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MULTIPURPOSE MODEL OF THE CIRCLE IN MATHEMATICS TEACHING

Abstract

The present research paper on design of the Educational System (EMIS).In modern complex organizations decision making is not the game of institution, guess work, hunches, hit or miss and rule of thumb approach Decision should be reliable and factual information. Decision maker should be the man of knowledge, he should be familiar with the situation before he enters into the real of decision making. This paper leads (a) the steps of the project managements fall into two classes: planning and control (b) Three types of subsystems viz-functional, resource and phase and (c) Implementation and evaluation of the system. This proves utility and importance of sound information system.

Introduction

An organization is healthy if it has good information system. But to develop an information system is painstaking job, which needs careful nurturing and support at otherwise the organization's projects could easily be bogged down due to :
(1) Lack of adequate information about the prospective user s need,like|dislikes etc.
(2) Inadequate technical and non-technical information about the need and impact of the project
(3)Fuzzing around the edges of the problems of uncertainties
(4) Conflict between urgency and lack of adequate data extraneous pressures or pressure from the top could inject urgency in to the organization but the technical pursuits in finance, engineering, audit, and marketing department may stall speed
(5)Inadequate knowledge and non-availability of adequate information on multiple requirements from multiple agencies for making the project a success and
(6) Implementing the projects in an incremental piece meal manner.

As a result of all this the company or agency may get enmeshed in an organizational muddle. Lack of an efficient information system may further compound the problems as the management will have to take decisions in an uncertain manner and situation. Each of the managers will go through the prangs of arrsriving at a viable decision which can stand the test of the time. The middle establishment of a concrete information system. The problems associated with the managing are implementation and development, level management will try for clear objectives, the line managers will desire more coordination and will hope that more information is available.

A part from the above snags the problem of decision regarding the selection of a particular course of action from the available alternatives and the relative consequences of different alternatives available is also a major factor worth to be considered. However, a decision makers behaviour depends on the information state of the decision situation and on his values and preferences at a given time. The information state and value of preference in system will depend upon.The above problems, therefore prove a hindrance in the preparation and design of the Educational Management Information System(EMIS).

Detailed design of the system

The detailed design of EMIS commences after conceptual framework of the gross has been formulated. Detailed design begins with performance specifications given by the gross design and ends with a set of specifications for the construction of the EMIS.

The aim of the detailed design is a description of the system that achieves goals of the gross design requirements. The design must be sufficiently detailed so that operating management and personnel may implement the system. Whereas gross design gives an overall performance specifications for the EMIS, the detailed design yields the construction and operating specifications.

Project Management of detailed design

Any effort that qualifies as a system design has dimensions of project. Once the project manager has been designated, the steps of project management falls into two classes: Planning and Control which are described as follows.

Project Planning

It requires :

- Establishing the targets of project and reviewing the performance objectives presented by gross design.
- Defining the project tasks which identifies a hierarchical structure of tasks to be performed in the design of the EMIS and may be documented by 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 activities.
- Schedule the work as required by management-established end data and activity network constraints. Essentially, 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 expenditures 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 progress.
- 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. Revise the budget as required to reflect changes in work definitions.
- Evaluate manpower utilization and individual work progress, and make adjustments as required.
- Evaluate time, cost, and work performance in terms of schedules, budgets, and technical plan to identify integration problems.

Identify Dominant and Trade-off performance criteria for the system

Dominant criteria for a system are those that make an activity so important that it oversides all other activities. For instance the dominant criteria of a company might be that the system operate so that there is never a stock-out. This criteria might overside the objective of minimizing inventory costs. Such criterion may hold for the companies such as life-preserving drugs or electric power. It is obvious that identification of the dominant criteria is necessary before subsequent design steps can proceed.

Trade-of criteria are those in which the criterion for performance of an activity may be reduced to increase performance of another activity, e.g. 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.

The reason for identifying dominant and trade of criteria is that as the detailed design is developed, decision centers (Managers of computers) must be identified to achieve such criteria of make trade-offs.

Define the sub-systems

- The sub-system should be defined carefully so that managerial responsibility may be defined. Based upon the gross design investigation of detailed activities of each major activity block can be undertaken.
- Activities of the company may be divided into subsystems based on the level of management. Information must be provided to managers at each level to permit decision making appropriate to this level.
- System can also be split into three types of other subsystems viz-functional sub-systems and phase sub-systems.
- Functional Subsystem.When companies are organized by product or project, then product/project EMISs must assist managers.
- Resource Subsystem. The major sub-systems that managers in most companies consider are: human resources, capital resources materials, liquid assets. Intangible resources etc.
- Phase sub-system. Each phase may be considered a subsystem to be managed. In a manufacturing firm they are: forecasting, material handling and processing distribution.

Documentation of the detailed Design

The end step in detailed design project is production of the documents that specify the system, its operation and its design justification. Documentation consists of :

- A summary flowchart.
- Detailed flowcharts.
- Operations activity sheets showing inputs, outputs and transfer functions.
- Specification of the data base or master file.
- Computer hardware requirements.
- Software (programs).
- Personnel requirements by type of skills or discipline.
- Final (update) performance specifications.
- Cost installation and implementation of the system.
- Cost of operating the system per unit of time.
- Programme for modification or termination of the system.
- An executive digest of the EMIS design which should directed towards showing How the system will aid managers decision making by gains in information or on time.

Implementation and Evaluation of the System

Implementation of EMIS is the culmination of the design process. Although the design of EMIS seems to be an expensive project to management, the cost of bringing EMIS on live satisfactorily may often be comparable to that of its design.

There are four basic methods for implementing EMIS once work has been completed. These are to :

- Install a system in a new operation or organization, one just being formed.
- Dissolve of the old system and installing new one. This result in a time interval during which no system is in operation. It is only feasible for small companies or system where installation needs one or two days or installation of a larger system during plants vocation shutdown or some other period of in-activity.
- Substitute small parts or subsystem for the old. This referred to as phasing in the new system. In case of upgrading old system, this is a very desirable system.
- Install and operating the new system in parallel with the current system until it has been checked out, them current system is cutout. This method is, however very expensive it is required in certain essential systems, such as payrole or customer billing.
- Sometimes design and implementation are carried on simultaneously. Such a process provides operational testing of the design on a continuous basis, but it limits consideration of major design alternatives. It is a trial and error process.

Testing the System

This consists of (i) testing each programme independently (ii) testing all the programmes of the system by processing sets of dater through all the programmes. Testingmay be done by simulation

or by operational testing.

Simulation Testing.Simultation testing covers a variety of techniques. Desk checking which is an intellectual exercise of mentally running hypothetical situations through a proposed system which exists on paper. This can be done for checking the preliminary design, in checking computer flow charts and in checking forms design. Laboratory simulation where test input are developed and output is compared to performance specifications. Mathematical simulation involves the automatic generation of data (perhaps randomly) which can be an input to a computer programme or a design rule to develop a response profile for that element of the system.

Operational Testing.In this group, of individuals assume the role of actual operator of the system and attempt to manage the system from basis inputs through the use of outputs.

Operational testing is also of many forms. Some of which are :

Parallel arrangement : Where an existing system keeps on working even after installation of a new system. The outputs of both the systems are then compared. Shadow operation : Which is generally used where several generally independent areas such as shops, warehouses and outlets use identical systems. One of these independent units in selected as a test area. The new system can be installed in a test unit and results compared to existing systems.

Prototype operation: it is similar to the shadow test, but for the termination of the existing system the new system is implemented.

Training and in service Education

- Success of the system ultimately depends on persons-people who report the data, the people who operate computers and all the people who direct the activities of the organization. Provision of required knowledge and skill to these people is major task. There are three phase in the training programmes of EMIS.
- The first phase is the introduction of the system to all the people who will be involved with the systems operation and design. This may include everybody from top management to bottom workers. The primary objective of this phase is to explain the purpose and scope of the system to them. This should include the problems in addition to targets, benefits and costs of the system.
- The second phase is directed to more specific areas than the first for e.g. there might be special presentation for the production department and so on. This phase also prepares departments for coordinated implementation of the system. People in various departments should understand their responsibility under new system.
- The third phase is the operating instructions phase. It is designed to teach the people, the precise procedures essential to operate the system. This training may use variety of manuals, use of data recorders and operation of computers etc.
- this is worthynoted that training should be a continuous process during life of a system, new people keep on coming through transfers, promotions, new recruitments and training. Films-slide presentation and brochures are convenient for this purpose.
- Beside the system the designer should be selected carefully so that he may communicate with the workers effectively. Moreover the training material available in the shelf should be well prepared and attractive.
- Thus the success of any system will depend on the attention devoted to implementing the system as much as if not more than it will be on the design and hardware of the system. People can cause the most sophisticated system to be unsatisfactory in actual operation and can make even a mediocre system work satisfactorily if they really want.

EVALUATION OF THE SYSTEM

Casually remarking of an employee that " things have surely improved around here", does not necessarily mean that the system is working efficiently and all the problems have been solved. Without a careful evaluation of outputs and achievements and a comparison against predetermined goals, no reliable, accurate and satisfactory conclusions can be drawn.

The purpose of system evaluation is to measure the performance both qualitatively as well as

quantitatively.

The evaluation should be made by the customer as well as by the designer. The first and foremost task in this case is a statement of goals in measurable terms. The degree of success or failure must be expressed in terms of percentage increase in productivity, improvement in the error rate increase in number of units produced in a given period and increase in number of orders processed in a particular shift.

The criteria for evaluation should include the output and performance of the system as a whole and of individual elements that compose it. The results of the evaluation should be compared to the estimated goals.

While evaluating a system due consideration should also be given to lead time, (time that elapses before a system responds to a demand placed upon it) ; turn around time, i.e. length of time required before results are returned or pay back period. In addition to this cost involved in a system should also be given due consideration. The cost may consist of expenditure of project planning, gross design, detailed design, implementation, testing facilities, computer center hardware, personnel, overhead etc.

To conclude for evaluation of EMIS changes in respect of the old pattern are measure on the ground of hierarchy in EMIS viz. company profit, company costs, planning, control, decisions, information and system characteristics.

EMIS IN FUTURE

This is the age of massive organizations each society's success depends on successful operation of its organizations. And the organizations are becoming open, dynamic and adaptive. Through it is difficult to forecast the future of computer based educational management information system, but the review of the existing literature, flood in the field of information and computer literature, theorists and experts predictions and comments and practitioners observations reveal that future will be the computer century. The following reasons support the view point :

- The changing nature of EMIS, that is form simple EMIS to computer based EMIS.
- Time Management problems.
- Improving information technology.
- Challenges to executive decisions by organizational and social segments.
- Professionalisation of management education.

To deal with these changes the future managers will have to involve themselves in computer based information systems. The time rapidly approaching management science and technological developments. In organizations today EMIS is becoming an operational function like marketing, finance, production etc.Establishment of independent EMIS wing is the need of the day. Decision making has become a complex task. Decision makers have to satisfy conflicting interests with sound logics based on factual information. All these factors aids to the universal applicability of the system.

CONCLUSIONS

The Educational Management Information System is useful an Inter-personal relationship between management and employees, management and students, teachers and students is the fundamental feature of university management sense, today. To some people the leadership style in the university management is more autocratic. The superiors try to maintain complete authority and believe in centralization of authorities and decision making power. Principally and technically assured participating style is limited to representation in decision making bodies. The subordinates depend on their leaders and are not aware of the goals of the university. Project: planning and control; subsystem: functional, resource and phase; implementation and evaluation of the system are important parts of the EMIS which is uplift the society.

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