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UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Tel: (+43-1) 26026-0 · www.unido.org · unido@unido.org

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APPENDIX A

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Date: February 28, 1970

ENGINEERING INDUSTRIES DEVELOPMENT AGENCY

[Singapore.

MANAGEMENT ACCOUNTING AND BUDGET

CONTROL SYSTEMS (MABC) DEFINITION.]

Written by:

Mr. Chua Soo Tian	Project Leader
Mr. Chia Chee Mon	Team Member
Mr. Seet Poh Kwee	Team Member
Mr. Harju Ahti Paavo	U.N. Expert

1970

- F O R E W O R D -

This report summarises the approach, findings and recommendations resulting from a three month study to define and plan for implementations of a management accounting and budget control system (M.A.B.C.) including three sub-systems

- budgeting
- management reporting and
- accounting

in the Engineering Industries Development Agency, a Division of the Economic Development Board, Singapore.

The objectives, scope and the master schedule of this M.A.B.C. - System was approved by Mr. I.F. Tang, Chairman of the Economic Development Board. In general, all materials have been previously submitted to Dr. Fong Hock Sun, Director of the E.I.D.A., and to Centre Directors both in written form and in oral presentation. The system has been accepted by them as the basis for carrying out Phase II, involving detailed system design and implementation.

The intention of this report is to give information of the systems as a basis for the final approval of the Board's Chairman, Mr. I.F. Tang and serves to document the systems concept and related implementation plans developed during Phase I, for use as a frame of reference throughout Phase II, if the system is finally approved.

Through Phase I the participation of Dr. Fong and Centre Directors of the E.I.D.A. have been most significant in establishing directions and this is appreciated by the project team.

- C O N T E N T S -

- I L L U S T R A T I O N S -

I. INTRODUCTION AND SUMMARY

During the period from December, 1969 through February 1970, UNIDO has participated in a joint study with the staff of Engineering Industries Development Agency, as an objective to define and recommend management accounting and budget control system (M.A.B.C. - system) together with an appropriate programme for their implementation and together with master schedule of planning other sub-systems.

The study was made by the M.A.B.C. - project team, the members of which were as follows:

Mr. Chua Soo Tian - Project leader
Mr. Chia Chee Mon - Team member
Mr. Seet Poh Kwee - Team member
Mr. Ahti P. Harju - UNIDO-Expert

M.A.B.C. System has been defined in this report as three sub-systems. They have been described as follows:

- budgeting sub-system in Section IV
- management reporting sub-system in Section VI
- accounting sub-system in Section VII

In addition to these main definitions of sub-systems, this report includes the implementation plan of M.A.B.C. - System in Section II, the description of basic philosophy behind M.A.B.C. - System in Section III and the basic philosophy behind pricing in Section VI.

In this section the sub-systems will be summarised for the reader who is interested only in the main lines.

The main criteria of M.A.B.C. - System

The main criteria of the M.A.B.C. - System has been defined as follows:

The system must be a practical management tool in integrating, planning and control of the operations in Engineering Industries Development Agency, towards efficient use of resources invested and towards profitable sales of products, which means maximization (or to find the aspiration level) of return on assets invested, in a scope of the purpose of E.I.D.A. and in accordance with long run operational objectives including governmental cash flow plans.

The possibility, that E.I.D.A. should be an independant unit in the future, must be taken into consideration when planning the system.

Budgeting

The main purpose and criteria of budgeting is to co-ordinate:

(i) long range planning and annual planning
(ii) different functional planning like sales/ production, production purchasing etc.
(iii) operational planning and cash flow planning

The main tools of co-ordination are budget instructions given by the Agency director and the iterative planning circles during budgeting process. The main modules of the system are:

- output planning
- manpower planning
- cost planning
- planning of master budget of operations and
- planning balance sheet and cash flow

Feedback is possible in each step.

Co-ordination is also one of the criteria of budgeting sub-system. Three other main criterias are:

- the responsibility of profit, costs and assets must be defined and the responsibility of production costs and that of training costs must be clearly separated
- the planning system must be based on the principle of participation and
- outputs of the system, the targets, must be formulised so that they give a good basis of management by exceptions.

Management reporting

Management reports are the link in the systematized managing process where planning, co-ordination, organisation, implementation of plans and control follow each other in different levels of the organisation.

Management reports are the tools of management as signals for corrective actions and as basic information for better planning in the future. They are part of management by exceptions. The basic criteria of the effective reports are:

(i) reports should follow organisational structure where responsibility has been clearly defined

(ii) actual results should be compared with performance measurements

(iii) the significance should be emphasised in a way, that is clear and understandable and

(iv) reports must adequately disclose cost/volume/profit relationships.

Based on the above mentioned criteria the management reports in E.I.D.A. are as follows:

A. For Director of E.I.D.A.

1. Graphic chart of operations
2. Agency's Report of operations
3. Balance sheet by profit centres
4. Cash flow forecast
5. Inventory report by profit centres
6. Governmental budget report
7. Training programme report

B. For Directors of Centres

1. Graphic chart of operations
2. Profit Centre's report of operations
3. Variance analysis by cost centres
4. Report of direct labour (B)
5. Material in process
6. Inventory report

C. For Chiefs of cost centres and departments

1. Cost centre's report of operations
2. Report of direct labour (A-B)

D. For Cost Estimator

1. Report of completed jobs

The variances analysed by cost centres/profit centres are as follows:

- sales volume/price variance
- material usage variance
- purchasing price variance
- variance from estimate
- rate variance
- variance of fixed operational budgets and
- training cost variance

Accounting

The primary purpose of accounting is to

- accumulate and
- communicate

informations. The way of accumulating and communicating informations in E.I.D.A. is that of standard direct costing. One of the main users of accounting data is internal management but the external need of information must not be forgotten either. The main criteria of the established system have been:

(i) it must be flexible in that it can provide information to both internal and external interests, and should bear in mind that E.I.D.A. may be run as an independent unit and

(ii) the use of modern accounting techniques must be carefully considered, but the decisions concerning accounting process is to be based on sound cost/benefit analysis. However the change from current hand-written system must be made step by step.

Based on the above-mentioned criteria the following system modules have been established:

module 1 - data collection and grouping I
module 2 - data collection and grouping II
module 3 - output/cost reporting by jobs and by cost centres
module 4 - top management reporting

These modules include accounting machine and other manual and computer operations. It is intended that computer operations will be done by an outside computer centre which will take care of all necessary programming work.

II. IMPLEMENTATION PLANS AND THE SCHEDULE

21 M.A.B.C. SYSTEM: PHASE II - SCHEDULE AND TASKS

Phase I of M.A.B.C. - System has been completed by writing this report by the end of February 1970. After that Phase II will be started.

The basic idea behind Phase II is that the following main tasks must be done before the system can be officially (Phase III) started. The tasks are:

i) detailed planning and programming
ii) writing budgeting and accounting manuals
iii) training the people involved
iv) testing the sub-systems

When considering the implementation, the human factor must be carefully taken into consideration. The change is drastic and success must be secured by

i) keeping key people continuously informed
ii) start training early but not too early
iii) performing all preparatory work such as account coding, accounting and budgeting manual preparation well in advance so that the impact of system testing and final implementation would be reduced to a minimum.

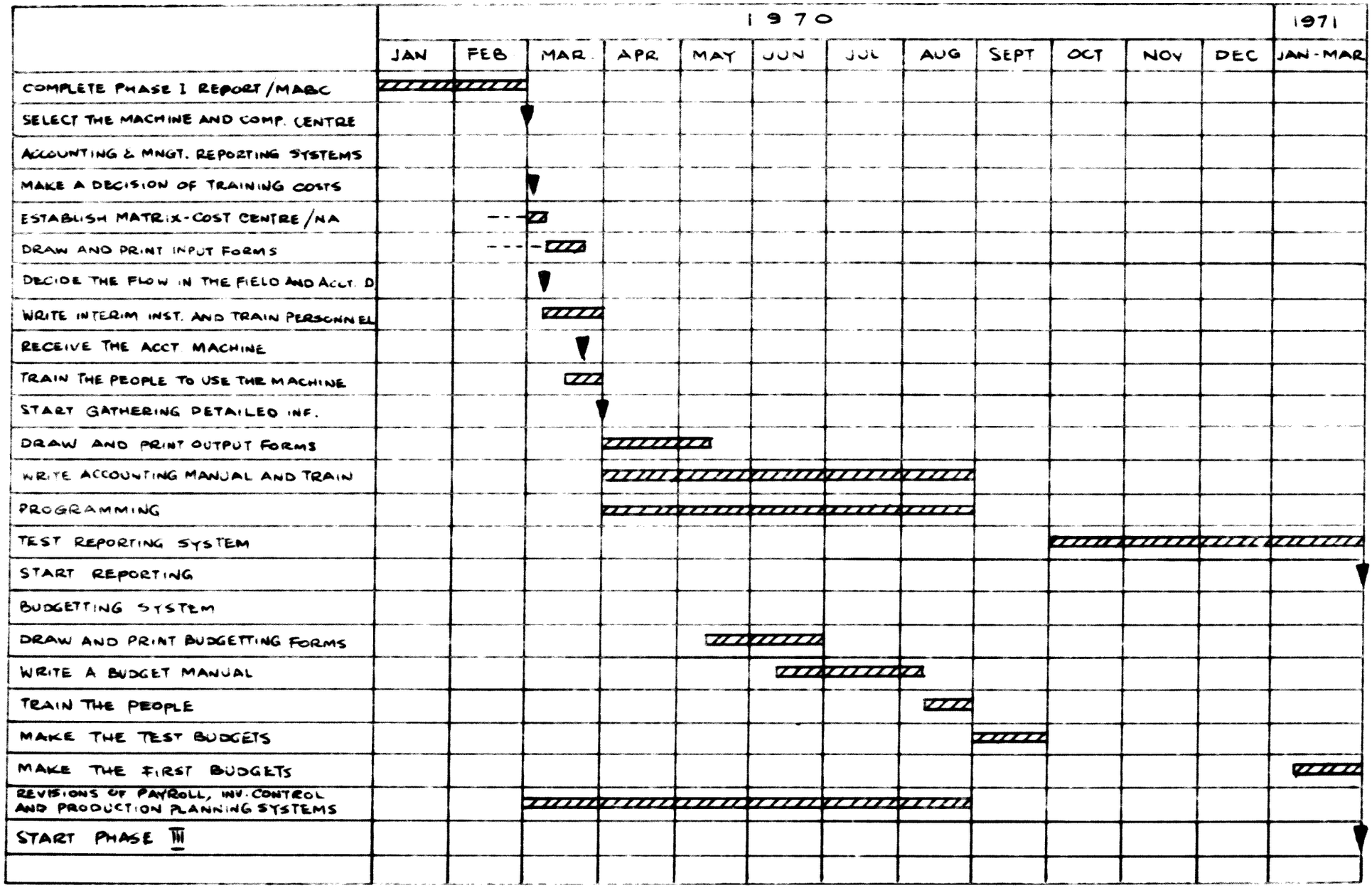
The main target dates are as follows:

- select the accounting machine	Feb. 28	1970
- start gathering information	April 1	1970
- start programming and writing of manuals	May 1	1970
- start budgeting (for testing purposes)	Sept. 1	1970
- start reporting (for testing purposes)	Oct. 1	1970
- start Phase III	April 1	1971

The detailed schedule of M.A.B.C. - Phase II is on the following page.

THE SCHEDULE OF MABC

PHASE II



III. BASIC PHILOSOPHY BEHIND M.A.B.C. SYSTEM

31 WHAT IS COMPREHENSIVE PLANNING AND CONTROL?

The purpose of the Management Accounting and Budget Control System (M.A.B.C.) is to be the efficient tool of management both in planning and control; but what is planning? To understand the basic idea of comprehensive planning (including control) in the independent operational unit, we will study it from four points of view:

(i) Generic Nature

All planning is concerned with the future. Planning either examines future alternative courses of action which are open to a company or studies the evolving chains of cause and effect likely to result from current decisions.

The basic task of comprehensive planning is to visualise the operations as the manager wishes it to be in the future. The generic nature of planning is also to see opportunities and threats in the future and respectively exploit or combat them as the case may be.

(ii) Process

Planning is a continuous process, which has the following main steps:

- guiding objective/criteria
- idea
- alternatives
- decision against criteria
- sub-objectives like plan, budget or standard and
- control as a basis of feedback information

(iii) Philosophy

Planning is a philosophy, not so much in the literal sense of the word but an attitude, a way of life. Planning necessitates a dedication to acting on the basis of contemplation of the future, a determination to plan constantly and systematically as an integral part of management.

(iv) Structure

Comprehensive planning is reflected in the structure of planning systems and in the structure of plans. Comprehensive planning as a system is an integrated framework within which each of the sub-systems and sub-subsystems are interlinked and co-ordinated.

The chart of the integrated framework of comprehensive planning and control is shown on the following page.

The number of sub-systems operating in the integrated framework depends on the size of the firm and on the interest of the management, to mention some of the factors.

32 PURPOSE, OBJECTIVES AND MANAGEMENT BY OBJECTIVES

The purpose of the firm is the output of a long range planning system. The term can be defined as follows:

The purposes are the enduring motives that impel or attract a firm to make the best use of its powers and opportunities. Formulation of purpose is the determination of the firms needs, governed by outside influences and internal capabilities and limitations. It involves learning the way in which the firm is being motivated by the hopes of all those directly affected by its progress and assessing the impact of environment on this progress.

The objective, in accordance with our definition, is a desired future state of operations, in a framework of responsibility areas. The time dimension is flexible. The term can be used both for short and long range purposes. Objectives are the outputs of different planning processes as shown in Chart 1.

The existence of the purpose and the objectives and the participation of people in establishing them by their own achievement, has great motivational power. Behavioral scientists have studied carefully this subject, and they have come to the conclusion that objectives are good both for managers and the workers.

The term "Management by Objectives" has been described by Peter Drucker as follows:

FUNCTIONAL PLANNING | CO ORDINATIVE PLANNING, OPERATIONS AND REPORTING | OUTPUT

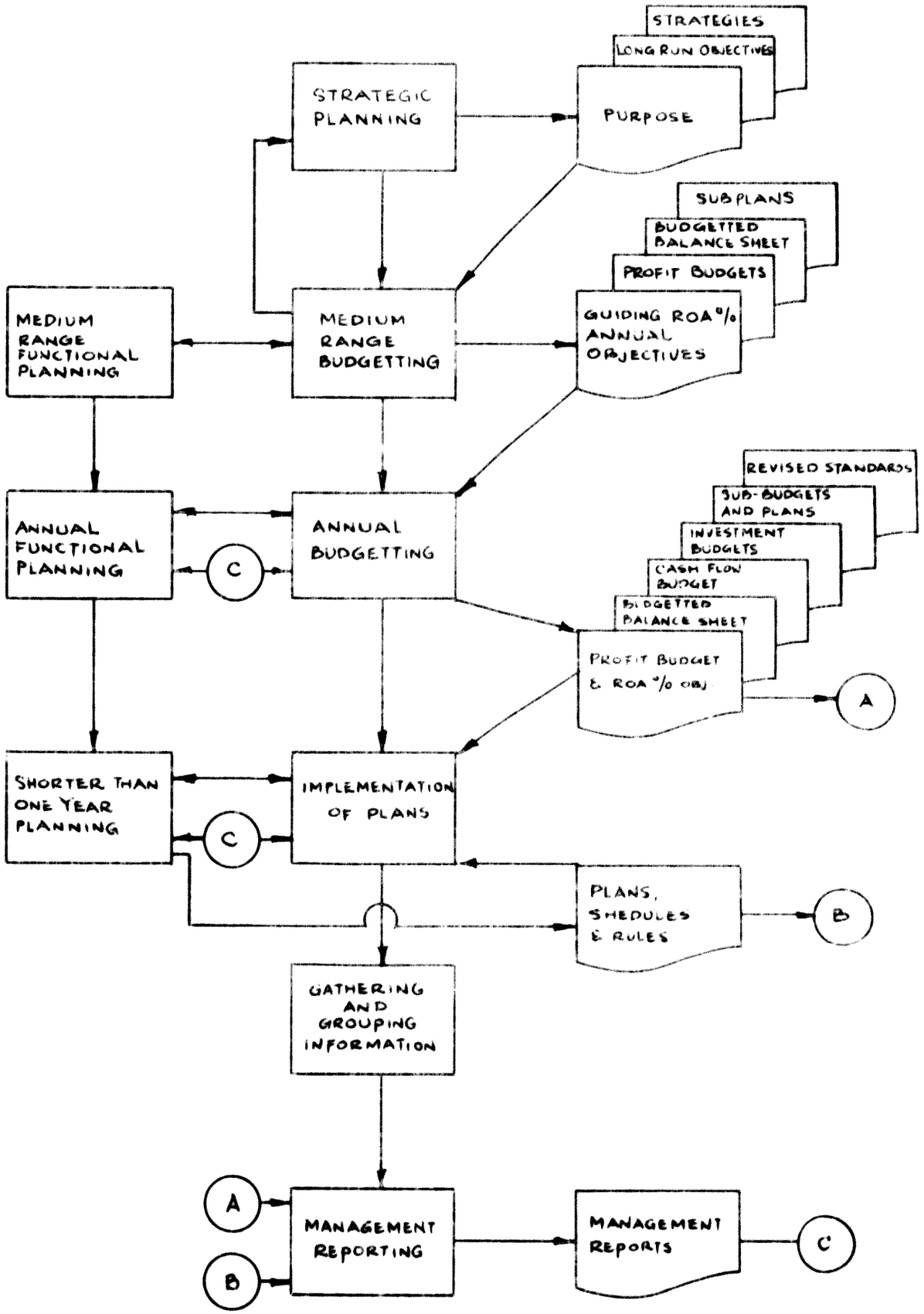


CHART NO. 1 - THE INTEGRATED FRAMEWORK OF COMPREHENSIVE PLANNING AND CONTROL

"Any independent operations must build a true team and weld individual efforts into a common effort. Each member of the enterprise contributes something different, but they must all contribute toward a common objective. Their efforts must all pull in the same direction and their contributions must fit together to produce a whole - without gaps, without friction, without unnecessary duplication of effort, performance therefore requires that each job be directed toward the objectives of the whole business. And in particular each manager's job must be focused on the success of the whole. The performance that is expected of the manager must be derived from the performance objective of the business, his results must be measured by the contribution they make to the success of the enterprise. The manager must know and understand what the business objective demands of him in terms of performance, and his superior must know what contribution to demand and expect of him - and must judge him accordingly. If these requirements are not met, managers are misdirected. Their efforts are wasted. Instead of teamwork, there is friction, frustration and conflict."

We can summarise the basic philosophy by Kipling's words as follows:

"When a crew and captain understand each other to the core, it takes a gale, and more than gale to put their ship ashore."

IV. BUDGETING SUB-SYSTEM

41 PURPOSE AND CRITERIA OF THE SYSTEM

The budgeting system is an important part of the comprehensive planning and control system. It is an annual planning system, which co-ordinates:

i) long range planning and annual planning
ii) different functional planning tasks and
iii) operational planning and cash flow planning

The people who are responsible for the separate operations, will participate in the budgeting process. They plan their own budgets and are guided by budget instructions made by the Director of E.I.D.A. A budgeting system is not only a technical tool. It is a means to get the people to think as a co-ordinated effort in accordance with the objectives of E.I.D.A.

The outputs of the budgeting process, the budgets, stir people to action and provide a basis for measuring performance. Criterias of Budgeting Sub-system are as follows:

i) the system must be the tool of management
   - in integrating and co-ordinating functional planning towards common long range objectives
   - in establishing a level of efficient use of resources used in different responsibility areas
   - in establishing a level of profitability based on the abovementioned level of efficient use of resources and long range profit objectives
   - in establishing targets of cash flow and balance sheet

ii) the system must be based on the principle of co-operation including guiding aims and the possibility of feedbacks.

iii) the responsibility of profits, costs and assets must be defined and the responsibility of production costs and that of training cost must be clearly separated.

42 RESPONSIBILITY AREAS

Management decisions find their reflection in the money that is either spent or earned as a result of a decision. The decision maker must also carry the responsibility of the economic consequences. In accordance with the criteria of the budgeting system, this responsibility must be shown also in budgets. That is why the responsibility areas has been established for budgeting the system and for the reporting/accounting purpose.

There are two types of responsibility areas. They are
- profit centres and
- cost centres

A profit centre is an operational unit for planning and control of both the efficient use of resources and profitable sales of products.

Main criteria of a profit centre are

i) one man must be responsible of both the profitability and efficiency of the operations
ii) the profit centre sells its products mainly outside and
iii) the profit centre has the profit objective usually measured as R.O.A.%

The profit centres of Engineering Industries Development Agency are as follows:

1. Metal Industries Development Centre (M.I.D.C.)
2. Prototype Production & Training Centre (P.P.T.C.)
3. Electro-Chemical Engineering Centre (E.C.E.C.)
4. Woodworking Industries Development Centre (W.I.D.C.)
5. Electro-Mechanical & Electronics Training Centre (E.M.T.C.)
6. Precision Engineering Development Centre (P.E.D.C.)

A cost centre is an operational unit for planning and control of the efficient use of resources. A cost centre is the responsibility of the area where the efficient ratio between costs and output can be planned and controlled.

Main criteria of cost centre are:

a) cost centres cannot cover each other
b) responsibility must be that of one man
c) a cost centre may include several operations

There are two main types of cost centres:

a) productive cost centres, which are the route points in the flow of products
b) non-productive cost centres, which are selling - administrative and service costs centres

The cost centres of E.I.D.A. are

- Management Accounting
- In Plant Training
- General Administration

M.I.D.C.

Common Cost of M.I.D.C.
In-Plant Training
Sales Department
Foundry Department
Die Casting Pressure
Die Casting Gravity
Ferrous Section
Pattern Making Section
Metallurgy Department
Heat Treatment Section
Industrial & Production Engineering Dept.
Maintenance Services Section
Metrology Department
Tool and Die Department
Production Unit A
Production Unit B
Production Unit C
Production Unit D
Production Unit E
Production Unit F

P.P.T.C.

Common Cost of P.P.T.C.
In-Plant Training
Forging Section
Welding/Heat treatment/Die Casting Section
Inspection and Maintenance Section
Machine Shop Section
Machinery and Metal Product Design Section
Tool and Die Design Section
Tool and Die Workshop
Production Planning and Control Section

E.C.E.C.

Common cost of E.C.E.C.
In-Plant Training
Plastic Section
Decorative Electroplating and Polishing Section
Hard-Chrome Deposition Section
Electro-Chemical Development Laboratory

W.I.D.C.

Common Cost of W.I.D.C.
In-Plant Training
Production Control Section
Design and Drawing Office
Workshop

E.M.T.C.

Common Cost of E.M.T.C.
In-Plant Training
Electro-Mechanical & Distribution Section
Electronics Section

P.E.D.C.

Common Cost of P.E.D.C.
In-Plant Training
Cutting Tools Section
Measuring Equipment Section
Drawing Instrument Section
Jobbing Section

43 THE DEFINITION OF COST AND OUTPUT TERMS

Under budgetary control expenses are controlled by procedures limiting them to predetermined amounts. The manner in which the predetermined amount for any expense is planned depends upon whether the expense is fixed or variable. If the expense is fixed, the amount will be set in the budget period irrespective of any fluctuation which may occur in the volume of production. If the expense is variable, the predetermined amount will be a standard rate per output unit.

Budgeting recognises also two categories of expense when relationship to volume of production is considered. These are:

i) fixed costs - those which tend to be uneffected by variations in the volume of output and
ii) variable costs - those which tend to vary with variations in the volume of output.

A special type of fixed costs in E.I.D.A. are training costs, in which have been defined as follows:

Training costs are those traceable or estimated costs, which would not exist if E.I.D.A. did not have any training task.

Finding a good denominator of output is not always easy. The denominator of the output should

i) represent production
ii) be uniform and
iii) vary with costs

Some of the main alternatives used as a denominator of the output are:

- weight units
- sales $
- working hours
- standard earned hours
- value added and
- different index figures

The term output can be divided in two sub-terms:

final output and
sub-output

Final output normally has something to do with outside markets.

The denominator of final output of E.I.D.A. and its profit centres will be value added and the denominator of sub-output of productive cost centres will be estimated man/machine hours.

44 KEY ELEMENTS AND SYSTEM MODULES

Budgeting is the tool of management by which they can plan and co-ordinate functional planning against objectives. The following will be defined in budgeting process:

i) the level of efficiency in using resources
ii) the level of profitability and
iii) cash flow

The main objective is a return on assets percentage which is the output of Long Range Planning process. It can be used as a unifying factor between long range and annual budgeting.

Return on assets % can be defined very roughly as follows:

(i) $$ROA\% = \frac{\text{Sales - (fixed \& variable costs)}}{\text{total assets}} \times 100$$

More detailed definition of R.O.A.% is as follows

(ii) $$ROA\% = \frac{\text{Sales - (fixed \& variable costs)}100}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total assets}}$$

which means that:

ROA% = Return on Sales% (ROS%) X turnover of assets (TA)

(iii) A more sophisticated definition of R.O.A.% is shown in Chart No. 2.

The key variables in planning profitability, measured by Return on Assets ratio, and the efficiency of the operations are as follows:

1. sales volume
2. sales price
3. level of variable unit costs:

   31. number of outputs:
      311. labour efficiency (units per earned hour)
      312. number of hours (no. of shifts, no. of workers/shift)

   32. level of costs:
      321. efficiency in material usage
      322. price level of labour and material

4. level of fixed costs:
   41. time
   42. price level of labour and material
   43. efficiency of labour and efficiency in material usage

5. level of assets invested:
   51. level of current assets invested
      511. cash
      512. accounts
      513. inventories
      514. others

   52. level of fixed assets:
      521. buildings
      522. equipment
      523. others

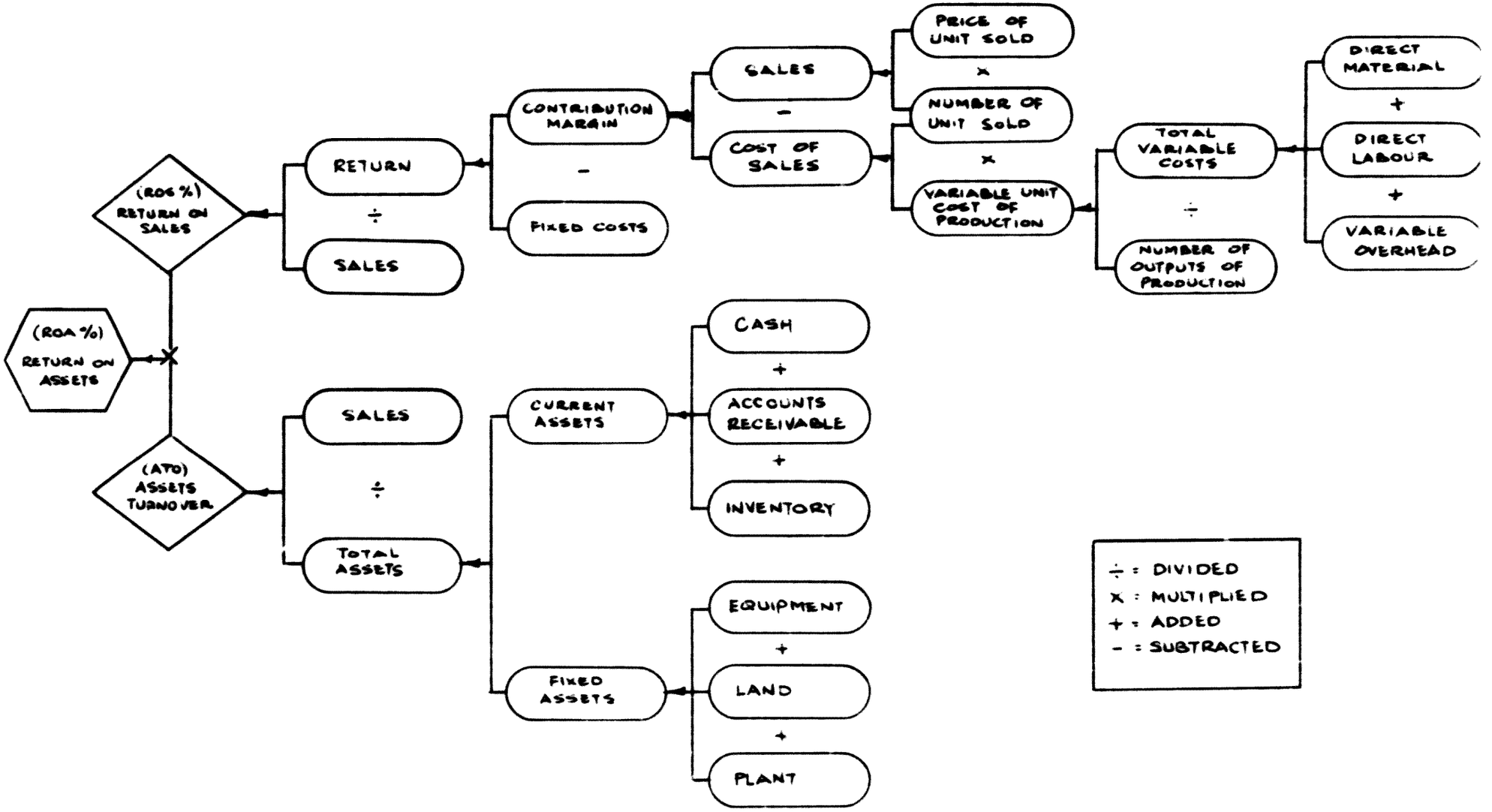


CHART NO 2. RETURN ON ASSETS

For the planning process the budgeting system has six modules.

They are:

i) writing budget instructions
ii) output planning
iii) manpower planning
iv) planning fixed and variable costs
v) planning master budget of operations
vi) planning balance sheet and cash flow

There is a possibility of feedbacks at every step of budgeting process as shown in Chart 3.

45 TASK DEFINITIONS

(The numbers used here refer to the task numbers in flow chart No. 3)

451 Writing budget instructions

The budgeting process will be started by the budgeting meeting where all chiefs of profit centres, departments and cost centres will be present.

Budget instructions written by the Director of E.I.D.A. will be presented during this meeting.

Budget instructions give "the environment analysis" and the guiding objectives for the budgeting process and they may include the purpose and key strategies too.

Budget instructions are useful tool of the Director of E.I.D.A. when guiding the planning against long run objectives. Many feedbacks will be saved by these instructions.

452 Output Planning

Purpose: Output planning is defined to be the co-ordinated sales, production and training planning in order to achieve the long range objectives (efficiency, growth, training objectives, etc.)

Input: Budget instructions

Output: (i) decision of capacity level in the form of sales/production plan in terms of earned man/machine hours by cost centres

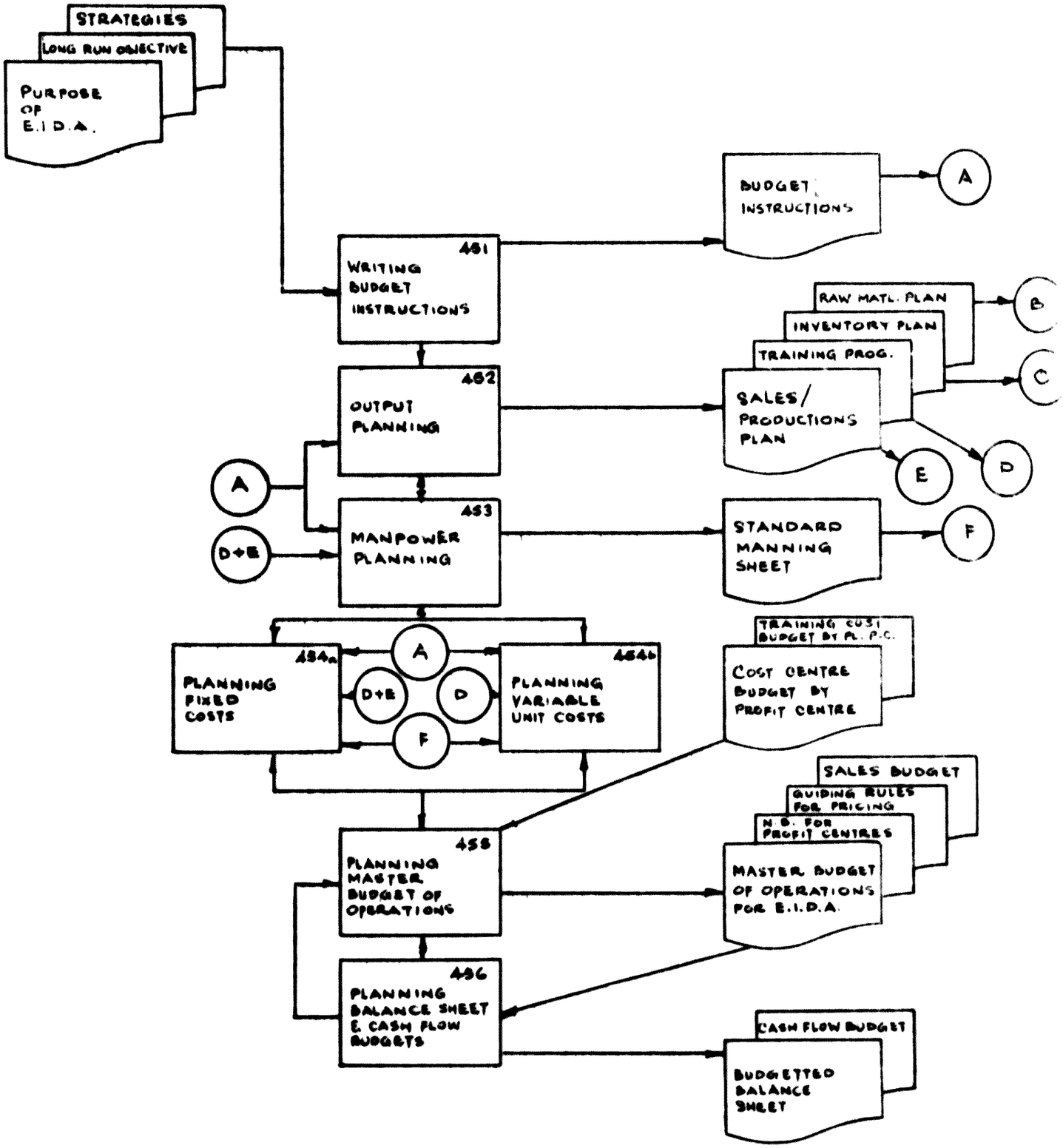


CHART NO. 3 BUDGETTING SYSTEM

(ii) raw material plan
(iii) inventory plan and
(iv) training programme

The output planning is illustrated in the flow Chart No. 4.

453 Manpower Planning

Purpose: The purpose of manpower planning is to utilise the human resources efficiently in accordance with the long run objectives

Input: (i) Production plan by cost centres
(ii) Budget instructions

Output: Standard manning for each cost centre and budgeted number of effective hours.

454 Planning of fixed and variable costs

Purpose: The purpose of cost budgeting is to define:
(i) the level of cost by which the planned production should be produced and sold
(ii) the level of costs by which the defined training programme should be worked to.

This level must be according to the long run objectives and it must be approved by those who are responsible for them.

Cost budgeting can be separated into two parts:

(i) budgeting the variable unit costs of productive cost centres by natural accounts and calculating budgeted $ rate/output unit in each productive cost centre

(ii) budgeting fixed costs of non-productive cost centres including training costs

Time period for cost budgeting is one year, which for control purposes has been divided in monthly periods.

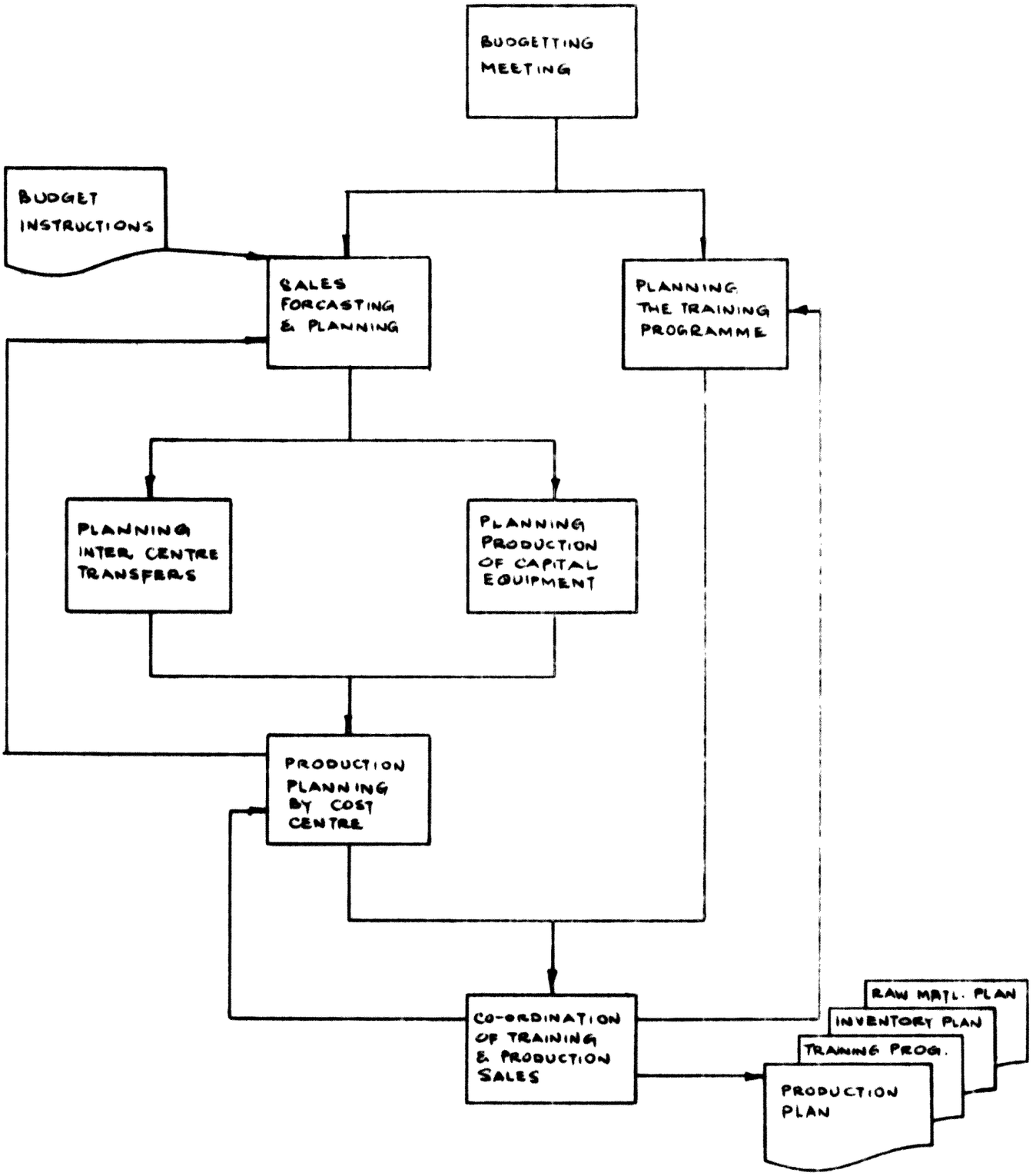


CHART NO. 4. OUTPUT PLANNING

Input: (i) production budget
(i) standard manning sheets
(ii) budget instructions

Output: (i) cost centre budgets of productive cost centres including
- cost budgets by natural accounts
- calculation of budgeted $ rate/output unit

(ii) cost centre budgets of non-productive cost centres including monthly cost budgets by natural accounts

(iii) budgeted training costs

455 **Planning the Master Budget of Operations**

Purpose: The purpose of this important budgeting sub-process is to make a co-ordinated total plan called the Master Budget of Operations for each profit centre and for E I.D.A. The operating rules for pricing will also be established by this process for each cost centre.

Input: Budget instructions
Sales/production plan
Cost budgets

Output: Master Budget of Operations
- for each profit centre
- for E I.D.A.
Guiding rules for pricing
Sales budget ($)

Process: The process will be shown by the following flow Chart No. 5

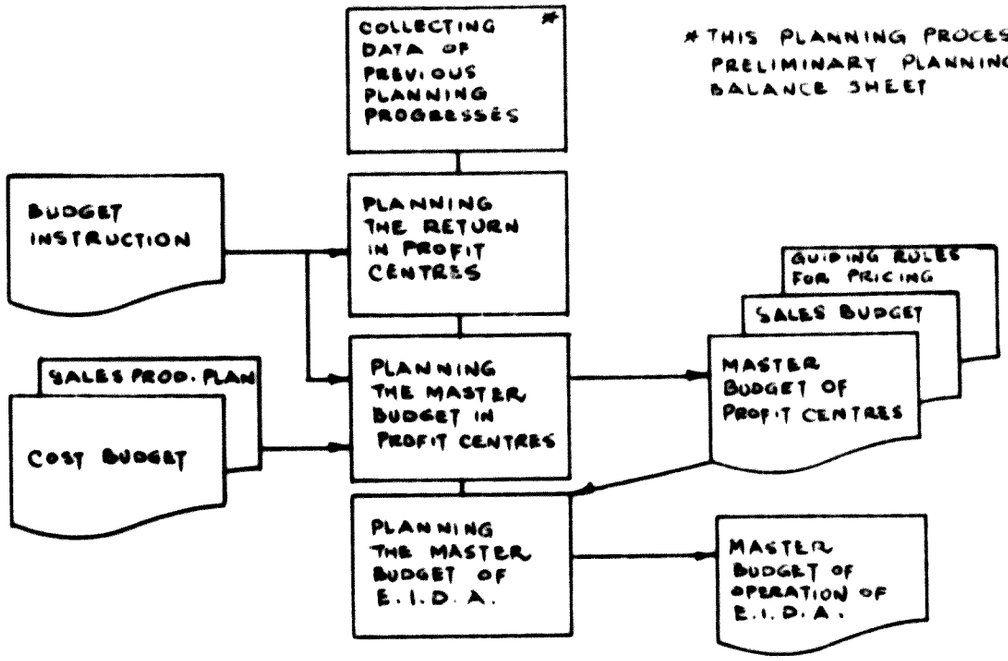


CHART NO. 5.

Planning Master Budget of Operations

456 **Budgeting** balance sheet and cash flow

Purpose: The purpose of this sub-process is

(i) to plan current and fixed assets needed for the operations of the Master Budget and

(ii) to plan the cash flow in such a way that cash is always available and always efficiently utilised.

Process: Input & Output: The process and its inputs and outputs will be shown by Chart No. 6.

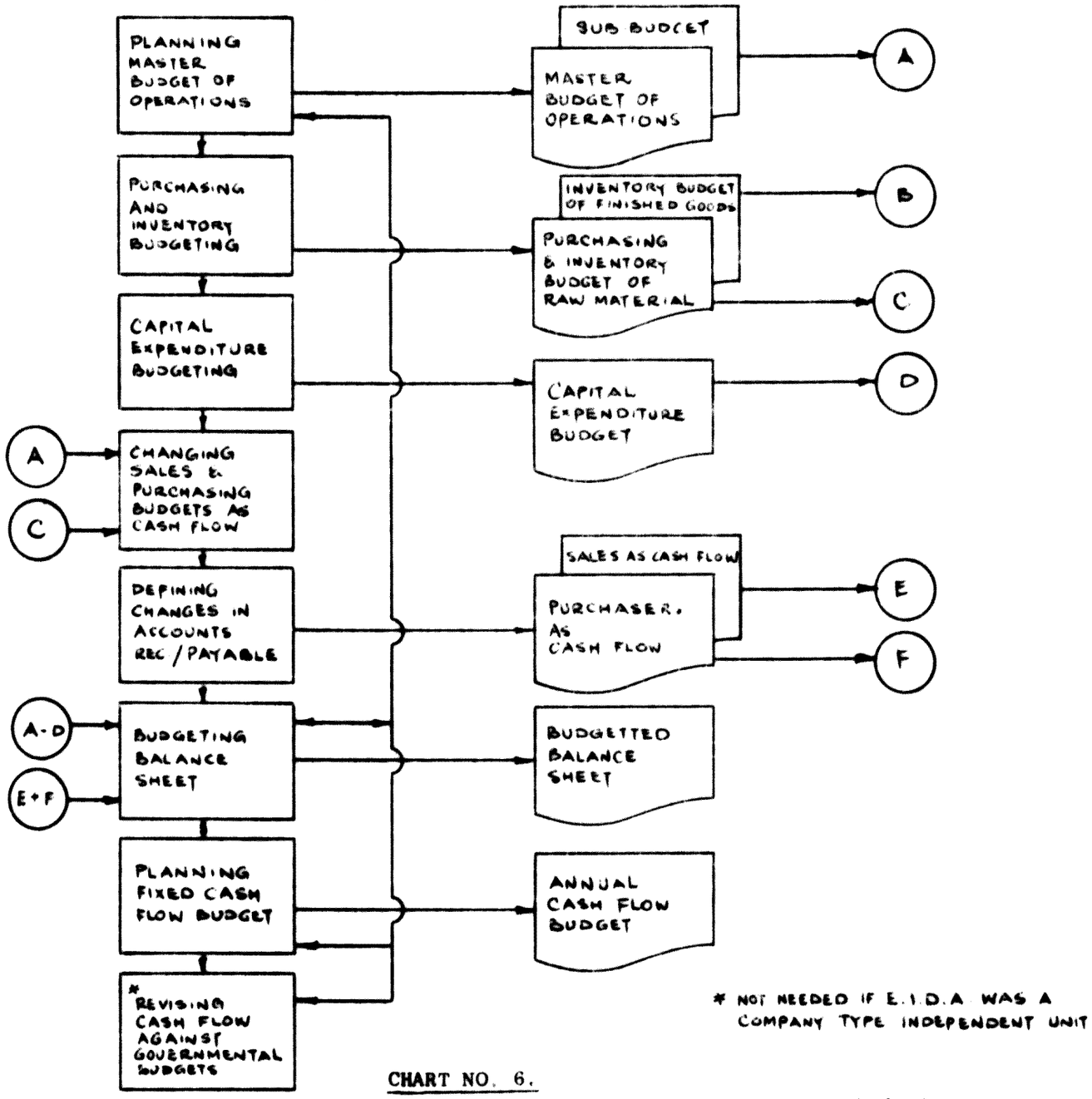


CHART NO. 6.

Planning Balance Sheet and Cash Flow Budgets

46 SUMMARY OF BUDGETS AND PLANS

The following budgets and plans will be the output of the budgeting process:

for Director of E.I.D.A.

- Master Budget (M.B.) of operations for E.I.D.A.
- (including MB's of profit centres)
- Sales Budgets of Profit Centres
- Training Programmes and Budgets of Profit Centres
- Budgeted balance sheet
- Cash flow budget

for Ag. Directors of Profit Centres

- Master Budget of operations
- Sales Budget
- Training programme and budget
- Guiding rules for pricing
- Summary of cost centre budgets
- Inventory plan
- Raw material usage/purchase plan

for Foremen and Department Directors

- cost centre budget
- standard manning sheets

V PRICING

51 THE ECONOMIC DECISION MAKING THEORY UNDERLYING PRICING

The information which will be presented for management's use in decision-making like pricing will have as its framework a body of fundamental economic theory. The basic objective is profit maximisation at least to the level which is satisfactory to ROA% objectives. The basic tool used for assuring profit maximisation is marginal analysis; that is, an intensive examination of the effects upon revenues, costs and income of the incremental unit of sales or production.

The marginal analysis is possible because the accounting in E.I.D.A. will use direct costing methods which apply price theory principles to the cost behaviour of the firm. In direct costing, variable and period costs are separated. Therefore, it is possible to assure maximisation of profits by following the basic tenet of price theory, namely, profit is maximised if contribution to period costs is maximised. Moreover, because period and variable costs are separated it is possible to isolate the marginal revenue and marginal costs resulting from a business decision. Thus, a further application of price theory is feasible, to maximise contributions to period costs, accept all sales up to the point at which marginal revenue equals marginal costs.

As a pricing rule this theory is dangerous, because it can be very easily misunderstood, but it is a very wise way of thinking.

(i) if the pricing policy has been decided
(ii) if the contribution margin has been budgeted based on ROA%
(iii) if the guiding rules of pricing has been given

52 PRICING POLICY

As a result of strategic planning a statement of pricing policy must be written to reflect all the facets of internal operations and problems, each of them being assessed against the external market factors which influence the total situation. It should present the

overall pricing policy should be aimed at formulating the principal pricing problems, provide a guideline for decisions in individual pricing situations. Once a pricing policy has been formulated, it should be regularly reviewed and kept up to date.

As an example,

An industrial pricing policy intended for internal use is illustrated by the following general guidelines of a hypothetical large manufacturer of machinery:

1. Prices will be aimed at maximising profits for the entire product lines that is they will stimulate profitable combinations of sales.

2. Prices will be set to promote the long range welfare of the firm, to discourage competitors from entering the field.

3. Prices will be adapted and individualised to fit the diverse competitive situations encountered by different products.

4. Pricing policies will be flexible enough to meet changes in economic conditions affecting customer industries.

5. A predetermined and systematic method for pricing new products will be established to provide adequate variable costs and a satisfactory return on assets (R O A %).

53 METHOD OF PRICING NEW PRODUCTS

In a competitive industry and especially where products are made to order, costs have a significant bearing on pricing. Pricing, in turn, affects sales volume and profit contribution. Pricing to maximise contribution, at least to the level of ROA% objective therefore requires an intimate knowledge of production costs, knowledge of market conditions and of profit objectives. For that reason it is imperative that a formal plan be established to direct the pricing operations of the business and that controls be built into this plan to insure guidance and direction. Pricing should have as its target the maximisation of contribution to period costs at least to ROA% objective level. To achieve this target, pricing operations should be directed so that sales which contribute to period costs are not refused, but the final ROA% objective is always in mind.

Based on all above mentioned, the pricing system is as follows:

A Budgeting process:

a) decision of contribution margin objective based on ROA% objective
b) decision of output objectives by cost centres
c) calculating and writing the guiding rules for pricing above estimated direct product costs
d) planning standard $ rate per earned hour in each product route-point (cost centre)

B Precalculation of product:

a) gathering data of defined standards, of previous similar works, etc.
b) estimating hours needed in different product route points
c) calculation of direct material
d) preliminary calculation based on Ac, Ad, Bb and Bc
e) comparison with the price of competitor
f) checking Bb
g) price decisions
h) approval if needed

54 SUMMARY

It must be remembered that in any pricing situation, the interaction of cost and demand must be considered. Cost is only one factor in price making and a company which ignores the factors influencing demand is likely to price itself out of business.

When competitive conditions sharply limit the selling price, some means must be formed by the management to change the situations.

Main alternatives are:

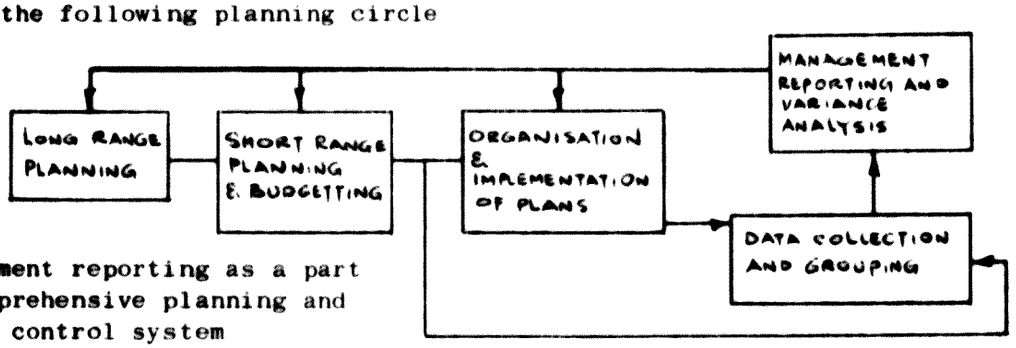
- reduce the costs of rationalisation
- find better ideas of products
- find better markets or
- combination of those above mentioned

The decision in this situation is difficult but so is management.

VI MANAGEMENT REPORTING

61 PURPOSE AND NATURE OF MANAGEMENT REPORTING

The main purpose in management reporting is to provide relevant information to management for the discharge of its functions. To manage an operational unit - to discharge its functions and attain its objectives - management needs systematic and comparative records and analytical and penetrating reports on cost and profit data to make corrective actions concerning current operations and to make better decisions in the following planning circle



Management reporting as a part of comprehensive planning and control system

Management reports are the link in the systematized managing process, where planning, co-ordination, organisation and control follow each other in different levels of the organisation. Management reports are the tools of management as signals for corrective actions and as the basic information for planning in the future.

62 THE CRITERIA OF THE REPORTS

The basic criteria of the effective management reports are:

1. Reports should follow the organisational structure, which means that reports should be made by cost centres, departments and by profit centres. Responsibility for each of these units must be clearly defined and only those costs (income, for which the manager is responsible must be reported (and budgeted) under his responsibility. This type of reporting is generally called "responsibility reporting".

2. Actual results should be compared with performance measurements. This type of reporting is called "variance reporting". The performance measurements that are applicable, differ by the category of the operating results for which control is being attempted. The table below illustrates the performance measurements used in E.I.D.A. --

Category	Includes	Performance Measurement
Variable & semi variable costs, which vary with production measured by job hours	1) direct labour and variable overhead	Output units of productive cost centres multiplied by budgeted $ rate/output units of the cost centres
	2) direct material	Estimated material costs
Fixed costs of operations, that are not affected by production within normal range of volume	1) administrative salaries, expenses	Fixed cost centre budgets
	2) fixed factory overhead	
	3) sales costs	
Cost of Training	Traceable costs of training	Training budget
Income and Assets	1) contribution margin at target costs	Master budget of operations and Budgeted Balance sheet
	2) return	
	3) net result	
	4) return on assets	
Cash flow	Source of cash and use of cash	Cash flow budget and forecast

3. The significance should be emphasised in a way that is clear and understandable. Which means that reporting must be concentrated on figures that are significant to the manager in steering his unit towards the objectives. The figures need not always be in dollars. Graphic Charts must not be forgotten. We could summarise this criteria in three words: few but effective.

4. Last but not least: the reports must adequately disclose cost/volume/profit relationships.

63 THE ACCOUNTING SYSTEM BEHIND THE REPORTS

Although the accounting system will be defined as a next sub-system, the decisions concerning the type of the system are needed at this stage because the form and the efficiency of the Master Report of operations depends on the type of the accounting system used.

The reporting system proposed requires all accounting system designed to be consistent with management information requirements. Direct (standard) costing is the accounting system underlying this proposal. This accounting method provides the means to design a reporting system, which is consistent with the criteria defined in previous chapter.

Direct costing means that we separate the costs into two groups:

- variable and
- fixed costs

Variable cost means those costs which vary with volume in a substantially direct and proportionate manner and which will be identified by jobs as defined earlier in this report. Other names used are direct costs or incremental product costs. Variable costs in E.I.D.A. are:

- direct labour
- direct material and
- variable overhead

The difference between the sales $ and the variable costs of sales, is called contribution margin, which should cover the fixed costs and give the planned net profit called "return" in this definition.

Fixed costs are necessary to [illegible] capability to produce. They expire with the passage of time and not with the sale of a unit of product and they bear no direct and easily identifiable relationship with the volume of production activity. Other names of fixed costs are non-variable period costs, standby costs or capacity costs.

The main advantages of direct costing are:

1) direct costing presents the relationships of cost, volume and profit in a manner easily understandable by all management

2) the impact of fixed costs on profit is clearly demonstrated in the income statement called in E.I.D.A. as Master Report of Operations.

3) marginal income information enables management to appraise the contributions of profit centres, jobs, classes of customers or other segments of the operations to the profitability of E.I.D.A. as a whole without arbitrary allocations of fixed costs obscuring the results.
Above we have defined the three advantages of using direct costing. The use of estimates and price standards gives an additional advantage:

4) the responsibility of the total variance between budgeted and actual return can be separated between different functions as follows

i) sales (by profit centres)	responsibility of budgeted contribution margin and responsibility of budgeted selling costs
ii) manufacturing (by profit centres/cost centres);	responsibility of budgeted $ rate of output unit and responsibility of budgeted fixed factory overhead costs.
iii) purchasing (E.I.D.A.)	responsibility of std. prices of direct material
iv) administration (by profit centres/cost centres)	responsibility of budgeted admin. costs

Standard direct costing gives an excellent basis for responsibility reporting and variance reporting.

64 MANAGEMENT REPORTS

641 Summary of the Reports

Based on the above mentioned criteria the management reports in E.I.D.A. are as follows:

A. For Director of E.I.D.A.
   1. Graphic chart of operations
   2. Agency's Report of operations
   3. Balance sheet by profit centres
   4. Cash flow forecast
   5. Inventory report by profit centres
   6. Governmental budget report
   7. Training programme report

B. For Directors of Centres
   1. Graphic chart of operations
   2. Profit centres' report of operations
   3. Variance analysis by cost centres
   4. Report of direct labour (B)
   5. Material in process
   6. Inventory report

C. For Chiefs of cost centres and departments
   1. Cost centre's report of operations
   2. Report of direct labour (A-B)

D. For the Cost Estimator
   1. Report of completed jobs

642 Graphic Chart of Operations

The purpose of this graphic chart is to give to the manager the first overall view of the situation and of the main reasons which have caused the situation.

The chart will show:

(i) contribution margin at standard costs
   - cumulative variance from budget
   - monthly budget/actual figures

(ii) return
   - as above

(iii) net results
   - as above

(iv) sales $ budget/actual as cumulative

(v) variance percentage of operative costs as cumulative and

(vi) variance percentage of training costs as cumulative.

643 Profit Centre's report of operations

Profit centre's report of operations is, the basic report of the series. The main idea of the information in this report is as follows:

Profit centre's report of Operations	Actual	Budget & Estimate	Variance
Sales	X	X	
Target direct cost of sales	X	X	
Contribution margin at target costs	X	X	
(±) sales volume/price variance	X		X
(±) manufacturing variance	X		X
(±) material price variance	X		X
Contribution margin at actual costs	X	X	X
(-) fixed costs of admin. mft.& sales	X	X	X
(-) depreciations	X	X	
Return	X	X	X
(-) training costs	X	X	X
Net Result	X	X	X
Return on assets			
Contributions margin per job hour			
Value added per total hours used			

GRAPHIC CHART REPORT OF OPERATIONS

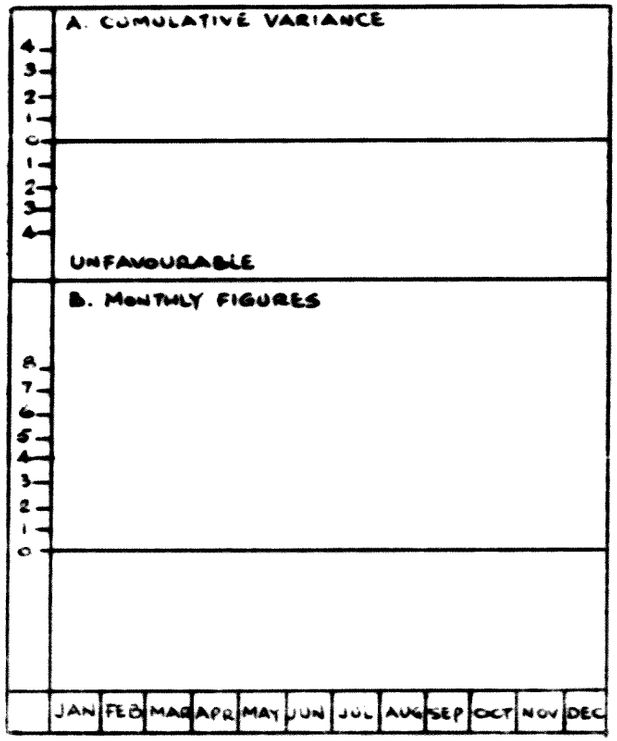


TABLE 1: CONTRIBUTION MARGIN

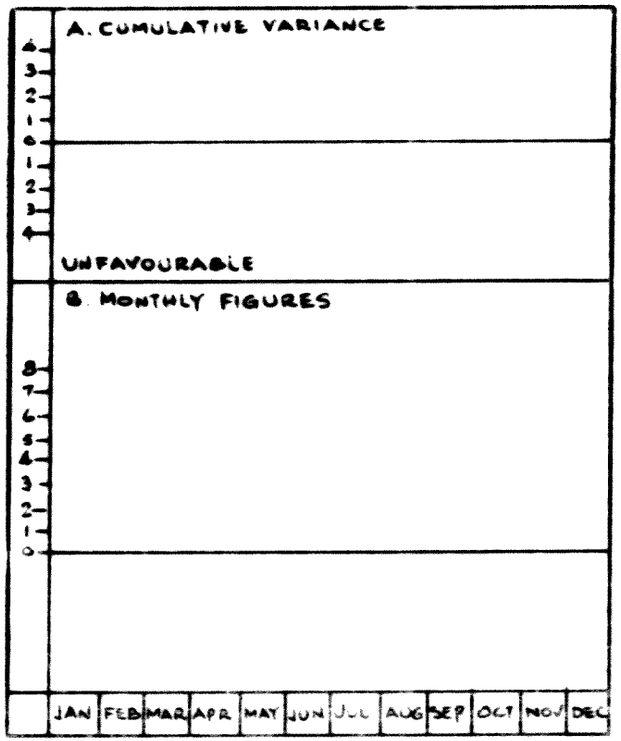


TABLE 2: RETURN

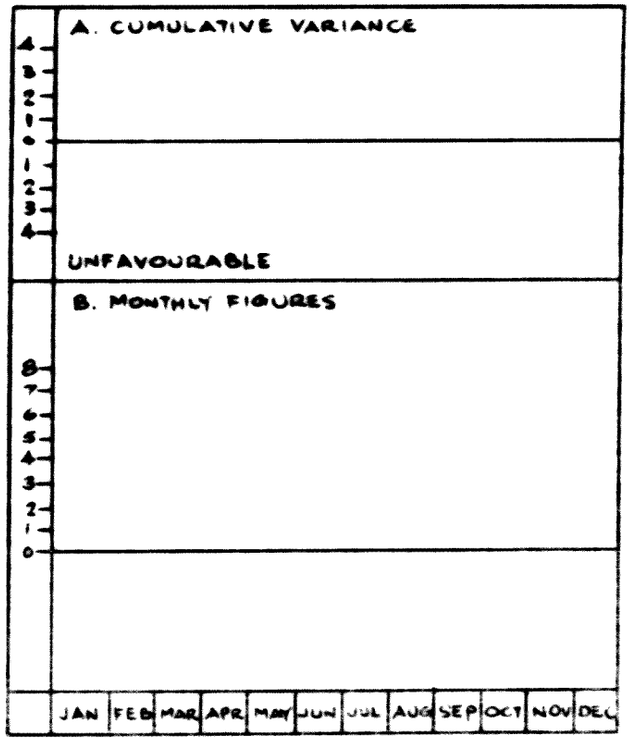


TABLE 3: NET RESULT

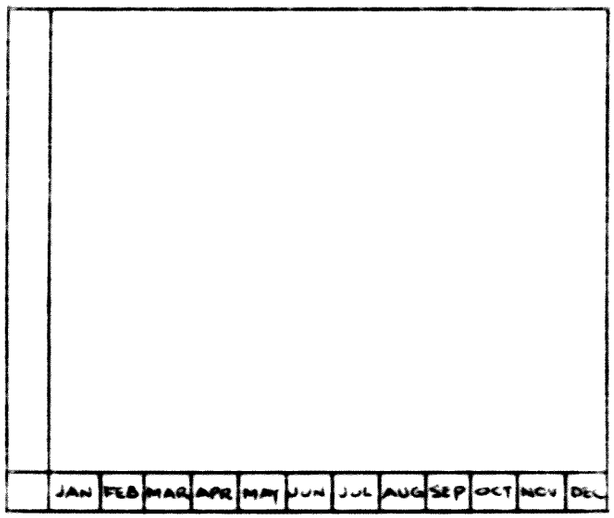


TABLE 4: SALES (CUMULATIVE)

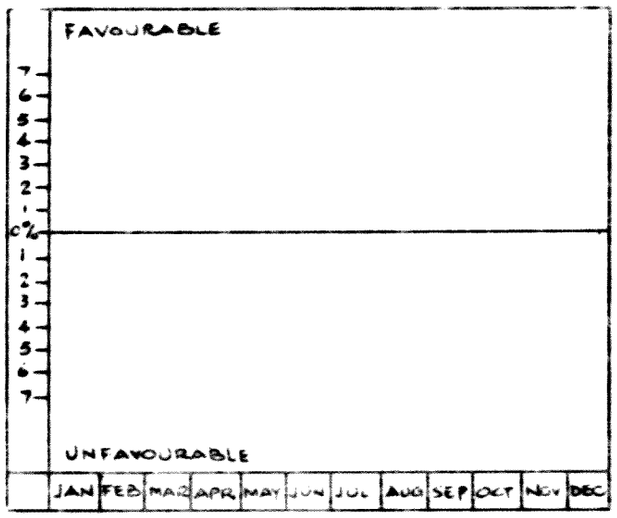


TABLE 5: % OF OPERATION COST VARIANCE (CUMULATIVE)

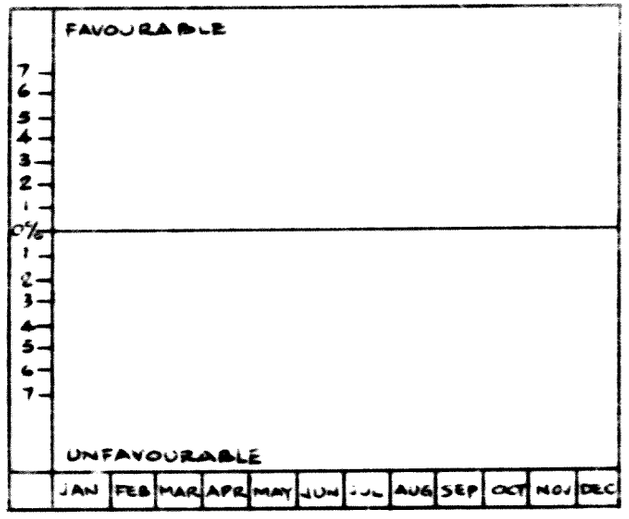


TABLE 6: % OF TRAINING COST VARIANCE (CUMULATIVE)

Definitions.

Sales means net sales billed at the end of the period + internal sales

Target Direct cost of sales. Target direct costs will be calculated based on the engineering estimates of the required direct material costs and the labour hrs of different jobs and based on budgeted $ rates/output units of different productive cost centres.

Contribution margin at target costs. means the difference between actual sales $ and target direct cost of sales.

Sales volume/price variance (caused by sales dept) means the difference between budgeted and actual contribution margin at target costs.

Manufacturing variance is the difference between target and actual direct costs of different productive cost centres. This variance will be analysed in more detail in the following report called Variance Analysis. Components of this variance are:-

- material usage variance
- variance from estimate
- rate variance which will be defined in more detail later

Material price variance (caused by Purchasing Dept.) means the variances between the purchases of direct material at std. and actual prices

Contribution margin (C/M) at actual costs is C/M at target costs ± manufacturing and purchasing price variances.

Fixed costs defined earlier

Depreciations defined in budgeting process

Return is the net profit after fixed costs

Training costs are traceable or estimated costs of training which would not exist, if E.I.D.A. did not have any training task.

Net Result return minus training costs.

Return on assets is the main denominator of the **profitability** of the operations and is calculated as:

$$\frac{\text{Return}}{\text{Total Assets}} \times 100$$

Value added per total hours it is the rough denominator of the **productivity** and is calculated as follows:

$$\frac{\text{Sales minus direct material}}{\text{total hours used}}$$

The form of profit centre's report of operations is on page (38). On the following page is the Agency's report of operations, which is the summary of profit centre's reports added by the E.I.D.A. cost information.

Month _____ Year _____

M.I.D.C. ☐ P.E.D.C. ☐

P.P.T.C. ☐ E.C.E.C. ☐

E.M.T.C. ☐ W.I.D.C. ☐

PROFIT CENTRE'S REPORT OF OPERATIONS

Current Month			Description	Year to Date		
Budget	Actual	(under) or over		Budget	Actual	(under) or over
			SALES - external (-) internal Total Sales (-) target direct cost of sales CONTRIBUTION MARGIN AT TARGET COSTS Variances: (i) sales volume/ price variance (ii) manufacturing variance (iii) material price variance CONTRIBUTION MARGIN (C/M) at actual costs (C/M % of sales) (-) fixed costs in profit centres (-) depreciations RETURN (return on sales %) (-) training costs NET RESULT			

Significant figures Budget Actual New Forecast

Return on assets

Value added per total hours

Training costs per training month

ENGINEERING INDUSTRIES DEVELOPMENT AGENCY

_____
MONTH

AGENCY'S REPORT OF OPERATIONS

	TOTAL - E.I.D.A.			M.I.D.C.		P.P.T.C.		E.M.E.T.C.		E.C.E.C.		W.I.D.C.		P.E.D.C.	
	VARIANCE	ACTUAL	BUDGET	ACTUAL	BUDGET	ACTUAL	BUDGET	ACTUAL	BUDGET	ACTUAL	BUDGET	ACTUAL	BUDGET	ACTUAL	BUDGET
SALES															
COST OF SALES															
CONTRIBUTION MARGIN $ %/o OF SALES															
FIXED COSTS															
RETURN $ %/o OF SALES															
TRAINING COSTS															
NET RESULT															
SIGNIFICANT FIGURES RETURN ON ASSETS TR. COST/TR. MONTH RETURN / JOB HOUR VALUE ADDED/TOTAL HOURS															

FEB. 26, 1970
MABC - TEAM

644 Variance Analysis.

Following variances will be analysed by profit centres/cost centres.

- sales volume/price variance
- material usage variance
- variance from estimates
- rate variance
- variances of fixed op. budgets
- training cost variances

Definitions:

Sales volume/price variance defined earlier

Material usage variance. this variance is the difference between pre-calculated (based on engineering estimates) and actual direct material costs at standard prices

Variance from Estimate: this variance is the difference between engineering estimate and actual output units multiplied by budgeted $ rate per output unit

Rate variance this variance is the difference between budgeted and actual rate per output unit multiplied by actual output units

Variances of fixed operational budgets. this variance is the difference between actual and budgeted fixed (operational) costs including fixed factory overhead, administrative costs and sales costs.

Training cost variance. it is the difference between actual and budgeted training costs of profit centres.

Variance analysis will be made for current month and year to date. An analysis of direct labour efficiency will also be made in this report. The following data will be given

(1) capacity hours
(2) manned hours
(3) earned estimated job hours
(4) actual job hours
(5) estimated/actual ratio ($\frac{3}{4}$) and
(6) utilisation ratio ($\frac{4}{2}$)

The form of variance analysis report is on the following page.

MONTH _____ YEAR _____ OPERATIONAL UNIT _____

VARIANCE ANALYSIS

A. AN ANALYSIS OF THE VARIANCES BETWEEN ACTUAL AND BUDGETTED NET RESULTS

a CURRENT MONTH	TOTAL					
1. SALES VOLUME / PRICE VARIANCE 2. MATERIAL USAGE VARIANCE 3. VARIANCE FROM ESTIMATE 4. RATE VARIANCE 5. VARIANCES OF FIXED OP. BUDGETS 6. MATERIAL PRICE VARIANCE						
VARIANCES TOTAL + BUDGETTED RETURN						
= ACTUAL RETURN 7. TRAINING COST VARIANCE + BUDGETTED TRAINING COSTS						
= ACTUAL NET RESULT CURRENT MONTH						
b. YEAR TO DATE						
1. SALES VOLUME / PRICE VARIANCE 2. MATERIAL USAGE VARIANCE 3 VARIANCE FROM ESTIMATE 4. RATE VARIANCE 5. VARIANCES OF FIXED OP. BUDGETS 6. MATERIAL PRICE VARIANCE						
VARIANCES TOTAL + BUDGETTED RETURN						
= ACTUAL RETURN 7. TRAINING COST VARIANCE + BUDGETTED TRAINING COSTS						
= ACTUAL NET RESULT YEAR TO DATE						

B. AN ANALYSIS OF DIRECT LABOUR USAGE

1. CAPACITY HOURS 2. MANNED HOURS OF DIRECT LABOUR 3. STD JOB HOURS 4. ACTUAL JOB HOURS						
5 ESTIMATED/ACTUAL RATIO (3/4)						
6. UTILIZATION RATIO (4/2)						

645 Cost centre's Report of Operations:

The main report concerning direct labour and variable overhead on cost centre and department levels is called the cost centre's Report of Operations. The form of the report is on the following page. This report shows variances between target and actual costs by natural accounts both for the current month and the year to date. The total variance between target and actual costs has been analysed as two components:

- rate and
- variance from estimate

Month _____ Year _____

Cost Centre/Department/Profit Centre

Responsibility of

MR.

REPORT OF OPERATIONS

current month			NATURAL ACCOUNT	year to date		
Budget or Target	Actual Costs	(under) or over		Budget or Target	Actual Costs	(under) or over
			Wages direct allowance to trainees, overtime allowance etc. by natural accounts			
			T O T A L :			
			ANALYSIS: RATE VARIANCE: VARIANCE FROM: ESTIMATES:			

646 Other Reports

In this Phase I definition, an attempt has been made to define in more details the four main reports:

- graphic chart of operations
- Agency's report of operations
- Profit centre's report of operations
- cost centre's report of operations
- variance analysis

The names of other reports tell their purpose. They will be defined in more detail in the accounting manual to be written during implementation phase.

VII ACCOUNTING

71 THE PURPOSE AND THE CRITERIA

In previous sections the procedures and forms for making budgets and for reporting variances to the management have been described. The gap between budgets/standards and variances reports is an accounting function, which will be defined in this section.

The primary purpose of accounting is to
- accumulate and
- communicate

information essential to the understanding of specifiable units. These units may take any form from integrated corporate structures to single products, depending on particular coherence requirement.

One of the major uses of accounting data is internal business management, as we have found in the previous chapter. However, other uses of accounting data must not be forgotten. The Minister of Finance is interested in information which is on a cash flow basis and creditors and debtors must get the data they need.

The main criteria of the E.I.D.A. accounting system are:

(i) it must be flexible so that it can provide information to both internal and external interests.

(ii) the system must fill the requirements also, if E.I.D.A. should be an independent unit.

(iii) the use of modern accounting techniques must be carefully considered, but the decision concerning accounting process is to be based on sound cost benefit analysis. However, the change from the current hand-written system must be made step by step.

72 THE TASKS

Accounting is concerned with classifications, accumulations, control and assignment of costs and other financial information. This information is classified according to patterns of behaviour activities, processes to which they relate, jobs to which attach and other

categories, depending on the type of measurement desired. From this data the accountant calculates, reports and analyses the performance of operating functions. He also prepares data which will assist management to establish plans and to select between alternative courses of action.

In general, the basic tasks can be established as

- provide information for management control of operations and activities
- provide information for external use
- provide cost data for income measurement and valuation of assets
- provide information for management planning and decision making

The fulfilling of these basic tasks takes place through using special records, methods and procedures. These consist of:

- chart of accounts
- budgets and estimates
- financial records established according to information requirement
- operating methods and rules for gathering, summarising assigning and reporting of this information

By employing these media the task of the accounting function can be classified into individual activities, as follows:

- distribution and summarisation of costs, revenue and other financial transactions
- output accounting
- determination of target costs of productive cost centres based on estimated job hours and budgeted $ rate/job hour
- comparison of actual costs, income and level of assets with measurements like estimates and budgets, that are to produce the variance reports defined earlier
- preparation and maintenance of E.I.D.A. books and financial statements for internal and external purposes
- assisting in and compilation of operational budgets
- preparation of special cost studies for decisions making and control purposes
- property accounting

73 CURRENT ACCOUNTING AND REPORTING SYSTEM

The following are the accounting records kept by the accounts section of E.I.D.A.;-

1. Cash receipt book
2. Cash payment record
3. Sales journal
4. Debtors Ledger
5. Inventory book
6. Store Ledger cards
7. Commitment book
8. Expenditure control sheets

Matching

The accounts section will receive a copy of the supplier delivery order from central store or the appropriate workshops that goods received are in order. Meantime, the supplier invoices will be channelled to the accounts section for payments. The delivery orders will then be matched against the purchase orders and the supplier invoices. The price, quantity and the expenditure will be checked. After being satisfied that the invoices are in order, they will be sorted according to the name of the suppliers.

Payment and Receipt

After sorting the invoices, a cheque voucher will be prepared for each supplier. The Financial Assistant will check through the cheque vouchers and initial each cheque voucher after being satisfied that the payments are in order. A clerk will register the expenditure on each vote head before he will forward it to the Head Office finance division for payment. A copy of the invoices will be extracted and filed according to the date of payment. At the end of each month, the Finance Division will forward a statement of expenditure to the accounts section E.I.D.A., for reconciliation with the expenditure records.

All cash is received in the accounts section. A cash receipt book is used to record all cash collected. The cash together with the receipt book will be forwarded to Finance Division once a day for banking.

Invoicing and Debtors ledgers

When a job is completed and delivered to the customer, the production control section of the centre will forward to the accounts section a copy of the delivery order together with the job estimates/actual cost sheet. Based on the delivery order the invoice is prepared in five copies. Two copies for the customer, one copy for the centre, one copy for Head Office Finance Division and the last copy for the accounts Section. A clerk will book the invoices in the sales journal. At the end of the month, a summary of the monthly sales position will be given to the centres.

From the sales journal and the cash receipt book the appropriate entries are made in the debtors ledgers. Other adjusting entries from Head Office and credit notes are also posted in the debtors ledgers. At the end of the month a list of debtors balances are extracted and reported to the respective centres.

Payroll

At present we have 3 categories of staff, hourly rated, daily rated and monthly rated. The time-keeper is responsible for all the attendance of the 3 categories of staff. At the beginning of each month he will issue a time card to each of the daily and hourly rated staff who will have to clock their daily attendance on the time card.

At the end of the month, the time-keeper will collect all the time cards and compute the time or number of days worked. The overtime taken is also computed in the same time card. The accounts section will work out the followings on each of the time cards:-

a) the total gross salary
b) the CPF Contribution by employee or employer
c) other salary deduction if any
d) the net salary

The time cards will then be forwarded to the H.O. Finance Division for payment.

For monthly rated staff, no computation of salaries is required. The H.O. Finance Division will prepare the paysheets.

However, the E.I.D.A. accounts section will be responsible for disbursing all the wages and salaries to the E.I.D.A. staff.

Others

To ensure that the purchase of goods do not exceed the budgetted expenditure a commitment book is used to register every item of expenditure.

Goods are ordered and received in Central Store. The material ledger cards are used in this case to record all movement of goods in quantity and in value.

Summary of Reports

1. Monthly commitment report
2. Summary of material issued by Central Store
3. Monthly Sales report
4. Debtors balance report
5. Cash collection report

74 THE CONCEPT OF THE NEW ACCOUNTING SYSTEM

741 SYSTEM MODULES

MABC-system, which will be part of the comprehensive planning and control system of E.I.D.A., has been defined in three sub-systems:

- budgeting
- management reporting and
- accounting

Management reporting has been defined separately because of its importance to the main user of information - the management. The point of view in this definition is that of the management.

Now we will define how to produce these reports and how to fulfill the other tasks required. The point of view is now that of an accountant.

The E.I.D.A. accounting system consists of four main system modules:

Module 1 - data collection and grouping I
Module 2 - data collection and grouping II
Module 3 - output/cost reporting by jobs and cost centres and
Module 4 - top management reporting

The general system flow has been described on the following page.

742 Input Data

Input data of the accounting sub-system is either the output of other sub-systems or external/internal preliminary data. The sub-systems which will give information are

- budgeting
- payroll
- purchasing and inventory control and
- production planning and control

The budgeting sub-system has been defined earlier as a part of MABC-System. The other sub-systems will be defined during Phase II.

The budgeting sub-system will give an input data to Module II monthly cost centre budgets of non-productive cost centres and standard $ rates per standard job hour in productive cost centres. Both of them are the output of the budgeting process. The budgeting sub-system will give an input data to the module III master budgets of operations both of E.I.D.A. and its centres.

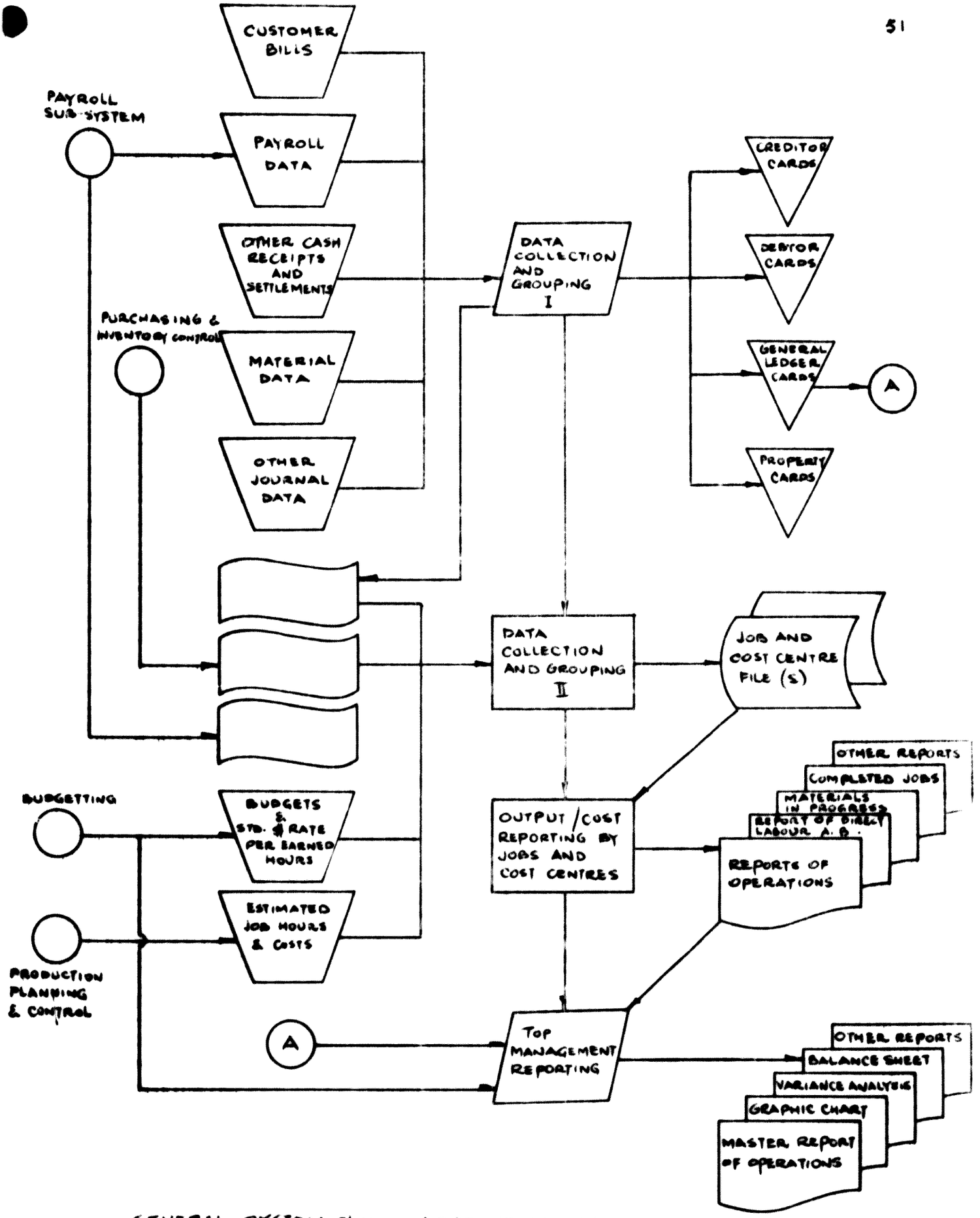
Payroll and purchasing and inventory control sub-systems will give detailed data by jobs and by cost centres to the module II and data by profit centres to the module I.

Production planning and control system will prepare the estimated job hours by jobs/cost centres and estimated material costs as an input data to the module II.

Module I gives the detailed expense data (except payroll and material data) by jobs/cost centres/natural accounts to the module II and keeps itself on general ledger cards expense accounts on profit centre/natural accounts level.

743 The Process and the files

The accounting as a process is a combination of:



GENERAL SYSTEM FLOW - ACCOUNTING SYSTEM

- accounting machine
- computer and
- manual

operations.

An accounting machine with paper tape recorder will be used in module I to maintain general ledger cards, debtor/creditor cards and cards for governmental accounting purposes if needed. The expense accounts of the general ledger are on profit centre/natural expenses account level. Detailed expense information by cost centres and jobs will be punched on the paper tape as a by-product of accounting machine operations. The accounting machine may be used by other systems too. Module II and III are computerised operations. The input is the paper tape produced by module I, payroll sub-system and purchasing and inventory control sub-system. The output is variance/responsibility reporting on job and cost centre level.

As described earlier the number of jobs will be approximately 10,000/year and the number of cost centres 66.

The computer operations will be done by the outside computer centre, who will maintain job and cost centre data in the computer file. The computer centre will also take care of the responsibility of programming.

Top management reporting on profit centre and agency level is by manual operation. As defined earlier, some of the top management reports are graphic charts.

75 CHART OF ACCOUNTS

The Chart of accounts is the method through which it should be possible to identify and summarise financial data of E.I.D.A. so that financial reports can be prepared accurately and on time. The chart of accounts consists of a coding system and posting instructions. The main principles of the coding system will be defined in this chapter. The posting instructions and the detailed coding system will be defined in accounting manual prepared during Phase II.

751 Criteria of the coding system

Following requirements must be set for the account coding

(i) it must provide possibility for classification by various characteristics

(ii) it must be flexible to allow modifications to the material to be coded

(iii) it must provide the possibility of sorting into a wanted sequence for the computer

(iv) it must be logical to provide possibility for searching in the files

(v) it must be simple to facilitate clerical operations

(vi) it must be acceptable to E.D.B. and E.I.D.A. personnel.

752 Contents of the code

Based on above mentioned criteria the account code number of E.I.D.A. will consist of four basic codes and the code of sub-account if needed. Basic codes are

- account class (1 position)
- profit centre code (1 position)
- department/cost centre code (2 positions)
- natural code (2 positions)

Account classes are:

0 = assets
1 = liabilities
2 = income
3 = expenses

Asset, liability and income accounts will be defined for each profit centre and expense accounts for each cost centre.

Profit centre codes are as follows:

1 EIDA main office
2 M.I.D.C.
3 P.P.T.C.
4 E.C.E.C.
5 W.I.D.C.
6 E.M.T.C.
7 P.E.D.C.

Department/cost centre has two positions. First one is department code and the second one is cost centre code.

Each account class is divided into natural accounts as follows:-

Assets:

01-09	Cash and bank accounts
10-19	Accounts receivable (+ customer number in manual register)
20-29	Inventories (+ unit number in inventory control system)
30-39	Prepaid expenses
40-49	Non current assets
50-59	Intangible assets
60-69	Land (+ object number in manual property register)
70-79	Buildings (+ object number)
80-89	Machinery and equipment (+ object number)
90-99	Open

Liabilities

01-09	Accounts payable (+ vendor number in manual vendor register)
10-99	Open

Income

01-09	Sales of products
10-19	Sales of by products
20-29	Sales of property (+ object)
30-39	Open

Expenses

01-49	Expenses
50-59	Inter-departmental transfers
60-69	Variances
70-99	Open

Sub-accounts

Work order accounts (3 positions) are used for controlling:

- job costs
- investment expenses
- cost of large reparations

As mentioned earlier detailed coding system and posting instructions will be defined in accounting manual during Phase II.

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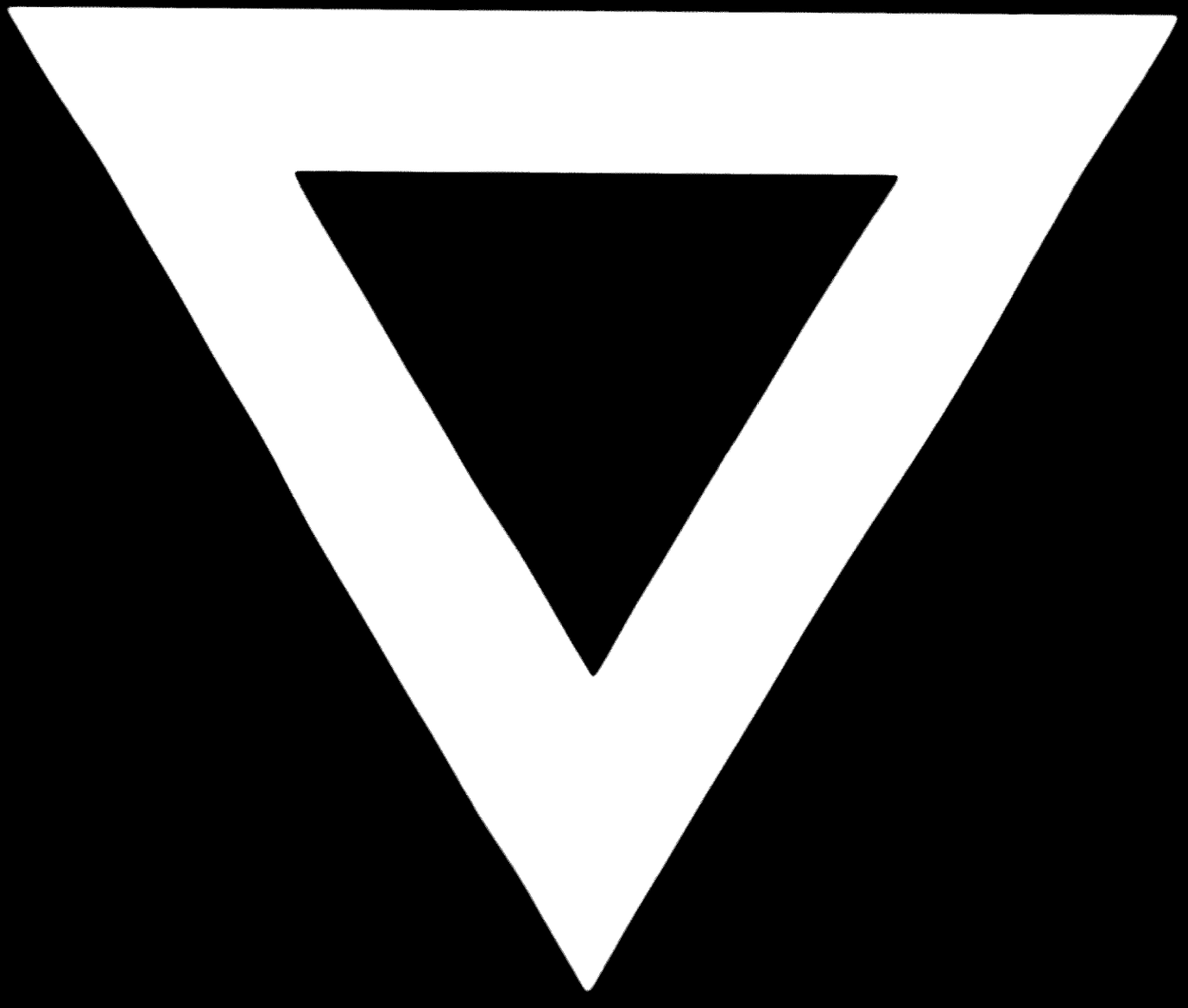

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