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Management Information System In Organization

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INTRODUCTION

" Economics is the study of mankind in the ordinary business of the life; it examines that part of individual and social action which is most closely connected with the attainment and with the use of material requisites of well being "

- Alfred Marshall

" Man is guided by the stomach. He walks and the stomach goes first and the head afterwards. Have you not seen that ? It well take ages for the head to go first."

- Swami Vivekananda

" Indeed some kind of chart might be drawn up to indicate the close connection between length of British rule and progressive growth of poverty. That rule began with outright plunder, and a land revenue system which extracted the uttermost farthing not only from the living but also from the cultivators. It was pure loot."

- Jawaharlal Nehru

These headlines are interesting and fairly descriptive of the explosion in computer use during the very recent part. But what does it mean in terms of today's student of management information systems and today's practicing manager. It probably means that managers who do not have the ability to use the computer will become organizationally dysfunctional, and useless decision makers.

Several years ago a consulting firm conducted a comprehensive study surrounding computer usage and concluded that modern generation, equipment was bring used for first - generation systems design. At about the same time another respected consulting organization, concluded that " It terms of technical achievement, the computer revolution in India has been outrunning all expectations. In terms of economic payoff on new applications, it has rapidly lost momentum."

Within the limitations on clarity and objectives imposed by certain considerations, we well attempt to present the nature of systems design at the **" edge of the art."** The edge of the art is broad, with part in the present and part in the near future. A general approach will provide the framework, but frequent resort to detailed procedures and descriptions will bring substance to the framework in the organization.

INFORM AND INVOLVE THE ORGANISATION

The detailed design of an management information systems is closely related to the design of operating systems. Sometimes, it is true, the operating systems must be accepted without change and new management information systems appended to it. However, it is preferable to design both systems together, and as we discuss the detailed design of the management information systems, this parallel effort well be apparent, even though our principal is on the management information systems. By drawing open the analogy of engineering design, we can clarify the

meaning the detailed design. The direct goal of engineering design is to furnish the engineering description of a tested and producible product. Engineering design consists of specifications in the form of drawings and specification reports, for systems as a whole and for all components in the system.

Further, justification documents in the form of reports mathematical analysis and test results are part of the detailed design. Enough detail must be given so that engineering design documents and manufacturing drawings are sufficient for the shop to construct the product. The production of operating and maintenance instructions is also considered part of the design output. The analogy of detailed design of management information systems readily follows. The aim of the detailed design is to furnish a description of system that achieves the goals of the conceptual system design requirements. This description consists of

- Drawings
- Flowcharts
- Equipment
- Personnel specifications
- Procedures
- Support tasks
- Specification of information files
- Organization
- Operating manuals required to run the system

Also part of the design is the documentation of analysis and testing, which justifies the design. The design must be sufficiently detailed that operating management and personnel can implement the system. Whereas conceptual design gives the overall performance specifications for the management information systems, the detailed design yields the construction and operating specifications.

PROJECT MANAGEMENT OF MIS DETAILED DESIGN

Any effort that qualifies as a system design has the dimensions of a project. The first step in the detailed design is therefore planning and organizing. For small projects, all phases may be planned for, before the conceptual (feasibility) design is undertaken. Often, in large projects, not enough is known about the prospective system in advance of the conceptual design to plan for the detailed design project. Further, if the conceptual design indicated that a new system design is not appropriate at this time, any project planning for the detailed design in advance would be wasted. Once, the project manager and project personnel have been designated, the steps in project management fall into two class " **planning and control**." The amount of effort expanded in each step is obviously a function of the size of the MIS project and the cast of developing the detailed design of the project. The key steps is planning and control of detailed design, are recapitulated here.

PROJECT PLANNING

- Establish the project objectives. This involves a review, subdivision and refinement of the performance objectives established by the conceptual design.
- Define the project tasks. This identifies a hierarchical structure of tasks to be performed in the design of the MIS and may be documented by the work package instructions for large projects.
- Plan the logical development of sequential and concurrent tasks and task activities. This usually requires a network diagram of events and activities.
- Schedule the work as required by management - established end data and activity network constraints. Essentially, the work and schedule are tied together by completion of the PERT diagram.
- Estimate labour, equipment, and other costs for the project.
- Establish a budget for the project by allocating funds to each task and expenditure month by month over the life of the project.
- Plan the staffing of the project organization over its life.

PROJECT CONTROL

- Determine whether project objectives are being met as the project progresses.
- Maintain control over the schedule by changing work loads and emphasis as required by delays in critical activities.
- Evaluate expenditure of funds in terms of both work accomplished and time. Review the budget as required to reflect changes in work definition.
- Evaluate work force utilization and individual work progress and make adjustments as required.
- Evaluate time, cost and work performance in terms of schedules, budgets and technical plans to identify interaction problems.

IDENTIFY DOMINANT AND TRADE - OFF - CRITERIA

Dominant criteria for a system are those that make an activity so important that it overrides all other activities. For example, a dominant criterion might be that the

System operate so that there is never a stock out. This overrides the criterion of minimizing inventory cost. Such a criterion might hold for a company selling human blood, life - preserving, or electric power. It might even hold for a company selling a consumer product where loss of a customer is permanent and all competitors have a no - stock out policy.

Examples of other dominant criteria might be one - day customer service zero - defect product, specified price range for products, maintenance of multiple sources of supply for all materials and components purchased, or conformity of all research and engineering to long - range corporate plans. It is obvious that identification of the dominant criteria is necessary before subsequent design steps can proceed. Trade - off criteria are those in which the criterion for performance of an activity may be reduced to increase of another activity. For example, the

criterion of low manufacturing costs might be balanced against that of long - range public image of the firm achieved by reduction in environmental pollution. Again, the criterion of producing styles or models for many segments of the market might be balanced against that of maintaining low manufacturing and service cost.

The reason for identifying dominant and trade - off criteria is that as a detailed design is developed, decision centers (managers or computers) must be identified to achieved criteria or make trade - offs. The MIS must be designed to provide the information for the decisions, or at lower and programmed levels, to make the tradeoffs.

DEFINE THE SUBSYSTEMS

We start the process of defining the subsystems with two principal blocks of information :

1) The conceptual design

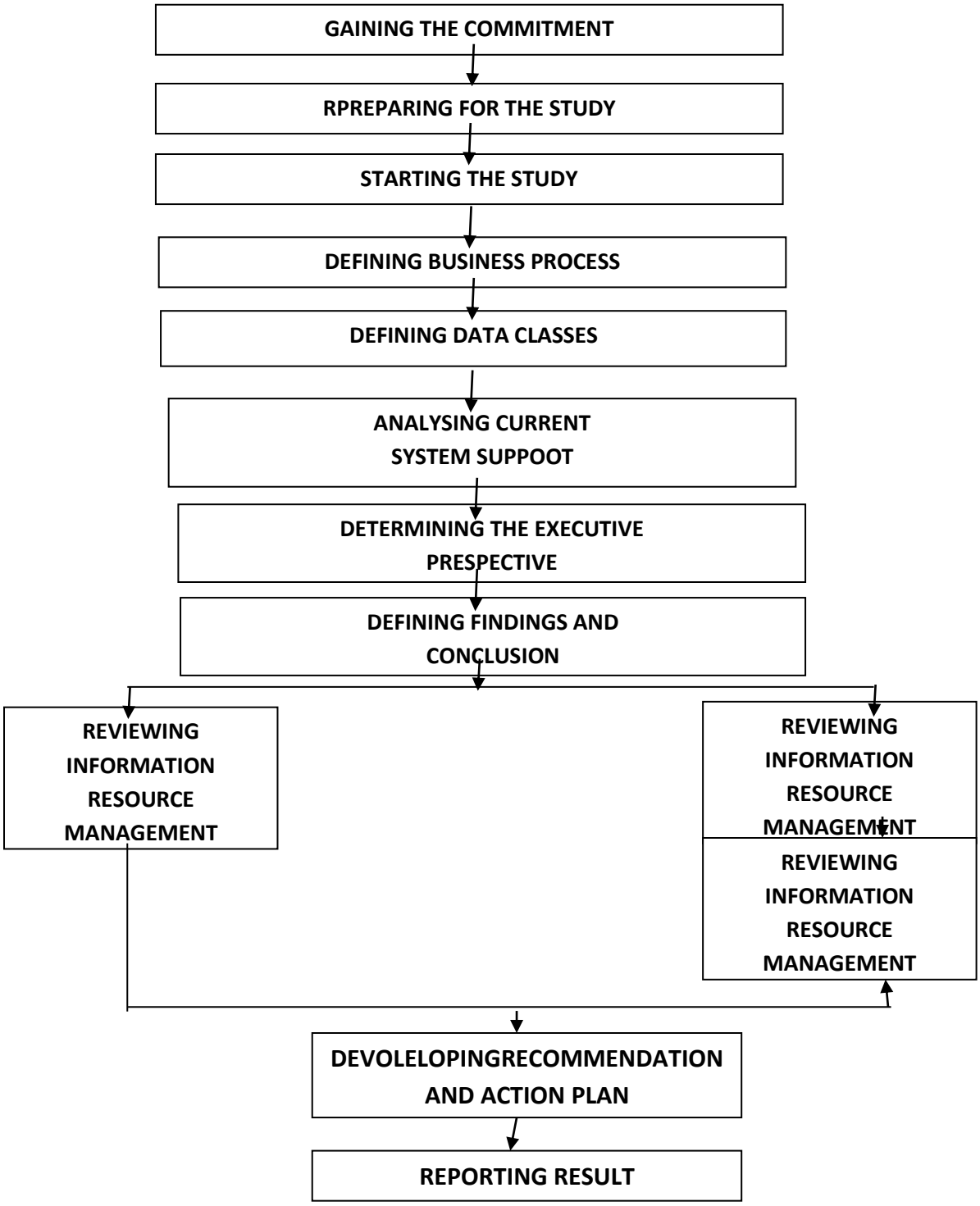
2) The dominant and trade - off performance criteria

Although the conceptual design requires some assumptions concerning the subsystems, it is necessary now to revise these subsystems and to redefine these if it seems appropriate. Based upon the conceptual design, investigation of the detailed activities of each major activity block must be undertaken. Consider, for example, the conceptual design representation of a business system given. It should be emphasized that this is a greatly simplified representation of the conceptual design. A conceptual design should be fully defined, as described in previous chapter. Each large block (or system) must be broken down do determine all activities required and the necessary information inputs and outputs of each activity. Careful analyses of such activities is critical in detailed design. The activity processor is made up of equipment and personnel assigned. One form of information output is the revised figure for resources available after commitment to the activity. The operating input is a batch or " **lot** " parts, and the output consists or reduced - size batches of a statistically specified quality plus defective that have been separated out. The information results give the average quality of batches, the number of rejects, and the number of batches inspected per unit of time. The kind of information output captured must be based upon decisions to be made for planning and control. At this stage, only speculations on needed information for an activity may be made The information system must be based upon the operating system. Once this operating system is outlined by the selection of the general concept, certain basic relationships among major activities become more or less fixed. However, is still considerable freedom in establishing the detailed activities and their relationship. The degree of breakdown of the major activities of course, determines the size and complexity of the network. If the activities are broken down too finely, the design will never be completed. If a major activity is broken down too coarsely, vital material, information, and decision needs will not be factored into the design. Furthermore, optional rearrangement or regrouping of activities will not be examined. If we could conceive of a hierarchy of activities such as

- System
- Subsystem
- Functional component

- Task subtask and Operational element

CONCEPTUAL DESIGN FLOW CHART



Then we would probably want to develop our activity network at the " functional component "level. Once activity networks have been developed to include each major

activity of the conceptual design, the subsystems are then redefined. A subsystem may consist simply of the activities corresponding to a major block activity of the conceptual design, or some detailed activity blocks may be transferred form one group to another to make up the network of the subsystem. And changes such as this will require a redefining of the major activity block in terms of its performance requirements. Quite often, however, a major block activity must be considered as comprising several subsystems. Grouping of activities into a subsystem may be based upon various considerations, such as

- Common functions
- Common techniques or procedures
- Logical flow relationships
- Common inputs or outputs

The revised subsystem can be identified on the network diagrams by drawing a loop around the aggregate of activities to be included in a particular subsystem. At this point, all connecting lines for activities that cross over the loop represent either inputs or outputs to the subsystems. The loop itself is a boundary of the subsystem and an interface between two or more subsystems. Because organizational authority and responsibility structures are often divided by subsystem boundaries, problems of interfacing subsystems require careful attention that is, inputs and outputs between interfacing systems must be matched.

The approach that we have given here for identifying subsystems is analogous to one method of development of a new company's organization structure by analysis followed by synthesis. This consists of identifying activities and tasks, grouping tasks into positions, and then grouping positions into components on some rational basis. An alternative approach that is quicker but not so through is simply to divide the major activities of the conceptual design into the subsystems apparently required to fulfill the major activities. Such a procedure may lead to incompletely defined subsystems, mismatches between subsystems, and missing activities.

INFORMATION FOR DEFINING SUBSYSTEMS

The objectives of the design search is to find a set of subsystems that satisfies the performance requirements specified by the conceptual design. To do this, we must search for information that helps us select and define the subsystems. Such information consists of

- Available resources the company will commit. Systems must be designed, obviously, it terms of what is available to implement them.
- Management decision points for system planning and control. At the upper levels of the organization, important decisions must be made regarding system operation and variances form major company goals. These top - management positions and their information requirements must be identified.

- Required activities for achievement of systems operations and performances specifications. Each activity and its relationship to other activities must be identify
- Information required for programmed decision making. Complete information requirements for decisions capable of being processed by decision tables and models with the aid of the computer must be uncovered.

OBTAINING INFORMATION

The designer utilizes **Four** principal sources for the design of the Management Information Systems. These are :

- Task force meetings
- Personal interviews
- Internal and external source documents
- Personal observation of operations and communications, when feasible.

SUMMARY

A system is a set of elements, such as people, things and concepts, that are related to achieve a mutual goal. The business manager of tomorrow will working with the same basic resources as the manager of today - people, physical systems operated by

People, and conceptual systems. Changes in behaviour of people and our understanding of how to motivate people in the work environment have progressed quite slowly despite many promised gimmicks. It is very likely that progress will continue to be slow in this highly important area of knowledge.

The major themes that run throughout these :

- A systems approach to management is necessary to compete in business today.
- The systems approach to management must precede the design and use of an management information systems.
- The computer is only a component, a tool, in the MIS not the MIS or the central focus of the MIS.
- Management must take an active part in the design of the MIS as the principal user. Technical knowledge of the computer is not necessary for the manager to perform his role in the design.
- Integrated, planned systems are the essence of management information systems, not " **islands of mechanization** " or data processing system.

KEYWORDS

Implementation , Engineering design, Justification, Documents, Hazardous, Procedures, Support, Subdivision, Customer, Utilization, Information, Conclusions.