CHAPTER - 3

Marketing Information System

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MARKETING INFORMATION SYSTEM :

3.1 INTRODUCTION

Concept and Components

Every firm must organize the flow of marketing information to its marketing managers we define a Marketing Information System as " A marketing information system consists of people, equipment and procedures to gather, sort, analyse, evaluate and distribute needed, timely and accurate information to marketing decision makers".

The Marketing Information System concept is illustrated in figure 3.1. The marketing managers in order to carry out their analysis, planning, implementation and control responsibilities (shown at left hand side of figure 3.1), need information about developments in the marketing environment (shown at the right hand side of figure 3.1). The role of Marketing Information System is to assess the managers information needs, developed the needed information and distribute the information in a timely fashion to marketing managers. The needed information is developed through internal company records marketing intelligence activities, marketing research and marketing decision support analysis.

More communication means better performance

One characteristics of most Marketing Information System is that they provide managers with better current information about what other managers and the departments and divisions are doing. Underlying this provision is the believe that better inter departmental communication enables managers to co-ordinate their decisions more effectively and hence

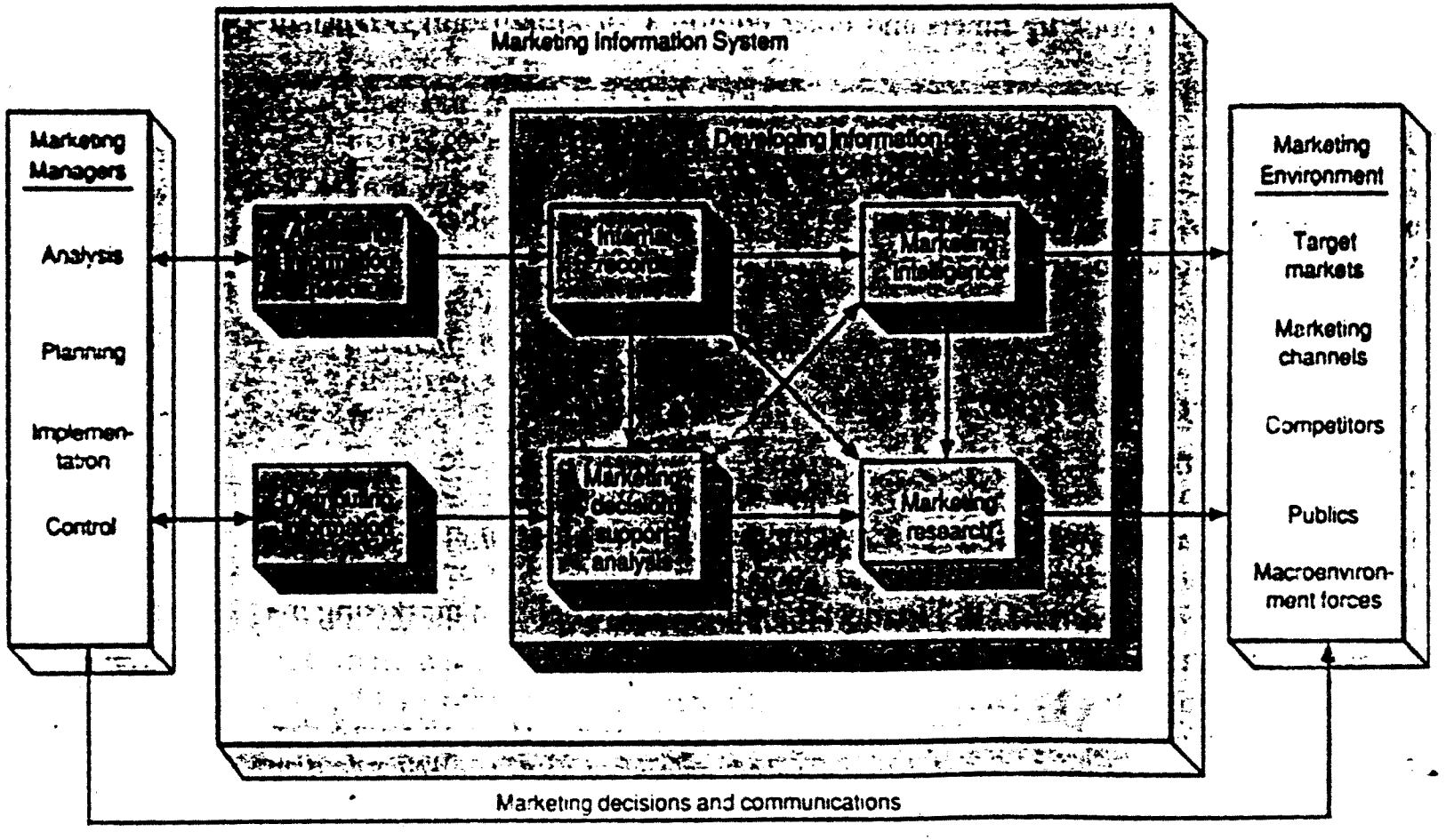
improves the organization overall performance. One should hardly expect two competing companies to become more co-operative because the information each acquires about the other is improved. This analogy is not as far fetched as one might first suppose. e.g. consider the case of the present dairy unit under study it has two "Line" operations : buying and selling. Each function is performed by a separate department. The collection department primarily controls one variable : how much of milk is to be brought. The distribution department controls the marketing aspect and the price at which it is sold. Typically the measure of performance applied to the collection department is the turnover rate of inventory while that applied to the distribution department was gross sales. There should be a very better co-ordinator approach and a free flow of information between these departments so that the performance of the company becomes more efficient and competitive.

Outlines of Marketing Information System

A Marketing Information System may contain the following physical elements -

i) Computer hardware
ii) Software
    a) Generalised system software
    b) Generalised application software
    c) Application programmes
iii) Data base
iv) Procedures
v) Operating personnel

In terms of applications a complete application system consists of the programmes to perform computer processing, the procedure make the application operational i.e. to generate daily reports, billing, sales forecasting etc.


Marketing Information System
Marketing Managers
Analysis
Planning
Implementation
Control
Marketing Environment
Target markets
Marketing channels
Competitors
Publics
Macroenvironment forces
Marketing research
Marketing decisions and communications

Process of Marketing Information System development

The first step in the development of an Marketing Information system is to develop a master development plan. This defines the expected structure and establishes schedule for the development process. The development of each application in Marketing Information System is controlled by applying the concept of a systems life cycle. The basic idea of life cycle is that all applications essentially must go through the same process when they are conceived, developed and implemented. Neglecting any portion of the development process may have serious consequence for the end result.

The life cycle concept gives structure to a creative process. In order to control the development effort it is necessary to know what has been done and what is yet to be accomplished. The stages in the development life cycle provide for the basis of this control because the stages of a project can be identified by both the work being performed and the documents produced.

Marketing Information System INSTALLATION AND EVALUATION

With the completion of the design and development phase of the system's life cycle we know the explicit objectives to be accomplished and the specific configuration of hardware and software necessary to accomplish these objectives. The communication network environment has been defined to the level of detail necessary for an adequate implementation. This included such items as the communication approaches to be used: leased versus dedicated lines, synchronous or asynchronous operation, and error rates. The ramifications that the design of network will have on the design of application programs has been spelled out. The general data base structure, as well as the data-base management system itself, was finalized. Any detailed specifications for new general purpose software, on-line communication system software, network communication software, other system software, and utility software were defined.

Attention turns to detailed items required for implementing the system and making the operational. The design and procurement of the input document (e.g. Sales order slip) and the output reports (Will the output report be presented to the user on a CRT screen, If so the screen format must be designed and coded) must be developed. The physical data base necessary to support the applications must be generated and implemented; this includes the file and record design along with the appropriate access method & the conversion of existing files. Conversion procedure must be selected and implemented for installing the new system. Documentation and operating procedure must be accomplished for effective operation. The details for program design and testing must be generated and coding accomplished. The system must be put into operational use; this might entail user and operator training, etc. Finally, after the system has been operational for a time, we must evaluate its

performance versus the objectives and cost and benefits originally proposed in the design requirements report approved by the management before the development phase of the system life cycle.

After the contract for procurement of the services of a vendor is signed, the implementers of the system will find themselves in a non adversary position with the vendor. The vendor usually desires a good relationship with the customer so that installation may be used as a reference in future sales efforts.

FORMS AND SCREEN FORMAT DESIGN

The function of this activity is to analyse the layout of a given input or output in terms of how that input or output is presented. In the case of printed output reports or documents or an input form, this involves analyzing and specifying the style, and colour and determining the flow of the form.

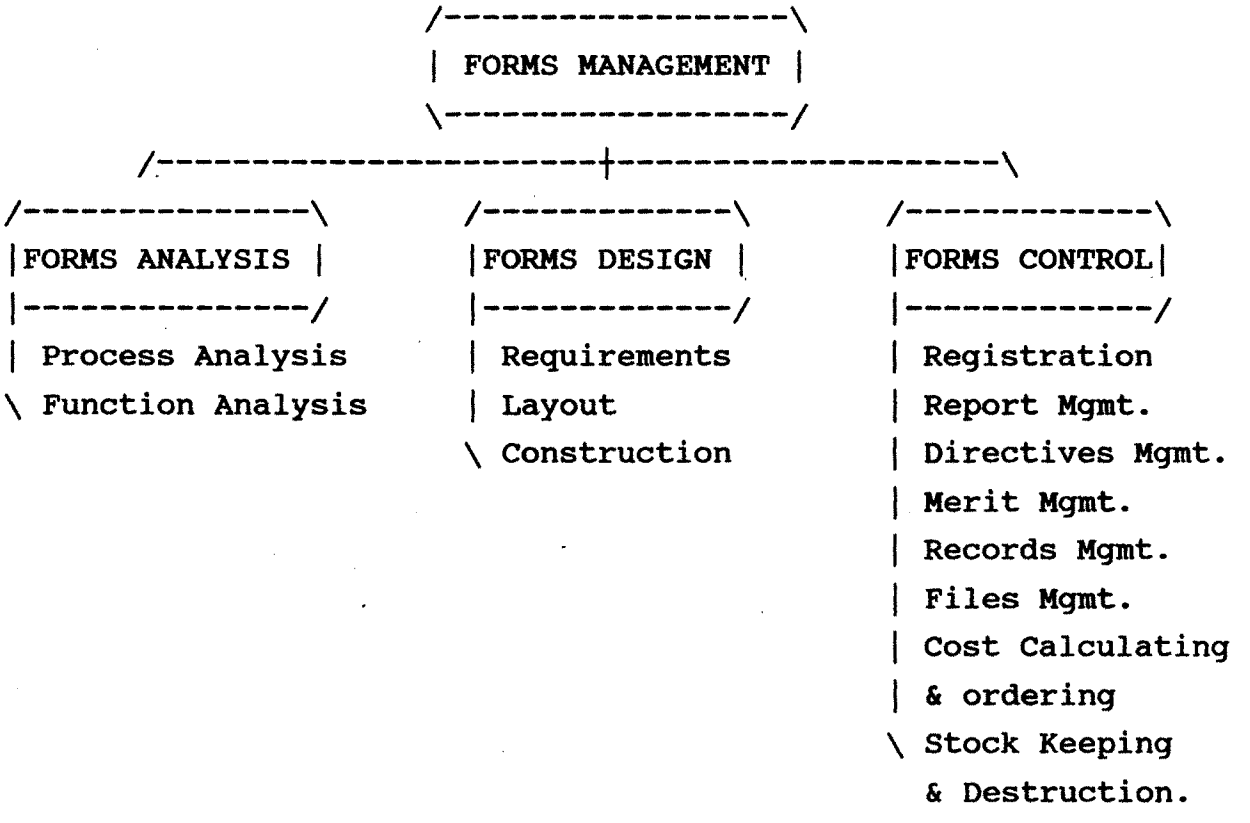
A document is a durable medium carrying information. It may be classified as internal, i.e. for use inside the enterprise, or external, for outside the boundaries of the firm, e.g. a purchase order. There are basically four types of document, which may be worksheet or summery card. A record, which carries recording of a set of related data fields, usually part of a file that is regularize management or operational information. e.g. a status report such as a balance sheet, an activity report such as a profit and loss (P & L) statement, or an operational report such as production schedule or purchase order.

A major concerns is forms management, which comprises three major subdivisions: form analysis, form design and forms control. The overall efficiency and effectiveness of a form in action depend on all three having made their

appropriate contributions. The function of forms analysis is to decide the concept of the form. The function of form design to order the arrangement of this content and to determine the overall structure of the form. Forms control involves the supervision of the form throughout its useful life, from the moment of its destruction.

Good forms are essential to the success of nearly every business information system. Efficiently designed forms can facilitate the entry and processing of data and can effect a great reduction in the reporting and elimination and correction of incorrect or irrelevant information. Experience shows that automation - because of the great ease with which reports can be created by computers - leads to requests for more and more reports, which in turn need more clerical help in order to prepare, distribute analyse and file them. Automation has not reduced the paperwork management problem, it has added to it. High speed printers spew out paper at the rate of 1,000 lines per minute or more. The laser printer runs at 13,000+ lines per minute. Each line is there to be read and may call for a decision.

Lack of effective forms control leads to a rapid increase in the clerical payroll. Every time someone creates a new form, the company is being committed to an expenditure, in clerical and administrative salaries, many times the cost of forms procurement alone. Programs for controlling the design and procurement of forms have gained wide acceptance in both government and industrial organisation. Usually such programs continually review a company's existing and proposed forms in order to eliminate unnecessary forms, unnecessary copies, and unnecessary items on the forms; consolidate redundant and overlapping forms; improve forms design and increase in the usage of general purpose forms and decreases the number of forms whose use is limited to relative few departments.



A well designed form is informative - it contains information that is required for making a particular decision, specific - it contains only information that is required for making a particular decision; easy to complete - little training is required to enable a person to complete the business from; and easy to use - the form readily lends itself to a particular business purpose.

Many analysts tend to underestimate the importance of forms. In fact, it is impossible to over stress the need for deep thought regarding forms. The forms in the existing system may well have been designed by a person having at best an incomplete knowledge of the appropriate techniques for designing forms. The redesign of any such forms that are retained in the new system, together with the design of all new forms, is the responsibility of project team. Even in an organisation that employees a form designer, the system analysts cannot afford to make any form lightly, though

perhaps performing neither the analysis nor the design in detail. The ultimate responsibility remains with the project team. The responsibility of the printer furnishing the forms does not extend beyond that of executing the forms procurement order precisely nevertheless, the designer would be well advised to seek the printer's advice in all matter of printing techniques. The project team member designing the form must have more than nodding acquaitance with many branches of technology outside the field of forms design itself printing, reproduction methods, paper, the effect of lighting and the environment on the behavior and legibility of forms, the possibilities & performance of many types of office machinery and equipment, even certain aspects of elementary physiology and psychology, the list is long.

A well designed form will reduce the possibility of error in input and possible misunderstanding in output reports, the total cost of the administrative procedures in which the forms are used will be minimized.

DATA-BASE GENERATION, FILE AND RECORD DESIGN

This activity, which may be concurrent with forms design, concerns itself with records and files necessitated by the system design. The actual record layout, file structure, access methods and display format depend on whether the system is oriented to batch, real time, or interactive processing and thus a function of system design.

Data element definitions, including the data dictionary, are expanded and updated. In projects that do not involve a data base, all new system master files are completely designed. Care is taken to allow for future changes that impact file design and cause later changes.

For systems using a data base, each data base segment is specified in terms of its data elements and its

hierarchic relationships with other data base records. Detailed telecommunication specifications. System security and control features are then defined. This definition includes a summery of the control design for the system, specific measures and control specifications. A test checklist is generated to identify those areas requiring extensive testing during the system test and installation phase. Backup, recovery and restart operations are specified. Specific risks associated with each type of failure are documented. When developing these specifications, overheads and other implementation costs are considered and weighted against the related risk.

The data base design is now completed with the set specifications developed for programs necessary to test the data base system. This included building the initial data base, adding, deleting and changing the data base records, retrieving individual records, reorganizing the data base, debugging utility programs and collecting statistics. The data base performance criteria are finalized.

This activity involves a high degree of after thought. Any system that has been designed or is in use will be subject to innumerable suggestions for improvements, modifications or refinement. Many systems analysts are tempted to tempted to incorporate changes as they are suggested. This is often done without sufficient considerations of possible costs or delays. The systems design should be frozen unless major flaws come to light. Changes should deferred until after the system is operational and evaluated (phase 8). Any proposed improvement and changes that appear valid should be documented and carried forward to the post implementation review, when they will be considered and scheduled if beneficial.

During this activity an assessment should be made to

see if the scope and design requirements still are focused on the user's problems. There is often a tendency on the part of information specialists to become intrigued by technical niceties or what the system could do, at the expense of the specific business problems and opportunities that were addressed and outlined in the master plan. Technicians may be carried away by the challenge of making the system more sophisticated, to the point where the end product may drift away from its original objective. Continued reference to earlier documentation particularly the user requirements can keep the focus on target and the costs and deadlines on target with estimates.

If a data base management system is to be employed, it is particularly that the installing team build a prototype data base for three reasons. First, it allows the technical staff to test all access paths through the data base to make sure that they function as designed. Second, the test should include enough data to enable the technical support team to verify the operational attributes of the finished systems. (Can the access time requirements specified earlier be achieved and processing time requirements not be excessive?) it make the data base available to programmers during the application program development and testing. Finally, standard files for program testing should be created to test any unusual or exotic file accessing techniques.

Prototype file and database should not be created, listed and controls established and catalogued along with standard procedures for their use in the application program testing phase. All files, records and data base segment should be fully defined, with standard field names ready for inclusion in programming specifications and in the programs themselves.

If the system employs a standard communication handler or requires that special software be developed to handle on-

line transactions, the on-line software and hardware configuration is generated and tested. The major objective is to define and test all standard input and output protocol and procedures. It is necessary to verify all operating characteristics and efficiencies of the hardware and software before development of program specifications and to establish linkages and coding techniques and conventions instead of leaving it up to the individual programmer. As a general rule it is also desirable to finalize and implement terminal or on-line security software or procedures during this activity.

Once the data base or on-line software has been generated, all critical operating assumptions and characteristics of the system are verified before starting the application programming specification, development and testing. For example, if the system includes both on line communication and a data base manager, a few small programs may be generated quickly and easily to exercise the data base manager and the on line software together in order to determine the effectiveness of the interaction and demand on a component, it is possible to adjust the approach the hardware or software without making complete sections of the system obsolete. If the system cannot perform to operational specifications under test conditions, it certainly will not do so in full operation.

CONVERSION PROCEDURE

At the end of the system requirements, the master plan included a specific implementation strategy and timing. Now the conversion plan must be fine tuned for the actual installation. This plan includes the resources and major activities required to complete implementation. All schedules must be coordinated and identified as to tasks and activities and people.

Topics usually included are user training plans and schedules, the system test approach and plan, hardware and software installation plans, site preparation requirements and schedules and conversion approach and plans. Criteria for user acceptance of the system are firmly established and reviewed by the systems technical staff and user groups. These systems acceptance criteria should be specified on a formalized document that includes checklists and other appropriate methods for indicating each item with eventual evidence of its completion and acceptance. The specified benefits of the new system are often inappropriate for inclusion as acceptance criteria.

One of the most difficult criteria to define within a system development project can be the determination of when the project is over. Failure to do so and have these criteria understood explicitly by both user and the data processing management can add dramatically to costs and schedules. Without a clear definition of a termination point, a project can literally drag in indefinitely. There is a challenge in securing agreement among members of the project team, user personnel and systems operations on exactly when a system should be considered operational and there fore subject to maintenance rather than counting development activity. An important element in this is a commitment by the users that once the predetermined conditions have been met, existing systems will be discontinued and the new system will be considered accepted by the users.

Frequently misunderstanding arise over the projected handling of enhancement to the system that may be identified following completion of the design during the project team will remain intact until all new opportunities have been implemented. On the other hand members of the project team tend to assume that enhancement will be handled as a part of ongoing maintenance. The potential problem is that if this

misunderstanding is not resolved during the implementation [planning phase, the user at the close of the project may refuse to accept the new system until all changes have been made. This same misunderstanding can have a serious impact on budget presentations made to the steering committee. The project team may present budget estimates based on the assumption that system enhancement will handled as part of the maintenance activity. The user assumes that the enhancement are included within the system structure. These misunderstanding may ultimately lead to substantial variance in costs, schedules and return on investment for individual projects.

SITE SELECTION AND EQUIPMENT LAYOUT

Selecting the location for a computer site is a trade off between ready access and isolation. Isolation is desired in the sense of removing the centre from the normal flow of foot and vehicular traffic. But access is desirable in terms of users being able to have easy and rapid access to the system. Usually there is little need for a user to have direct access to the central site. That access can be provided through terminals or through other methods of data entry.

The layout design of the configuration is not always straightforward. Many of the pieces of equipment have maximum allowable cable runs. Certain devices can be no more 50 feet from the CPU. In addition, the weight of the equipment may pose severe limitations on which floor the computer may be placed. Environmental problems such as flooding, security and free protection must be considered. The vendor usually can be tremendous assistance to the operations specifications for such items as opening required for mounting and removing disk packs and access panels, visibility for the operator and cable runs.

INSTALLATION METHODS

Parallel, cutover and phase in are some methods that might be used to install a system. These methods are not designed to be mutually exclusive or completely exhaustive bur are intended to typify those methods used to install new systems.

PARALLEL

A parallel method of installation means that both the old and the new system are run for a specified period so that the outputs of the old system may be compared with the outputs of the new system. This method provides a way of verifying that all the procedures are in place and operating according to specifications before the new system because the operational system for the user.

The problem with this method of installation is that it essentially duplicates an existing system and may more than double the actual cost of operations during the parallel testing. One of the things that may happen in parallel testing is that all the things known about the old system - its slowness, its excessive cost and things known will reconfirmed in comparing the old and new system.

Some argue that parallel testing of a new system spends as ordinate amount of time reverifying that there were bugs and problems in the old. If the old system was operating accurately but was deficient in timeness, it may be useful to run both systems in parallel for a period. The interval to run in parallel is difficult to determine. The longer both systems run in parallel, the more testing that can be done, but also the more costs incurred.

There often may be extreme resistance by users of the

old system to relinquish their duties and move over to the new system. There are many potentials for inappropriate behavior patterns.

CUTOVER OR BURNED BRIDGES

The cutover method is a drastic move from one system to another. Cutover establishes a date when the old system will no longer exist and when the new system will begin operations. The old system is designed to cease functioning on a specified date and the new system is designed to take over functions on that date. With some minicomputers, it is possible to wheel in the new system, plug it in and begin operations within a short time after the delivery. The obvious advantage to the cutover method is that there are no parallel systems in operation and there is no duplication of effort and cost. The disadvantages to cutover is that once the old system is gone, there may be no way to recover the old system in case of failure of the new system. However, by establishing a finite cutoff date, there is little possibility for those who would resist the move to have any other alternative. Excellent and detailed planning and testing are a must for this method. Some call this the burned bridge approach to installation.

PHASE-IN

Phase-in is sometimes selected when a system is of such a large magnitude that it consists of a number of subparts that follow some natural sequence of operation. For example, in moving from manual to an automated system using a service bureau, it might be possible for the manual systems to relinquish the accounts receivable processing and immediately transfer those to the service bureau while maintaining a manual payroll system. Once the accounts receivable system is running to the satisfaction of the user /firm, payroll may be the next system brought onto the

service bureau system and then accounts payable so fourth.

The determination of the method of implementation depends on the problems faced by the firm. If the current system is operating correctly with problems only involving speed, perhaps the parallel method is acceptable. If the current system is a relatively complex one with each of the components operating correctly, perhaps a phased approach is the one to choose. If the reason for designing the new system is that the old one is not performing its assigned duties accurately or timely, perhaps cutover is the method to select.

DOCUMENTATION AND OPERATING PROCEDURES

In the next phase, when key operating assumptions about the configuration and the software have been verified, the result of that effort is formalized by specifying standard input and output procedures and naming conventions. All programming standards and testing procedures are defined. Standards programming procedures already exist in many data processing environments and this activity is primarily one of integrating those standards that are specific to this particular system. The project manager has the responsibility to assure that all necessary development and testing procedures and policies have been reviewed and accepted by the data processing operations management and programming supervisors. It should never be necessary for an individual programmer to define procedures, establish test policies, or negotiate with operations management at some later stage.

The data centre operating procedures and standards should have been specified. Critical system timings and hardware and software support requirements are reviewed with operations management in order to assure that schedule milestones can be met to avoid operational conflicts.

Operational personnel may become familiar with the performance characteristics of the system as it develops. We begin to outline and define operating procedures required by data centre management is able to begin training personnel, and the system moves into the testing stage. Special procedures and documentation required can be highlighted and planned for in the development of manual procedures and training plans.

A major objective at this stage is to isolate any technical assumptions or constrains critical to the success of the system and to confirm it before actual installation.

A system is more likely to fall because of an incorrect assumption about the operation or performance if the software than because of programming error. The project team has a better overall grasp of the system and its design vulnerabilities and therefore understands those assumptions best. The strategy is to minimise the probability of failure for the rest of the system efforts. Major conflicts and problems within any of the activities are discovered here. It is possible that the project team will have to go back and modify the original design. At this time, only the design will change. If discovered later, errors could be far more costly to correct.

Documentation of standards procedures is essential because programming teams are often eager to probe the programming process. Leaving it to each programmer to finalize testing conventions and procedures complicates maintenance because of the nonstandards procedures. Each programmer also tends to make the same set of specialized software. Additional efforts must be expended to finalize the environment in which the programs are developed.