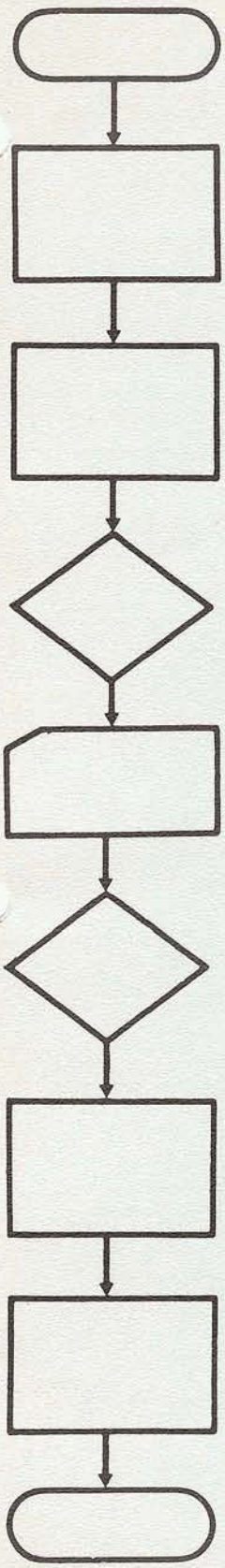

HARDWARE, SOFTWARE and "SOMEWHERE"

by

Dennis McKenna

COMPUTER USAGE FACILITIES MANAGEMENT CORPORATION

The brand-new, gleaming equipment is installed and up.

The systems software is debugged, wholly compatible, and capable of generating all kinds of sophisticated reports in an endless variety of formats.

But nothing is moving through. Jobs are stacked up in a discouraging queue of card decks, disk packs, and tape reels.

The problem's not hardware or software -- but the vast wasteland of operations, the data processing function's "Somewhere".

As is the case in most computer installations, operations in this example has simply not kept up with the professional levels of hardware and software. It's no secret that over 40 per cent of the computer installations in the United States are losing money. Of the balance, only about 15 per cent show any real profit. Why? Many systems experts are convinced that the answer lies in management of the facility.

The EDP operation is simply too important to be left to the non-professional. Computers now total some six per cent of the annual business expenditures for new plant and equipment. In a couple of years the total will be 10 per cent -- and by the late 1970's businesses will be allocating two of every ten plant and equipment dollars to computers.

Add to this already hefty total the cost of developing software systems -- currently, software costs exceed hardware costs industry-wide -- and you've got one of businesses' largest capital expenditures. All this, the way things are now, is being jeopardized by EDP's "Somewhere", and the personnel who, without status, frequently with only minimal training, are entrusted with one of industry's most substantial investments.

"THE PROBLEM'S NOT HARDWARE OR SOFTWARE -- BUT THE VAST WASTELAND OF OPERATIONS, THE DATA PROCESSING FUNCTION'S SOMEWHERE"

Is this an overstatement of the case? We think not. After two years of extensive research, Computer Usage Development Corporation decided that the problem was pressing enough to warrant the establishment of a new subsidiary -- Computer Usage Facilities Management Corporation.

Designed to offer on-site, total facilities management service to all computer users, CUFM has taken a different approach to facilities management.

Since the management of computer facilities is our

HARDWARE, SOFTWARE & "SOMEWHERE"

Mr. McKenna has been in the computer field for eight years. He is Western Regional Manager of Computer Usage Facilities Management Corporation (CUFM). Before he was named to this position he was Assistant Manager of CUC's Computer Time Sales Operation in New York and Manager of Computer Time Sales in Washington, D.C. Mr. McKenna was in charge of CUFM's first contract with NASA, Ames Research Center, Moffett Field, California. He joined CUC in 1960.

business, our only "product" is people. We trade on the experience, professionalism and teamwork of our people. They are our stock in trade -- and they know it. For CUFM operators there is plenty of room for advancement into facilities management positions. And, as a result, they are motivated to do the best job for the client.

RANGE OF CAPABILITIES

Naturally, in setting up CUFM we had to rely on a broad range of diverse management capabilities -- expanding, in a sense, all the capabilities required to run any computer installation: Consulting operations on equipment selection and installation design; data control; operations; systems scheduling; machine utilization; and a unique feature, the Operations Control Package. Let me go into these and some other features in a little more detail. Many of the organizational features of CUFM can be picked up intact and applied to local facilities management operations. Perhaps the following description can help increase effective utilization of computer hardware and software.

"THE MANAGEMENT OF COMPUTER FACILITIES IS OUR BUSINESS, OUR PRODUCT IS PEOPLE"

CONSULTATION

Since CUFM has been in the business, we have come to realize that there is a definite need for an authorative, non-aligned consulting service in computer operations. To fill this need CUFM has developed a comprehensive, consulting service available to any new or established data processing organization. Our consultation team is made up of experienced professionals in various problem areas. With their background they can supply accurate recommendations concerning a wide area of computer operations.

To insure the validity of our consultation efforts, we have broken up staff responsibilities into the following areas:

1- Equipment Selection

Selection of data processing equipment involves many important considerations. CUFM consultants assigned to this area keep informed of all the latest equipment and continually update their knowledge of existing equipment. This covers all aspects of equipment -- its costs, capabilities, limitations, dependability, CE support, potential machine backup in a given geographical area, and required support equipment (environmental control), etc.

2- Installation Design

These consultants keep abreast of all available information on new and existing office equipment, fluctuating costs for geographical areas under consideration , emergency facilities, machine power requirements, etc. They have the ability to physically design a floor plan to facilitate operator efficiency, CE convenience, data flow, plus many other considerations.

3- Control

These consultants have the ability to develop all data control procedures so that all necessary phases of the operation will be properly documented. This includes documentation of input and output data flow, control of the tape and card library functions, operator performance, supply reordering, output checking procedures, smooth interface procedures between the data processing department and the users, methods of communications, etc.

OPERATIONS

We have found that control is the heart of any computer installation. For an installation to operate efficiently, emphasis must be placed on the creation and implementation of clearly documented procedures relating to control in every stage of the operation.

CUFM has capitalized on its broad experience and created an "Operations Control Package". Primary areas of application include:

1) Control of the Input/Output Data to the Computer Room.
2) Control of Master Program Decks and Compilation Listings.
3) Control of Systems Scheduling and Machine Utilization.
4) Control of the Interface between the DP Dept. and the Users.
5) Control and Training of Non Data Processing Personnel.
6) Control of the Data Libraries.
7) Control of the Operator Run Book Instructions.

Each of these areas has been thoroughly investigated by our operations analysts. We know that "Quality Control Procedures" that are clearly documented and periodically reviewed will significantly increase the efficiency of any data processing operation.

Let's look at each of these areas:

Control of Input/Output Data to the Computer Room

In revising, or in setting up, a control function, CUFM gives primary consideration to "flow of data" as input and output to the computer room. A detailed flow chart of the system(s) and a first hand survey of the operation are made in order to obtain a good base from which we evaluate an operation. CUFM determines such things as:

"CONTROL IS THE HEART OF ANY COMPUTER INSTALLATION"

1) Is the input/output data being handled unnecessarily?
2) Is the operation a smooth and stable one?
3) Does data flow fluctuate irregularly?
4) Is the input data correct, accurate, and verified?
5) Is data standardized (by documentation) in all departments?
6) Is computer time unnecessarily lost due to bad input data?

Another vital area that is often overlooked is the physical layout of the facility. The ease and efficiency of an operation is often hamstrung by poor planning of space and equipment. To make the physical layout of an installation an asset rather than a liability, we survey floor plans to offer authoritative suggestions in design. This facilitates the ease and efficiency in handling the data flow.

"THE PHYSICAL LAYOUT OF THE FACILITY IS VITAL"

Control of Master Program Decks and Compilation Listings

If an inadequate control system governing applications program decks and their compilation listings exists, CUFM makes recommendations concerning control, organization, and various standardization procedures to maintain a stable program library and current master file backup. To protect the initial investment, it is necessary that master program decks be created and that the compilations of these programs be current, well documented, and easily accessible to the users.

Control of Systems Scheduling and Machine Utilization

To obtain better control of scheduling and operations efficiency, it is imperative that every data processing organization have an effective machine utilization package. The minute by minute awareness of what the machine is running or re-running, how much setup time is being used, and how much non-productive time there is, are all important keys in improving the control and efficiency of operations. The daily run of a machine utilization package would immediately reflect areas that need improvement and areas where error and lack of efficiency are evident. Defining these problem areas is the first step toward their elimination. CUFM offers a complete utilization package that can be tailored specifically to the needs of the user. The effectiveness of a computer operation is directly related to the efficiency of its operations personnel. By use of a machine utilization package along with a professional view of the operations, CUFM is able to measure the efficiency of all operations personnel and offer suggestions for improvement in this area.

Control and Interface Between the DP Dept. and the Users

Conflicting department objectives or undefined areas of responsibility often hamper the efficiency of computer room scheduling. We consider this a very important part of the control requirement and realize that to facilitate communications and understanding between departments, we must design, implement and maintain strict priority control and procedures.

Control & Training of Non Data Processing Personnel

Many errors can be eliminated from input data by offering a good training program to the departments responsible for the input. Understanding what a computer is and the necessity for error-free input would better acquaint user personnel with the data processing functions. Further, it most often improves their attitude toward both their individual job and the problems of the data processing department.

Control of the Data Libraries

Cards, tapes, disks, or other master files must be labeled and organized for easy reference and retrieval. Many costly hours can be lost due to inadequate control or poorly organized library facilities. All library functions must be maintained on a current basis. Tapes, disks, and cards that have outlived their usefulness must be (in the case of cards) destroyed or (in the case of disks and tapes) placed back in service. To maintain an efficient library, these masters should be controlled and not just recorded as to their possible whereabouts. CUFM analysts carefully survey their clients' library facilities to see that control standards are established and maintained.

"EVERY DATA PROCESSING ORGANIZATION MUST HAVE AN EFFECTIVE MACHINE UTILIZATION PACKAGE"

Control of Run Book Instructions

Throughout our surveys and inspections of various computer facilities, we have found that the Operator's Run Book instructions are often neglected. It is important that these run books be kept current, complete, and

legible. CUFM has a thorough "Run Book Documentation" package that acts as a step-by-step guide to the computer operator giving him all the necessary information that he needs to complete his job efficiently. CUFM can offer many suggestions on standardization, updating, and simplifying the computer operator run instructions.

"IT IS IMPORTANT THAT RUN BOOKS BE KEPT CURRENT, COMPLETE, AND LEGIBLE"

USER INDOCTRINATION

CUFM has long recognized the need for comprehensive user indoctrination. This indoctrination affects all levels of operations from the clerk and truck driver to middle and upper management training courses. Many errors can be eliminated from the input data by simply offering a good training program to the people on the clerical staff level. As we said before, everyone should understand that the computer is an extension of their computational facility. It must be viewed as part of the whole capability and simple mistakes like improperly prepared data are extremely costly in valuable computer time.

To facilitate this understanding of data processing problems CUFM has tailored a data processing course to meet these requirements. This course basically covers all phases of data processing and includes a glossary of terms used in the DP profession. Specific areas brought to light are: History of Data Processing, The Punch Card, EAM Equipment, The Basic Program, The Computer, A System Application, and Future of the Data Processing Industry. CUFM can also make available, training courses that cover all standard computing systems. It is important to emphasize that all facilities management instruction courses are designed and tailored to the exact requirements of the user and his staff.

On the higher and naturally more sophisticated level of management training, CUFM has at its disposal the expertise of Computer Usage Education, Inc. (CUE). A wholly owned operating subsidiary of Computer Usage Company, Inc., CUE was formed in response to the enormous demand for trained personnel in the data processing field - at all levels from programmers to top management. In addition to the Computer Usage Study Course, CUE conducts on-site classes and technical seminars for management throughout the United States and Europe.

MAN AND MACHINE UTILIZATION

CUFM has developed a number of packages to measure both manpower and machine utilization. These packages have proven to be a definite asset in ensuring efficient and effective scheduling.

As is quite evident, no two computer installations place identical demands on either man or machine. The utilization packages referenced above were designed with this in mind. This affords us the use of this package in any situation merely by redefining a given set of parameters.

RELATED EXPERIENCE

Within the past seven years, CUDC operations groups have faced an unprecedented variety of unique problems. Our ability to solve these problems quickly and effectively was the inspiring force behind the establishment of CUFM.

Objective and professional analysis of a problem or group of problems affords us the opportunity to save our clients considerable amounts of time and money.

For example, CUFM has the responsibility for the second and third shift computer operations at the National Aeronautics and Space Administration (NASA), Ames Research Center, Moffett Field, California. We are very proud of the improvements and increased efficiency of operation that has occurred since our initial involvement. The signigicant reasons for our success on this project include the following factors:

* Management
* Communications - Documented Shift Turnover Logs
* Personnel Flexibility
* Accepted Suggestions and Recommendations
* Standardized Documentation of Procedures
* Pride and Professionalism of our Operations Personnel
* Incorporation of Various Applicable CUFM Standards into the Existing System

Various job applications include administrative applications, manpower inventory, payroll, and scientific programs. The equipment that we operate at this project includes: Honeywell H200/800, IBM 7040/7094 Direct Couple System, IBM 1401, IBM 360/50, IBM 1800, IBM 1130, and two EAI 3440 Plotters.

We believe in firm communications between the two shifts as well as between the management of CUFM and NASA. Each day a meeting is held with the Contract Monitor, or his designated representative, and the site manager to discuss the prior shift's work, assigned priorities, etc. Each area of responsibility contains a turnover log that is completed at the end of the shift. A typical shift turnaround would include the following: a) Before the beginning of any shift, a daily turnaround

"A COMPUTER IS PART OF THE WHOLE CAPABILITY"

is obtained from the Data Processing Manager. This turnaround might include the status of the administrative work to be processed (which would include production jobs to be run, special handling of administrative jobs to be tested, and special instructions on any unusual or non-scheduled work that was submitted), and a list of priority jobs to be processed. b) After the daily turnaround is received, the status of the DCS system is obtained from the computer operator. This information would include any machine problems encountered during the course of the shift, any system problems to be aware of, any other information that may be helpful in the shift's processing. c) After this is completed, a survey of the time estimate of work to be done is made. An estimated time count is helpful in deciding what the job stream will be for the night. Then the jobs are categorized into execution time and priority.

In the operation of the DCS, the operators are required to become familiar with all the different types of jobs in order to be able to operate the system efficiently. Many jobs are run in a series application and careful control and scrutiny by the computer operator is necessary to make the decision if the output is good and if the next step is ready to be executed. When the administrative and/or priority work is finished, the lead operator then selects the jobs so as to not overload the system or have time lost due to the execution phase of the system being idle to printer, tape or other slow input/output devices. It is also necessary to take into consideration the number of tape drives in use when making a selection for the next job to be run, because the type of operating system utilized may contain many jobs in the queue at once.

"NO TWO COMPUTER INSTALLATIONS PLACE IDENTICAL DEMANDS ON EITHER MAN OR MACHINE"

CUFM has improved the production output of the DCS system considerably by making suggestions for improvements in the operation. For example, we noticed that some of the programs that were submitted had the large scale computer system tied up for two or three hours at a time while long printer output occurred. Instead of having the long print jobs on-line with the DCS computer, we placed the job output onto magnetic tape and printed the output from this tape on a smaller computer. This greatly increased the productivity of the DCS computer and eliminated the possible hazzard of the system hanging up after running for two or three hours due to system failure or machine malfunction.

CUFM makes regular Quality Control checks on the NASA project and maintains regular status and efficiency reports to ensure that the project is operating smoothly and efficiently. Computer operators' efficiency and training reports are maintained to ensure that he understands not only the machines concerned with the project, but the various applications that are utilized.

REAL-TIME MANAGEMENT

As a rule, a good portion of this analysis is done by our operations staff at the time these problems arise. The unique environment that compels our staff to cope with unusual and often unprecedented problems, assists us in maintaining the highest level of operational competence.

For example, CUFM had contracted with a large publishing house to process its advertising space allottments on a daily basis. This system while being run "in-house" by the client required a minimum of eight hours machine time per day. Within one week our operations group had reduced the actual machine time requirements to six hours per day. This was accomplished simply by reassigning selected tape files and modifying certain basic sorting and merging techniques. It is interesting to note here that all changes made were made through standard control cards and did not involve any programming effort. The cost savings ($500 per day) resulted in this client's request for us to do a study for their entire in-house operation.

CUFM is often called upon to take over certain problem areas which appear to have gotten out of hand or gone beyond the client's ability to control. A recent example of this involves a banking concern that called on us to "pick up" a job a local service organization had partially completed. Costs incurred up to this point were $8,000. This application necessitated the assembling of a main file (cards) to ultimately produce the annual dividend statements and checks for a mutual fund group. After reviewing the problem, it was decided that the best course of action would be to scrap all previously completed work and start from scratch. CUFM was able to complete the entire operation in three calendar days at a cost of $2,700, again illustrating our ability to solve problems effectively at the lowest possible cost to the client.

These are only a few of the cases where a CUFM approach to facilities management has paid off. There's really no secret to efficient facilities management. The name of the game is professional handling of the operation. It is senseless to invest hundreds of thousands of dollars in equipment and software and then disregard professional disciplines when it comes to facilities management. And this is exactly what CUFM has to offer -- a professional facility management operations.