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Defining Your Organizations’ Information Requirements

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ONE of the most important jobs any speaker has is to capture the attention of his audience at the beginning of his remarks. A very effective technique for accomplishing this job is to establish a common identity among all members of the audience and the speaker. Here, this evening, there are many categories in which we might choose to classify ourselves. There is one, however, generally applicable classification which we have chosen because it is a word that you have found before you in the newspapers and on television. Frankly, when you hear the word again, after this evening, we hope that you will remember this evening’s presentation and the context in which the word was used.

The identity we share is the identity of revolutionaries. The revolution in which we are engaged is one that has been going on for over one hundred years. In her book *The Rich Nations and the Poor Nations*, the noted British economist Barbara Ward states that four revolutions are responsible for the substantial economic well-being of the North Atlantic community. The first three are revolutions of equality, material change, and biology. As for the fourth, let us allow Miss Ward to speak for herself: “The fourth and perhaps the most pervasive of all the revolutions of our day is the application of science and saving—or capital—to all economic processes of our life. In fact, the application is much wider. We have begun to apply science and reason to nearly all our forms of living, to administration, to office management. . . .”

So you can see as participants in this most pervasive revolution, we certainly qualify as revolutionaries.

PREPARING FOR THE EFFORT

What sets off the chain reaction of events that leads to a decision to define an organization’s information requirements? As with revolutions, this decision is generally preceded by an idea or an evaluation of conditions. For those companies interested in increasing their profits there are some areas that are prime candidates for evaluation:
Customer Service—Customer service can be substantially improved in direct ratio to the information we have about our customers, their product preference, and our distribution methods. As a corollary, the less we know about these three factors, the less strength we have in customer service.

Products—Unfortunately, there are many basic questions about a company's products that may never be asked by that company's management. It would be well to list a few for general reference.

• What products and/or services does our company sell, manufacture, and/or provide and store? Admittedly, this is basic but do we know what they are?
• What do our products and/or services cost us to manufacture and/or provide and sell? This information is not so basic nor so easily known.
• What is the demand for our products and/or services: This can be analyzed several different ways—by geographic area, by individual product, or by product class, to name three.

Employees—With a little imagination and effort, the measurement of sales staff efficiency can be a by-product of an analysis of product demand; the measurement of production employees' efficiency can precede the accumulation of a product's manufacturing costs; the measurement of production can be an accumulation of employees' efficiencies within a production facility, and so on.

Plant—A well-run capital expenditures program requires that an organization estimate what amount of funds it will commit to the expansion of plant and facilities. This procedure of estimation implies evaluation of alternatives to expenditures, accumulation of actual costs, and a comparison of these costs to estimated costs.

The areas just discussed provide several examples of what an organization might consider as its information requirements. Were we to ask an executive charged with the responsibility of any of the functions such as sales, production, finance, or industrial relations, "Is this the type of system you want?" he would no doubt reply affirmatively. Perhaps, in some cases, he would offer his own ideas on how to accomplish the job and what to add to the system to be designed. Were we to ask him why he wanted such a system, no doubt his answer would
be, "I need that information to do my job." In this simple answer we find the fundamental premise underlying our approach. Simply, it is this: Any information system must be requirements-oriented—that is, it must recognize that a thorough definition of total requirements must be made. Then and only then is consideration given to applicable methods and, where necessary, to the acquisition of any equipment.

SPECIFYING REQUIREMENTS

What are the essential requirements that exist in any organization? We believe there are two categories of requirements: planning and control requirements and operating system requirements. Recall our outline of areas that were prime candidates for evaluation. Allow me to admit that the outline was somewhat contrived, because it was constructed to emphasize that most elusive requirement—control. And what is the handmaiden of control? Planning, of course. The first category of requirements, then, is that of planning and control requirements. This category implies consideration of what must be controlled to manage the company properly. There are certain techniques that are fundamental to an adequate planning and control system. We will mention only four. The purpose in mentioning these four is to state in broad outline the data required so that each technique can be effective. The use of these techniques establishes a planning and control philosophy that is at the core of every successful business.

Profit Planning and Budgeting—From the standpoint of management planning and control, the profit plan is the basic guide to planning in all areas of the company. Many control factors, such as financial operating results, sales volumes and dollars, departmental expenses, are an integral part of the profit plan. Others, such as number of salesmen's calls, share of market, and labor efficiency are related to profit plans in that results expected in these areas should be consistent with over-all company objectives and plans.

Forecasting—We are considering planning and control systems, which imply the establishment of objectives and a plan, and then measurement against that plan. Forecasting is a basis for establishing plans, with the sales forecast, for example, being the first ingredient in formulating a profit plan for financial control. Forecasting is also a necessary
factor in operating systems such as those that include production scheduling and inventory control.

*Responsibility Accounting*—Planning and control must be in terms of those responsible for results. Financial data, therefore, must be organized so that they can be grouped by managerial responsibility.

*Cost Systems*—Proper control in marketing, distribution, and production, as well as planning and determination of over-all division or corporate profit requires a cost system tailored to the control needs identified in determining requirements in each of these areas. Usually this requires modifications to the existing cost system, and cost system revision becomes an important part of this broader project.

But what about the day-to-day activity? How do we devise a system to control it?

It is almost axiomatic that most organizations function cyclically. The series of actions and events constituting a cycle can be defined as an operating system. As the planning and control systems have requirements, so too do the operating systems. So the second category of information requirements is that of the operating system requirements. Examples of operating systems functioning within a basic cycle of a manufacturing operation could be—

- Sales forecast
- Order entry
- Production scheduling
- Inventory control
- Shipping, billing, and accounts receivable maintenance
- Sales analysis

In this example, the sales analysis operating system output becomes part of the input requirement for the next sales forecast in order to complete the cycle.

**OBJECTIVES**

Now that we have defined the two categories of information systems that evolve from examining our organization's information requirements, we can outline our objectives in developing a simple, unified information-handling structure.

- *A continuing planning process* whereby goals and standards of
performance are established for significant elements entering into the managing of company affairs

- An accurate measurement and records system that reflects the status of affairs and the results of decisions made in carrying out company activities

- An effective set of management control reports that keeps management properly informed, focuses attention on matters requiring action, and identifies responsibility for taking that action

- A number of interrelated and smooth-functioning operating systems for handling the day-to-day requirements of the business that employ the most effective procedures and provide all relevant information at the point decisions are made, together with the most appropriate rules for making correct decisions on the basis of those data.

A NOTE OF CAUTION

In addition to the specification of requirements, we now have the goals we want to attain within our organization. The next job is to develop an information system that will realize our ambitions. This requires competence, tact, and a mature management. Generally, the impetus for such a project is given at the executive level. The magnitude of the job necessitates the active participation and support of top management. If the project originates at the executive level, generally the necessary interest factor is built in. If the idea for engaging in such a project originates at the middle-management level, the idea should be "sold" to top management before the project begins. Once the executive group becomes interested, there are methods for maintaining this group's participation and support. We will have more to say about this later on. If the top management of any organization believes that such a project is necessary, but the competence does not exist to execute the program after it is authorized, talent should be brought in from outside the organization.

A general caution is in order: Be aware of existing limitations and constraints. Specifically, consider such items as—

- The organisation—its abilities and apparent weaknesses. Keep in mind that the structure of the organization can change.

- The environment in which your organization competes for busi-
ness. If your organization is in a regulated industry, know the constraints. For example, transportation companies are regulated by Interstate Commerce Commission rules and opinions; utility companies are regulated by the Federal Power Commission, and so on.

In practically every case, an organization is regulated to the extent that it is in business to make a profit; consequently, tax regulations apply.

PRELIMINARY CONSIDERATIONS

What are the preliminary considerations in order to develop a unified information plan such as we have described? In our view there are four steps that should be executed before the development effort begins:

- Top management support
- Program staffing
- Program control
- Communications

The success of a program of the magnitude outlined above must be planned; it will not just happen. At the outset, the program must be endorsed and given active support by the chief executive officer. An executive committee comprised of top administrative officials should be established to review and approve action to be taken and to answer policy questions arising from systems changes.

The matter of program staffing requires that the management of the organization select the appropriate individuals to develop the system. Since various functions of the organization would no doubt benefit from the results of the information system to be developed, it is advantageous to select highly qualified individuals from these various functions to work full time on this project. The main advantage of such staffing is that these individuals would return to their departments to guide the implementation of any information system developed. A great deal could be said about program staffing, but the important ideas to remember about program staffing are:

- The program staff will function best as a team rather than as individuals;
- The team should have the necessary qualities of competence, tact, and maturity.

Program control is predicated on the necessity for keeping the
development effort on track. One of the most effective controls in systems development is a broad and comprehensive work program. The steps in such a program would provide for the following:

- Fact finding
- Development of a planning and control structure
- Definition of operating systems
- Definition of total management information and control systems specifications
- Definition of equipment requirements, if necessary (Note the position of this step. Unfortunately, the design of an information system is very often prompted by the desire to obtain “newest and latest hardware on the market.”)
- System implementation

Because of the length of time required to develop and implement the entire system, it is usually necessary to make some interim changes as the system evolves. The nature and content of these changes depend to a great extent upon the organization’s needs and the importance of the benefits that can be gained. The reasons for making these interim improvements include:

- The need for some recognizable signs of progress as the system is developed
- Recognition that changes in management philosophy and organization structure can be extensive (interim changes allow for absorption of the changes over a period of time)

The need for effective communications is self-evident. In a program of such magnitude as we are considering this evening, it is absolutely essential to have the understanding and co-operation of all management personnel throughout the organization. This can and should be accomplished at the outset of the development effort by means of letters from top management, meetings, and so forth, so that the systems team can go about its work in the proper atmosphere. It is also advisable to consider a general letter to all employees in those organizations where the purpose and objective of the team might be misunderstood. Additional methods include bulletin board notices and statements in internal publications.

To arrive at generally accepted definitions of expressions and terms, a glossary should be developed and maintained as the project team members become engaged in the study.
TECHNIQUES

There are many techniques supporting the steps we have included in the work program cited earlier. All the techniques, however, have an underlying philosophy or approach. Perhaps an elaboration of those techniques supporting one of the program steps will give you an appreciation of this philosophy. The fact-finding step is essential because we must have a good understanding of the organization's operations and structure. The techniques of fact-finding include:

• Collecting and cataloguing current reports—The collection and cataloguing of reports can be accomplished using the organization chart as a guide. The organization chart can be coded, and the reports can be coded for report sources and report users in the same coding scheme, beginning at the top and working down.
• Management interviews—Interview notes can be coded as the organization chart. Again, as with reports, we begin our interviews at the top and work down.
• Reviewing existing systems—An effective record of the departmental review could be a general flow chart indicating the documents originating and processed, the major processing functions, and the reports prepared.

This brief discussion of fact-finding techniques is by no means a complete outline of how we execute this step. There is substantially more to fact-finding than is mentioned above. The important points are:

• Every work program is supported by techniques to accomplish the steps within the program.
• The basic philosophy underlying the execution of each step is to work from the top down.

SUMMARY

We can appreciate the fact that after a full day's work, a social hour, dinner, a meeting and finally a speech, your attention span has narrowed. With that thought in mind, we will summarize a few ideas for you to remember:

• Defining an organization's information requirements is not the same as designing an information and control system. The definition of the requirements must precede the systems design, since the design should be requirements-oriented.
• Information requirements should be examined from two points of view:
  .. Planning and control system requirements
  .. Operating system requirements
• The entire program must receive the unqualified endorsement and support of top management.
• Equipment decisions are predicated on the information-handling requirements of the organization regardless of equipment type or generation. This simply means that an organization must spell out what information it needs before acquiring any equipment.
• Projects such as this can be controlled by means of a work program and the periodic reporting on the progress of the project team.

Finally, our comments this evening are by no means the product of one man's imagination—not even of a few men. They represent the distillation of the best ideas and most successful experiences of many men within our firm. Our objective this evening was to articulate a logically constructed approach to defining an organization's information requirements. This approach is diametrically opposed to the scatter or random requirement technique that very often begins with interviews at lowest supervisory level and works toward the top. Our philosophy is that it is the people at the top who make the decisions and guide the destiny of the organizations. Therefore, it is our conviction that our approach is a sound one. This conviction is supported by the acceptance our approach has been given by our clients.