Management Services Forum

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MANAGEMENT SERVICES FORUM

Gentlemen:

I am employed by a large, decentralized corporation with a diversified product line. Manufacturing divisions are located throughout the United States. We also have developed a rather extensive international operation. One of the responsibilities of the Management Services function is to assist management by insuring that Divisional data processing resources are directed toward the attainment of Divisional and Corporate objectives. The execution of this task does not include evaluation or procedural audits of input/output functions, efficiency of computer programs, etc. We are interested in determining that systems activities are aimed at helping management cope with significant problem areas, that project priorities are assigned in an appropriate manner, and that systems projects can be related to a long range plan that identifies measurable, traceable, cross-checked objectives.

We are attempting to do this by surveying each of the major data processing functions within the Corporation. The surveys are being conducted by teams of 4 to 5 people who make a preliminary analysis of the function, spend 1 to 3 weeks at the facility being surveyed. They then devote 4 to 6 weeks preparing a report for Divisional and Corporate management personnel.

In attempting to develop a practical approach to this task, the following questions are among the many that have developed:

1. Do you know of other major manufacturers that have attempted to perform similar evaluations? Would they be willing to share their experiences?
2. Is there a proven technique for accomplishing this task?
3. What are the key action items that must be performed in a survey of this type?
4. What are the recommended procedures for completing these activities?
5. How do other companies objectively measure their data processing function's contribution to sales, profit, operating efficiency, etc.?
6. What suggestions can you make regarding the structure of the report prepared for management at the end of such a survey?

Any response you can make to the above questions or any other suggestions that you think appropriate will be appreciated.

Two of our advisors responded to this correspondent's query. The first reply follows:

In attempting to answer this request I first had to make the following assumptions:

1. That the decentralized divisional data processing installations have been installed

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PANEL OF ADVISORS:

MANAGEMENT SERVICES FORUM

(From page 1)

and operating for a period of time.

2. That divisional and corporate objectives have been defined for EDP operations.
3. That significant problem areas have been isolated.
4. That the machinery has been set up to evaluate and assign project priorities.
5. That long range plans have been formulated and that feedback is generated to measure these plans against actual results.

If the above assumptions are correct they are then talking about making a "Post-implementation Review" and in that context I would answer the questions as follows:

1. No major manufacturers come immediately to mind although a great number must have conducted "Post-implementation Reviews."
2. Instead of proven technique I would rather say what method is used to conduct the review. Again the assumption is made that feasibility studies have been done that estimated the following:
   A. areas to be processed
   B. schedule of installation dates
   C. the costs of the installation
   D. estimated savings
   E. other benefits
   A review is then made to determine how the actual results compare with the estimates. The procedure is the same for applications added after installation of the computer but instead of a feasibility study you compare actual results against an application justification, which includes the costing of each new application.
3. a. Ensure that DP resources are directed toward attain-

ment of divisional & corporate objectives.
   b. That systems activities are aimed at helping management cope with significant problem areas.
   c. That project priorities are assigned in an appropriate manner.
   d. That systems projects are related to a long range plan that measures objectives.
4. See outline of talk (below).
5. As to operating efficiency, see the outline. As to sales and profits, don't know.
6. Structure of report would depend on findings. Generally conclusions are stated first in order of their importance. This is followed by a description of work done and this is followed by some detail indicating the basis for the conclusions.
   Conclusions should include not only the rating of performance to date but also recommendations for future action.

Post-implementation Computer Study

Outline

Many published surveys have noted the preponderance of unsuccessful computer installations made to date. Using the commonly accepted criterion for an unsuccessful installation, which is "an installation that has not fulfilled pre-installation objectives" whether these objectives were cost savings, improved operations, intangible benefits or any combination thereof, we are inclined to agree with the results of these surveys. In spite of this it has been our experience, among our many clients that utilize computers in their data processing operations, that a large portion of

these are, to varying degrees, successful. However we have found that almost without exception significant improvements can be made in existing installations that will save money, speed up reporting and improve operations.

The installation of a computer, for those of you who have not had the experience, can be a time of trial and tribulation. You are very often working against unrealistic deadlines, over-optimism and unreality. The original work done on systems and programing was probably done under enormous pressure and by people who were at that time unsophisticated in the areas in which they were working. When it is found that 50 to 75% of the present computer load is work that was done in the atmosphere of a pre-installation period the advantages to going back and reviewing the results of that work can readily be seen.

Introduction

A. Basis for making study.
   1. Computer has been installed and in operation long enough to evaluate results.
   2. Preferably a feasibility study had been done prior to installation and the results of that study presented to management as justification for installing the computer.
   3. The feasibility study outlined.
      (A) Areas to be processed.
      (B) Schedule of installation dates.
      (C) The cost of the installation.
      1. Cost of computer.
      2. Cost of systems design and programing.
      3. One-time costs.
      4. Recurring cost for

computer and personnel.

(D) Estimated savings to be realized from installation of the computer.

(E) Benefits other than cost savings to be derived from installation.

B. Review results of computer operation to determine how closely pre-installation estimates compare with actual results.

C. Definition of "Post-implementation Computer Study."

Criteria for Conducting Study

A. Background of computer installations.

1. Very few have obtained objectives.

2. Examples of clients—The reason that consultants are called in.

(A) Costs are increasing.

(B) Time schedules not being met.

(C) Additional equipment needed.

B. Criteria used by consultants prior to recommending study.

1. Management's role in planning and control of computer operations?

2. Was proper feasibility study conducted and reviewed against actual results?

3. Applications costed out?

4. Is computer department operated properly?

(A) Documentation.

(B) Scheduling.

(C) Controls.

(D) Machine logs—work logs.

(E) Housekeeping.

C. On basis of preliminary study make recommendation to general management for full study.

Study

A. If study has been preplanned—Figures should be available.

B. If not preplanned—accumulate pertinent information.

1. Cost of replaced operations.

2. Volumes.

3. Cost of computer operations—include amortization for one-time costs.

C. Review results of B against feasibility study or other estimates used to justify installation.

D. Evaluate study.

1. Cost comparison.

2. Offsetting advantages of computer operation.

(A) Faster reporting.

(B) Reduction of inventories.

(C) Improved customer service.

Recommendations to Management

A. If study was favorable toward computer limit recommendations to improvement of computer operations.

B. If unfavorable—costs are greater, intangible benefits did not accrue, implementation estimates missed.

1. Return to former systems—pro, con.

2. Improve present systems.

(A) Top management participation.

(B) Costing of applications.

(C) Operation of computer department.

C. Top Management Participation.

1. Must be active rather than passive.

2. Examples of clients—what we found, what we recommended.

3. Reasons necessary.

(A) Investments.

(1) Start up costs $250,000 - $500,000.

(2) Operation (medium) $300,000 - $500,000.

(B) Computer company-wide operation.

(C) Realize potential—not only routine jobs.

D. Costing Applications, Reasons for—Examples of clients calling us in because

1. Computer bogged down.

2. Cannot produce results in specified time.

3. Need more equipment.

4. Need faster equipment.

Our findings:

Fill in jobs that do not belong on computer—why they were put on.

Would not have happened if jobs were costed and needed management approval.

E. Computer operations—most fertile area for improvement.

1. Documentation—stress importance to company.

2. Scheduling—discuss importance.

3. Controls—discuss importance.

4. Optimization of programs.

(A) What is it?

(B) Why is it necessary?

(1) To save operating time.

(2) To condense reports.

(C) What types of programs should be reviewed?

(1) Long running programs that consume hours of computer time.

(2) Frequently used programs.

(3) Conversion to higher type of equipment.

(D) Results

(1) Reduction of shift time.

a. Saves rental.

b. Saves personnel cost.

(2) May eliminate necessity of converting to more expensive equipment or adding to configuration.

(3) Gets work on a current basis.

(4) Produces action reports faster.

The second firm's reply also gave an outline of "key action items" to be performed:

1. No knowledge of other manufacturers having done this type of internal review.

2. The techniques for accomplishing an internal review of data processing operating efficiencies and practices are established. The general technique is referred to as an Internal Facilities Management Review. These reviews are very often done by outside organizations.

3&4. A data processing facilities review should be done with a fully defined work program, set up to cover all elements relating to the objectives of the study. These objectives should be established by the project leader and should contain the intermediate goals for improvement as well as the ultimate aim of the study. Such intermediate goals would include getting rid of inefficiencies in the operations and tightening and improving the existing systems. Recommendations should be implemented as soon as possible.

The study should be staffed to allow each staff member to concentrate his energy on specific related areas of the data processing department rather than doing one or two specific tasks (e.g., timing, interviewing or report analysis) throughout all the areas of investigation. Staff members should report their findings to the project leader as soon as possible. The project leader should, on the basis of these findings, decide when and where deeper investigation is needed.

Frequent meetings between the staff and project leader are helpful for amplification of information and for reducing instances of more than one person trying to collect the same information.

The project leader should be responsible for knowing where to get information and should oversee the data gathering described in the work activities mentioned in the following section.

The key action items to be performed are as follows:

Data Gathering by Divisional Personnel (Prior to On-Site Survey)

A. Obtain system and cost information for all hardware used and on order.

B. Obtain organization charts for each EDP department and cross reference to functional duties and policies.

C. Obtain copies of present utilization reports from each EDP department.

D. Obtain systems designs, both present and future.

EDP Operations

A. Review activities of the Data Processing Operations Department
— Review, observe, time and document computer room operations
— Review processing sequence of applications and their I/O requirements
— Review adequacy of tape library procedures
— Review operator instructions for adequacy and being up-to-date
— Document all reruns
— Review program control and maintenance
— Review program assembly and testing procedures
— Review utilization logging procedures.

B. Analyze computer utilization logs for an appropriate previous period
— Check for accuracy, noting significant variances and periods of unlogged time
— Review usefulness with users

C. Categorize utilization by major applications
— Determine cost of each application
— Break down applications by:
    Processing Time
    Set Up Time
    Sort/Merge Time
    Validation Time
    Print Time
and determine the relationship between these categories.

D. Review data processing schedules and techniques, both overall and by application
— Determine operating efficiency
— Determine input availability and output deadlines

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— Review necessity and effect of peak and depressed periods.

EDP Related Operations

A. Review input preparation section

— Determine volumes and productivity by application

— Analyze input preparation scheduling.

B. Review control section for adequacy and duplication of work.

C. Review output distribution section for control.

System Design

A. Review the quality of the systems design technique to determine

— Process efficiency and machine utilization

— Processing schedules, controls and error deduction

— Difficulty in program maintenance.

B. Review quality of reports with users

— Document problems, comments and checking procedures

— Determine inadequate or excess reports.

C. Review plans for projects under development or proposed development for a significant period

— Determine or review timing estimates for these projects

— Determine effects on all schedules and existing equipment

— Determine if faults found in Parts A & B exist in these new designs

— Determine rate of progress in systems effort.

D. Evaluate the competence of the staff

— Determine ability to design a quality system

— Evaluate working knowledge of new developments in data processing hardware and software

— Evaluate ability to program efficiently.

Completion of Observation Activities

A. Analyze findings from above sections.

B. Prepare, with all of staff involved in study, a discussion outline and discuss conclusions with supervisory personnel.

5. A method for measuring the data processing function's contributions to sales or profit is to attempt to cost justify each project as it is proposed and to charge back the costs to the using department. In addition to the initial cost justification, a post installation review should be performed to insure that projections were accurate. Periodic reviews, such as the one described here, should indicate departures from the original economics of various segments of the company's data processing systems.

6. The report to management should be structured as follows:

A. Summary
   a. Review scope and purpose of study
   b. Indicate briefly how the study was conducted
   c. General comments on overall company EDP operation and personnel
   d. Specific recommendations by division
      (1) Short-range operating efficiencies
      (2) Long-range planning and design considerations
      (3) Organizational considerations
      (4) Comments on adherence to standards and procedures
      (5) Use of output
      (6) Comments on personnel
   e. Indication of corporate and divisional personnel who participated in study and views on results.

B. Detail for each division
   a. Amplify findings and recommendations as briefly stated in Summary
   b. Include supporting volumes, timings, costs, etc.
   c. Diagrams or tables of figures should be included in appendix and referenced from body of report.

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7