provide security for good and also help determines at a particular time the financial base of an organisation.

Stock-keeping which involve such aspects as addition and subtraction can be expressed manually on various items such as stock sheets, stock control cards, Bin cards and tore ledger. In there document the various items are indicated with a full description of the item referenced on it such as its Name, Size, Quantity, Quality, Date and Time.

With stock-keeping, the store-keeper and managers can effectively control the quantity and quality of goods to store and also make efficient and effective decisions concerning the running of the organisation which will lead to an efficient stock control.

Stock control involve the managing of expenditure in an organisation so as to produce the desired profit and also find the optimum inventory level of an investment which will be between the minimum and maximum stock level of the investment.

2.2 MANAUAL STOCK CONTROL PROCEDURE

The manual aspect of stock control processing is a cumbersome process which involve the use of various document been used in stock taking such as the stock-sheets, stock control cards, Bin cards and store ledger.

From these document the store-keepers and management can deduce information that can enhance the improvement of the establishment and also make for efficient and effective decisions.

THE STOCK SHEETS: These are sheets in which the store keepers records daily information concerning various transactions. On this sheets is express the description of the items been checked and this could include the name, size, quantity, in/out, quality, date and total quantity available.

THE STOCK CONTROL CARDS: The Control Operation for stock is generally to be found in a stock record designed to record stock movement, to provide a comparison between actual and desired conditions, to initiate any necessary action, control system are designed to regulate movement or activities that they conform to a pre-determined plan or pattern or policy which implies some form of corrective action being taken when deviation occur.

BIN CARD: These are cards kept by the store-keeper which concerns records of quantities only of stock receipts, issues and balances together with some references number relating to each transaction. This cards are most often kept with the materials in stock and up dated by the store-keeper at the time of each transaction, though nowadays they are more likely kept in store offices and information posted by a stores clerk.

STORE LADGER: This is an aspect of stock-taking that involve the extension of the quantity and price of goods in stock on day to day basis to show the stock value. This is rarely needed except for the preparation of the end of year accounts.

These document are analysed and checked for vital information which are then used to formulate decision concerning how the various stocks in an establishment will be controlled to yield better profits and effective management of resources.

2:3-1 ADVANTAGES OF STOCK CONTROL

(a) In a business organisation stock control make easier for a firm to plan their budget and also make reasonable decisions.

(b) It provide the value of the Company's stock and capacity.

(c) It make it possible for a company to it security base covering its products and preventing losses.

(d) It enable a company or an organisation to monitor its progress and make way for further development.

2:3-2 DISADVANTAGES OF STOCK CONTROL

(a) Stock control in a manual process may not always be accurate since at has to pass through many processes.

(b) In a manual system approach of stock control there may be delay in the process of stock-keeping and stock taking since there will be many information to be processed.

(c) Stock control is cost intensive and also involve a lot of expenses when manually carried out.

(d) In a manual stock control process there is the possibility of error to occur.

2:4 BENEFITS OF COMPUTERISATION:

Computerisation has come a long way to aid the development of the Nigerian economy and with the prevailing growth in development it is necessary for an organisation to have computer or computer installed due to the increasing volume of paper work that needs to be processed and the increasing cost of running an organisation effectively.

The benefits of computerisation in an establishment can not be over emphasised. In the aspect of stock control the use of computer has proved very effective.

(a) Human errors is greatly reduced in the process of information collecting and processing.

(b) It reduced the duplication and inconsistency in processing information.

(c) Accuracy and speed of information is increased token a computer is used instead of the manual process.

(d) Auditing in an organisation is made easy since the information needed are all stored in one place the computer memory with very few error if any.

(e) The use of computer provide safe-keeping of information by which there can be no loss of any information once entered into the computer and protected with a pass-word.

(f) The computer can store very many information since it has a large capacity memory for storing and manipulating information.

(g) There is an easy access to information since the information are stored in one place.

(l) With the use of computer the complexity in stock taking and stock control is reduced.

(i) Computerisation has reduced the risk of loss information and so provide security for information.

(j) The use of computer save time in processing information.

2:6 MANUAL VS COMPUTERIZTED STOCK CONTROL

The manual system of stock control is an aspect in organisation where man uses his mental capability to under take processes of stock since it has to pass through many processes and also consume a lot of time and energy.

Computerisation is the use of well program machine to undertake the process of stock keeping and store information in very large quantity that can be retrieve at any time and in any quantity.

The computer can process a large quantity of information and at a high speed, providing an efficient and effective procedure for decision making since the process has to pass through numerous processes moving from one hand to another which may lead to inaccuracy.

With a computerised process, there is a very high degree of accuracy and less error committed since the process don't take much energy and time, it help to relief a great amount of labour involved in the process of stock control, and before information are stored there is a viewed first to correct the errors before saved in a file either in the memory or in a diskette.

The computerised process is very reliable and efficient when compared to the manual approach there is security of information since the information are highly protected by either a password or some other means and the information kept in the computer are up-to-date information since the information are regularly updated. But in the case of a manual system, the process cannot be regularly updated since it consist of a very large process and so this process lack security for information because the information has to move from one procedure to another by which there can be less of goods or information and error making unnoticed.

M D S STOREKEEPERS STOCK RECORD SHEET

DESCRIPTION ______________________________

DATE	VOUCHER NUMBER	VEHICLE/WAGEN NUMBER	QUANTITY IN	QUANTITY OUT	STOCK BALANCE
B/FORWARD					

MDS - DIVISION OF UAC OF NIGERIA PLC

DEPOT VEHICLES IN-TAKE RECORD

DEPOT _____ PRODUCT OWNER _____ MONTH _____

DESPATCH NOTE		VEHICLE	ARRIVAL	BRIEF DESCRIPTION	QUANTITY		DATE VEHICLE DISCH.	SIGNATURES	
NO.	DATE	NO.	DATE	OF PRODUCT	DESPD.	RECVD.		DM / SUP	DEPOT S/KEEPER
1	2	3	4	5	6	7	8	9	10

DISTRIBUTION:

ORIGINAL — Product Owner

DUPLICATE — Depot Manager/S...

NB: Product Owners are requested to use this document to check their despatches to

Prepared By: _____

DEPOT Warri

MICHELIN [M]

WEEKLY STOCK AN

LOCAL P

MICHELIN

MICHELIN NIGERIA LIMITED
C/O P.O. BOX 2842, LAGOS.
TEL: LAGOS: 5801210-16 (7Lines)

			LIGHT TUBES						TOTAL LIGHT TUBES
			13		14	14	15	15	
			D13		E13	F13	E15	F15	
			746		746	746	611	611	
			71404		71420	71447	71453	71463	
OPENING STOCK			53		842	264		188	347
RECEIPTS									
RETURNS BY CUSTOMERS									
TRANSFERS FROM OTHER MDS DEPOTS									
ADJUSTMENTS IN THIS RETURN									
TOTAL RECEIPTS									
OPENING STOCK + RECEIPTS			53		842	264		188	342
ISSUES									
TOTAL ISSUES TO CUSTOMERS					57	66		55	178
RETURNS TO M.T.S. PLC									
TRANSFERS TO OTHER MDS DEPOTS									
ADJUSTMENTS IN THIS RETURN									
TOTAL ISSUES					57	66		55	178
CLOSING STOCK			53		785	198		133	169

RECEIPTS

DATE	LORRY	VOUCHER NO

ISSUES

CUSTOMER	TOWN	INVOICE NO			13 D13		14 E13	14 F13	15 E15	15 F15	TOTAL
E. Sabanye	Warri	[illegible]									
Dorasen Nig Ltd	Sapele	✓ [illegible]								15	15
Willy Dawson Bros	Warri	✓ 276					11				11
[illegible]	[illegible]	✓ 218					6	6		6	18
W.T.O. Ofrado	Agbor	✓ 217								24	24
Doralon Nig Ltd	Sapele	✓ [illegible]								10	10
[illegible]	Warri	[illegible]					40	60			100

D SALES REPORT

PERIOD FROM 1/5/98 TO 28/5/98

RODUCTS

HEAVY TUBES								2 WHEEL						OTHER LOCAL PRODUCTS					
15/16	15/17	16	20	20	20	20	TOTAL HEAVY TUBES	28		26		Tube 28	Tube 26						
H	H	J	M	N	P	QR		1½		1¾		7S	8S						
1156	746	1021	1157	1158	1158	582		CREAM		BLACK									
								S/NYL		S/NYL									
79353	79553	71471	71501	71528	71536	71552		71994	L	74235		78859	74942						
57	73	158	194	284	124	530	1320												
57	73	158	194	284	124	530	1320												
				10	30 A	2	30 10 6												
				20			20												
				30	54	-	56												
				30	54	-	56												
23	58	194	284	70	58		824												

CERTIFIED PHYSICAL STOCKS CHECKED

SUPERVISOR:-

STOREKE

2.6.1 FEASIBILITY STUDY

A study was undertaken to analyse the current manual process in stock-taking control in the Michelin industry producers of tyres and tubes, to determine whether the use of computer will enhance the development of the use of computer.

The study was conducted with the assistance of Mr. J.A. Ogundare, a Michelin road staff covering the south-western region and Mr. S.A. Ariyo-osu a branch Manager of the GBO/MDS in Warri, Delta state.

2.6.2 FEASIBILITY REPORT

Michelin, a manufacturing and sales organisation employs a stock control method that best suit their operations, though this is in a manual processing system of stock control, it serve as a very good source and procedure of information collection for the development of a computerised system.

Michelin as an organisation, in Nigeria has it administrative office in Lagos and its manufacturing factory in Port-Harcourt and district offices in every state capital in Nigeria.

The Michelin Industry stock their goods with the GBO/MDS organisation. The GBO/MDS undertake the stocking and distribution of goods to the Michelin distributors, they undertake the warehousing aspect of marketing the products.

GBO/MDS is an organisation that undertake the aspect of storing and distribution of goods produced by various industries such as Lever Brother Plc, Nigerian Breweries, Dunlop and Michelin.

For Michelin products the GBO/MDS stock tyres and tubes. These goods come in from Port-Harcourt to the various district offices situated within the premises of GBO/MDS in every state.

The goods are transported, covered by a Waybill that the transporter will submit to the invoicing clerk and then send the goods to the warehouse where the storekeeper will then enter the quantity of goods brought in to a sheet known as Stock Cards for each item.

The storekeeper in the process of transaction takes records of goods going out and those coming in, and then make a compiled record of these transactions and send it to the invoicing clerk, who will then express the stock to the branch manager.

In the GBO/MDS office the stock-taking for Michelin goods is done daily but compiled weekly and sent to Lagos for further examinations and decision making.

At the end of each stock-taking period usually a week, the invoicing clerk in collaboration with the storekeeper and the branch manager are expected to check and cross check the compiled report sheet called weekly stock, any receipt received, any receipt issued and the closing stock.

After compilation, the reports are sent to Lagos the administrative office of Michelin.

Viewing this process of stock-taking and stock control, some would rightly see that the process if computerised will be more efficient and fast there saving time and if well implemented will help to develop the marketing aspect of Michelin product and also provide security for goods as they are transported from one location to another. The administrative office in Lagos and the Port-Harcourt manufacturing plant will be able to get information from user through the Michelin dealers on time concerning the product so that efficient, effective and current decisions will be made on time to affect market situations.

2.7 METHODOLOGY

The methodology approach of this study will be based on information collected from secondary sources such as journals and various text-books concerning stock control and the computer systems.

We shall also make use of a primary source such as interviewing the Michelin sales representative (Michelin road staff) and the GBO/MDS manager and storekeeper.

2.8 INFORMATION PROCESSING AND DISTRIBUTION

The Michelin industry has it main administrative office in Lagos and has branches or deports located in various parts of the country. These branches or deports at the end of each week have to send their weekly stock reports to the administrative office for verification as deduced from the feasibility study carried out on the Michelin stock control and processing system.

Computerising the stock control and processing system will help to make easy the process of products distribution and processing since it will go a long way to reduce the information transmission problems and the risk of losing goods during distribution and stock-keeping.

Computerisation will also help to increase the speed by which information is transmitted from the deports to the Head office and also improve the transmission of information and distribution of goods from the Head office to the deports or branches, thereby creating an improved process of decision making in the industry.

For these to be a complete and efficient computerisation of the Michelin industry, it has to be in the Networking process where the Head office in Lagos can interact with the branches or deports offices and the deport offices can interact with the Head office.

To make these process of communication possible, the company has to be fully equipped with the various items needed such as:

1. A telephone communication line
2. Personal computers (PC)
3. Modem
4. Some wires
5. Front and processor

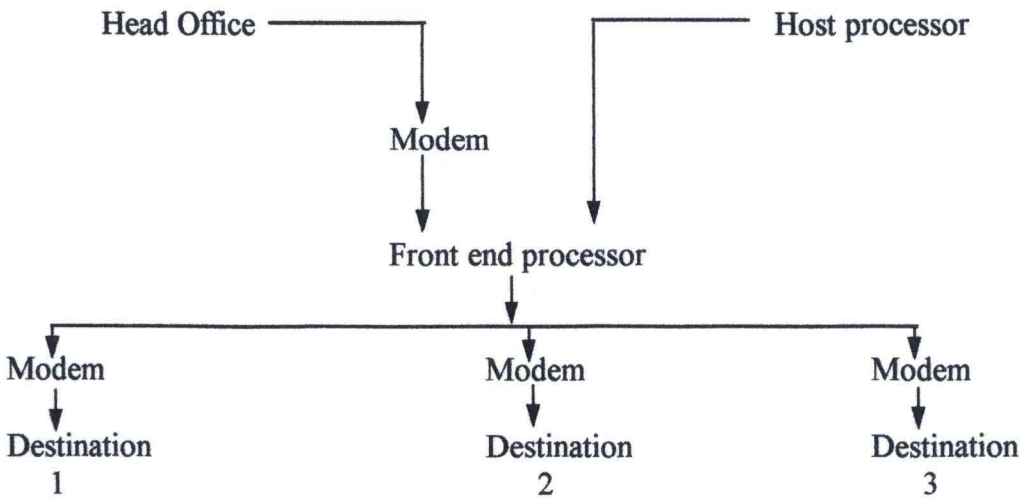
With the telephone line there can be connections between the source of an information and destination of the information which could be either the Head office to the deport or from the deport to the Head office.

With the Personal computers (PC), it is the means by which the users enter or retrieve messages (information) posted either from the head office to the deport or vice - versa.

The Modem are of the two types which are the external and the internal modem. It has the capability for establishing a communication link between a user and any other computer system it is communicating with through a ready access telephone line. The modem convert terminal to computer and computer to computer electrical digital signals into analog signals so that the data can be transmitted over telephone line and these digital electrical signals are modulated to make sounds similar to those one can hear on a touch - tone telephone. Upon reaching its destination, these analog signals are demodulated by another modem into computer compatible electrical signal for processing.

The Wires are the means by which the information are transferred from one place to another like sending phone messages.

The Front end processor establishes a link between the source and the destination (terminal or computer sending a message is the source and the one receiving the message is the destination). Before transmission of information each computer system or terminal is assigned on address and it is by this address that the front end processor can transmit and collect information from either the source or the destination computer. The front end processor relieves the processor of communications related task such as messages routing, party checking, code translation and editing. These permits the host to operate more efficiently and to devote more of its resources to other aspect of business.



Network Information Processing and Transmission

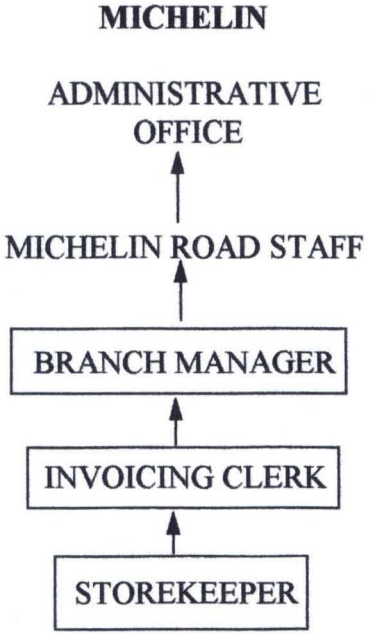
CHAPTER THREE

3.1 SYSTEM ANALYSIS

Here the Project or research work will take into consideration a full detailed study of the current manual system of stock control and processing in the Michelin Industry its procedures, information flow and method of work organisation and control.

This analysis will also express the strength and weakness of the existing system and how effectively the new feasibility study carried out.

Let us start by considering the organisation chart of the GBO/MDS and how they interact with the Michelin organisation.



The GBO/MDS organisation undertake warehousing and distribution of goods for Michelin Industry and at the top of the helm of affairs in stock control and processing is the Branch Manager who co-ordinate the other branches of the organisation.

The process of stock control starts with the store keeper, who is list in the helm of affairs and undertake the physical counting of goods supplied, sold and the quantity on hand in the warehouse. He makes record of this counting on daily bases and send them to the invoicing clerk, who at the end of the week make a comprehensive report of the weekly stock-taking report and send it to the Branch Manager and storekeeper for acknowledgement by signing.

After acknowledging the report the branch manager will then pass the information to a Michelin Road Staff in-charge of that region or zone for onward transmission to the Michelin administrative office in Lagos

To this manual practice of stock control there are many lapses such as the limited time in transferring information from the warehouses to the Michelin Administrative Office and also the risk of having inaccurate record of stock, for the fact that the stock control is cumbersome the officer can become tried and then make mistakes in counting and record keeping thereby sending wrong information. The manual process of stock control can also aid malpractice by some members of staff since the record may not be properly kept any member of staff can get to them and make some alterations.

But if computer is used in the process of stock control and processing all these disadvantages of the manual process will be corrected and there will be a efficient and effective means of stock control and processing for the Michelin industry and its goods. There will also be an efficient, fast and effective decision making process for the Michelin organisation.

3.2.0 SYSTEM DESIGN

With the analysis of the Michelin stock control and processing system carried out or undertaken within the GBO/MDS organisation, where Michelin stock and distribute their goods, it shows clearly that the process can be effectively computerised.

Here, this research work will consider the input design, output design, data files processing requirement and other requirements.

3.2.1 INPUT DESIGN

This system is expected to keep record of the stock available, the quantity sold and indicate when the goods are at maximum, minimum and zero level. The system should be able to add up new stock, update stock by making use of relevant information like the quantity of goods supplied or sold and their prices. It would also be able to evaluate the stock level when need be.

3.2.2 OUTPUT DESIGN

With the new system the output when information are entered into the computer is expected to produce for the user at a glance (usually on the monitor) or on a glance (usually as issued or entered, so that the user can ascertain on time what is in stock and also enable the management to make effective and efficient decisions fast and also generate authentic report from stock-taking process so as to enforce effective stock control and processing abilities. The output devices are the monitor and printer.

3.2.3 FILES DESIGN

Using Dbase as our software devices in this research project. The various files that are expected to be produced could be designed in this forms such as

INVENTORY DBASE FILE (STOCK FILE)

Field	Field Name	Field Type	Width	Dec
1.	Item Name	Character	20	-
2.	Item Code No.	Numeric	8	-
3.	Supplier Name	Character	20	-
4.	Opening Stock	Numeric	10	-
5.	Quantity Supplied	Numeric	10	-
6.	Quantity 2510	Numeric	10	-
7.	Selling Price Per Unit	Numeric	7	2
8.	Data Issued	Date	8	-
9.	Cost Per Unit	Numeric	7	2
10.	Total Value	Numeric	10	-
11.	Closing Stock	Numeric	10	-

Note:

Total Vale = Cost per Unit X Quantity Supplied
Closing = Opening Stock - Quantity Sold

This file is to enable use ascertain what is in stock at any point in time and has to be disposed off as well as what need to be replace and thereby ending the management in decision making.

RECEIPT DBASE FILE

Field	Field Name	Type	Width	Dec
1.	Item Name	Character	20	-
2.	Item Code No.	Numeric	10	-
3.	Supplies Name	Character	15	-
4.	Date Issued	Date	8	-
5.	Date Received	Date	8	-
6.	Quantity In	Numeric	10	-
7.	Quantity Out	Numeric	10	-
8.	Receipt No.	Numeric	7	-

This give the user at a glance the information on sales and supply

ISSUE DBASE FILE

Field	Field Name	Type	Width	Dec
1.	Item Name	Character	20	-
2.	Item Code No.	Numeric	10	-
3.	Clerk Name	Character	20	-
4.	Quantity Supplied	Numeric	10	-
5.	Quantity Out	Numeric	10	-
6.	Date Supplied	Date	8	-
7.	Time	Time	5	-
8.	Receipt No.	Numeric	7	-

This file is expected to expressed the quantity and procedure by which goods move out of stock and help to check and secure the process of transaction in the organisation.

STOCK LEVEL DBASE FILE

Field	Field name	Field Type	Width	Dec
1.	Item name	Character	20	-
2.	Item Code	Alphanumeric	10	-
3.	Quantity Supplied	Numeric	10	-
4.	Quantity Sold	Numeric	10	-
5.	Quantity in hand	Numeric	10	-
6	Cost per Unit	Numeric	8	2
7.	Total Lost	Numeric	8	2
8.	Stock level	Character	15	-

This file will help the management to know the level of their stock and be able to determine when the stock level is at maximum, minimum or re-ordering level, thereby enhancing their process of decision making.

This file will also show to the management which item or good is most marketable or not.

TUBE DATABASE FILE (TUBE DBF)

NUMBER	FIELD NAME	FIELD TYPE	WIDTH	DEC	INDEX
1	Stock - Num	Character	5	-	N
2	Size - Num	Character	10	-	N
3	Invoice	Numeric	10	-	N
4	O-Stock	Numeric	10	-	N
5	Type	Character	10	-	N
6	Return	Numeric	10	-	N
7	RAdjust	Numeric	10	-	N
8	RTransfer	Numeric	10	-	N
9	Num-R	Numeric	10	-	N
10	Date	Date	8	-	N
11	Lorry	Character	10	-	N
12	V-Number	Numeric	10	-	N
13	T-Receipts	Numeric	10	-	N
14	I-Return	Numeric	10	-	N
15	I-Adjust	Numeric	10	-	N
16	I-Transfer	Numeric	10	-	N
17	Num - I	Numeric	10	-	N
18	Customer	Character	20	-	N
19	Town	Character	20	-	N
20	II-Issue	Numeric	10	-	N
21	T-Issue	Numeric	10	-	N
22	C-Stock	Numeric	10	-	N

TYRE DATABASE FILE (TYRE DBF)

NUMBER	FIELD NAME	FIELD TYPE	WIDTH	DEC	INDEX
1	Stock-Num	Character	8	-	N
2	Size-Num	Character	10	-	N
3	Invoice	Numeric	10	-	N
4	O-Stock	Numeric	10	-	N
5	Type	Character	10	-	N
6	R-Return	Numeric	10	-	N
7	R-Adjust	Numeric	10	-	N
8	R-Transfer	Numeric	10	-	N
9	Num-R	Numeric	10	-	N
10	Date	Date	8	-	N
11	Lorry	Character	10	-	N
12	V-Number	Numeric	10	-	N
13	T-Receipts	Numeric	10	-	N
14	T-Returns	Numeric	10	-	N
15	I-Adjust	Numeric	10	-	N
16	I-Transfer	Numeric	10	-	N
17	Num-I	Numeric	10	-	N
18	Customer	Character	20	-	N
19	Town	Character	20	-	N
20	II-Number	Numeric	10	-	N
21	T-Issue	Numeric	10	-	N
22	C-Stock	Numeric	10	_	N

3.3 HARDWARE AND SOFTWARE REQUIRMENT

(A) **HARDWARE REQUIREMENT**: We mean or refer to the physical machine that will be used in the application of this research work when the programme is written. This include the monitor, keyboard, mouse, central processing unit (CPU) printer and other storage devices of extra memory.

If all these are brought together they could make up a personal computer (PC) which could enable the user to be able to process the information collected and also store the information collected if the user need's to, by operating the computer to store in the hard disk or in a diskette an extra storage device.

(B) **SOFTWARE REQUIREMENT**: The various types of programs utilised in a computer software and it is what make's the computer hardware functional.

Programs written by computer users to solve specific problems are know as application software.

The computer software is information that exist in two basic forms which are the non - machine executable and the machine executable component. For the purpose of this study only those software component leading directly to machine executable component instructions are presented in the monitor in which the software is translated into machine executable form is illustrated as :-

Requirement ⟶ Software Design ⟶ Translator ⟶
Language Oriented Machine Readable form ⟶ Translator ⟶ Machine executable form

3.4 CHOICE OF PROGRAMMING LANGUAGE

The choice of programming language is an important factor to be considered when developing a new system and for the purpose of this study a Dbase programming will be used due to it basic advantages such as:

1. It is user friendly
2. Data integration is achieved
3. Data redundancy is reduced or eliminated
4. Data independence can be achieved
5. Data integrity can be maintained
6. Data are centrally controlled.

3.4.1 **DATABASE (DBASE) PROGRAMS**: This software provide the user with tools to organise, store and retrieve data from the computer. They can operate interactively with or independently of the application programs to describe the location, contents or relationship and security level of stored data. Mostly they often include utilities programs that will sort, format and point from the data.

3.5 COST AND BENEFIT ANALYSIS

(A) COST ANALYSIS

SYSTEM ANALYSIS (3MONTHS)	120,000 : 00
Cost of Computer system	17,500 : 00
Software Acquisition	20,000 : 00
Cost of Printer (Laser Jet Printer)	85,000 : 00
Installation cost	120,000 : 00
Computer Stationary (Annually)	15,000 : 00
Hiring and Training of Personnel	250,000 : 00
Networking System	350,000 : 00
Total.....	1,135,000 : 00

(B) **BENEFIT ANALYSIS**

1. - It will reduce the duplication and inconsistency in record keeping and data control.
2. - It will promote share ability of information and its integrity.
3. - It will reduce the cumbersome process of stock-taking and the number of personnel involved.
4. - It will enhance speed and accuracy of information collection.
5. - It will reduce the risk of losing documents and thereby provide security for information collected.
6. - Maintenance cost is cheep and there will be reduction or total elimination of human error.
7. - Auditing and valuation is made easy.

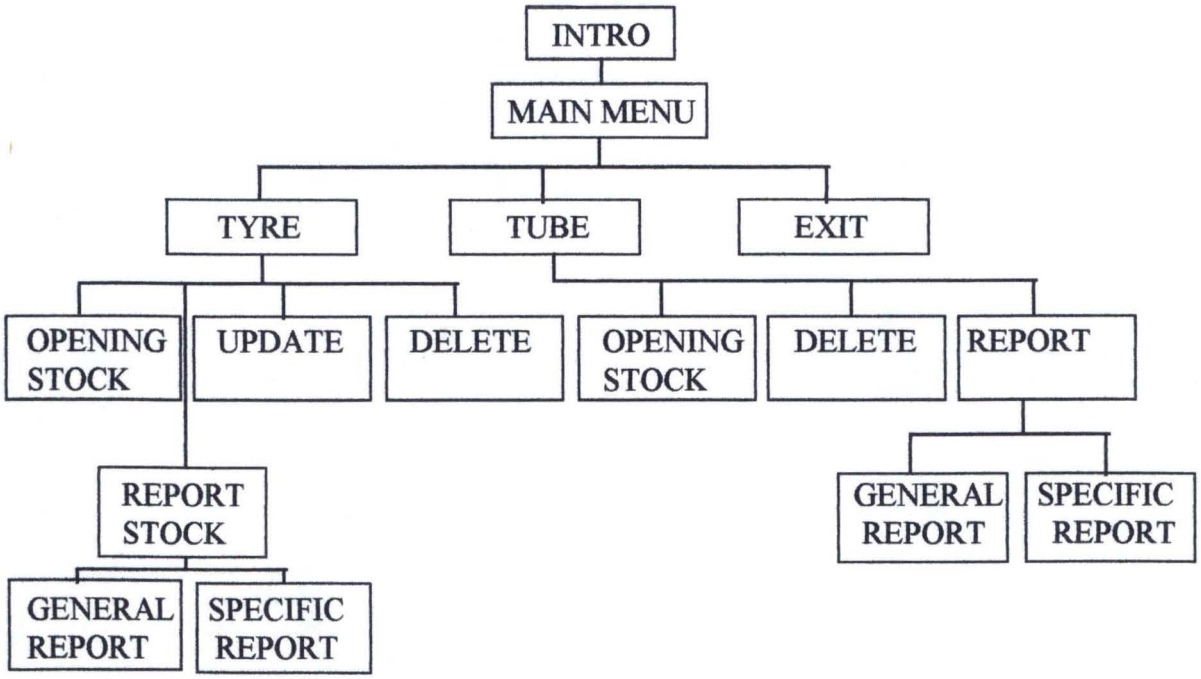
CHAPTER FOUR

4.1 HOW THE NEW SYSTEM WORK

The system is designed in such a way that a file is opened from a menu showing different options and the files primarily is focused on keeping records and manipulating of data about stock-taking and control processing in the Michelin Industry.

The system design is also to assist in the performing of calculations concerning stock control and processing of information gathered from stock-taking, providing a good means for decision making.

4.1.2 BLOCK CHART OF THE SYSTEM DESIGN



The block Chart show the various steps that are involve in the programming process for this system design.

With the Intro. which stands for the introduction into the program comprises of the various step by which user can start the usage of the program before using the menu to decide which option or with which file the user want to work. And this can be either in the tyre or tube file.

In any of these files the user can use the program either to open a new file, update the old file or delete information not relevant from a file and make or print reports which man be the general information in a file or a specific part of the file.

4.2 INSTALLATION

Installation process is the physical setting up of the computer hardware in an office with a conducive atmosphere and making it fully operational by developing a job training manual or material for the employees who will be part of the organisation and using the computer.

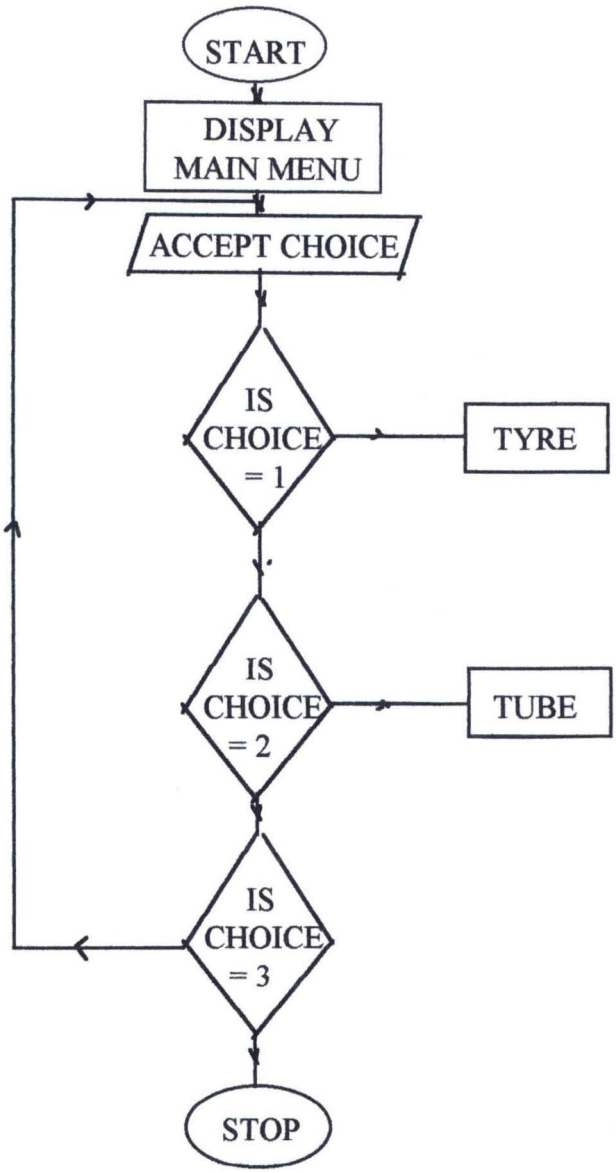
The manual will ensure that the business continues to function even when the employee leave or is promoted from that office.

In the case of installation the computer hardware are also tested to ensure that they are efficient and working as they should.

In installing the computer and the software by which it operate, the user will first have to check the drive of the computer is running after booting and then change the drive to C: (prompt) to A: (prompt) before inserting the diskette the user can now type copy so as to copy the information in the diskette on to the hard-disk.

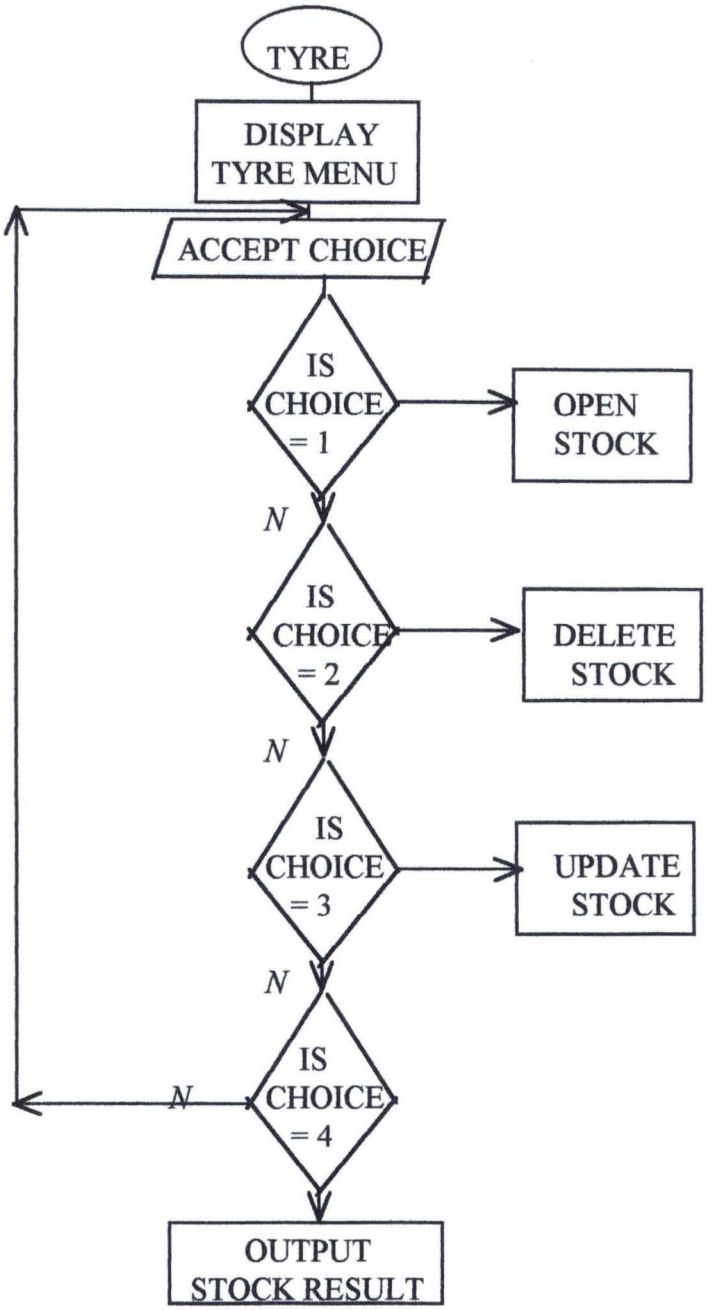
4.3 PROGRAM INFORMATION FLOW

4.3.1



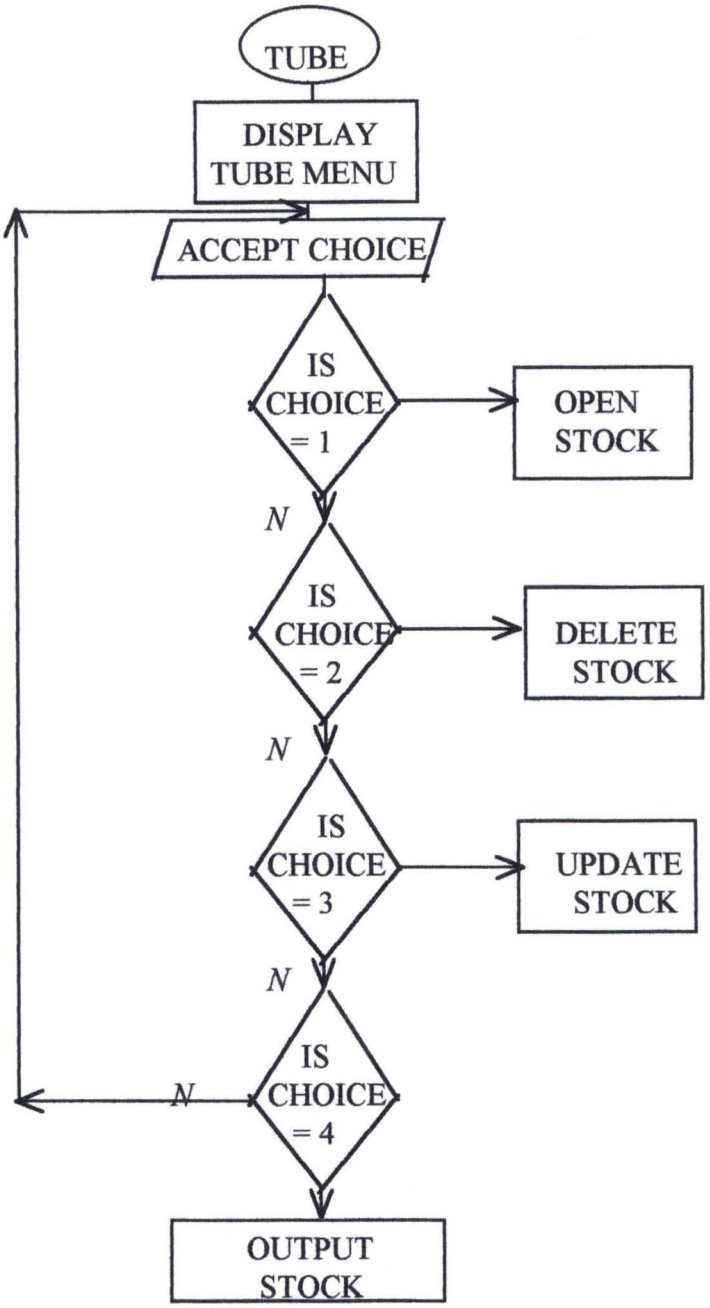
This is a flow Chart indicating the process of making decision using the menu in the new system designed.

4.3.2



This flow chart show the various process in operating the type file in the new system design.

4.3.3



This flow chart show the various steps in operating the tube file in the new file system design.

4.4 MAINTENACE

There should be a periodic checking of the computer both the hardware and the software systems to make sure that the various parts are fully operational as should be.

A major cause of program maintenance is as a result of the user request for program enhancement, there is always a tendency to demand additional report ant output from the program. In addition, data storage and organisation, program buses and other emergency program repairs are other important causes for maintenance.

CHAPTER FIVE

5.1 IMPLEMENTATION

Implementation is carried out after the design stage is completed. It is the process of making the new system fully operational and to be able to do what it is expected to do. In other words, implementation has to do with co-ordination and controlling of the activities necessary to put the new system into operation.

All aspect of the system must be operationally tested prior to their use. There should be a perfect co-ordination of the system, the user and the other procedures so as to provide and efficient functioning of the system.

For an efficient implementation to be effectively carried out, the following consideration have to be undertaken:

1. **FILE CONVERSION**: The manual stock control system in the Michelin industry entail the collection of data on a ledger card, invoice cards, on transfer document and files. But in the case of the new computerised system, all the data created or collected are stored in a format required by the new system.

The new system can either store the data collected directly on to the hard-disk of the computer or into a diskette called floppy disk.

2. **SYSTEM CONVERSION**: For the system conversion it i suggested that method known as he parallel conversion of the system should be used so as to prevent error and loss of goods and documents.

This method involves the use of the old and the new system concurrently for a planned period of time say (6) six months.

By this method, the old system is phased out gradually and the new system will take its place.

This method of conversion also provide an opportunity for comparing the result of the manual system with that of the computerised system to determine an efficient result.

(C) **TRAINING OF STAFF**: With the fact that the Michelin organisation has been running a manual method of stock taking and control, there is the need that the staffs be trained to be able to use the new processing Computerised system.

The Staff to be trained are the computer operations, who will handle the computer operations and the operations should also be able to detect minor fault and undertake repair.

There are also data entry personal such as the store-keeper ,invoicing clerk and the manager, they too will be taught how to keep in dates, but the system and do minor repairs if the need arises.

The training of Staff could either be done in any of these two ways:-

1. **In service training**:- This is sending the personal to do the training for sometime while they are still a part of the organisation.
2. **In house training** :- A case in which the training is organised within the organisation itself.
3. **Testing the programs**:- The program for this project work is written and desk checked or tested before installation. This means that the program is manually tested by going through it and correcting errors. After this manual testing, it is then tested in a computer machine to check its efficiency, through which any other errors observed can be corrected. This is done until the program started running well.

5.2 CONCLUSION

This project work which focuses on the computer approach to stock control and processing has been able to touch and treat the various aspect of transforming the manual process of stock control and processing into a computerised process that will enhance this aspect of business operations and also make the proposed project a success.

With the first chapter which dealt with the introduction and also a brief history of the Michelin industry, we were able to show why the industry need's to be computerised in the process of stock control and distribution process.

In chapter two the project was able to express the various processes of stock control and processing as it apply to the Michelin industry, it also made a comparison of the manual and the computerised process of stock control and processing to show which is better. To this effect a feasibility study was undertaken during the course of analysis and it was observed that the industry will do better with a computerised mean of stock control and processing.

The third chapter focused on the system design of the project and also the system analysis. Here, we considered the input design, output design, file design and other specifications.

The fourth chapter was on the designing of the system software and also expressed how the system works, its installation and maintenance processes.

The fifth chapter dealt on the post implementation process of the project work and how well the project work will be managed to provide a maximum utilisation for its users when implemented.

5.3 RECOMMENDATION

It is my recommendation that is project be implemented in any business concern or organisation in the aspect of stock control and process, it will bring a lot of advantages to the establishment such as those that were stated in the course of analysis since the program has been tested and found to work effectively.

REFERENCE

1.	CATER R.S	"STORES MANAGEMENT" MALDONALD AND EVANS LTD First Edition 1985
2	GEOFREY WHITHEHEAD	BOOKING-KEEPING MADE SIMPLE W. H. ALLEN AND CO. LTD FEB. 1978
3	JOURNAL ON MICHELIN	MANAGEMENT TRAINING PROGRAMMES
4	JOSEPH BAGGOTT	COST AND MANAGEMENT ACCOUNTING MADE SIMPLE W. H. ALLEN AND CO. LTD. Feb. 1978
5.	MARCK BROWNSTEIN & DAN D. GUTIERREZ	DBASE IV: BEYOND THE BASICS. Page 57 JOHN WILLEY & SONS Inc 1991
6	MASON J. K	"STOCK CONTROL/INVENTORY" Elbs Students Edition 1987
7	MIRAEB	COMPUTERS AND ACCOUNTING
8	MORISON D	STORAGE AND CONTROL OF STOCK PITMAN 1985.
9	RAY WILD	PRODUCTION AND OPERATION MANAGEMENT PRINCIPLES AND TECHNIQUES 3rd edition 1986.
10	SUDESH DUGGAL	BUSINESS PROGRAMMING USING DBASE IV. A Structural Approval To System Developments Macmillan Publishing Company 1992.

PROGRAM FOR CHAPTER 4
APPENDIX

```
*THE MAIN PROGRAM
CLEAR
DO INTRO
SET STATUS OFF
SET TALK OFF
SET SCOREBOARD OFF
SET BELL ON
SET ECHO OFF
SET DATE TO BRIT
SET CLOCK ON
@1,59 SAY 'TIME:'
SET CLOCK TO 1,65
@5,5 TO 7,75 PANEL
@6,16 SAY 'STOCK CONTROL &PROCESSING SYSTEM'

DEFINE MENU CHOICES;
 MESSAGE "USE ARROW KEYS  TO CHOOSE AN OPTION;
 Press Esc to return to main menu"
DEFINE PAD TYREPAD OF CHOICES;
 PROMPT "TYRE" AT 10,10
DEFINE PAD TUBEPAD OF CHOICES;
 PROMPT "TUBE" AT 10,40
DEFINE PAD EXIT OF CHOICES;
 PROMPT "EXIT PROGRAM" AT 10,60

DEFINE POPUP TYREPOP FROM 12,10
DEFINE BAR 1 OF TYREPOP PROMPT "OPENNING STOCK"
DEFINE BAR 2 OF TYREPOP PROMPT "DELETE STOCK"
DEFINE BAR 3 OF TYREPOP PROMPT "UPDATE STOCK"
DEFINE BAR 4 OF TYREPOP PROMPT "OUTPUT"


DEFINE POPUP TUBEPOP FROM 12,40
DEFINE BAR 1 OF TUBEPOP PROMPT "OPENNING STOCK"
DEFINE BAR 2 OF TUBEPOP PROMPT "DELETE STOCK"
DEFINE BAR 3 OF TUBEPOP PROMPT "UPDATE STOCK"
DEFINE BAR 4 OF TUBEPOP PROMPT "OUTPUT"


ON SELECTION PAD TYREPAD OF CHOICES;
    ACTIVATE POPUP TYREPOP
```

```
ON SELECTION PAD TUBEPAD OF CHOICES;
    ACTIVATE POPUP TUBEPOP

ON SELECTION PAD EXIT OF CHOICES;
   DO CLEANUP


ON SELECTION POPUP ALL DO PROCEED
ACTIVATE MENU CHOICES


*PROCEDURE PROCEED
PROCEDURE PROCEED
DO CASE
   CASE POPUP() = "TYREPOP"

        IF BAR() = 1
            DO INPUTTYRE
            CLEAR
        ENDIF
        IF BAR() = 2
            DO DELETETYRE
            CLEAR
        ENDIF
        IF BAR() = 3
            DO UPDATETYRE
            CLEAR
        ENDIF
        IF BAR() = 4
            DO REPORTTYRE
            CLEAR
        ENDIF

   CASE POPUP() = "TUBEPOP"

        IF BAR() = 1
            DO INPUTTUBE
            CLEAR
        ENDIF
        IF BAR() = 2
            DO DELETETUBE
```

```
        ENDIF
        IF BAR() = 3
            DO UPDATETUBE
            CLEAR
        ENDIF
        IF BAR() = 4
            DO REPORTTUBE
            CLEAR
        ENDIF

    ENDCASE
RETURN

*PROCEDURE CLEANUP
PROCEDURE CLEANUP
RELEASE POPUPS REPORTPOP
QUIT
RETURN

* INTRODUCTION PROGRAM
PROCEDURE INTRO

TEXT
```

STOCK CONTROL

AND

PROCESSING SYSTEM

DEVELOPED BY

KINGSLEY ODIGIE

REG.NO:PGD/MCS/97/404

DEPARTMENT OF MATHS/CPT. SC.

```
ENDTEXT
@2,5 TO 23,75 PANEL
SET COLOR TO W*/B
@24,1 SAY ' '
WAIT
CLEAR
SET COLOR TO W+/B
RETURN


*PROCEDURE INPUTTYRE
PROCEDURE INPUTTYRE
STORE 'Y' TO ANS
SET STATUS OFF
DO WHILE ANS = 'Y'
 CLEAR
 USE TYRE
 GO TOP
 @1,25 TO 3,55
 @2,30 SAY 'DATA ENTRY SECTION'
 @3,3 TO 21,77 DOUBLE

 STORE SPACE(5) TO MSTOCK_NUM
 @4,5 SAY 'ENTER STOCK NUMBER :' GET MSTOCK_NUM PICT '@!'
 READ
 LOCATE ALL FOR  STOCK_NUM = MSTOCK_NUM
 IF FOUND()
    CLEAR
    @11,35 SAY 'STOCK NUMBER EXITS BEFORE'
    WAIT ' '
    CLEAR
  ELSE

    STORE 0 TO
MO_STOCK,MINVOICE,MRECEIPT,MRETURNS,MRRETURNS,MTRANSFER,MTTRANSFER
    STORE 0  TO MADJUSTMENT,MAADJUST,MT_RECEIPT
    STORE 0 TO MT_ISSUE,MC_STOCK,MO_STOTAL,MC_STOTAL
    STORE SPACE(10) TO MSIZE_NUM,MTYPE,MDEPOT
    STORE SPACE(20) TO MCUSTOMER,MTOWN
```

```
    STORE SPACE(10) TO MLORRY
    STORE 0 TO MV_NUMBER,MII_NUMBER,MNUM_R,MNUM_I
    STORE  CTOD("  /  /  ") TO MDATE

    DO DISPLAY1

    READ
    APPEND BLANK
    REPLACE TYPE WITH MTYPE
    REPLACE SIZE_NUM WITH MSIZE_NUM
    REPLACE INVOICE WITH MINVOICE
    REPLACE O_STOCK WITH MO_STOCK
    REPLACE STOCK_NUM WITH MSTOCK_NUM
    CLEAR
 ENDIF
  @13,25 SAY 'MORE STOCK OPENING ?(Y or press any key to end):' GET  ANS
  READ
  CLEAR
ENDDO
CLOSE DATA
RETURN


*PROCEDURE DISPLAY1
PROCEDURE DISPLAY1
STORE 'Y' TO RREPLY,IREPLY
@6,5 SAY 'TYRE TYPE:' GET MTYPE PICT '@!'
@10,5 SAY 'SIZE NUMBER:' GET MSIZE_NUM
@14,5 SAY 'INVOICE NUMBER:' GET MINVOICE
@18,5 SAY 'OPENING STOCK:' GET MO_STOCK
RETURN



*PROCEDURE UPDATETYRE
PROCEDURE UPDATETYRE
CLEAR
STORE 'Y' TO ANS
STORE 'Y' TO RREPLY,IREPLY
DO WHILE ANS = 'Y'
 USE TYRE
```

```
   REPLACE RTRANSFER WITH MRTRANSFER
   REPLACE RRETURNS WITH MRRETURNS
   REPLACE RADJUSTMENT WITH MRADJUSTMENT
   @19,15 SAY 'MORE RECEIPT ? (Y OR ANY KEY FOR NO):' GET RREPLY
     READ
    CLEAR
  ENDDO
  CLEAR
  @2,2 SAY '************************************ISSUES**************************'
  @6,5 SAY 'CUSTOMER'
  @6,28 SAY 'TOWN'
  @6,40 SAY 'INVOICE NO'
  @6,60 SAY 'NUMBER'

DO WHILE IREPLY = 'Y'.OR. IREPLY = 'y'
   STORE SPACE(20) TO MCUSTOMER
   STORE SPACE(10) TO MTOWN
   STORE 0 TO MII_NUMBER
   STORE 0 TO MNUM_I
   @7,5 GET MCUSTOMER
   @7,28 GET MTOWN
   @7,40 GET MII_NUMBER
   @7,60 GET MNUM_I
   READ
   REPLACE T_ISSUE  WITH  (T_ISSUE + MNUM_I)
   REPLACE CUSTOMER WITH MCUSTOMER
   REPLACE TOWN WITH MTOWN
   REPLACE II_NUMBER WITH MII_NUMBER
   REPLACE NUM_I WITH MNUM_I
   CLEAR
   STORE 0 TO MITRANSFER
   STORE 0 TO MIRETURNS
   STORE 0 TO MIADJUSTMENT
   @6,5 SAY 'TRANSFER'
   @6,28 SAY 'RETURNS'
   @6,40 SAY 'ADJUSTMENT'
   @7,5 GET MITRANSFER
   @7,28 GET MIRETURNS
   @7,40 GET MIADJUSTMENT
   READ
   REPLACE T_ISSUE  WITH  (T_ISSUE + MITRANSFER+MIRETURNS+MIADJUSTMENT)
```

```
   REPLACE RTRANSFER WITH MRTRANSFER
   REPLACE RRETURNS WITH MRRETURNS
   REPLACE RADJUSTMENT WITH MRADJUSTMENT
   @19,15 SAY 'MORE RECEIPT ? (Y OR ANY KEY FOR NO):' GET RREPLY
     READ
    CLEAR
  ENDDO
  CLEAR
  @2,2 SAY '************************************ISSUES**************************'
  @6,5 SAY 'CUSTOMER'
  @6,28 SAY 'TOWN'
  @6,40 SAY 'INVOICE NO'
  @6,60 SAY 'NUMBER'

DO WHILE IREPLY = 'Y'.OR. IREPLY = 'y'
   STORE SPACE(20) TO MCUSTOMER
   STORE SPACE(10) TO MTOWN
   STORE 0 TO MII_NUMBER
   STORE 0 TO MNUM_I
   @7,5 GET MCUSTOMER
   @7,28 GET MTOWN
   @7,40 GET MII_NUMBER
   @7,60 GET MNUM_I
   READ
   REPLACE T_ISSUE  WITH  (T_ISSUE + MNUM_I)
   REPLACE CUSTOMER WITH MCUSTOMER
   REPLACE TOWN WITH MTOWN
   REPLACE II_NUMBER WITH MII_NUMBER
   REPLACE NUM_I WITH MNUM_I
   CLEAR
   STORE 0 TO MITRANSFER
   STORE 0 TO MIRETURNS
   STORE 0 TO MIADJUSTMENT
   @6,5 SAY 'TRANSFER'
   @6,28 SAY 'RETURNS'
   @6,40 SAY 'ADJUSTMENT'
   @7,5 GET MITRANSFER
   @7,28 GET MIRETURNS
   @7,40 GET MIADJUSTMENT
   READ
   REPLACE T_ISSUE  WITH  (T_ISSUE + MITRANSFER+MIRETURNS+MIADJUSTMENT)
```

```
 @11,25 SAY '3. EXIT '
 @13,25 SAY 'ENTER OPTION [ ]'
 @13,39 GET OP PICT '9'
  READ
  DO CASE
    CASE OP = 1
       DO REPORTG
    CASE OP = 2
       DO REPORTS
    CASE OP = 3
       CLEAR
       EXIT
    OTHERWISE
       CLEAR
       @13,40 SAY  ' '
       WAIT 'Press any key to return to report menu '
    ENDCASE
ENDDO
CLOSE DATA
RETURN


*PROCEDURE REPORTG
PROCEDURE REPORTG
CLEAR

DO HEADER

? '-------------------------------------------------------------------------------
'
? 'TYPE   SIZE              INVOICE     OPENING       TOTAL       TOTAL     CLOSING
'
? '       NUMBER             NUMBER       STOCK       RECEIPT     ISSUE      STOCK
'
? '-------------------------------------------------------------------------------
'

USE TYRE
GO TOP
DO WHILE .NOT.EOF()
```

```
?type,size_num,str(invoice,10),str(o_stock,10),str(t_receipt,10),str(t_issue,10)
,str(c_stock,10)

 skip

ENDDO
WAIT ' '
SET ALTERNATE OFF
CLOSE DATA
RETURN



*PROCEDURE REPORTS
PROCEDURE REPORTS
CLEAR
USE TYRE
 @1,25 TO 3,65
 @2,30 SAY 'UPDATE OF TYRE STOCK '
 @3,3 TO 21,77 DOUBLE
 STORE SPACE(5) TO MSTOCK_NUM
 @4,5 SAY 'ENTER STOCK NUMBER :' GET MSTOCK_NUM PICT '@!'
 READ
DO WHILE .NOT. EOF()
 LOCATE ALL FOR  STOCK_NUM = MSTOCK_NUM
  IF FOUND()
   CLEAR
   DO HEADER

  ? 'STOCK NUMBER :',STOCK_NUM
  ? 'TYPE :',TYPE
  ?'SIZE NUMBER:',SIZE_NUM
  ?
  ?'INVOICE NUMBER:',INVOICE
  ?
  ?'OPENING STOCK:',O_STOCK
  ?
  ?'TOTAL RETURNS OF RECEIPT:',RRETURNS
  ?'TOTAL TRANSFER OF RECEIPT :',RTRANSFER
  ?'TOTAL ADJUSTMENT OF RECEIPT:',RADJUSTMENT
```