

THE UNIVERSITY OF MANITOBA

MODULAR DESIGN FOR A MATERIAL MANAGEMENT
AND REQUISITION SYSTEM

By

Rai Pervaiz Mumtaz, P. Eng.

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE
OF
MASTER OF SCIENCE

DEPARTMENT OF MECHANICAL ENGINEERING

WINNIPEG, MANITOBA

CANADA

NOVEMBER, 1978



MODULAR DESIGN FOR A MATERIAL MANAGEMENT
AND REQUISITION SYSTEM

BY

RAI PERVAIZ MUMTAZ

A dissertation submitted to the Faculty of Graduate Studies of
the University of Manitoba in partial fulfillment of the requirements
of the degree of

MASTER OF SCIENCE

© 1978

Permission has been granted to the LIBRARY OF THE UNIVER-
SITY OF MANITOBA to lend or sell copies of this dissertation, to
the NATIONAL LIBRARY OF CANADA to microfilm this
dissertation and to lend or sell copies of the film, and UNIVERSITY
MICROFILMS to publish an abstract of this dissertation.

The author reserves other publication rights, and neither the
dissertation nor extensive extracts from it may be printed or other-
wise reproduced without the author's written permission.

TABLE OF CONTENTS

	Page
TABLE OF CONTENTS	i
LIST OF CHARTS AND GRAPHS	iii
ACKNOWLEDGEMENT	1
ABSTRACT	3
CHAPTER 1 INTRODUCTION	6
1.1 General	6
1.2 Government Purchasing	9
1.3 Organization of Purchasing Function	11
1.4 Functions of a Complete Purchasing Operation	15
1.5 Objectives of the Purchasing Function	19
CHAPTER 2 CASE STUDY	21
2.1 Definitions	21
2.2 Abbreviations	23
2.3 Study Approach	24
2.4 Plan of Action	26
2.5 Background	29
2.6 Departmental Organization	34
2.7 Departmental Inter-relationship	36
2.8 Objectives of the Case Study	39

TABLE OF CONTENTS Cont'd

	Page
CHAPTER 3 PRESENT MATERIAL MANAGEMENT SYSTEM	42
3.1 Current Operation	42
3.2 Current Procedures	45
3.3 Commitment	51
3.4 Findings - Identification of Problems	53
3.5 Departmental Staff Objectives	55
CHAPTER 4 PROPOSED SYSTEM	57
4.1 Analysis of the Proposed Alternatives	57
4.2 The Comparison of Alternatives	69
4.3 Recommendations (Immediate)	71
4.4 The Recommended System - Central Purchasing Department	87
4.5 The Activity Analysis of the Proposed System	95
4.6 Forms and Reports	98
CHAPTER 5 OVERALL BENEFITS OF THE STUDY	103
CHAPTER 6 CONCLUSION	105
REFERENCES	106
APPENDIX	108

LIST OF CHARTS AND GRAPHS

Figure		Page
1	Material Management - The Constituent Departments	30
2	Material Management - The Flow of Activities	32
3	Present Departmental Organization	35
4	Operational Flow - Current System	44
5	Present Organizational Interrelationship	48
6	Operational Flow - Commitment Cycle	52
7	Operational Flow - Autonomy at Each Branch	58
8	Organizational Interrelationship - Autonomy at Each Branch	59
9	Operational Flow - Partial Autonomy	65
10	Organizational Interrelationship - Partial Autonomy	66
11	Organizational Interrelationship - Central Purchasing	68
12	Proposed Departmental Structure (Branch)	72
13	Organizational Interrelationship - Recommended System	88
14	Organizational Structure - Central Purchasing Department	94
15	Operational Flow - The Proposed System	97
16	Commitment/Adjustment Form - Weekly Input (Specimen A) ...	99
17	Commitment/P.O. List (Specimen B)	101
18	Material Management - Departmental Functions	108
19	Material Management Purchasing - Activity Analysis	109
20	Activity-Manpower Relationship - Current Material Management Operation	110

LIST OF CHARTS AND GRAPHS Cont'd

	Page
21 Percentage of Dollar Value Breakdown - All Requisitions	111
22 Percentage of Dollar Value Breakdown - All Requisitions Issued During the Current Year	112
23 The Distribution by Type of the Purchase Order	113
24 Percentage of the Purchase Orders Issued During the Current Year	114
25 Purchasing Bureau Orders - Dollar Value Breakdown	115
26 Percentage of Purchasing Bureau Orders by Dollar Value for the Current Year	116
27 Emergency Purchase Orders - Dollar Value Distribution	117
28 Percentage of Direct Orders (E.P.O.) Cost Breakdown for Current Year	118
29 Flow Process Chart - Requisition	119
30 " " " - Commitment	120
31 " " " - Adjustments	121
32 " " " - Goods Received	122
33 " " " - Adjustment of Goods Received	123
34 " " " - Invoicing	124
35 " " " - Preparation of Voucher	126

ACKNOWLEDGEMENT

In the process of writing this thesis, various meetings were held and numerous contacts were made with different people and departments related to the material management operation in a government environment.

The author would like to extend his sincere thanks and appreciation for the time and co-operation rendered by these sources.

First of all, for the constant instructions, guidance and supervision provided by the author's research director, Prof. Ostop Hawaleshka, P. Eng., University of Manitoba who has always been very considerate and helpful in discussing and finalizing the contents of this thesis.

Other sources (located within the Government of the Province of Y, Canada) are:

- i) The Administrative Services of Branch A
- ii) The Purchasing Staff of Branch B and Branch C
- iii) The Divisional Financial Services of Department X
- iv) The Central Government Purchasing Bureau
- v) The Ministry of Public Works
- vi) The Provincial Auditor's Office
- vii) The Ministry of Finance
- viii) The Management Committee of Cabinet
- ix) The Deputy Minister of Finance
- x) The Deputy Minister of Public Works
- xi) The Director of Administration - Department X

- xii) The Director of Central Services (DPW)
- xiii) The General Purchasing Agent for the Province of Y
- xiv) The Manager of Management Information Systems - Department X
- xv) And the Systems Development Staff of Department X.

The author would also like to express his thanks to Mrs. B. Drebert for typing this thesis in its entirety.

ABSTRACT

This thesis was completed as a result of an actual case study conducted on the material management system in a government department. The study was completely conducted by the writer in an individual capacity; and the proposals were recommended to eliminate various problems encountered in the current system. Most of these recommendations have already been implemented and some are under active consideration by the Senior Management for implementation at a suitable time.

The main objective of the study was to streamline the material management operation by making the optimum use of manpower, time and material resources and at the same time to reduce the high cost of the overall operation without affecting the quality of the system.

The department under study has three branches located within one province in Canada. Due to certain government regulations and departmental policies, the names of the province and the department studied have not been identified in this paper. However for reference purposes, the department under study will be called Department X, and its three branches will be referred to as A, B and C. The name of the province will be known as the Province of Y.

The complete study of the material management system included the following main tasks:

- i) Complete documentation of the current operation and procedures.
- ii) Analysis of the current operation and identification of problems.
- iii) Development of recommendations (including the proposal of a

revised system) in order to:

- a) Eliminate various problems encountered in the current operation.
- b) Reduce the high cost of overall material management operation.

At present, all kinds of purchases in the government are centrally processed and controlled by certain specific agencies established for this purpose. These agencies have been authorized to function under specific Government Acts and regulations approved by the central Cabinet and passed by the Legislative Assembly. Individual government departments have authority to buy goods or services under special situations only, i.e. up to a small dollar value of \$100.00 per unit or where the goods/services are required on an emergency basis.

The important material management activities, i.e. requesting tenders, selection of vendor and awarding the purchase order, etc. are performed by the central agencies whereas user departments are responsible for forwarding the requisition, receiving goods/services and processing the invoices for payment.

The recommendations were made after the detailed analysis of the current system and various problems encountered in the operation. These proposed recommendations resulted in the following benefits:

- i) Savings of two staff man years.
- ii) Savings of \$60,000 per year in material, manpower and time costs.
- iii) Shorter material management cycle (reduction of two to three weeks).

There are four main sections in this thesis. The first section deals in general with the materials management operations, its objectives and organization. The next two sections are related to the actual case study; Section II describes the study approach, background, departmental organization, and objectives of the case study, while Section III consists of information on current material management and requisition systems and the various problems involved in the current operation. In Section IV we have discussed the various alternatives available to us and the proposed system.

The Appendix consists of various tables, charts, diagrams and graphs related to both the present and the proposed systems. These are actually the support documents for reference and analytical purposes.

CHAPTER 1
INTRODUCTION

1.1 General

Buying and selling must, of course, have been important in human communities long before history began to be recorded. The stone age hunting tribes presumably had either travelling salesmen or buyers who roved the country for better bargains in the stone axes.

The increasing visibility of material management as a business function results from economic progress. The advanced industrial economy is very much an exchange economy. The purchasing content of complex manufactured goods is tending to increase. The material management function includes all the decisions, policies, and activities involved in procuring goods and services from outside the organization in return for a price. Elements of the purchasing function are essentially inter-departmental and cannot be confined within the four walls of the buying office.

There are three distinct functions in organizational buying:

- i) Specifying what to buy.
- ii) Selecting the source of supply.
- iii) Payments for goods received.

Certainly in large organizations for many of their purchases and probably in smaller organizations for some of their purchases, the material management operation is not confined to the passive acceptance of offers from suppliers. It is conducted dynamically not only by seeking out new sources but by changing supplier capabilities and market structures through supplier development in its various forms.

Determination of Possible Sources

It is the purchasing's function at this time to take over the direct procurement responsibility. Based on knowledge and experience as to potential vendors, the purchasing agent determines whom to invite to quote. According to circumstances and his judgment, he may elect to telephone, telegraph, or mail his quotation requests or to invite vendor representatives in for personal discussion. When time allows, it is advisable to send a formal quotation request form even when a single supplier is asked to quote.

Selection of the Source

Negotiation of the commitment is an important feature of the purchasing agent's responsibility. His objective is to determine who in his objective and honest judgment freely offers the most ultimate value for the money in the combined factors of price, service and quality.

Issuance of Purchase Order

When agreement with the chosen vendor is reached, all pertinent provisions of the agreement are formally confirmed by the preparation and issuance of the purchase order. The purchase order is a legally binding obligation and the authority to incur such obligation is a function entrusted to the intelligence, prudent judgment and integrity of the purchasing agent. It expresses in specific language the agreement between the buyer and the vendor, and once accepted, it has the legal force of a binding contract. It is essential that the obligation be stated in the purchase order clearly and completely.

While the primary purpose of the purchase order is to state the detailed agreement reached with the vendor and to authorize his delivery of the purchased material, copies of the document serve the additional purpose of notifying and advising all other affected departments of the details of the transaction. Thus, the requisitioner is notified that his material has been ordered, the terms of the purchase and when he may expect delivery.

1.2 Government Purchasing

There is a widespread impression that government purchasing is totally different from industrial purchasing. This impression is not altogether valid. Both government and industrial purchasing are concerned with buying the right quality, in the right quantity, at the right price and time, and from the right source. Government purchasing, however, frequently involves special considerations which are not usually applicable to the purchaser in private industry. The principle reason for these variations and procedural differences was the need for public accountability where public money was spent. Government purchasing must be organized and executed in such a way that it not only is, but can be seen and shown to be impartial and fair. This is an overriding priority in democracies and determines one of the fundamental characteristics of a sound government operation.

Another critical difference between industrial and government purchasing is the source of the funds used for the purchases. At all levels of government, taxes paid by citizens and businesses are used to purchase the required materials and services. Generally, government procedures permit the government purchasing agent considerably less freedom of action and discretion than business allows his industrial counterpart. Government procedures stem from specific laws and regulations which require competitive bidding, fixed budgetary limitations, rigid auditing of accounts, and the use of prescribed standard specifications.

While these procedures are designed to protect the interests of the taxpayers, they generally result in less flexibility and, in many cases, purchases whose total cost (considering purchase price, inspection

10.

costs, installation costs, maintenance costs, and service life) is greater than it would have been had the government used profit-oriented business buying techniques.

1.3 Organization of the Purchasing Function

Purchasing is a part of management and should be organized to operate accordingly. The purchasing department should be organized to embrace all aspects of the purchasing function and may include purchasing inventory control, stores, and general materials control. Management expects the purchasing department to accept responsibility to secure the right material, at the right price, at the right time, and to maintain a good relationship with suppliers. To accomplish this, the department must be organized on sound management principles. As described earlier, lines of authority should be clear and well defined. Policies should be formulated only after determination of what is required in the relationship of the purchasing department with other departments.

Kinds of Reports Going to Top Management

Periodic Reports

Some of the periodic reports that are sent to top management monthly, quarterly, or yearly include the following:

- i) The dollar value of purchases further divided into various inventory categories (raw materials, finished components, supplies, etc.)
- ii) The operating costs of the purchasing department further divided into accounting categories (direct purchasing personnel, clerical personnel, office expenses, etc.)
- iii) Analysis of work performance of the purchasing department:
 - a) Number of orders issued and dollar value of purchase commitments

- b) Number of invoices processed and dollar value of payments to vendors
- c) Annual progress and performance report describing department.

Purchasing and Finance

Every purchase made represents an expenditure or commitment of funds. It sets in motion a series of accounting operations, such as charging the expense to the proper contract or department account, the verification and approval of the invoice, payment of the charge, and the final audit. In the case of extraordinarily large or unforeseen expenditures, it may require special financial arrangements or credit considerations. Under some forms of government contracts, there are further requirements that must be met in order to secure prompt reimbursement for the expenditure. The relationship between purchasing and accounting departments is, therefore, a vital one, and frequently starts before the purchase is actually made.

It is essential that purchasing procedures be correlated with accounting requirements and methods to avoid duplication of work on clerical entries and the necessity of checking back to secure essential information on any related record until routed to the accounting department at the time the order is issued, for determination of cost data and distribution of charges to the department or job concerned. The carbon copy also provides original data for the final checking and audit when the transaction is completed. By means of this duplicate copy, the routine processing of the information can be done simultaneously in the two departments

each handling that portion of the work for which it is responsible, without waiting for the actual receipt of the materials and invoice from the vendor, and requiring only the reconciliation with the receiving report to complete the paper work incident to the transaction. Sometimes, as a matter of information, these order copies are supplemented by a daily or weekly summary report of commitments in dollar totals, to provide a quick view of the financial situation with respect to materials accounts.

Clearing the Order

In some large companies, the normal responsibility of the purchasing department ends with the issuing of the purchase order. In such cases, the using department or a separate expediting unit follows up for delivery, the inspection department is responsible for acceptance, the stores department takes care of receiving the material, and the accounting department checks invoices and certifies them for payment from its own copy of the order. Usually, however, the purchasing department is involved in all of these duties, on the general principle that procurement responsibility ends only when a satisfactory delivery has been made and the materials are actually on hand for use, and when the buyer's obligation to the vendor has likewise been satisfied, completing the contract.

Receiving

The receiving department is usually an adjunct of the stores department, which may or may not be a part of the purchasing department. Its functions are to receive incoming goods, signing the delivery notice presented by the carrier or the supplier in connection with the shipment;

to identify and record all incoming materials; to report their receipt to the purchasing department and to the stores, using, or inspection departments as required; and to make prompt disposition of the goods to the appropriate department.

To aid in identification of the materials received, the receiving department is advised of all expected shipments by means of a copy of the purchase order.

All incoming materials are reconciled with the receiving department's copy of the purchase order. A record is kept of every delivery, and receiving reports containing this information go to the purchasing and stock records departments promptly.

1.4 Functions of a Complete Purchasing Operation

The sequence of events leading up to and following through a complete procurement cycle in a business involves many functions other than purchasing but the purchasing function is called upon to take part at each step. The degree of formality and the details of procedure may vary from firm to firm and in degree from item to item in each firm, but each transaction is subject to the following typical sequence.

Original Consideration of the Purchase

Before an item can be bought, someone must decide whether or not to buy it; and, if so, specifically what should be bought. According to the degree of importance, the value involved or the complexity of the problem, purchasing has the responsibility of developing prices, alternatives, and other relevant information.

Origination of the Purchasing Request

When the decision is reached by the appropriate individual, that decision is transmitted in the form of a duly authorized requisition. It may take any one of three typical forms:

- i) A repetitive reorder card
- ii) A routine requisitions form, or
- iii) A specific memorandum requesting an unusual procurement not provided for in existing routine procedures.

Whatever the form, the request to purchase or requisition is the purchasing department's signal to proceed and provides three essentials:

- i) Purchasing department's authority to make the commitment;
- ii) The identity, quantity, and specification of what is to be purchased; and
- iii) The date when the item is required.

The requisition form usually provides certain additional information for the convenience of subsequent receiving and handling as well as accounting and cost records, such as specific destination identification and the appropriate cost codes to be charged.

Invoice Check and Payment

It is a generally recognized accounting function to verify or check the accuracy of invoices and thereupon to transmit payment to the vendor. Invoices require three checks:

- i) Verification by comparison with receiving documents that the billed material has been received complete and in proper condition;
- ii) Verification by comparison with the purchase order that the prices and terms conform to the purchasing agent's commitment; and
- iii) Machine extension of the invoice to verify arithmetical accuracy.

The accounting department in some firms provides the routine service of:

- i) Verifying the mathematical accuracy of invoices;
- ii) Rendering payments with due promptness;
- iii) Earning cash discounts in accordance with the purchasing agent's

purchase agreement; and

- iv) In some concerns, ascertaining all instances of variance between invoices rendered and the purchase agreement, referring such instances back to the purchasing agent for appropriate correction and/or renegotiation.

Such variances which are obviously clerical errors are generally adjusted by direct handling between the respective accounting departments to avoid unnecessary burden on the respective purchasing and sales departments. It is the responsibility and prerogative of the purchasing function to obtain satisfactory settlement of delivery and invoice deviations from the original purchase agreement.

Receiving and Inspection

The function of receiving and physically handling delivered materials, together with verifying that the deliveries correspond exactly to that specified in the purchase order, is usually performed not by the purchasing department but by a specialized group, independent of purchasing from an internal audit standpoint, working in conjunction with allied functions of stores, warehousing, or materials handling.

Receiving personnel are notified what incoming material to expect, when and how it is scheduled to be delivered, what inspection to make and whom to notify on arrival. The accounting department's copy notifies of the expenditure committed and furnishes the price and terms to be verified and paid on the subsequent invoice. Other copies may be used for additional notifications according to the organization and needs of the particular firm.

Purchase Follow-up and Expediting

Follow-up is the process or function of checking up on the vendor to ensure his fulfillment of his promised delivery obligation. While the term "expediting" is frequently used loosely or interchangeably with follow-up, it is more accurate to define expediting as the effort to improve a promised or scheduled delivery.

justification for existence.

Control of Financial Commitments

In the situation of continuous buying, outstanding commitments at any one time represent a very substantial financial obligation in any organization. It is imperative that the members of management know at all times exactly what commitments have been made and that they have centralized control over the making of commitments. The purchasing department provides that control by:

- i) Insisting that no commitments be made except by authorized members of the purchasing department or by approved delegated authority.
- ii) Setting up strict procedures for the issuance of purchase orders and keeping a record of them.
- iii) Providing management with control points in establishing inventory policies and ensuring that these policies are being observed.
- iv) Providing a control point for purchases of other than inventory items such as construction contracts and other items.

Without centralized control the financial stability of a sound management might be endangered, therefore, the purchasing department must of necessity maintain very strict rules with respect to the making of commitments.

The information on the following pages is related to the study conducted on the Material Management and Requisition System in Department X.

CHAPTER 2

CASE STUDY

2.1 Definitions

- Expenditure Code - The code by which the type of expenditure is identified, i.e. Travelling 02, Books 03, Stationery 07, etc. This is a two-digit figure.
- Cost Centre Code - The code of the section using the items. It is represented by two alphabetical letters.
- Outstanding Commitment - The amount which is still allocated for the specific purchase request and is expected to be used and/or spent in the future.
- Requisition - A document filled out for the purpose of requesting the purchase of material or service.
- Purchase Order - A contract prepared for the purchase of material or service between the purchaser and vendor.
- Public Account Code - The code used by the Central Department of Finance to identify the type of expenditure. These codes are used by the Department of Finance for all kinds of expenditures throughout the government.
- Invoice - A document stating the amount payable and the terms of sale for the goods/services supplied

by the vendor.

Voucher -

A document authorizing the payment to the vendor for the goods/services received.

Packing Slip -

A document (normally a copy of the invoice) which is sent along with the goods at the time of shipping to a required location. This paper is retained by the "Goods Received" section.

2.2 Abbreviations

CPD	-	Central Purchasing Department
CC	-	Computer Centre
Dept.	-	Department
FS	-	Financial Services
I.R.	-	Internal Request
P.O.	-	Purchase Order
Reqn.	-	Requisition
P.S.	-	Packing Slip
Rcvd.	-	Received
P.B.	-	Purchasing Bureau (Govt.)
Ext.	-	External
P.C.	-	Purchasing Co-ordinator
E.P.A.	-	External Purchasing Agency
Prpd.	-	Prepared
Vouch.	-	Voucher
Fin.	-	Finance
O.E.B.	-	Office Equipment Branch
E.C.	-	Expenditure Code
Exp.	-	Expenditure
E.P.O.	-	Emergency Purchase Order
Br.	-	Branch
P.S.	-	Packing Slip

2.3 Study Approach

The whole study of the Material Management and Requisition System was conducted and documented by the author himself in an individual capacity.

The main tasks performed in the course of this study were:

- i)
 - a) Staff activities
 - b) Sequence of operation
 - c) Statistical data
 - d) Government Acts, regulations and statutes.
- ii)
 - a) Management information and operational charts
 - b) Departmental functions and inter-relationship charts
 - c) Graphs and tables.
- iii) Detailed analysis of the present material management and requisition system.
- iv) Identification of problems in regard to the manpower, time, and material cost.
- v) Development of recommendations which would be implemented in the present operation on the immediate basis. These recommendations would remain in effect until a revised or new material management system becomes operational.
- vi) Identification and establishment of the main objectives of the material management and requisition system after discussion with the user, senior management, and external government agencies.
- vii) Development of a revised material management operation which would help in achieving both the user's and senior management's

objectives.

In our short-term plan we are aiming at the reorganization of the material management activities, the elimination of duplication, and the institution of proper procedures and controls. The long-term goals will be aimed towards having updated information and reports available in a comprehensive form and a reduced work cycle and paper work. This would centralize and integrate the information and eliminate much manual checking, filing, writing, and typing, etc.

2.4 Plan of Action

This study on the material management and requisition system in a government department was completed in different stages, i.e. collection and documentation of information, identification of problems in the present operation, recommendations, and development of a new/revised material management system, etc. The following lines explain how each task was completed and how many steps were involved in each stage of the study. The plan of action was formulated by the author before the study was conducted and minor revisions were made according to the scope of the operation as the study progressed.

- i) Collection of Information
 - a) Interviews
 - b) Gathered facts and figures related to the material management operation at all branches.
 - c) Staff job descriptions and departmental functions.
 - d) Information on the material management system in other government departments.
 - e) Government Acts, policies, regulations, and statutes related to the material management and requisition system.
- ii) Documentation of Information
 - a) Management information charts.
 - b) Flow process and operational charts.
- iii) Identification of Problems
 - a) Determine the effective utilization of manpower, material and time factor.
 - b) Evaluate the staff job descriptions and departmental inter-relationship.

- c) Answer questions such as: Are the departments and staff performing according to the standards and instructions? Are the activities performed by the right staff? What are the operational requirements? What are the user's and the senior management's objectives? Are these objectives being fulfilled? What is the purpose of the various controls and checks? etc.

iv) Development of Recommendations (Immediate)

- a) Eliminate time loss in various activities.
- b) Find answers to questions such as: What is being done? Is everything necessary? What can be combined, simplified or eliminated?
- c) How else can a job be performed?
- d) How can paper work, filing, recording, and checking be simplified?

v) Determine User's and Senior Management's Objectives

- a) What does the user expect out of a material management and requisition system? Are these expectations justified?
- b) What controls and checks does the senior management want to maintain on expenditures and why?
- c) What information and data should be made available to the user and management?
- d) What purposes a standard material management and requisition system should serve in a broad spectrum.

vi) Proposed System

- a) The proposed system should overcome the problems encountered in the present operation.
- b) It should serve both the user's and management's objectives.
- c) It should utilize effectively the manpower time and material resources.
- d) It should utilize the information, data and statistical figures collected on the current materials management operation.

The aforementioned plan of action was followed and constantly reviewed throughout the case study conducted on the material management system in Department X.

2.5 Background

At present the purchasing operation for all government departments is centrally controlled by external purchasing agencies established under the acts and regulations passed by the cabinet and legislative assembly of the province. There are different government branches designed to monitor the purchasing operation according to the specific requirements of the requesting departments. The provision has been provided for direct buying under the following conditions:

- i) An emergency situation or immediate requirement for equipment or services.
- ii) It is not economically feasible to follow the normal purchasing cycle for acquisitions of small dollar value (\$100.00 - \$150.00).

In the Department X, each branch has an internal purchasing system. The main functions performed by the branches are:

- i) Preparing a requisition
- ii) Liaison with external agencies and follow-up on orders
- iii) Receiving goods and passing invoice for payment.

For detailed 'Activity Analysis', please refer to the Appendix page 109. The selection of the vendor is made and the purchase order is issued by an external agency depending upon the nature of the request. At present there are four external purchasing agencies and the services performed by these departments are as follows:

Purchasing Bureau - Machinery or Equipment (other than office),
Food, Fuel, Repairs, Furniture, Clothing, Laboratory Equipment and other miscellaneous items.
(Ref. Appendix pages 108 and 115).

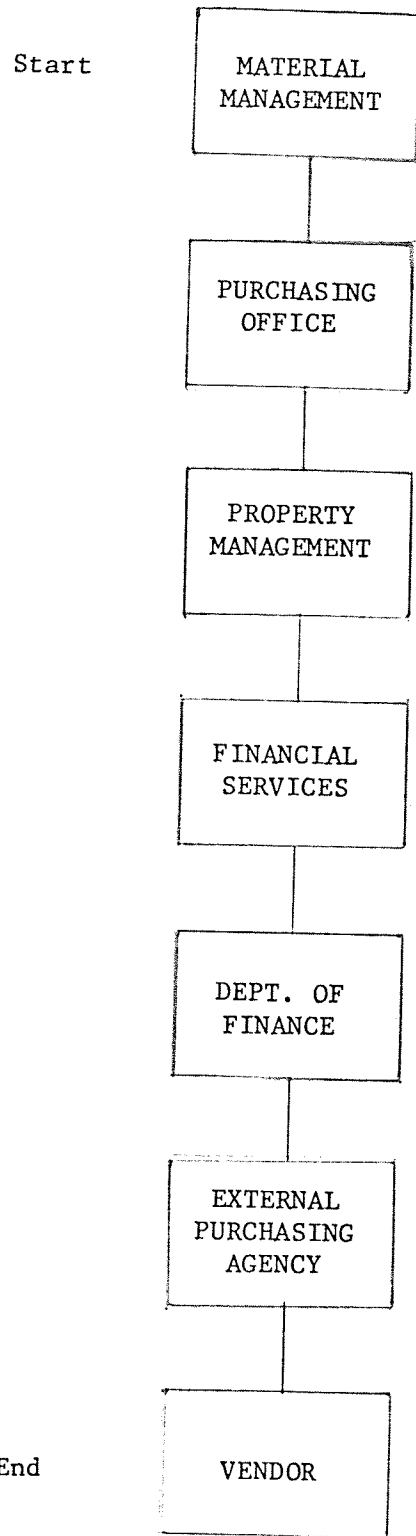


Fig. 1. Material Management - The Constituent Departments.

<u>Queen's Printer</u> -	Audio-Visual, Stationery, Printing Services, Government Publications, Magazines and Books, etc. (Ref. Appendix pages 111 and 113).
<u>Office Equipment Branch</u> -	All office equipment and machines (typewriters, calculators, duplicators, etc.) and services. (Ref. Appendix pages 111 and 113).
<u>Advertising Audit Office</u> -	All advertisement in the Newspaper, Radio, Television Media, Exhibitions, etc. (Ref. Appendix pages 111 and 113).

The first two agencies are located within the Department of Public Works and the last one belongs to the Consumer and Corporate Affairs.

The main steps involved in the purchasing operation are:

<u>Activity</u>	<u>Responsibility</u>
Requisition	Department X
Selection of Vendor	Ext. Purchasing Agency
Purchase Order	Ext. Purchasing Agency
Goods Supplied	Vendor
Goods Received	Department X
Processing of invoice	Department X
Verification of invoice	Ext. Purchasing Agency
Preparing voucher	Financial Services (Divisional)
Payment of invoice	Central Finance

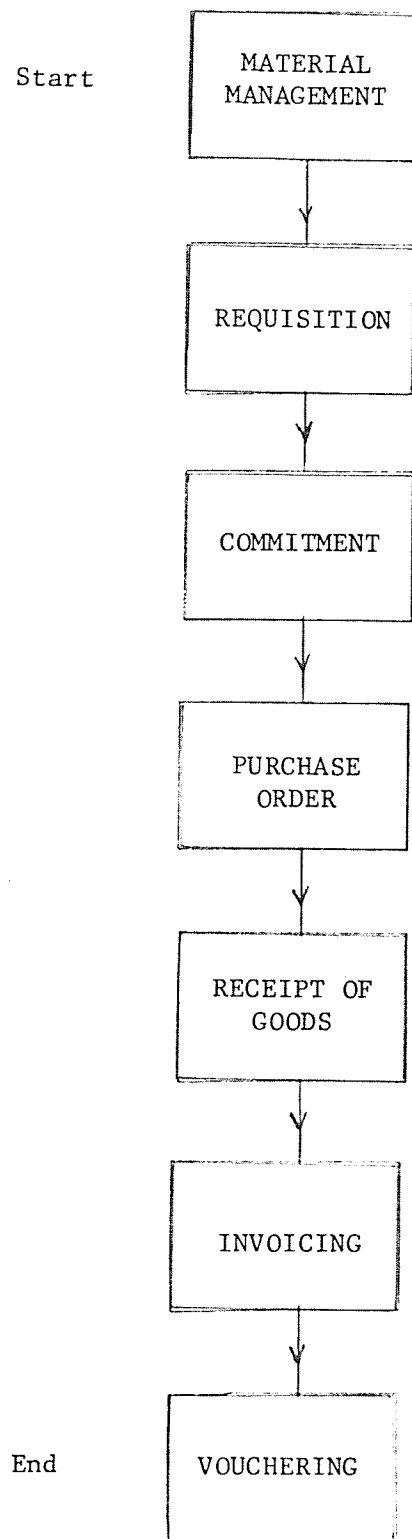


Fig. 2. Material Management - The Flow of Activities.

According to the regulations, the invoice after being processed by the branches has to be verified by the external purchasing agency involved. For detailed departmental functions and inter-relationship, refer Appendix page 108.

2.6 Departmental Organization

The Department X has two main divisions. The Division 1 (under-study) has three main branches: A, B and C. Branch A is the largest of all the branches and is located in City K, whereas the other two branches are quite small in size and are located outside of City K. The heads of the branches report to the head of Division 1, who is the Assistant Deputy Minister. There is a central area responsible for the administration of Division 1 (all Branches A, B and C). The main functions performed in this area are General Administration, Budget, Personnel, Management Information Systems, Financial Systems, Communications and Planning for the whole division. (Note: City K is the capital of the Province of Y).

Each branch has an internal purchasing section which co-ordinates the various purchasing and related activities. At Branch A these activities are shared by two separate sections i.e. Property Management and Purchasing, mainly because of the size of the purchasing operation at this branch. The property management section looks after activities such as inventory control, commitment (budget allocation for purchases), accounts payable, purchase of office equipment and furnishings, etc. The person in charge of the Purchasing Section at each branch is known as the Purchasing Co-ordinator (P.S.). This person basically co-ordinates the material management activities between the branch and external government or private agencies. The current material management activities are organized such that the branches have no control over the important functions i.e., inviting tenders from suppliers, selection of vendor, or issuing the purchase order, etc. These functions are performed for all Government Departments by a central group located outside of the branches.

PRESENT ORGANIZATION

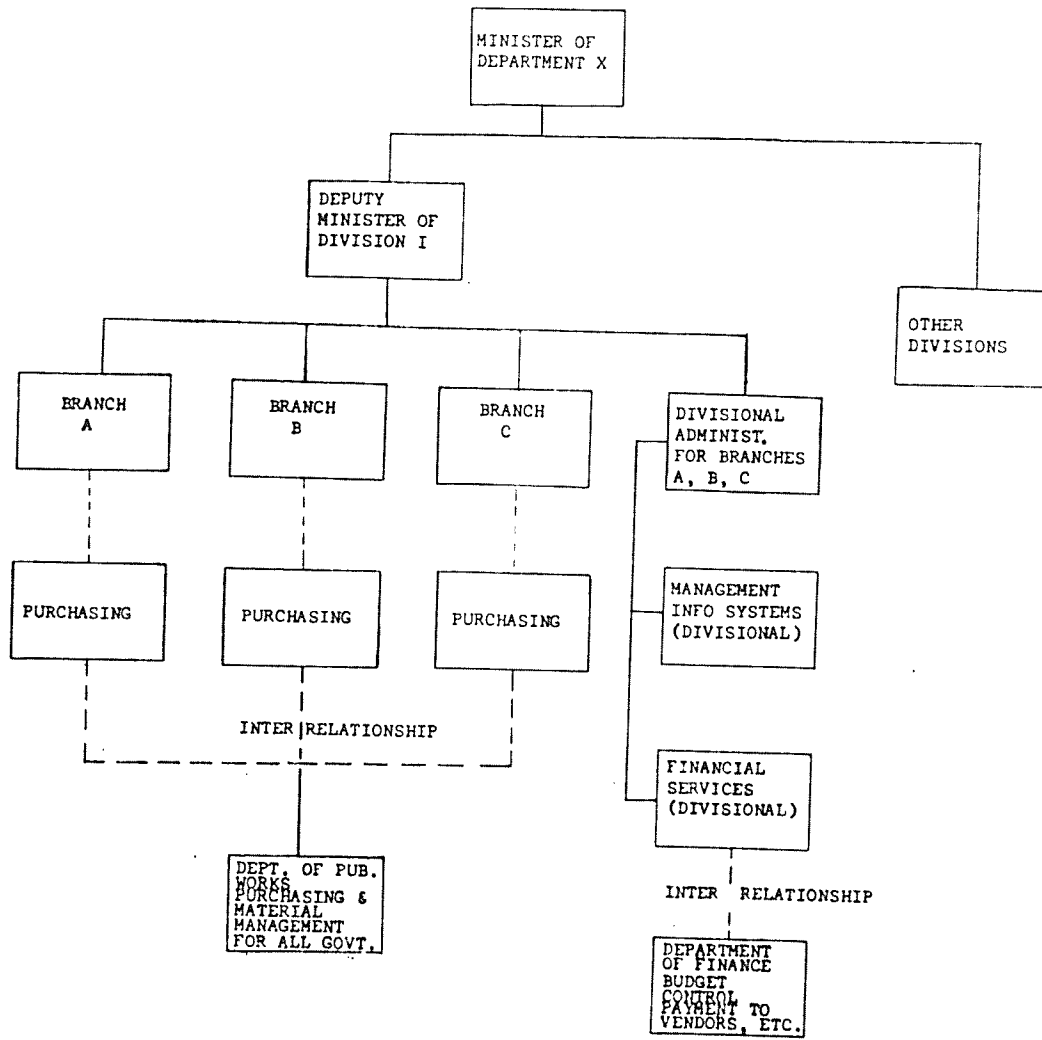


Fig. 3. Present Departmental Organization

2.7 Departmental Inter-relationship

There are three main working groups involved in the material management and requisition system inside Department X. These are:

- i) Purchasing Section
- ii) Property Management
- iii) Financial Services

The distinct functions performed by these sections are:

Purchasing

Functions

- a) Checking Internal Request Form for accuracy.
- b) Preparing Requisition.
- c) Following up on purchases.
- d) Handling adjustments to original request.
- e) Processing emergency purchases.
- f) Providing information on materials, suppliers, and prices, etc.

Property Management

Functions

- a) Handling Internal Request for commitment.
- b) Goods received.
- c) Maintaining inventory.
- d) Stockroom activities, i.e. stationery, furniture, miscellaneous Office Equipment.
- e) Accounts Payable, Invoice Processing.

Financial ServicesFunctions

- a) Checking invoices for payments.
- b) Preparing payment voucher for central Department of Finance.
- c) Maintaining audit controls and financial procedures.
- d) Purchase order price update for all branches.

External Groups

Apart from the different groups involved in the material management system inside the branches, there are certain other areas involved in the system which are located outside of Department X. These are:

- Central Government Purchasing Bureau
- Queen's Printer
- Office Equipment Branch
- Advertising Office

Functions

- a) Checking the Requisition for contents, specifications and accuracy.
- b) Contacts with prospective suppliers.
- c) Comparing quotes and tenders.
- d) Selection of Vendor.
- e) Placing orders and follow-up.
- f) Verifying invoices.

The above functions are performed centrally for all the government departments.

Central Department of FinanceFunctions

- a) Examination of Voucher.
- b) Preparing cheques for vendors.
- c) Supplying information on payments and budget to all government departments.
- d) Maintaining audit controls and financial procedures.

Apart from the above the only other outside groups include the private vendors, manufacturers and suppliers of goods/services.

2.8 Objectives of the Case Study

The Systems Development Group of Management Information Systems in the Department X undertook a study of the Material Management and Requisition System as a part of a proposed complete Financial Information System study, which would cover in addition to the Material Management, the areas of Accounts Receivable, Budgeting, and Accounts Payable.

The main objectives of this material management study were:

- i) To completely record, document and identify the present material management and requisition activities (from the raising of an Internal Request to the stage of issuing a cheque) for all the branches in an organized and modular fashion.
- ii) To develop an improved material management system for all branches ensuring that:
 - a) The material management operation is standardized and a uniformity is maintained in the system for all the branches.
 - b) The Commitment System (Budget Allocation and Clearance) is more timely, accurate and meaningful. The 'commitment', as defined earlier, is an activity of allocating funds for purchasing a specified item. The available budget of the requesting section is reduced by the amount committed (allocated).

- c) Control is maintained at the right time and at the right stage over non-budgeted and unplanned expenditures, especially the non-recurring items.
- iii) To establish and define related policies and organizational functions within the branches and to further eliminate problems, unnecessary time and manpower efforts involved in the present material management activities.
- iv) To develop a system which can supply accurate information for both the intermediate and Senior Management. This information will be extremely useful for reference, analysis, and decision-making purposes.
- v) To improve the co-ordination between various departments within the branches as well as external government and private agencies.
- vi) To explore the feasibility of an independent material management system for all the branches.
- vii) To reduce the manpower, material, and time cost presently involved in the overall material management operation.

The above objectives were identified by the staff of Department X, after discussion with the author and related outside agencies.

Operational Chart

The following should be kept in mind while reading the operational charts:



- i) The information on the left top corner represents the name of the Department, work area or agency involved in performing the activity described in the box.
- ii) The flow of charts generally represents the sequence of activities as well.
- iii) The description in the box represents the activity performed by the department or work area concerned.

The operational charts have been prepared in order to highlight the distinct characteristics of the departments and staff functions.

CHAPTER 3

PRESENT MATERIAL MANAGEMENT SYSTEM

3.1 Current OperationInternal Request

An internal request (see specimen) is always prepared by the requestor in the branch whenever a purchase of goods/services is requested. The internal request is checked by the purchasing section and a requisition is prepared accordingly. The requisition, after being approved by the authorized personnel, is forwarded to the external purchasing agency.

Purchase Order

The process of tendering, selection of vendor, and ordering is performed by an external agency. The copy of the purchase order is supplied to the branch's purchasing section.

Goods Received

Goods are received by the branch concerned and are checked for correct delivery of items against the purchase order.

Processing of Invoice

The invoice is matched against the purchase order and the packing slip by the branch's accounts payable section. The addition and extension is also performed at the same time along with other necessary checks.



Invoice Verification

The invoice is verified by the external purchasing agency for the price being just and fair. This activity is required for all invoices according to the Government Purchases Act.

Vouchering

The vouchers are prepared by Financial Services for all branches concerning all kinds of purchases.

Payment

Payments are made to the supplier by the central Department of Finance.

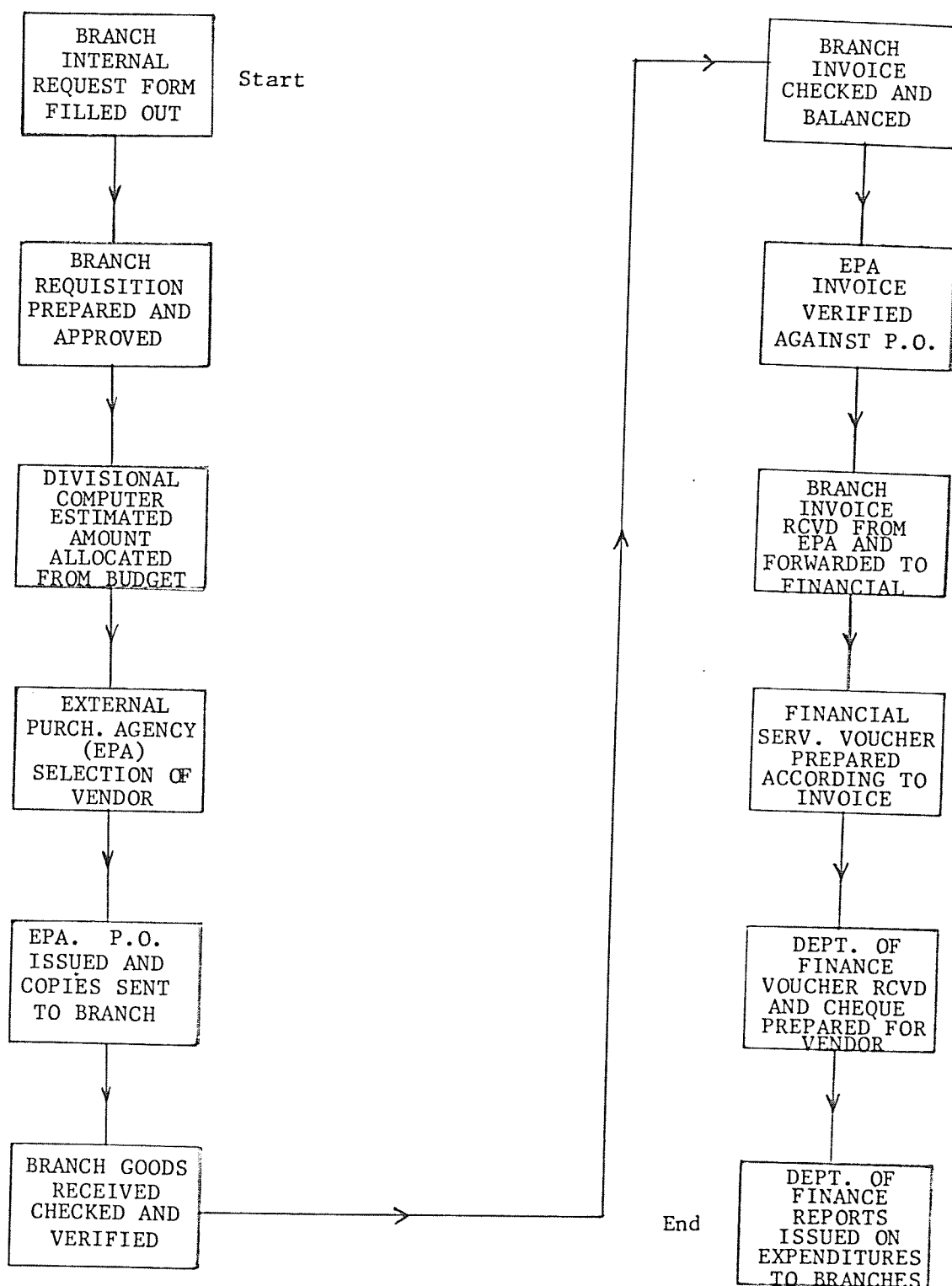


Fig. 4. Operational Flow - Current System.

3.2 Current Procedures

The present purchasing operation has been described 'by activity' in the following lines:

Internal Request

This form is used to initiate all kinds of purchasing requests. This form is filled out by the requestor, then approved by the Section Head and is then forwarded to the Purchasing Officer of the branch concerned.

Requisition

A Requisition is prepared by the Branch Purchasing Section according to the information provided on the Internal Request form.

Approval of Requisition

The typed Requisition is sent back to the requestor and Section Head for signatures and inspection. The Requisition is then forwarded to the Department Head and finally to the Branch Head.

Purchase Order

The approved Requisition is sent to the 'External Purchasing Agency' for ordering. The selection of the vendor is made and the Purchase Order is issued by the External Purchasing Agency. A copy of the P.O. is sent to the Branch Purchasing Section for reference.

Commitment

The estimated amount of Requisition is entered in the Budget Record of the section through the computer. This amount is replaced by the P.O. amount as soon as the P.O. becomes available.

Goods Received

Goods are supplied by the vendor to the Branch's Supply and Receiving Section. The packing slip is checked and verified against the P.O. by the 'Receiving Section'. The packing slip is signed by the requestor (person who originally requested the goods) and then is forwarded to the Accounting Section.

Invoice Processing

The invoice is received by the Accounting Section of the branch and is matched against the verified packing slip for accuracy. The extension, addition, and matching against the P.O. and commitment sheets is then completed.

Invoice Verification

The invoice after being processed by the branch is sent to the External Purchasing Agency for verifying the 'price being just and fair' according to the P.O. The invoice (three copies) are then sent back to the branch office.

Vouchering

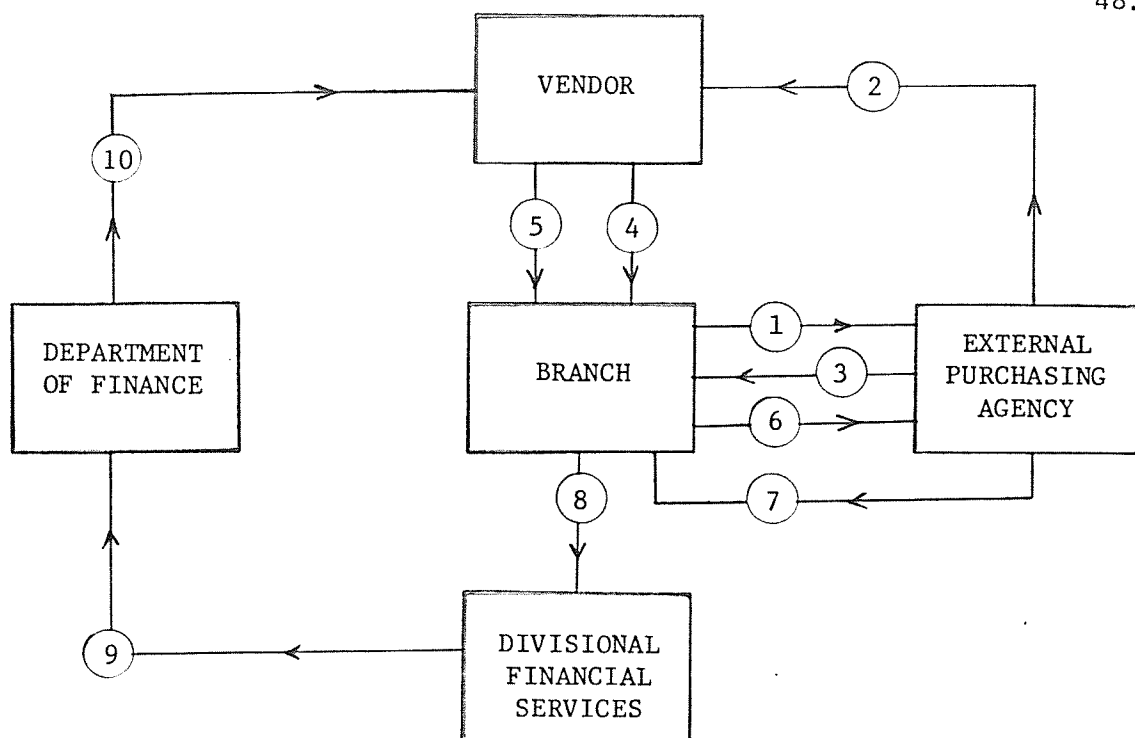
The invoice after being verified by the External Purchasing Agency is passed onto the Divisional Financial Services for vouchering. The Financial Services Section prepares the voucher according to the information provided on the invoice. The voucher is then sent to the central Department of Finance for payment.

Payment

Payments are made by the Department of Finance. Information on payments made is provided to the Financial Services Section and the Divisional Computer Centre.

Budget

At the end of the month, information on payments made is compared against the amounts committed. The data is provided to all departments of the Division on Total Annual Budget, Total Expenditure Year-to-Date, Amounts Committed and Budget Available, etc.



1. Requisition sent to the External Purchasing Agency.
2. Purchase Order sent to the Vendor.
3. Copy of the Purchase Order sent to the Branch.
4. Goods shipped to the Branch by the Vendor.
5. Invoice sent to the Branch by the Vendor.
6. Passed Invoice forwarded to the Purchasing Agency for verification.
7. Verified Invoice mailed back to the Branch.
8. Invoice forwarded to Financial Services by the Branch.
9. Voucher prepared and forwarded for payment to the Department of Finance by Divisional Financial Services.
10. Cheque prepared and sent to the Vendor.

Fig. 5. Present Organizational Interrelationship.

Important Information — Current Procedure

- i) Every Internal Request form has to be filled out by the requestor and recommended by the Section Head. The Requisition is prepared by the Purchasing Officer at each branch. It is rerouted back to the requestor and Section Head for signatures.
- ii) Every Requisition going out of the branches has to be signed and approved by the Branch Head regardless of the dollar value.
- iii) The head of each branch can approve the purchase of an item up to the value of \$100.00 per item. Above this figure, he can recommend it for approval to a senior authority (Deputy Minister).
- iv) A separate Requisition is prepared for each External Purchasing Agency according to the nature of the request.
- v) Commitment is performed (funds are allocated and subtracted from the approved budget) as soon as a Requisition is prepared at each branch.
- vi) Every Internal Request going out of the branches (for which a Requisition is prepared) has to be committed through a mechanized (computer) commitment system.
- vii) All kinds of purchases (except emergency) are made by central government agencies. The Purchase Order is issued, processed and the selection of the vendor is made independent of any input from the branches.
- viii) Emergency purchases (up to \$150.00) are made by the branches only after the consultation with the central government purchasing agency.

- ix) All invoices after being processed by the branches are sent to the External Purchasing Agency for verification.
- x) The Department of Finance would not pay the vendor unless the invoice is not verified by the External Purchasing Agency.
- xi) Vouchers for all kinds of invoices are prepared by the Financial Services (Divisional) for all branches.
- xii) Every invoice is checked against the available budget and the commitment system in order to see if there is enough money for the payment. The purchase amount is shown as 'expenditure' and the commitment is cleared after the payment is made to the vendor.

It should be understood that most of the aforementioned activities are performed according to the Central Government Acts and Regulations which are uniformly followed throughout all the Government Departments.

3.3 Commitment

It is an operation of controlling funds for purchase out of the approved budget and consists of three main elements.

- i) To allocate funds against each purchase request at the time of the requisition or purchase order. Further, to show the committed amount as outstanding until such time when the payment has been made.
- ii) To add, subtract, adjust or cancel the order or amount.
- iii) To clear the original funds by the amount which has been paid to the vendor (partial or total).

The operational flow has been shown on the attached chart and the three stages of the commitment cycle have been shown on the Specimen form B, page 101.

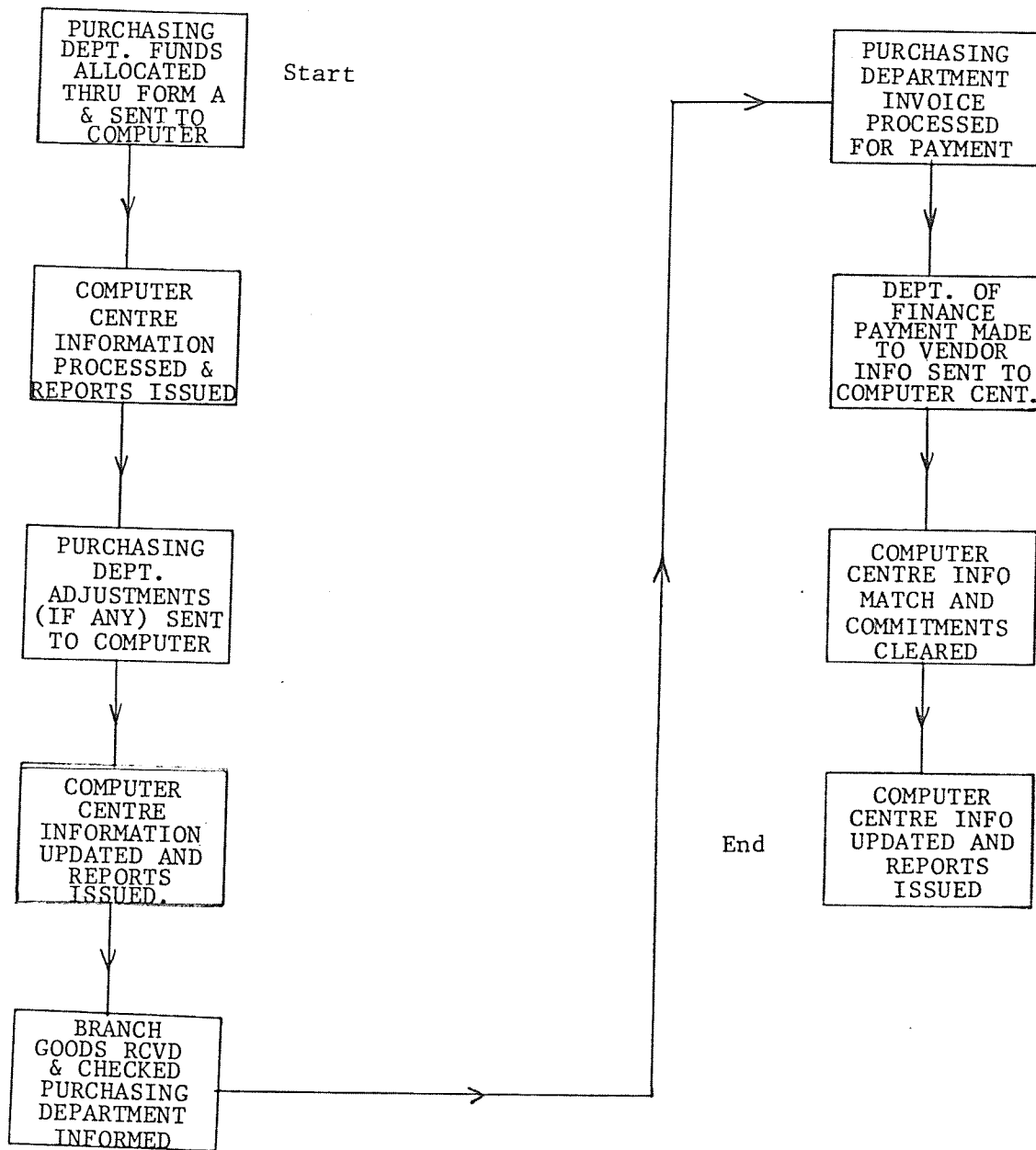


Fig. 6. Operational Flow - Commitment Cycle.

3.4 Findings — Identification of Problems

The following problems were identified in the current material management and requisition system during the course of our study.

- i) Non-uniform and non-standard material management operation in the branches. Duplication and unnecessary sharing of documentation. Too many checks, matching of documents and controls between various departments in the same branch.
- ii) Undefined policies and procedures in the purchasing areas of the branches.
- iii) Fragmentized purchasing operation causing unnecessary record keeping and maintenance of manual ledgers in various areas of the individual branch.
- iv) Lack of co-ordination between the various departments within the branches and outside government agencies.
- v) Limited control over non-budgeted and non-recurring capital expenditure items.
- vi) Lack of mechanization which can help in reducing significantly the present paper flow and record keeping activities in the overall material management and requisition system.
- vii) Limited use of manpower, time and material resources resulting in the high cost of the overall material management operation.
- viii) The Commitment System is not serving the requirements as originally intended.
- ix) The branches are not communicating properly with the Government Purchasing Agencies and private companies about problems and mutual responsibilities.

- x) Improper use of various documents and codes, etc. In some cases, the official and authorized documents have been substituted by self-designed forms.
- xi) Lengthy procedure for ordering the material and making payments to the suppliers. Quite frequently, the branches are held responsible for the delays (i.e. in ordering equipment or making payments), which are actually beyond their control.
- xii) Unorganized staff functions and job responsibilities in the material management area of the individual branches.
- xiii) Significantly large numbers of Emergency Purchase Orders (EPO's) being processed (Ref. Appendix page 117) without justified reasons at all times. The volume of EPO's can be substantially reduced by ordering the material at the right time in advance.
- xiv) Lack of control and autonomy for Department X over the material management operation.

Frequently, it was found that Department X has virtually no control over vital material management activities:

- a) Selection of vendor
 - b) Delivery of equipment
 - c) Receiving equipment according to the specifications requested by the staff of Department X.
 - d) Purchasing correct substitute equipment in cases where the originally requested unit is not available.
- xv) Delays in the processing of invoices for payment. The invoices often being processed by the branches are re-checked by the external government purchasing agency. This activity alone causes a delay of two to three weeks.

3.5 Departmental Staff Objectives

The departmental staff objectives can be divided into two distinct groups:

- i) User Staff
- ii) Senior Management Staff

The main objectives of these groups were identified as the following:

A. User Objectives

The most common objective of all users was found to be: "the earliest possible delivery of equipment according to the requested specifications".

The requestor does not seem to accept the replacement of the equipment unless there exists very justified reasons. For example, substituting equipment just because of the price factor is not acceptable.

Other objectives are:

- i) The requestor should be kept informed on the progress of his purchase request.
- ii) A decision on the substitute equipment should not be made without his consent or without his consultation.
- iii) Invoices should not be sent to the External Purchasing Agency for verification. This activity delays the whole cycle of payment by two to three weeks without just cause.
- iv) The process of commitment ('allocation of funds') should be improved. The requesting section should be kept updated on the available budget, funds committed, and purchases made from year-to-date.

B. Senior Management Objectives

The objectives of the senior management in a broad spectrum are:

- i) Department X should be given more autonomy in the overall material management and requisition system.
- ii) Purchases at each branch should be close to the pre-planned request and the available budget.
- iii) In the case where the purchases are not made according to the original plan, the allocated amount should be used for any other purpose only after the mutual agreement between the requesting area and the senior management.
- iv) Communication between the branches and the central government purchasing agencies should be improved.
- v) Reporting mechanisms on the material management and requisition system should be improved to present an updated and accurate picture on commitment, expenditures, and available budget.

In addition to the above, the senior management also agreed in principle with the objectives put forward by the user staff.

CHAPTER 4
PROPOSED SYSTEM

4.1 Analysis of the Proposed Alternatives

After analysis of the present material management and requisition system and the various problems encountered in the current operation, five possible alternatives were proposed and are discussed in the following paragraphs.

The alternatives are:

- A. Autonomy at each branch.
- B. Installation of Data-Base terminals.
- C. Improve the present system by implementing the proposed recommendations.
- D. Improve the present system by modifying the present "Government Purchases Act" (Partial Autonomy).
- E. Autonomy with the central purchasing department.

Alternative A — Autonomy at Each Branch

This alternative mainly involves the establishment of an independent material management operation at each branch. The branches would be completely independent in performing all activities related to the material management operation. Vouchers would still be prepared centrally by the Divisional Financial Services with cheques to the vendor subsequently issued by the Department of Finance.

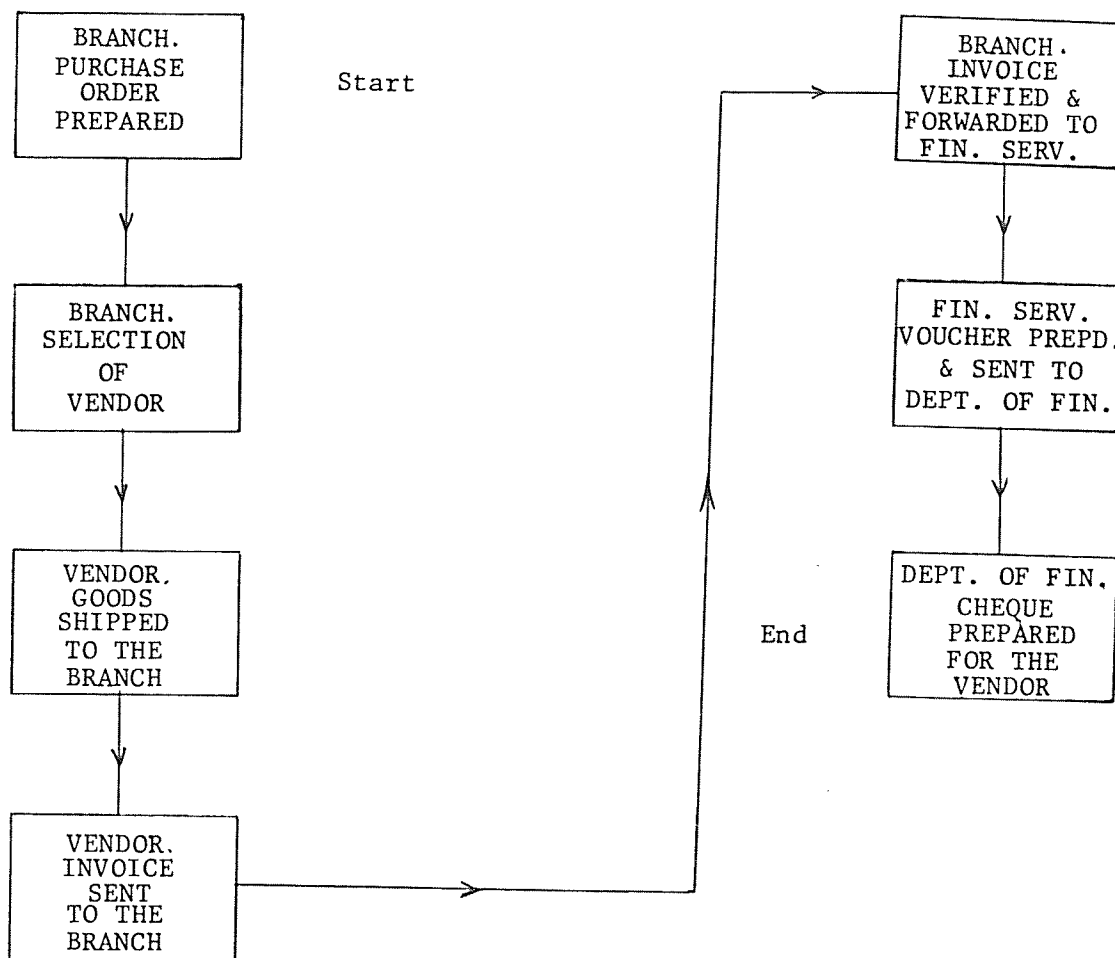
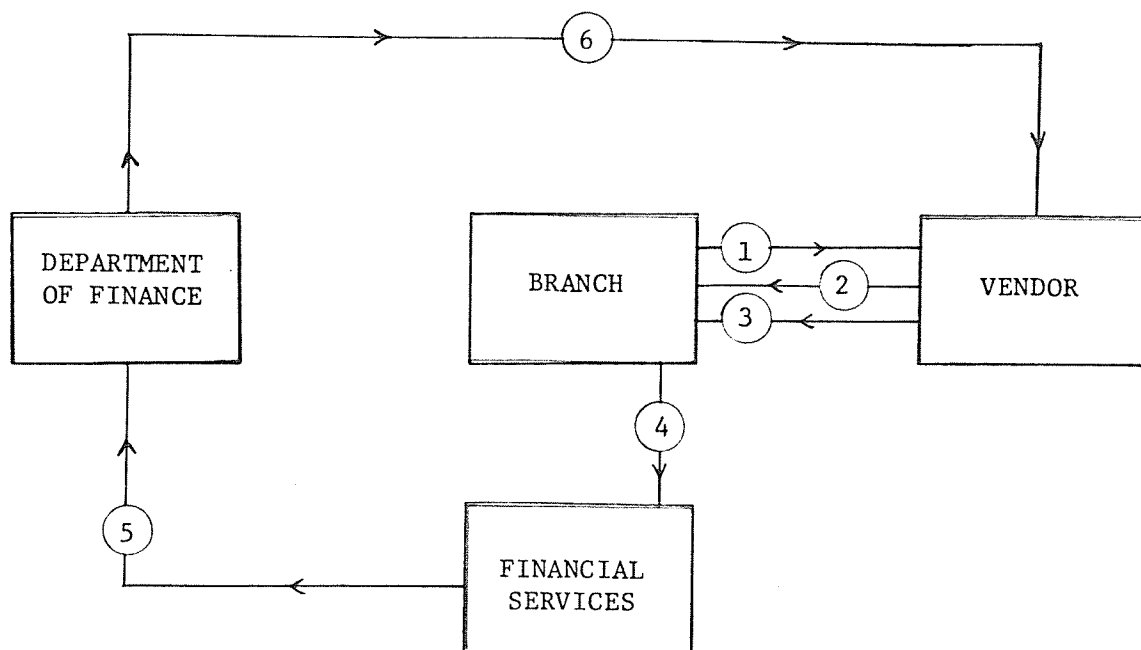


Fig. 7. Operational Flow - Autonomy at Each Branch.



1. Purchase Order sent to the Vendor by the Branch.
2. Goods shipped to the Branch.
3. Invoice sent to the Branch.
4. Passed Invoice forwarded to Divisional Financial Services.
5. Voucher prepared and sent to the Central Department of Finance.
6. Cheque prepared and sent to the Vendor.

Fig. 8. Organizational Interrelationship - Autonomy at Each Branch.

This alternative could not be pursued in further detail because of the following main reasons:

- i) The volume and size of the purchasing activities is not large enough to justify a full scale material management department at each branch.
- ii) The concept of a uniform and standard purchasing operation would not be achieved.
- iii) The Computer Centre would have to communicate with three different areas instead of one central area.
- iv) It would be difficult to maintain adequate control over the budget expenditures.
- v) High operational costs would be incurred because each branch would be using different forms, documents, and processing channels for the similar purpose.

Alternative B — Data-Base System

The approach in this alternative is basically "to provide a data-base system with terminals at each branch in order to mechanize the manpower efforts and communication activities". The material management documents (Internal Request, Requisition, Purchase Order and Voucher, etc.) which are presently prepared manually would be generated by the system. Material management and requisition record would be integrated through computerization and the branches would have direct access to the information for follow-up or decision-making purposes. Furthermore, the information would be instantly available to the user on the progress and status of the purchasing request.

As mentioned earlier, the following activities would be organized by using the data-base entry system.

- i) Requisition. The information can be transferred on-line and the requisition can be generated according to the input (off-line) on a daily basis.
- ii) Vouchers can be generated on the basis of information provided in the invoice. Data can be on-line and the vouchers can be issued off-line.
- iii) Information about requisitions, purchase orders, operating budget, packing slips, invoices and vouchers, etc. would be stored.
- iv) Provision for on-line enquiries would be provided.

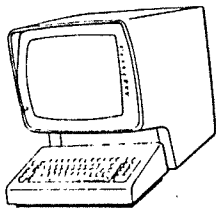
(A schematic of the proposal is shown on the attached sheet).

It is felt that data-base terminals will not be feasible or economical unless these are used for a large number of customers, inquiries or for a very large service area. Although this alternative seemed quite promising, the following disadvantages were identified:

- i) Justification of high cost involved, especially under the circumstances of budget restraint programs.
- ii) Need for a feasibility study regarding the provision of data-base terminals at all branches. Applications, in addition to the material management operation, should be considered.
- iii) Justification of work load and volume of material management activities at all branches.

The preliminary analysis and discussion with the various departments (including computer services staff) revealed that the cost of implementing the aforementioned system would be quite high as compared with the size of the operation (approximately in the range of \$150,000.00).

Consequently, this alternative was not explored any further. Senior management, however, has accepted the proposal in principle with the understanding that whenever suitable time and need warrants, all possible efforts will be made to implement such a data-base system.

Purchasing Activities — Proposed TerminalsData Base Entry SystemBranch — Material Management Section

- i) Requisition/Purchase Order will be generated.
- ii) Matching of various documents will be performed while passing the invoice.
- iii) Information will be stored about P.O. packing slip, invoice, and commitment.
- iv) Provision for inquiries.

Goods Received

- i) Packing slip will be matched against purchase order.
- ii) Information will be stored about: requisition, P.O., packing slip, contract (open) orders, and goods received.
- iii) Provision for inquiries.

Financial Services

- i) Voucher will be generated from invoice.
- ii) Information will be stored about: invoice and voucher.
- iii) Provision for inquiries.

Alternative C — Improvement of the Present System

Various changes have been recommended in the present set up (within the branches only) which would result in better organization, planning, and control over numbers of requests being forwarded. This would not give the branches any control over the specifications, selection of the vendor, processing of documents and delivery of goods, etc. The proposed changes would result in the following benefits:

- i) Reduction in volume of requisitions being prepared.
- ii) Improved vendor's service and communication between branches and external agencies.
- iii) Elimination of duplication and unnecessary controls and checking inside the branches.
- iv) Improved departmental functions and organizational inter-relationship.

Alternative D — Improvement of the Present System by Modifying the Purchasing Act (Partial Autonomy)

This alternative involves the modification of the present 'Government Purchase Act', concerning the processing of invoices. According to the existing regulations, all invoices which have already been checked by the branches require verification by the External Purchasing Agencies. This activity adds unnecessary work and delays the whole purchasing cycle.

It is recommended that invoices should not be routed through the External Purchasing Agency as there seems to be no operational requirement for this activity. The invoice is thoroughly checked and balanced

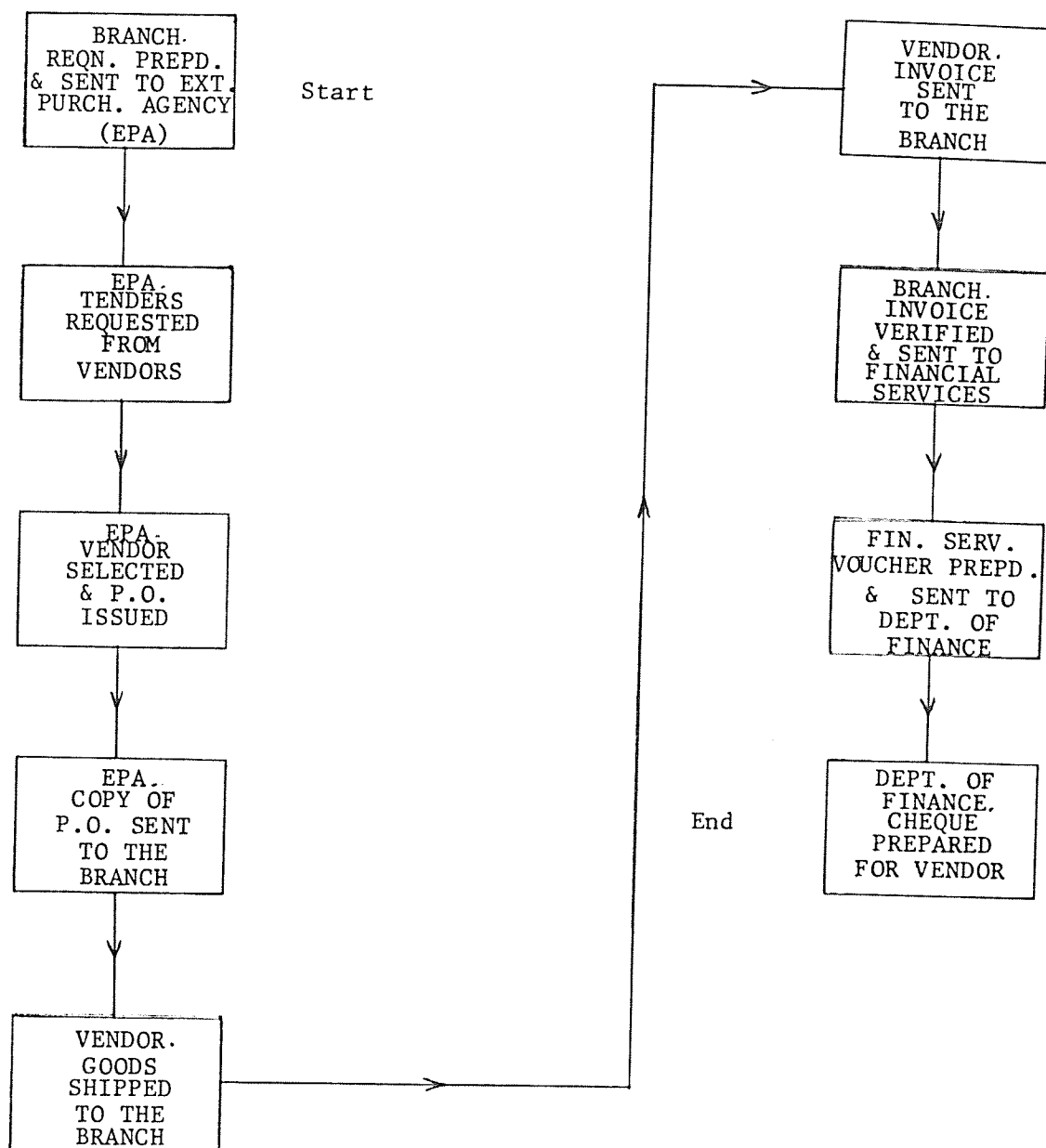
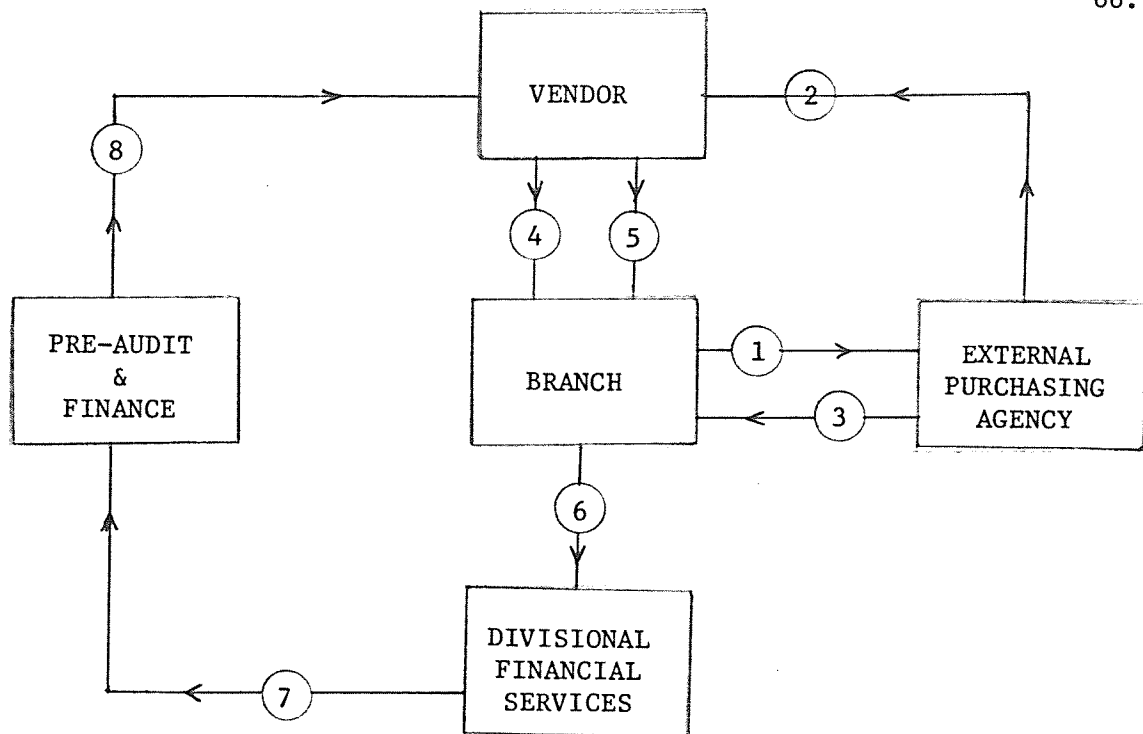


Fig. 9. Operational Flow - Partial Autonomy.



1. Requisition sent to Purchasing Bureau by Branch.
2. Purchase Order sent to the Vendor.
3. Copy of the Purchase Order sent to the Branch.
4. Goods shipped to Branch by the Vendor.
5. Invoice sent to the Branch by the Vendor.
6. Passed Invoice sent to the Financial Services by the Branch.
7. Voucher for payment forwarded to the Department of Finance.
8. Cheque prepared and sent to the Vendor.

Fig. 10. Organizational Interrelationship - Partial Autonomy.

by the branches against the purchase order and the goods received. The recommended change would help in reducing the time cycle (by two to three weeks) as well as the manpower efforts related to the processing of invoices.

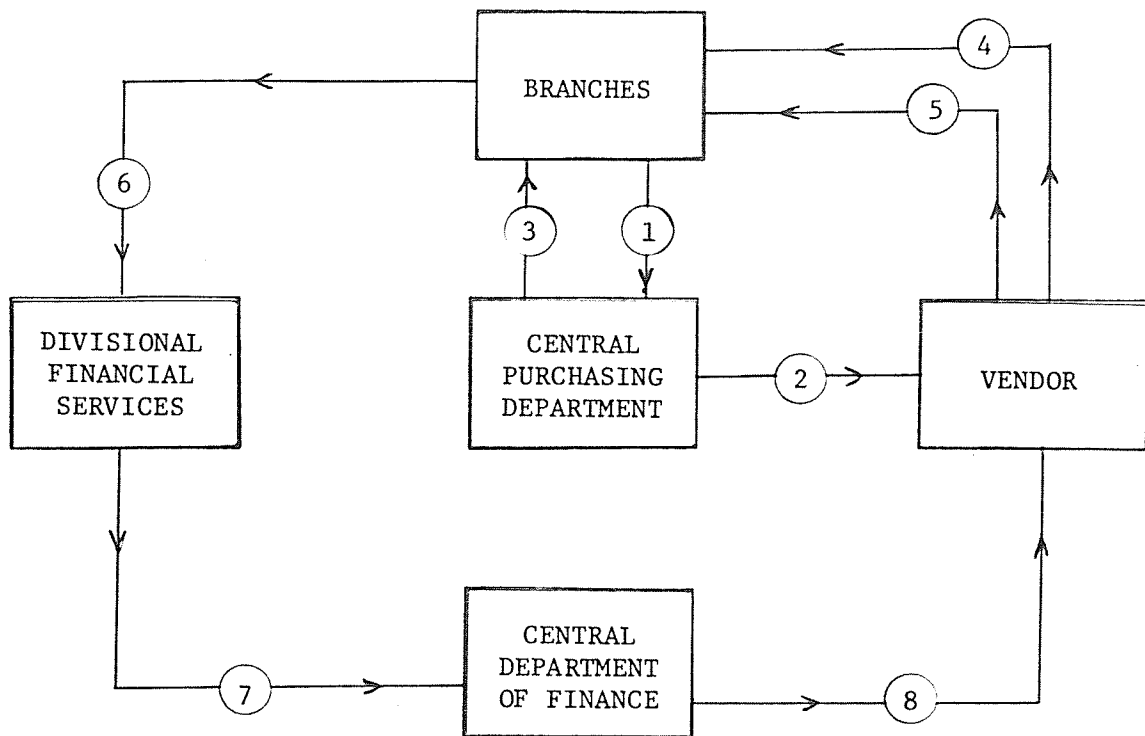
This alternative is similar to alternative C and consists of almost the same benefits and disadvantages. The only additional improvement will be a further reduction in manpower efforts and a reduced purchasing time cycle (by approximately two to three weeks).

Alternative E — An Independent Central Purchasing Department

This proposal involves the establishment of an independent material management operation for all branches of Department X. The main purpose is to develop a concept whereby direct buying and the selection of the vendor or equipment can be made without going through any External Purchasing Agency outside of Department X.

A central material management department will be located within the Divisional Administration of Department X. The staff at all branches will be in direct contact with this section for all kinds of material management and related requirements. The central purchasing section will be allocated a joint budget for operating expenditure based on the requirements of all the branches.

The aforementioned alternative would also involve necessary changes to the Government Purchases Act.



1. Requisition sent to the Central Purchasing Department (CPD).
2. Purchase Order forwarded to the Vendor.
3. Copy of the P.O. supplied to the Branch.
4. Goods shipped to the Branch.
5. Invoice sent to the Branch.
6. Passed Invoice sent to the Financial Services.
7. Voucher prepared and forwarded to the Department of Finance.
8. Cheque prepared and sent to the Vendor.

Fig. 11. Organizational Interrelationship - Central Purchasing.

4.2 The Comparison of Alternatives

The five proposed alternatives were compared on the basis of benefits, advantages and disadvantages involved in each of them. The first two alternatives were dropped because of certain major problems being involved in the implementation of these proposals. Those are:

- i) The volume and size of the material management operation at each branch is too small to justify the facility.
- ii) High operational cost and lack of justification attached with the Data-base system.

Proposal number three consists of some very important recommendations which could be implemented immediately regardless of any system changes. This alternative was accepted by all those concerned and has already been implemented. Certain organizational changes were delayed because of some ground work which is necessary in order to facilitate these changes. The last two alternatives have one major point in common, that is "Modifications are required to the Government Purchases Act".

It is a lengthy and difficult process to create changes in government acts or regulations. Any possible changes must be discussed at the ministerial level, presented to the Cabinet and then finally be approved by the Legislative Assembly. Changes, minor and major, have to go through the aforementioned process. It was felt that if at all changes are required in the 'Purchases Act' then such an alternative should be proposed that:

- i) Would help us in achieving our major objective of an independent material management and requisition system; and

- ii) Would not require any further changes in the Government Act at a later time because it would be almost impossible to do so.

It is important to understand that Alternative D would not provide an independent material management operation even with a change in the Government Purchases Act.

As a result of the above discussions, two proposals were finally selected:

- i) Improve the existing material management operation by implementing the immediate recommendations.
- ii) An independent material management operation with a central Purchasing Department.

The recommendations of proposal C would be ultimately phased into the new system, when it becomes fully operational. The proposal for establishing a central Purchasing Department was accepted by the senior management including the Deputy Minister. Hence, the discussion in the following section is divided into two parts, e.g. immediate recommendations and the proposed autonomous system.

The following pages contain the proposed immediate changes recommended in the current material management and requisition system. These changes would remain in effect until the revised system becomes fully operational.

4.3 Recommendations (Immediate)

Recommendation No. 1

"The present Purchasing Section at all branches should be amalgamated with Property Management Section. Accounts Payable Section should be taken out of Property Management and combined with the Accounts Receivable area to establish a full scale Accounting Department".

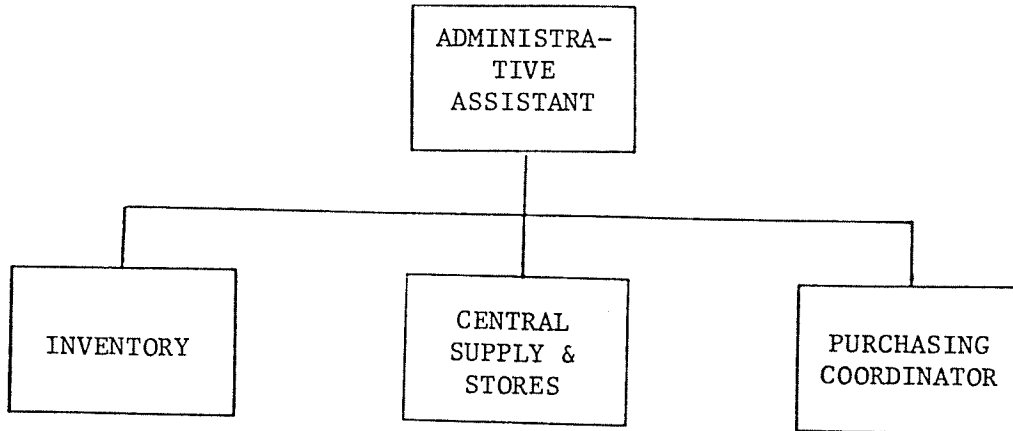
Observation

The study has revealed that there is a certain amount of duplication and overlapping of purchasing activities between the Purchasing Section and Property Management. This results in unnecessary documentation and transactional work required in completing the purchasing cycle. (Ref. Appendix page 109). Moreover, the present staff functions and job responsibilities are not properly organized.

Possible Effects

The proposed change would eliminate unnecessary documentation and transactional work performed at present, and would help in establishing a functional purchasing department at all branches. The Accounting Section would handle all invoices (including those which are related to the purchasing area). The proposed changes would increase the departmental efficiency and at the same time, would result in segregation of functional responsibilities. It is believed that certain staff activities will be eliminated after the departmental reorganization of Purchasing and Property Management areas. The proposed Purchasing and Store Department

PURCHASING AND STORES



ACCOUNTING SECTION

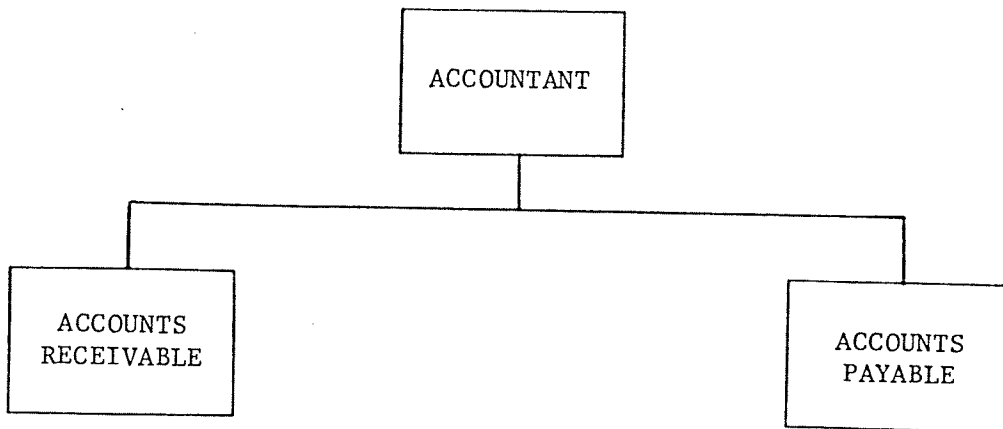


Fig. 12. Proposed Departmental Structure (Branch)

should be maintained at its permanent staff complement without utilizing any term position.

The Inventory Section (two positions) and Stores (five positions) will be studied during the Inventory Phase of the Financial Systems study. This project will encompass the procedure development and the analysis of proper staff requirements according to the workload in these areas.

The job descriptions of certain staff people would require some modifications after the changes in the departmental structure has been implemented. Further, it is felt that certain job positions in the proposed Accounting Department may have to be reclassified.

The departmental structure with the implementation of the above changes has been shown on the attached sheet.

Recommendation No. 2

"Purchasing Sections at all branches should be organized according to the job duties and departmental functions".

Observation

It was observed that present job duties are not properly defined and segregated on the basis of departmental functions. The recommendations are aimed at achieving better departmental efficiency in the branches.

Recommendations - GeneralRecommendation No. 3

"The feasibility of establishing computer terminals at Branch B and Branch C should be explored. If feasible, computer terminals should be provided at all the branches".

Observation

It was observed that sometimes computer processed information was of no use to other branches because of the time gaps in providing the required data to Branch B and Branch C. Frequent adjustments are constantly made to update the computer information by the branch's staff. This happens mainly because of not having direct communication with the Computer Centre.

Possible Effects

The computer terminals would provide direct and immediate access to the accurate data and information required by the branches. This would substantially reduce time and manpower efforts presently consumed in updating/adjusting the data and would further solve the communication problem.

This recommendation, also, supports our proposal for the Purchasing System on a long-term basis.

Recommendations - RequisitioningRecommendation No. 4

"All efforts should be made to make a realistic estimate for the items to be purchased, and while making an estimate for item cost, allowances should be provided for freight charges and contingency".

Observation

On certain occasions, the estimated price (without contingency and freight allowances) does not match with the price on the purchase order or when the goods are received. This creates extra work later on for updating the committed price and adjusting funds for price variation.

Recommendation No. 5

"The Requisition form must be filled out and approved before a Purchase Order can be prepared by the Purchasing Section".

Observation

The Requisition form is not always filled out before the preparation of a Purchase Order. This creates uncertainty as to the authority or approval of the requisition or purchase.

Recommendation No. 6

"Documents pertaining to the purchasing operation should always be signed by the appropriate and authorized staff only".

Observation

Documents and forms are not always signed by the concerned and responsible staff which creates:

- i) Non-uniformity in the Purchasing System.
- ii) Loose control as to whose approval is necessary for processing such documents.

Recommendation No. 7

"The Purchasing Section at each branch should be responsible for preparing a quarterly report on the purchases of capital items over \$500.00, and the report should be supplied to Branch Heads and Divisional Administration".

Observation

Presently, this information is not prepared and supplied to the senior management by the branch. Therefore, senior management is not kept updated on expenditures for capital items (over \$500.00) and the corre-

sponding cash flow. This recommendation is aimed at achieving better management control of capital expenditures.

Recommendations - Commitment

Recommendation No. 8

"The Departmental Expenditure Codes should be entirely phased out and replaced by the Central Government Codes".

Observation

While dealing with the Department of Finance, the Departmental Expenditure Code has to be transferred to the Central Government Code and again when information is provided by the Department of Finance about the branch expenses, the Central Government Code is transferred to the Departmental Expenditure Code. This entails extra work during follow-up and reference activities. Moreover, it causes confusion and communication problems in the Department X and external government agencies about the accuracy of the codes.

Recommendation No. 9

"Certain forms used for purchasing (Requisition, Commitment, and Adjustment Forms, etc.), should be redesigned in order to provide comprehensive information to all those concerned".

Observation

Present forms do not contain enough information for follow-up purposes and for inter-departmental communication. Moreover, such documents

do not provide accurate sources of record for comparison in case of any controversy.

Recommendation No. 10

"An improved commitment system should be developed which would provide more accurate and reliable information".

Observation

The present commitment system is not serving our original purposes. Commitment is not performed at the right stage, and for the right amount. The result is that accurate information is not available all the time for user departments and senior management for review. This is mainly because the commitment is performed at the requisition stage, whereas it should be performed at the purchase order stage.

Recommendations - Ordering

Recommendation No. 11

"Follow-up on all kinds of purchasing activities (Requisition, Purchase Order, Commitment and Receiving Goods, etc.), should be performed by the Purchasing Co-ordinator concerned".

Observation

Presently, these activities are performed by more than one section, which creates confusion as to who is responsible for what action. Secondly, it causes significant inconvenience for the requestor to find out about the exact stage of his purchase request.

Recommendation No. 12

"Combined purchase orders should be encouraged in the branches for stock and common supplies (in bulk form) in various areas of the branch".

Observation

It is believed that with the implementation of this proposal, a substantial amount of time and effort can be saved. Moreover, it will be more economical to follow this procedure.

Recommendation No. 13

"Contract Orders should be discouraged in areas (specially Food Services) where these prove to be uneconomical".

Observation

It was observed that on many occasions, branches are locked into the pricing policy due to the Contract Orders and could not benefit from the comparatively low current market prices.

Recommendation No. 14

"Contract Orders should be distinguished from non-contract orders for identification purposes".

Observation

Contract Orders take a comparatively longer time to complete the delivery of material and then to make subsequent payments. It was found that by keeping these orders together with the non-contract orders:

- i) It is inconvenient to locate contract orders for follow-up.
- ii) Non-contract orders consume vital office space even after being completed.

Recommendations - Emergency Ordering

Recommendation No. 15

"The use of emergency purchases should be controlled and a uniform procedure for direct purchases should be developed for all branches".

Observation

It was found that there are many situations where the use of an Emergency Purchase Order could have been avoided. Moreover, different forms and procedures are followed at each branch for emergency purchases. This causes non-uniform operations and lack of co-ordination between branches and External Purchasing Agencies.

Recommendation No. 16

"Preventive maintenance system should be developed for branch equipment and machinery".

Observation

The volume of Emergency Purchase Orders can be reduced substantially if equipment is checked and serviced at regular intervals and if a reasonable supply of frequently required parts is maintained. It was

observed that not all the times the reasons for Emergency Purchase Orders are justified and hence, the facility is misused on many occasions. The volume of EPO's can also be reduced by ordering the material at the right time.

Recommendation No. 17

"The use of Direct Ordering facility (EPO) should be restricted to emergency repairs/service or to a situation where pre-arranged plans did not materialize".

Observation

Presently, the EPO facility is used in various areas, i.e. course consumables, books, buses, miscellaneous material and service, etc. It is believed that in many of the areas where EPO facility is presently used can be avoided by proper planning.

Recommendation No. 18

"A regular quarterly report on the use of Direct Orders (EPO) should be produced by the system for all branches".

Observation

This information is not prepared at the present time, and hence, figures are not available as to the volume or percentage of EPO's used by the branches. Such information will be useful in monitoring the use of EPO's in various branch sections.

Recommendations - Goods ReceivedRecommendation No. 19

"All goods should be delivered to the Supply Section of the branch concerned and goods received should immediately be checked against the official reference documents".

Observation

Sometimes, the goods are directly delivered to the requestor without the confirmation of quantity or specifications. For any misappropriation in the delivery of goods, it becomes very difficult later on to locate the problem and the person responsible or the problem area.

Recommendation No. 20

"Official documents should not be substituted by the self-designed forms".

Observation

Some areas have substituted their own forms to substitute for official documents which have to be provided by the supplier. In this case, wrong information can be recorded about the goods received and for any variation in the shipment, the supplier cannot be held responsible at all times. This, in our opinion, is not a desirable practice, and should be stopped.

Recommendation No. 21

"Records of all suppliers must be kept by the section concerned who do not supply goods to branches in the specific and required manner".

Observation

On many occasions, suppliers do not mail all the necessary documents or reference sheets with the goods and invoices, i.e. packing slip, P.O. number, requisition number, area requesting the purchase, etc. This causes inconvenience and unnecessary work for the branch staff to locate corresponding information and then to process these documents. This affects the whole purchasing cycle and the branches are blamed for the delay. The information thus collected will, consequently, be brought to the attention of the vendors, as well as the External Purchasing Agency in order to streamline the operations. This recommendation also pertains to the Invoicing activity.

Recommendations - InvoicingRecommendation No. 22

"Invoices should be checked against the reference documents (packing slip, purchase order) before processing for payment".

Observation

This recommendation is being made in order to eliminate any chances of double or overpayments to the company. In certain cases, suppliers were overpaid in the past.

Recommendation No. 23

"Payable Section should always retain a copy of the invoice for information and reference purposes".

Observation

At different times, all copies of invoices are sent to external departments for processing. In the meantime, for any enquiries or follow-up on the purchase order, the Payable Section remains without any record of the invoice. This is not desirable, especially if the invoice copies are lost or misplaced by the external departments.

Recommendations - Record RetentionRecommendation No. 24

"Periodic aging of files in the Purchasing and Supply Section should be performed and completed transactions should be separated from active files and moved to a temporary storage".

Observation

It was observed and a "Record Retention Study" also indicates that the completed transaction documents are left in the office area for more than the required time. It is believed that better utilization of the office space for more important purposes can be achieved by removing the completed transactions from the office area after the approved retention period.

Recommendation No. 25

"The feasibility of microfilming the documents should be evaluated and if justified, the purchasing records (and related financial documents) should be microfilmed".

Observation

At present, large volumes of material management and requisition records occupy much of the required office and storage space. Also, for back inquiries, the record is not easily accessible. The above recommendation is aimed at better utilization of office space and faster access to the active record.

Recommendation No. 26

"The Branch Head should not be required to approve all requisitions. The authority for approving requisitions up to \$500.00 should be delegated to the Section Heads".

Observation

It was observed that currently the branch head signs all requisitions regardless of the dollar amount. The purchase request for small dollar amounts does not justify the consumption of time and effort of a branch head. Further, most other government departments have established the level of approving authorities based on the amount being spent. Also, it is a sound management approach to assign the authority to supervisory staff according to the level of responsibility in that organization.

Recommendation No. 27

"The Property Management Section should not be required to evaluate or analyze the justification of a purchase request".

Observation

At present, the Property Management Section evaluates all purchase requests before forwarding them for commitment. This activity is creating delays and problems because of the following reasons:

- i) The request is always evaluated by the requestor's supervisor and the purchasing officer which are the rightful authorities to do so. Moreover, this activity is performed before the internal request is received by the Property Management Section for commitment.
- ii) At the time of commitment, the purchase request is already with the External Purchasing Agency and is in the process of being completed. To evaluate a purchase request at this point is a very complicated practice, because changes are difficult to implement at the final stages of such activity.

4.4 The Recommended System — Central Purchasing Department

Purchasing autonomy is proposed in order to facilitate an independent material management operation for Department X. The main purpose is to develop a concept whereby direct requisition and the selection of a vendor can be made without going through any purchasing agency outside the branches.

Various aspects of our proposal have been discussed in the following pages.

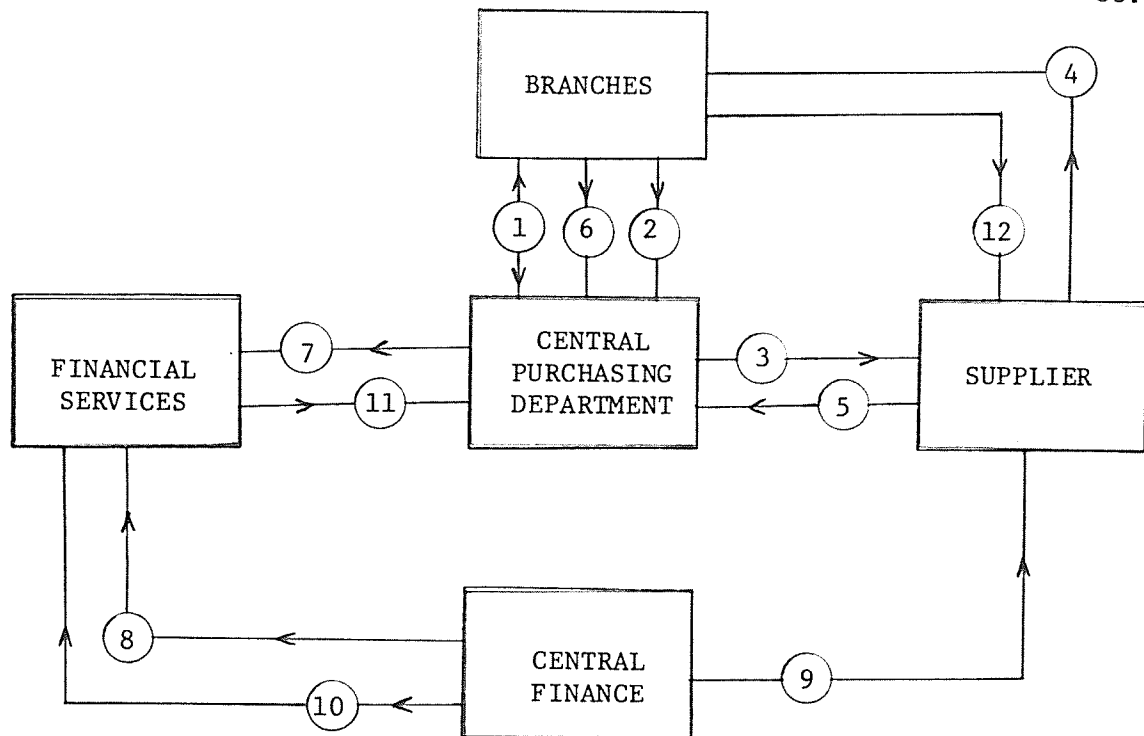
Objectives

The main objectives of the proposed system are:

- i) To establish a centralized material management operation (including integration of information) within the branches.
- ii) To eliminate manual checking, filing, matching and typing work, etc, where possible.
- iii) To achieve controls over vital material management activities, i.e. selection of vendor, issuing the purchase order and securing equipment according to the specifications.
- iv) To eliminate unnecessary time delays presently involved in completing the purchasing cycle.

Organizational Structure

A central Purchasing Department (CPD) will be located within the Divisional Administration of Department X. (Proposed structure is shown on the attached chart). There will be a purchasing co-ordinator (same as present) located at Branch B and Branch C. There will be no purchasing



1. Central Purchasing will plan and order common supplies for all Branches.
2. Request from Branches.
3. Order to Supplier.
4. Goods supplied.
5. Invoice forwarded to Central Purchasing.
6. Packing Slip (verified) from Branches.
7. Invoice sent for vouchering.
8. Voucher for payment.
9. Cheque issued for supplier.
10. Information about payments made.
11. Information to Branches about expenditures.
12. Direct purchases under emergency conditions.

Fig. 13. Organizational Interrelationship - Recommended System.

co-ordinator at Branch A as the Central Purchasing Department will serve the same purpose for the branch.

The Branches will be in direct contact with this section for all kinds of purchasing and related requirements. The main functions performed by the CPD will be:

- i) Ordering
- ii) Budget Planning
- iii) Invoice Processing
- iv) Follow-up

The branches will be responsible for the following:

- i) Requisition
- ii) Goods Received

The central purchasing department will be allocated a Joint Budget for operating expenditure based on the requirements of all branches. The activities will be organized in such a manner that rather than the branches ordering materials/services, the CPD would request the same for the common need of all the branches (consolidation of orders). It is believed that this centralized material management and requisition approach can be established with the help of historical data and buying trends of the branches. Further, it means that instead of user departments controlling the budget for operating expenditures and looking after the purchasing activities, only one department (Central Purchasing) will be collectively responsible for the same action. This would result in a substantial amount of time and manpower savings and, consequently, a reduced time cycle (as mentioned under the Cost Savings Section).

Apart from the common needs, the branches would still forward requests for specialized material and services to the Central Purchasing Department.

Moreover, the facility of Direct Purchases (without going through the CPD) up to a small dollar value, i.e. \$100.00 on an emergency basis will also be provided for the branches.

Benefits

Following are the major benefits which would be achieved by the implementation of our proposed system.

i) Cost Savings

The cost saving would basically result from a cut in the number of purchase orders issued and secondly, from the reduction in time and manpower efforts presently consumed in the processing of documents.

At present, the projected figure for the current year is approximately 4,000 requisitions per year and it was calculated that the volume will be reduced by a minimum of 30%. This reduction in the number of purchase orders being issued would result in the saving of \$100,000.00 annually.

ii) Service

On a number of occasions the equipment is not purchased according to the specifications originally requested by the branch's staff. There are certain unique operational needs of the branches which require that the equipment should be according to the specifications as requested. The new system would provide control over specifications, the selection of the vendor and delivery time, etc.

COST ESTIMATE — CURRENT YEAR

Number of Requisitions (Current year)	3,700
Projection for next year (10% increase)	$3,700 + 370 = 4,070$
Processing cost per request	\$85.00 (current year figure)
Projection for next year	\$100.00 per request
Total per year	$4,070 \times 100 = \$407,000.00$
Reduction in number of requests due to the new system	= 1,000
Cost for processing 1,000 requests	= $1,000 \times \$100 = \$100,000.00$
Cost benefit due to the new system	= \$100,000.00

iii) Fast Turn-Around

The operational time required to complete a material management and requisition cycle will be reduced because of having an internal purchasing section as compared with an External Purchasing Agency issuing the purchase order. Further, the invoice processing would be direct and would not require any repetitive verification or checks. At present, the average time between filling out a request and the processing of an invoice is approximately five to six weeks. In our proposed set-up, the expected time cycle will be reduced by two to three weeks.

iv) Communication

The study showed that there is an obvious communication problem because:

- a) Branches and External Purchasing Agencies are not talking in the same language.
- b) There is no direct contact between the branches and the vendor.
- c) There is no control given to the branches over vital purchasing activities, i.e. specifications, pricing, selection of vendor, etc.

The new system would help in eliminating the above problems and would provide a compact, comprehensive material management and requisition system for all the branches.

v) Control

One of the important characteristics missing in the current system is the lack of authority given to Department X in all matters of the material management operation. The decisions are made in a remote

office without sufficient consultation with the branches in regard to the selection of vendor, specifications and delivery, etc. In the proposed system, the Central Purchasing Department (located within Department X) will have direct control over the above mentioned activities.

vi) Eliminate Duplication

The proposed material management and requisition system would eliminate a significant amount of duplication within different areas of Department X and the External Purchasing Agencies. This would include activities like requisition, ordering, invoice processing, controlling the operating expenditures, and communication between the user and the supplier, etc.

The elimination of duplicate activities would provide the branches with manpower cost saving benefits as well as the External Purchasing Agencies.

Organizational Structure

The organizational structure of our proposed system and Central Purchasing Department has been shown on the attached chart.

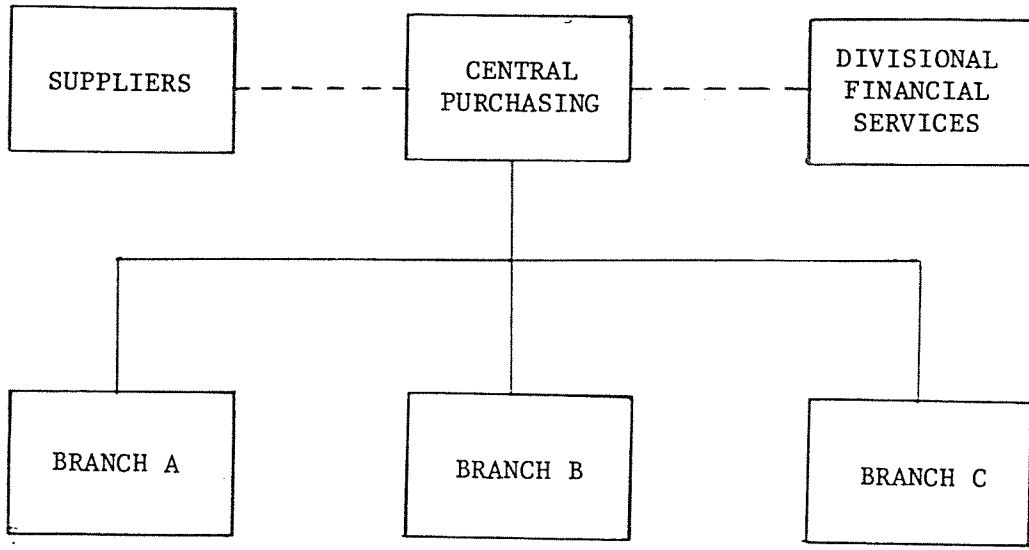


Fig. 14. Organizational Structure - Central Purchasing Department.

4.5 The Activity Analysis of the Proposed System

There will be a Central Purchasing Department (Divisional) which will look after the purchasing requirements of all the branches. Its budget will cover all projected purchasing requirements and the dollar amounts approved.

- i) A Requisition will be filled out by the requesting department, approved and forwarded to the purchasing department.
- ii) The Requisition will be checked for accuracy and authorized signatures.
- iii) The selection of a vendor will be made and the purchase order will be issued by the central department. A P.O. copy will be supplied to the requesting branch's staff.
- iv) The purchase order amount will be committed against the cost centre code of the requesting department under the correct expenditure code.
- v) The goods will be received by the branch and verified against the packing slip and the purchase order. The verified packing slip will be forwarded to the Central Purchasing Department.
- vi) The invoice will be received by the branch's Accounting Section and will be checked against the packing slip received from the branch's Supply Section.
- vii) The invoice will be matched and verified against the packing slip. After verification the invoice will be

forwarded to the Divisional Financial Services.

- viii) The voucher will be prepared by Financial Services and will be forwarded to the Department of Finance for payment.
- ix) A cheque will be issued and sent to the supplier. A record of payments will be provided to Financial Services.
- x) The monthly payments will be accounted in the computer system and information to all concerned areas will be provided on expenditures to date and budget available.

The sequence of activities (proposed system) has been represented on the attached operational chart.

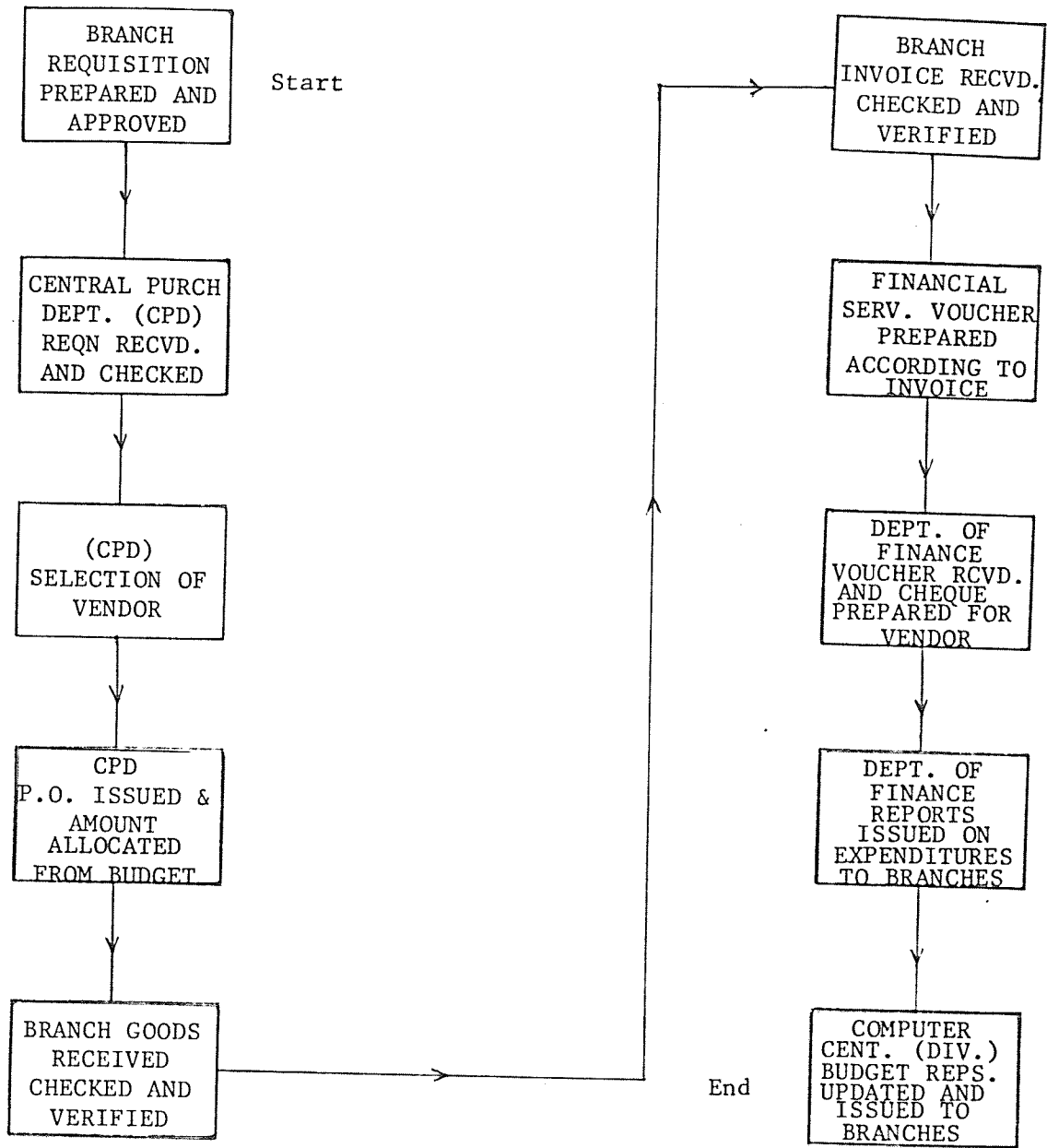


Fig. 15. Operational Flow - The Proposed System.

4.6 Forms and Reports

Apart from standard documents, i.e. requisition, purchase order, invoice, payment voucher, etc., there are two distinct documents which will be frequently used in the proposed system.

- i) Commitment/Adjustment form (see Fig. 17 - Specimen A).
- ii) Commitment/Purchase Order List — Computer print-out
(see Fig. 18 - Specimen B).

Specimen A will be used for:

- i) Allocating or committing funds related to a purchase request.
- ii) Updating the committed amount by purchase order amount.
- iii) Adjusting or cancelling the committed amount.

This form will be filled out by the purchasing department and will be processed at the computer.

Specimen B -

This is a computer print-out showing the complete status of a purchase request, i.e. commitment, adjustments, and clearing of committed funds. This print-out would be produced on the weekly basis and will be supplied to all section heads including the purchasing department.

The main objectives of this print-out are:

- i) To present the current status of current purchases.
- ii) To record and process any adjustments in the purchase request since its initiation.
- iii) To clear the committed/allocated funds after the goods/services have been received.
- iv) To keep the section heads informed about their purchasing requests.

RESP CENTRE _____

DEPT. CODE _____

IR NO	IR DATE	EXP CODE	P.O. NO.	P.O. DATE	AMOUNT	CURRENT SHIPMENT	ACTION ADJ.	ADJ. DATE	COMPLETE
10000	MAR 01/76	20	---	---	1700.00	---	---	---	---
	MAR 01/76	20	16-731	MAR 20, 1976	1900.00	---	---	---	---
			16-731	---	---	500	---	---	YES

Fig. 16. Commitment/Adjustment Form - Weekly Input (Specimen A).

This print-out will be produced at the computer centre and will be issued to all areas concerned.

The various columns and information appearing on the commitment/P.O. list are explained in the following lines:

<u>Cost Centre</u> -	This is the cost centre number (two digits) of the major area. It is used to identify budget expenditures and to allocate budget amounts.
<u>Expenditure Code</u> (Exp. Code) -	This is the departmental code to identify the type of expenditures. It is represented by two digits, i.e. 20 - stationery, 07 - travel, 22 - equipment, etc.
<u>Requisition Number</u> (Reqn. No.) -	It is the number of a requisition forwarded by the requesting department for purchasing goods or supplies.
<u>Purchase Order Number</u> (P.O. No.) -	It is the number of the purchase order issued corresponding to the requisition.
<u>Current</u> -	This is the dollar amount of current delivery of goods or services.
<u>Received Before</u> -	It is the combined dollar amount of shipments which have been received earlier.
<u>Adjustment Amount</u> -	It is the amount by which the original requisition or purchase order has been adjusted.

COMMITMENTS/P.O. LIST

(1) IR NO	(2) C.O.C.	(3) REQ'D AMT.	(4) REQ'D DATE	(5) P.O. NO.	(6) P.O. DATE	(7) TOTAL P.O. AMOUNT	(8) CURRENT	(9) RECEIVED BEFORE	(10) ADJUST- MENT	(11) ACTION	(12) ADJ. DATE	(13) COMPLETE	(14) OUTSTANDING COMMITMENT
31781	20	500	Feb. 27/76										500
31782	21	500	Feb. 29/76										600
31845	11	400	Mar. 01/76									NO	400
		750		AG-17812	April 10	950						NO	950
		750		AG-17812	April 10	950	400					NO	550
		750		AG-17812	April 10	950	300	400				NO	250
		750		AG-17812	April 10	950	250	700				YES	
		750		AG-17812	April 10	950	950					YES	

COMMITMENT AMOUNT= col. (7) - (col. 8+9) or col. (3) only

1- Col. (13) - If not complete should keep on appearing.

2- If order is not complete info col. (8) should be transferred to col. (9), next time a shipment is received.

3- Outstanding Commitment col. (15) is the total P. O. Amount minus any shipment if received.

Or Requisition Amount.

Fig. 17. Commitment/P.O. List (Specimen B).

- Action - It represents the action taken to adjust the original request. The action consists of three main activities, i.e. add, subtract and cancel.
- Complete - This column indicates the status of a purchase order. This information is important in case of a purchase request which is fulfilled in more than one shipment or delivery.
- Action Form Number
(Act. Form No.) - It is the number of the action form which created a change in the original transaction.
- Outstanding Commitment - It is the amount which is outstanding against a requisition or purchase order. This amount would keep appearing until the order is complete or until the payment is made to the vendor.

CHAPTER 5

OVERALL BENEFITS OF THE STUDY

The complete study of the material management operation and the successful implementation of the proposed recommendations resulted in the following benefits to the management, user staff and purchasing personnel:

- i) Savings of two staff position years at the rate of \$25,000/year.
- ii) Savings of 500 hours of over time at the rate of \$2,400.00/year in payment and benefits.
- iii) The reduction in the cycle of material management operation by two to three weeks.
- iv) An updated and accurate information system providing detailed data which is current on a weekly basis, whereas the same information was available on a monthly basis before.
- v) Savings of \$100,000.00/year which results from a cut down in the number of purchase orders as well as a reduction in purchase requests due to the consolidation of orders.
- vi) An independent and autonomous material management operation giving direct control to Department X over important purchasing activities such as specification of equipment, selection of vendor, and issuing of the purchase order, etc. This facility was not available to Department X in the previous system.

It is important to understand that these cost benefits were not calculated on a theoretical basis or merely on any assumption but on the functional basis taking into consideration the actual activities and the related cost involved.

CHAPTER 6

CONCLUSION

The recommendations in our study have been made to eliminate the existing problems faced by the branches with regard to the purchasing operation. It is believed that our proposals will help in achieving all of the original objectives. The branches should organize themselves such that material management and accounting activities are kept segregated and a further standard material management system along with the uniform procedures will be established for all branches of the Department X.

The role of Financial Services should be one of interpreting acts and regulations, plus maintaining financial procedures in the branches. The role of the branches should be of operational control, budgeting, purchasing, receiving, and reporting.

Our basic purpose for proposing a new material management system and various other recommendations is to establish the concept of an efficient and improved material management operation for the Department X. The other long-term goal involves reorganizing the types of activities and the responsibilities of the branches and the Central Government.

Special attention was given to utilize our resources as the study has revealed that we can apply the mechanization approach to the majority of office activities in a very efficient and timesaving manner.

REFERENCES

1. Aljian, G.W., Purchasing Handbook, McGraw Hill Company (1970) (1974).
2. Ammer, D.S., Material Management, R.D. Irwin (1968).
3. Baily, P.J.H., Purchasing and Supply Management, Chapman and Hall (1973).
4. Belden, D.J., The Role of Buyer, Chain Storage Books (1971).
5. Bolton, R., Systems Contracting, American Management Association (1966).
6. Bowersox, D.J., Logistic Management, MacMillan (1974).
7. Cherington, P.W., and Schneider, L., Material Management - Study and Teaching, Harvard University (1974).
8. Comb, P.H., Handbook of International Purchasing, Cahners Books (1976).
9. Craige, T., A Guide to Consumer Buying, Little, Brown and Company (1943).
10. Davis, B.J., Information Sources in Transportation, Material Management and Physical Distribution, Greenwood Press (1976).
11. Government of Province Y.
 - a. Financial Administration Manual
 - b. Material Management Manual
 - c. Financial Information System Manual
 - d. Administrative Procedures
 - e. Central Purchasing Act and Bylaws.
12. Governments Contract Guide, Commerce Clearing House (1967).
13. Harry, B., Buyer's Guide, The Chemical Publishing Company (1937).
14. Heinritz, S., Purchasing: Principles and Application, Prentice Hall (1965).
15. Heinritz and Farrel, Purchasing Principles and Applications, Prentice Hall Inc. (1971).
16. Heskett, J.H., Case Studies in Business Logistics (Material Management), Ronald Press Company (1973).
17. Heskett, J.L., and Ivie, R.M., Business Logistics, Ronald Press Company (1973).

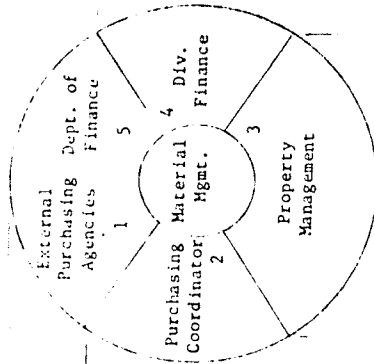
18. Hynes, C.G., Marketing to Governments, Girid (1974).
19. Jennings, W., State Purchasing, Council of State Governments (1969).
20. Lee, L., and Dollar, D., Purchasing and Material Management, McGraw Hill Company (1971).
21. Magee, J.F., Industrial Logistics, McGraw Hill Company (1958).
22. McElhiney, P.T., The Logistics of Material Management, Houghton Mifflin (1969).
23. National Association of Purchasing Agents, Handbook of Purchasing Policies and Procedures (1939).
24. Reck, D., Government Purchasing and Competition, University of California Press (1954).
25. Ruppenthal, M.K., Business Logistics in American Industry, Stanford University (1968).
26. Singer, H., The Law of Purchasing, The Interstate Printers and Publishers (1964).
27. Sprowls, R., Management Data Bases, Wily (1976).
28. Tersine, R.J., Material Management and Inventory System, North Holland (1976).
29. Thompson, L., Procurement: Principles and Cases, R.D. Irwin (1957).
30. Thompson, L.H., Industrial Purchasing, Richard D. Irwin Inc. (1942).
31. Webster, F., Organizational Buying Behaviour, Prentice Hall (1972).

APPENDIX

Information on the following pages is related to the Material Management and Requisition System at Branch A, (the largest of all the three branches of Department X):

Central Purchasing Bureau
 Queen's Printer
 Office Equipment Br.
 Advertising

1. Checking Requisitions.
2. Contacts with Suppliers.
3. Quotes, tenders, etc.
4. Placing Orders.
5. Passing Invoices. (PB).



Pre-Audit Office
 Department of Finance

1. Examination of Voucher.
2. Passing for payment.
3. Preparing Cheques.
4. Supplying Branch with payment printout.
5. Tape for Branch (info. about Cheques made out).

6. Providing Services.
7. Rental Services (O.E.B.)
8. Liaison with Branch.
9. Direct Orders.
10. Liaison with Ext. Agencies.
11. Keeping Records.
12. Misc. Services.

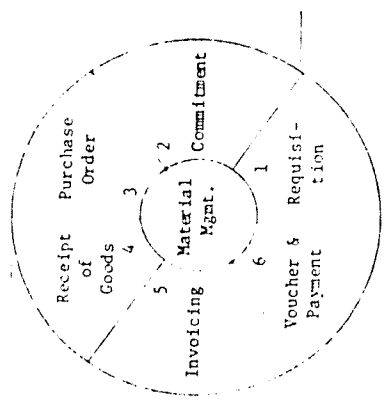
1. Checking Exp. Code on IR form.
2. Justification of IR.
3. Processing for Commitment.
4. Office Equip. etc. (buying furniture & machines).
5. Misc. Supplies (central shops, etc.)
6. Adjustments in IR or P.O.
7. Receiving Goods.
8. Rental/Lease (Eqpt. & space).
9. Stores - Central Supply.
10. Processing Invoice.
11. Keeping records.

1. Checking Exp. Code on Requisition (PB).
2. P.O. Update (PB).
3. Adjustments in P.O. (PB).
4. Checking Invoice.
5. Preparing Voucher.
6. Passing Voucher for payment.
7. Keeping records.

Fig. 18.

Material Management - Departmental Functions.

1. Packing Slip (P.S.) checked for accuracy.
2. Goods unloaded.
3. Goods checked against P.S. and Purchase Order (P.O.).
4. Requestor informed.
5. Goods delivered.



6. P.S. sent to Accounts Payable.
7. Record filed.
1. Invoices checked for accuracy.
2. Invoices matched with P.S. & P.O.
3. Commitment checked.
4. Adjustment (if any) made.
5. Invoice passed.
6. Information filed.

1. Invoice checked against Commitment.
2. Exp. Code transferred into Facility Account.
3. Voucher typed.
4. Signed and passed for payment.
5. Voucher checked.
6. Passed for payment.
7. Cheque prep'd.
8. Information filed.

- External Agencies
1. Requisition received and checked.
 2. Contact made with the suppliers.
 3. Quotes or tenders prepared.
 4. Order placed.
 5. Branch informed.
 6. P.O. updated.
 7. E.P.O. handled directly by the Branch.

1. IR checked - Content & Exp. Code, etc.
2. IR justification.
3. IR sent to the Computer Centre.
4. Printout checked.
5. Information filed.
6. IR's filed by Unique Code.

Fig. 19. Material Management Purchasing - Activity Analysis.

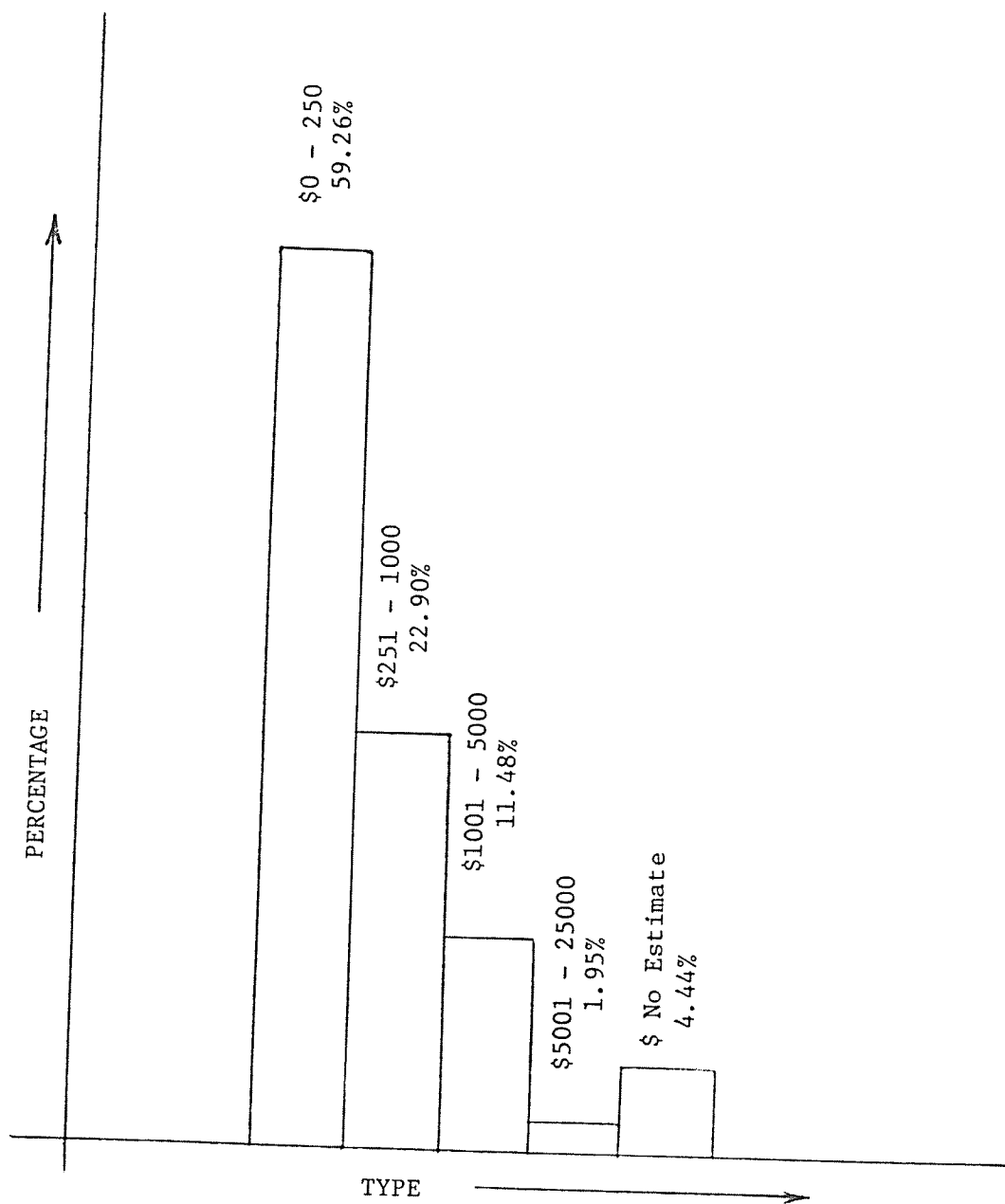
ACTIVITY	MANPOWER INVOLVED
Internal Request	<ol style="list-style-type: none"> 1. Requestor 2. Department Head/Chairman
Commitment	<ol style="list-style-type: none"> 1. Clerk II 2. Administrative Assistant 3. I/O Clerk 4. Key punch 5. Computer
Requisition	<ol style="list-style-type: none"> 1. Purchasing Co-ordinator 2. Clerk Typist II 3. Signing/Approving Personnel
Direct Order	<ol style="list-style-type: none"> 1. Purchasing Co-ordinator 2. Clerk Typist
Goods Received	<ol style="list-style-type: none"> 1. Senior Storekeeper 2. Receiver and Shipper (Storekeeper II) 3. Assistant Receiver and Shipper (Storekeeper I) 4. Store Clerk (Helper)
Invoice	<ol style="list-style-type: none"> 1. Clerk Typist II 2. Accounting Clerk I 3. Clerk III 4. Administrative Assistant - Inquiries
Vouchering	<ol style="list-style-type: none"> 1. Accounting Clerk I 2. Clerk Typist II 3. Accountant 4. Supervisor 5. Mail Clerk

Fig. 20. Activity-Manpower Relationship - Current Material Management Operation.

DOLLAR VALUE RANGE OF UNIT P.O.						
TYPE	\$ 0-250 %	\$ 251- 1000 %	\$ 1001- 5000 %	\$ 5001- 25000 %	\$ UNKNOWN %	% OF TOTAL
E.P.O.	32.32	5.22	-	-	1.26	38.8
C.P.B.	18.36	13.81	8.76	1.70	2.10	44.7
Q.P.	7.23	3.37	2.39	0.25	0.36	13.6
O.E.B.	0.83	0.39	0.16	-	0.72	2.1
A.A.O.	0.52	0.11	0.17	-	-	0.8
TOTAL	59.26	22.90	11.48	1.95	4.44	100.0

ABBREVIATIONS: E.P.O. - Emergency Purchase Orders (Direct Orders)
 C.P.B. - Central Purchasing Bureau
 Q.P. - Queen's Printer
 O.E.B. - Office Equipment Branch
 A.A.O. - Advertising Audit Office

Fig. 21. Percentage of Dollar Value Breakdown - All Requisitions.

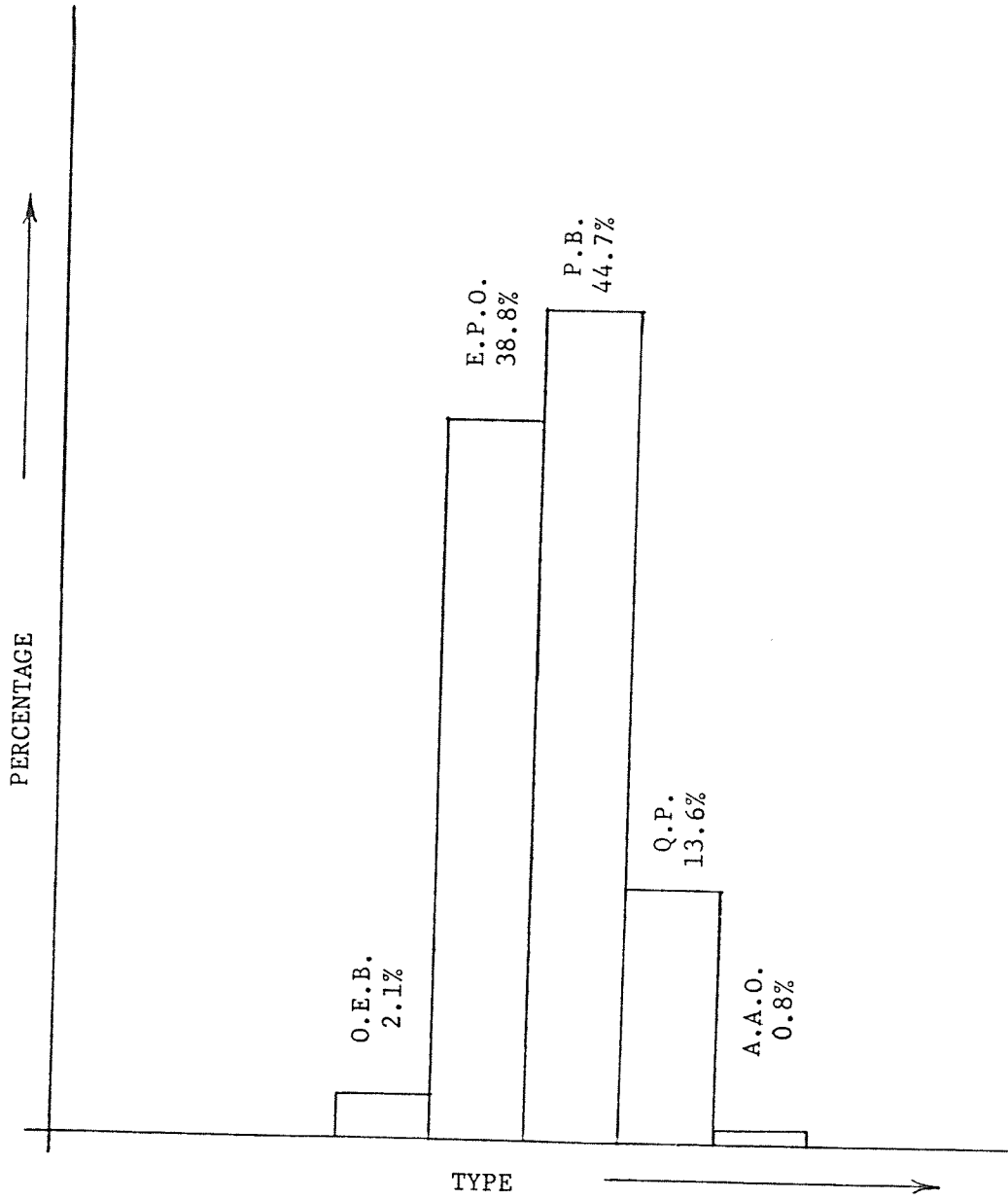


Scale: 1 small square along the Vertical Axis = 1%.

Fig. 22. Percentage of Dollar Value Breakdown All Requisitions Issued During the Current Year.

MONTH	E.P.O.	C.P.B.	QP	NON-STOCK	QP STOCK	A.A.O.	O.E.B.	TOTAL
April	167	104	29	5	1	7	313	
May	95	102	31	10	3	9	250	
June	51	96	22	6	2	-	177	
July	48	82	13	3	3	3	152	
August	41	83	10	9	1	1	145	
September	68	66	21	10	1	4	170	
October	86	96	23	4	1	5	215	
November	70	104	14	14	-	5	207	
December	80	80	21	3	2	4	190	
T O T A L	706	813	184	64	14	38	1819	
MONTHLY AVERAGE	78.44	90.33	20.44	7.11	1.55	4.22	202.11	
% RATIO	38.8	44.7	10.1	3.5	0.8	2.1		

Fig. 23. The Distribution by Type of the Purchase Order.

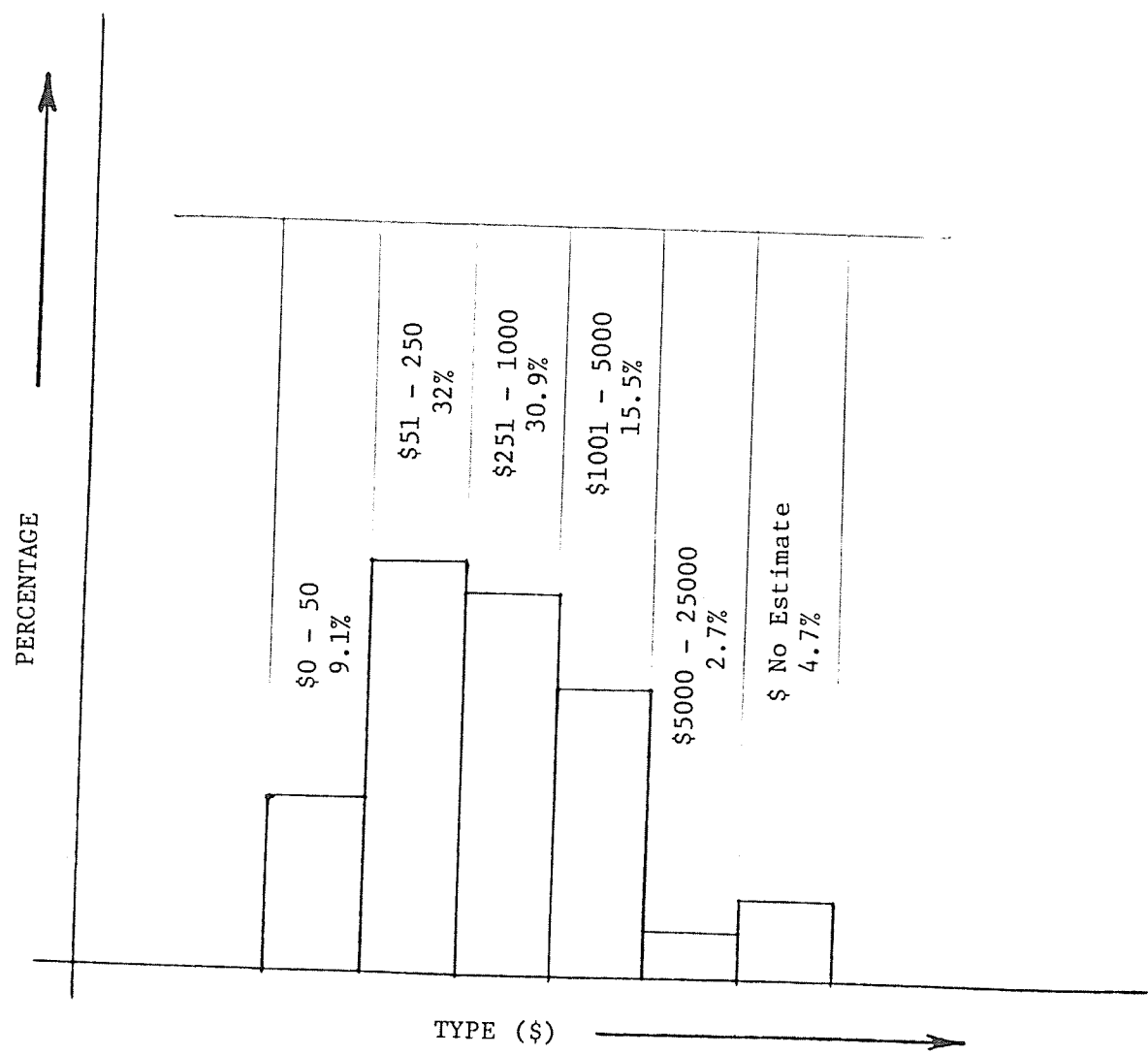


Scale: 1 small square along the Vertical Axis = 1%.

Fig. 24. Percentage of the Purchase Orders Issued During the Current Year.

MONTH	0-50	51-250	DOLLAR	VALUE	RANGE	UNKNOWN
April	7	25	251-1000	1001-5000	5001-25000	OVER 25000
May	6	36	36	22	5	2
June	9	24	38	23	4	8
July	3	20	30	18	-	-
August	9	25	17	14	4	2
September	6	32	18	4	3	12
October	14	27	32	12	1	1
November	11	41	27	6	2	2
December	9	30	31	7	3	11
T O T A L	74	260	251	126	-	-
AV/MONTH	8.22	28.88	27.88	14.00	22	38
% RATIO	9.1	32.0	30.9	15.5	2.7	4.7

Fig. 25. Purchasing Bureau Orders - Dollar Value Breakdown.

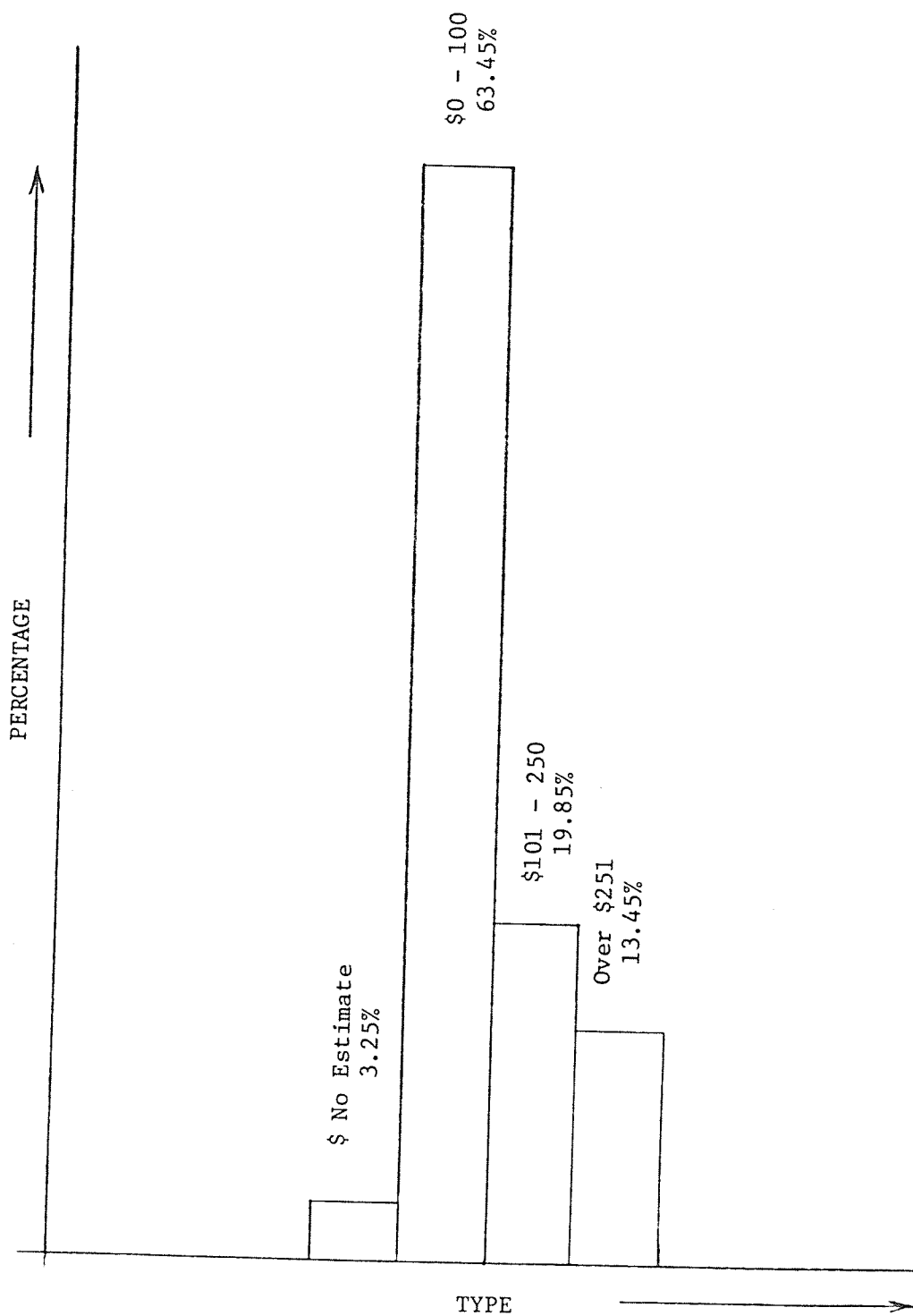


Scale: 1 small square along vertical axis = 1%.

Fig. 26. Percentage of Purchasing Bureau Orders by Dollar Value for the Current Year.

TYPE	DOLLAR VALUE RANGE					TOTAL	AV/MONTH
	UNKNOWN	0-100	101-250	OVER 250			
E.P.O.	8	193	50	49		300	33.33
Service	13	180	58	18		269	29.88
Books	1	45	10	13		69	7.66
Bus	-	8	11	1		20	2.22
Misc.	1	20	9	14		44	4.88
Equip.	-	2	2	-		4	0.44
T O T A L	23	448	140	95		706	78.40
AV/MONTH	2.55	49.77	15.55	10.50		78.40	
% RATIO	3.25	63.45	19.85	13.45			

Fig. 27. Emergency Purchase Orders - Dollar Value Distribution.



Scale: 1 small square along the Vertical Axis = 1%.

Fig. 28. Percentage of Direct Orders (E.P.O.) Cost Breakdown For Current Year.

The following "Flow Process Charts" were also used for activity and manpower analyses.

FLOW PROCESS CHART

MATERIAL OR OPERATOR	
DEPARTMENT Branch A	SHEET 1 OF Requisition
CHARTED BY RM	DATE January 12, 19XX

OPERATION	SYM.	SUMMARY					
		PRESENT		PROPOSED		DIFFERENCE	
		NO.	TIME	NO.	TIME	NO.	TIME
REQUISITION (PURCHASING)	○						
CHART BEGINS	◁						
AT REQUESTOR'S AREA	□						
CHART ENDS	D						
AT BRANCH HEAD'S AREA	▽						
EQUIPMENT Internal Request (R) form, Requisition form and Computer's Budget Printout.	◻						
	TOTAL						
	DIST.						

NO.	PRESENT OR PROPOSED METHOD	SYMBOLS	DIST.	QT'Y	TIM
1.	Rough draft by the requestor is prepared	◻ ◁ ◻ ◻ ◻ ◻			
2.	To Departmental Head	○ ◻ ◻ ◻ ◻ ◻			
3.	Internal Request (R) form is signed by the Departmental Head after necessary checking	○ ◻ ◻ ◻ ◻ ◻			
4.	To Purchasing Coordinator (P.C.)	○ ◻ ◻ ◻ ◻ ◻			
5.	Prepared and typed on appropriate 'Requisition'. After checking the contents, (codes, etc.)	○ ◻ ◻ ◻ ◻ ◻			
6.	To the original requestor (Requisition).	○ ◻ ◻ ◻ ◻ ◻			
7.	Checked for accuracy and signed by the requestor.	○ ◻ ◻ ◻ ◻ ◻			
8.	Requisition to the Dept. Head.	○ ◻ ◻ ◻ ◻ ◻			
9.	Signed by the Dept. Head.	○ ◻ ◻ ◻ ◻ ◻			
10.	Requisition passed on to Resp. Head.	○ ◻ ◻ ◻ ◻ ◻			
11.	Recommended by the Resp. Head	○ ◻ ◻ ◻ ◻ ◻			
12.	Requisition forwarded to Director. (Branch Head)	○ ◻ ◻ ◻ ◻ ◻			
13.	Checked and signed by the Branch Head.	○ ◻ ◻ ◻ ◻ ◻			
14.	To Branch Head's secretary. Requisition is distributed.	○ ◻ ◻ ◻ ◻ ◻			
15.	Distribution - Filing.	○ ◻ ◻ ◻ ◻ ◻			

FLOW PROCESS CHART

MATERIAL OR OPERATOR

DEPARTMENT Branch A

SHEET 1 OF Commitment

CHARTED BY RM

DATE January 12, 19XX

OPERATION

SUMMARY

COMMITMENT

SYM.	PRESENT		PROPOSED		DIFFERENCE	
	NO.	TIME	NO.	TIME	NO.	TIME
○						
➡						
□						
D						
▽						
⊗						
TOTAL						
DIST.						

CHART BEGINS

PROPERTY MANAGEMENT'S AREA

CHART ENDS

SAME

EQUIPMENT

Internal Request (R) form outstanding IR Computer Printout, etc.

NO.	PRESENT OR PROPOSED METHOD	SYMBOLS	DIST.	QT'Y	TIME
1.	IR forms forwarded to Property Mgmt. (Clerk 3)	○ ⊗ □ D V ⊗			
2.	CL3 - Contents of IR forms are checked and the information (IR number, amount, date, etc.) is manually recorded on "Outstanding IR" printout.	○ ➡ □ D V ⊗			
3.	IR forms delivered to Admin. Assistant (AA)	○ ⊗ □ D V ⊗			
4.	AA - CC Code, nature of the request and Justifications, etc. are checked.	○ ➡ ⊗ D V ⊗			
5.	IR forms forwarded to Computer Centre.	○ ⊗ □ D V ⊗			
6.	Batch total checked by I/O Clerk.	○ ➡ ⊗ D V ⊗			
7.	To Key punch.	○ ⊗ □ D V ⊗			
8.	Cards prepared.	⊗ ➡ □ D V ⊗			
9.	To Computer for processing with JOB CARD from I/O Clerk.	○ ⊗ □ D V ⊗			
10.	Printout prepared by the Computer.	⊗ ➡ □ D V ⊗			
11.	Printout and IR form mailed out to AA.	○ ➡ □ D V ⊗			
12.	Record-Clerk-The Printout is checked - Corrections have to be made for any errors on the Printout.	○ ➡ ⊗ D V ⊗			
13.	IR forms forwarded to PC.	○ ⊗ □ D V ⊗			
14.	Printout filed - IR forms filed.	○ ⊗ □ D V ⊗			

FLOW PROCESS CHART

MATERIAL OR OPERATOR							
DEPARTMENT Branch A		SHEET 1		OF Adjustments			
CHARTED BY RM		DATE January 9, 19XX					
OPERATION	SUMMARY						
<u>ADJUSTMENTS</u> (Internal Request Cancellation/Update). U-Form	SYM.	PRESENT		PROPOSED		DIFFERENCE	
		NO.	TIME	NO.	TIME	NO.	TIME
<u>CHART BEGINS</u>	○						
AT ADJUSTOR'S AREA (Purchasing Coordinator OR Property Management sections).	➡						
<u>CHART ENDS</u>	□						
AT PROPERTY MANAGEMENT'S AREA	D						
<u>EQUIPMENT</u>	▽						
Adjustment form (Internal Request Update/Cancellation), Outstanding IR Printout, etc.	◻						
	TOTAL						
	DIST.						

NO.	PRESENT OR PROPOSED METHOD	SYMBOLS	DIST.	QT'Y	TIME
1.	Information about the adjustments received by P.C. or Property Management.	○ ➡ ◻ D ▽ ◻			
2.	Update-Form filled out accordingly.	◻ ➡ ◻ D ▽ ◻			
3.	Update-Form forwarded to the Property Management.	○ ➡ ◻ D ▽ ◻			
4.	Update-Form is checked against the prerecorded info. about the Request & recorded on IR Printout.	○ ➡ ◻ D ▽ ◻			
5.	To Compute (Update forms).	○ ➡ ◻ D ▽ ◻			
6.	Batch total Checked & recorded by I/O Clerk.	◻ ➡ ◻ D ▽ ◻			
7.	Update-form to Keypunch now.	○ ➡ ◻ D ▽ ◻			
8.	Cards prepared.	◻ ➡ ◻ D ▽ ◻			
9.	To Computer for processing with JOB CARD from I/O Clerk.	○ ➡ ◻ D ▽ ◻			
10.	Printout prepared by the Computer	◻ ➡ ◻ D ▽ ◻			
11.	Update-forms and Computer Printout Mailed to Property Mgmt.	○ ➡ ◻ D ▽ ◻			
12.	Printout received (CL3)-Adjustments checked against the info. in the Printout. Unique code written down.	○ ➡ ◻ D ▽ ◻			
13.	Update-Form and Printout filed.	○ ➡ ◻ D ▽ ◻			
	NOTES: Similar procedure is followed for Purchase Order P.O. update and adjustment during the invoice stage.	○ ➡ ◻ D ▽ ◻			

FLOW PROCESS CHART

MATERIAL OR OPERATOR							
DEPARTMENT Branch A		SHEET 1		OF Goods Received			
CHARTED BY RM		DATE January 13, 19XX					
OPERATION GOOD RECEIVED	SYM.	SUMMARY					
		PRESENT		PROPOSED		DIFFERENCE	
		NO.	TIME	NO.	TIME	NO.	TIME
<u>CHART BEGINS</u> AT SUPPLY/GOOD RECEIVED SECTION	○						
	➡						
	□						
<u>CHART ENDS</u> SAME	D						
	▽						
	⊗						
<u>EQUIPMENT</u> Misc. Goods, Packing Slip, Purchase Order Copy, transporting equipment, shelving etc.	TOTAL						
	DIST.						

NO.	PRESENT OR PROPOSED METHOD	SYMBOLS	DIST.	QT'Y	TIM
1.	The packing slip is checked by Receiver or Assistant Receiver for correct destination & contents.	○ ➡ ⊗ □ D ▽			
2.	Goods are Unloaded-Driver's slip is signed by storekeeper.	⊗ ➡ □ D ▽			
3.	Packing Slip is matched against PO.	○ ➡ ⊗ D ▽			
4.	If necessary, contents of the box are checked against Packing Slip and PO.	○ ➡ □ D ▽ ⊗			
5.	Packing Slip is stamped. A copy is made and the requestor is contacted for delivery.	⊗ ➡ □ D ▽			
6.	Goods delivered to the requestor (He signs the Slip and retains one for his record).	⊗ ➡ □ D ▽			
7.	Packing Slip brought back and placed in the deposit box.	⊗ ➡ □ D ▽			
8.	Senior Storekeeper-The Packing Slip is reverified by him.	○ ➡ ⊗ □ D ▽			
9.	Packing Slip along with the invoice (IF SUPPLIED) is forwarded to Accounts Payable.	○ ⊗ □ D ▽			
10.	The information is filed.	○ □ D ▽ ⊗			

FLOW PROCESS CHART

MATERIAL OR OPERATOR												
DEPARTMENT Branch A			SHEET 1		OF Adjustments of Goods							
CHARTED BY RM			DATE January 14, 19XX									
<u>OPERATION</u> ADJUSTMENTS IN THE GOODS RECEIVED .			SUMMARY									
<u>CHART BEGINS</u> AT SUPPLY SECTION			SYM.	PRESENT		PROPOSED		DIFFERENCE				
<u>CHART ENDS</u> AT SAME				NO.	TIME	NO.	TIME	NO.	TIME			
<u>EQUIPMENT</u> Goods, Claim register, Packing Slip, Purchase Order, etc.			○									
			◓									
			□									
			D									
			▽									
			◻									
			TOTAL									
			DIST.									
NO.	PRESENT OR PROPOSED METHOD			SYMBOLS					DIST.	QT'Y	TIME	
1.	If Goods are not in the right order (Quality, Qty, Packing damage etc), the Sr. Storekeeper is notified immediately.			○	◓	□	D	▽	◻			
				○	◓	□	D	▽	◻			
2.	Goods are rechecked against PO & Packing Slip, by Sr. Store keeper.			○	◓	□	D	▽	◻			
				○	◓	◻	D	▽	◻			
3.	Contact by Sr. SK. made with the requestor or PC to check for any changes in the order.			○	◓	□	D	▽	◻			
				◻	D	▽	◻					
4.	Contact made with the Company for exchange or replacement with different type of good as originally ordered.			○	◓	□	D	▽	◻			
				◻	D	▽	◻					
5.	Claim is processed - Filed is Opened.			◻	D	▽	◻					
6.	Adjustment made - Goods Checked (Procedure as in Normal Situation is repeated).			○	◓	□	D	▽	◻			
				○	◓	□	D	▽	◻			
7.	Information Filed.			○	◓	□	D	▽	◻			
				○	◓	□	D	▽	◻			
				○	◓	□	D	▽	◻			
NOTE: Activity No. 6 involves all the normal activities which are performed in "Goods Received" Chart.			○	◓	□	D	▽	◻				
			○	◓	□	D	▽	◻				

FLOW PROCESS CHART

MATERIAL OR OPERATOR								
DEPARTMENT Branch A		SHEET 1		OF Invoicing				
CHARTED BY RM		DATE January 29, 19XX						
OPERATION		SUMMARY						
INVOICING (through Accounts Payable)		PRESENT		PROPOSED		DIFFERENCE		
		NO.	TIME	NO.	TIME	NO.	TIME	
CHART BEGINS		○						
AT ACCOUNTS PAYABLE AREA		➡						
CHART ENDS		□						
Company's invoice, Packing slip, Purchase Order, Outstanding IR Printout, Stamp and Calculator, etc.		D						
		▽						
EQUIPMENT		◻						
TOTAL								
DIST.								
NO.	PRESENT OR PROPOSED METHOD	SYMBOLS				DIST.	QT'Y	TIM
1.	Invoices sent to Accts. Payable & Packing Slips forwarded by the Supply Section	○	➡	□	D	▽	◻	
2.	The invoices are sorted out (Location wise) by the Records Clerk (CL3).	○	➡	□	D	▽	◻	
3.	The invoices are checked for accuracy, i.e. addition & Extension etc. update forms filled out for any adjustments.	○	➡	□	D	▽	◻	
4.	CL3-Invoices are then passed on to Clerk Typist (CL2)	○	➡	□	D	▽	◻	
5.	Invoices (Each) are checked against the Packing Slip for correct delivery.	○	➡	□	D	▽	◻	
6.	Invoices are stamped - Information is put down i.e. IR number, Expd. Code, date received.	○	➡	□	D	▽	◻	
7.	Each invoice is then checked against PO.	○	➡	□	D	▽	◻	
8.	Packing Slip (along with any adjustment form) is attached to the invoice-Assembly forward to Clerk 3.	○	➡	□	D	▽	◻	
9.	CL3 - The invoice amount is checked against info. in the Outstanding IR Printout.	○	➡	□	D	▽	◻	
10.	Corrections IF ANY are made.	○	➡	□	D	▽	◻	

FLOW PROCESS CHART

MATERIAL OR OPERATOR								
DEPARTMENT BRANCH A			SHEET 1		OF Vouchering			
CHARTED BY RM			DATE January 13, 19XX					
OPERATION		SUMMARY						
PREPARATION OF VOUCHER (through Division Finance)		SYM.	PRESENT		PROPOSED		DIFFERENCE	
			NO.	TIME	NO.	TIME	NO.	TIME
<u>CHART BEGINS</u>		○						
AT DIV. FINANCE AREA		➔						
<u>CHART ENDS</u>		□						
AT CENT. DEPARTMENT OF FINANCE		D						
<u>EQUIPMENT</u>		▽						
Invoice, Voucher, Object code book, typewriter, Stamp, etc.		◻						
TOTAL								
DIST.								

NO.	PRESENT OR PROPOSED METHOD	SYMBOLS	DIST.	QT'Y	TIME
1.	Passed invoices (from Accts. Payable) are stamped when received and arranged batchwise by the Mail Clerk.	● ➔ □ D ▽ ◻			
2.	To Financial Clerk III (FK-3)	○ ● □ D ▽ ◻			
3.	FK-3. Expd. Code on the Invoice is checked. The amount is manually recorded on Outstanding IR Printout	○ ➔ □ D ▽ ◻			
4.	Invoices passed on to Voucher Clerk Typist (CT).	○ ● □ D ▽ ◻			
5.	For any error, the invoice is sent back to Accts. Payable; after being checked for code, etc.	○ ➔ □ D ▽ ◻			
6.	Correction made.	● ➔ □ D ▽ ◻			
7.	The corrected invoice forwarded to Div. Finance.	○ ● □ D ▽ ◻			
8.	The voucher Clerk Typist - Voucher is prepared. Expd. code is transferred into Public Acct. Code.	● ➔ □ D ▽ ◻			
9.	Copies of prepared Voucher distributed - white copy forwarded to Next Voucher Typist for Cross-checking.	○ ● □ D ▽ ◻			
10.	Yellow copy filed numerically in the Unchecked file.	○ ➔ □ D ▽ ◻			
11.	Voucher Typist - Voucher is checked for accuracy.	○ ● □ D ▽ ◻			
12.	Passed on to Accountant for a signature.	○ ● □ D ▽ ◻			

