Strategic planning for MIS—A conceptual framework

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ABSTRACT

Increasingly, Management Information Services (MIS) divisions within organizations are becoming more centrally involved in the mainstream of corporate activities. MIS projects are becoming more complex and expensive; are affecting more aspects of the business; and are taking longer to design, develop, and install. For these reasons, effective planning for the MIS function is felt to be of paramount importance.

In recognition of this, a conference was held on Planning for MIS in 1974, jointly sponsored by McKinsey & Company, Inc., and the Graduate School of Management at the University of California, Los Angeles (UCLA). Attending were MIS executives and practitioners from both the public and private sectors. During the two days of discussions, a number of conclusions were reached which are detailed in this paper.

Building upon this conference, and on other work of the authors, the balance of the paper is devoted to presenting a framework for strategic planning for MIS. Definitions of key terms are included, as well as a discussion of some common planning pitfalls. Finally, a list of questions is given, designed to aid the MIS executive in carrying out his own organization's planning effort.

INTRODUCTION

Mark Twain’s remark about the weather might well be applied to MIS planning: “Everyone talks about it, but nobody does anything about it.” The importance of planning for improved managerial effectiveness is widely endorsed by practitioners and academics alike. In fact, given the accelerating pace of change in almost every aspect of the economy, planning is frequently touted as the key to success—if not to survival. But as with the weather, the gap between interest and achievement in the planning area is great. Faced with the pressing problems of day-to-day operations, many MIS executives have neither the time nor the inclination to invest in planning for the longer term. However, there are a number of major organizations here in the United States that are doing something about planning; in particular, planning for Management Information Systems (MIS). This paper is about such efforts.

The term, “MIS,” standing for either management information systems or management information services, is being used increasingly throughout the world to refer to that cluster of activities which surround the computer and its supporting personnel. However, it is more than just the data processing department; for it includes the planning, analysis, and design activities—as well as the operational functions—which are necessary for effective computer-based information systems. For this reason, many MIS groups go under the broader title of “Management Services,” incorporating not only the computer department but also operations research and management science staff specialists. In this paper, we will use “MIS” to reflect this broader set of activities—computer systems, management services, and indeed the organization itself which provides the foregoing.

In addressing the topic of planning for this group of activities, it is important to establish a proper perspective. As will be discussed later, planning can be looked at from both its time horizon and its focus. The former refers to whether it is short term (one to two years), medium term (two to five years), or long term (five years or more); and the latter, to whether it is focusing on strategic, managerial, or operational concerns. It is our intention here to concentrate on the strategic planning issues.

The reason for this choice is simple. As the MIS function assumes a more central role within organizations, it becomes vital that this role be properly planned for, so that it will be congruent with that of the overall organization. No longer is it feasible—if it ever were—to have systems for their own sake. This
is a luxury no organization can afford. And if MIS is to be made responsive to larger corporate objectives, strategic long-range planning is essential.

THE MCKINSEY-UCLA CONFERENCE

In recognition of the importance of this issue, an invitational conference was held in 1974 at the University of California, Los Angeles (UCLA), sponsored by McKinsey & Company, Inc., the management consulting firm, and the UCLA Graduate School of Management. This working conference was chaired by the authors of this paper with the assistance of Professor George A. Steiner of UCLA. Some two dozen MIS executives from major private and public sector organizations participated in the two-day conference. A survey was administered to them, focusing on the objectives, development process, and end products of their individual long-range planning efforts. Also, these executives participated in extensive discussions regarding various aspects of their own planning experience as well as preparing summaries of the long-range planning activities of their own organizations.

The theme of the conference was focused on those aspects of planning that had to do with the central issues of the information services organization itself, as opposed to the planning for individual information systems projects. The reasons for this focus were twofold. First, we wanted the conference to have a broad managerial orientation rather than a technical one. In this way, we believed that the results would be of interest not only to MIS managers and practitioners but also to general corporate executives as well.

The second reason for our choice was the relatively virgin nature of the MIS planning field. Had we chosen to look at the planning problems associated with the design and installation of specific information systems, we would have been addressing an area in which much work has already been done, with articles and books on project and systems management in abundance. However, the literature on strategic and long-range planning for information services is fairly sparse.

In order to obtain a good cross section of various approaches to planning, the conference participants were chosen to represent a wide variety of private companies, as well as government and education enterprises at the local, state, and federal levels. The average participant represented an organization that had annual revenues or total budget expenses greater than $1 billion, had an annual MIS budget of over $15 million, and had been carrying out a formal MIS long-range planning effort for more than three years. These participants, therefore, represented relatively large, mature MIS organizations, experienced in planning for the information systems effort.

The following are the major points which emerged from the conference discussions.

1. There is a growing need for more formal long-range information systems planning as systems become more complex, require longer to develop, involve multiple functions or departments, cost more money, and have greater competitive impact.

2. The benefits from long-range planning—improved short-term decision making, enhanced communication with both top management and user groups, and a firmer grasp on resource commitments—generally outweigh the costs of the undertaking.

3. Formal planning approaches range from the "controlled reaction" tactics of formally evaluating and ranking known project ideas, to the strategic "top-down" scanning for high-potential application opportunities within the context of the overall organization's strategic plan.

4. The selection of a particular planning approach requires a careful balancing of factors such as the role and charter of the MIS organization, its degree of maturity, and the sophistication of the overall company and individual "user" executives.

5. Success in planning for information systems hinges on three factors:
   a. The previous credibility of the MIS group in managing new project development and ongoing computer operations.
   b. The maturity of the overall organization's management processes, particularly with regard to conducting business planning and in making capital allocation decisions.
   c. The choice of a particular MIS planning approach which suits the needs and constraints of the particular organization at that point in time.

6. In those organizations most advanced in their planning, the MIS executives have become an integral part of the management team of their organization; and, in these companies, MIS strategies have a major impact on, and a corresponding interrelationship with, the long-range business plans of the enterprise. In other words, MIS planning is "interactive," not "reactive."

7. If an MIS organization is relatively underdeveloped in terms of standards, computer operations effectiveness, individual project management capability, and the like, it would be well advised to concentrate on the short term, severely limiting concern for the long term until the near-term situation has been substantially improved.

8. Good formal planning must complement, but can-
not replace, the political sensitivity, entrepreneurship, conceptual contribution, and basic business leadership required of the successful MIS executive.

STRATEGIC AND LONG-RANGE PLANNING

In addition to the preceding findings, another item came to light which is worthy of mention. Because of the multi-year planning horizon of most computer-related projects, it is easy to equate long-range planning with any planning effort which has a horizon greater than one year. And thus, fundamental questions such as "Where is the information services organization going?" and "How is it contributing to the overall success of the enterprise?" become confused with "What project should be started next?" and "How can the continued development of existing projects be more effectively coordinated?"

Unfortunately, the term "Long-Range Planning"—which was the title of the conference—does little to sharpen this distinction. For some conference participants it meant focusing on the former questions; for others, on the latter ones. This dual interpretation became evident from both the conference discussions and the papers which the participants prepared. It can be argued, of course, that both uses of the term are equally valid and equally important for the success of the information services organization. Certainly, if the ongoing operations and project development is not effectively planned and managed, it does little good to speculate on where the organization will be five to seven years in the future. More than likely, it will be an organization with a new cast of characters!

However, as discussed earlier, we wanted the conference to focus on the central issues of setting organizational objectives and deciding upon appropriate strategies and policies. Thus, it seems in retrospect that "Strategic Planning" would have been a more appropriate title than "Long-Range Planning."

A STRATEGIC PLANNING FRAMEWORK

Based upon the discussions of the conference, as well as on other research and on the industrial and governmental experience of the authors, an MIS strategic planning framework has been devised (see Figure 1). The left half of the diagram portrays the tasks needed to arrive at the MIS objectives, strategies, and policies. The right half notes the tasks necessary to accomplish

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**Figure 1—MIS strategic planning framework**

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From the collection of the Computer History Museum (www.computerhistory.org)
the more detailed planning efforts within the long-range, medium-range, and short-range time frames. First, however, it is necessary that we define what we mean by "strategic planning."

Strategic MIS planning, like Robert Anthony's definition of corporate strategic planning, is the process of deciding on objectives for the MIS organization; on changes in these objectives; on the resources used to obtain these objectives; and on the policies that are to govern the acquisition, use, and disposition of these resources. Strategic MIS planning typically occurs at infrequent intervals and is often triggered by the need for an enterprise to resolve a particularly substantive issue or issues that involves the MIS entity.

**Strategic planning tasks**

**Set the MIS mission**

The first task in strategic planning, as shown in Figure 1, is to set the MIS mission; that is, to define the charter of the information services organization. This broad definition of organizational role must naturally be done within the mission and purpose of the overall organization of which MIS is a part. Sometimes the MIS organization receives this mission as given; other times it is arrived at through mutual discussion with top management.

**Assess the MIS environment**

Once this mission is set, the next task is to assess the MIS environment—to consider the opportunities and risks which are present now and might be present in the future. This would include consideration of such things as:

1. The objectives, strategies, policies, and plans of the host organization.
2. The competitive position of the overall organization.
3. The user groups within the organization—their needs, their current use of MIS resources, and their perceptions of the capability of the MIS organization.
4. The present and emerging technology for information processing.
5. The ability of the MIS organization to effect change.

**Set the MIS objectives and develop the strategies**

With the MIS mission established and a thorough appraisal made of the environment, it next becomes necessary to set the MIS objectives. There are the desired results that are to be achieved by the MIS organization. Closely linked with the statement of objectives is the development of the strategies or broad courses of action that will be needed in order to achieve these objectives. Thus, objectives and strategies are intimately interwoven; consideration of one invariably involves consideration of the other. These objectives, and their accompanying strategies, typically deal with the following types of items:

1. The fit of the MIS objectives within the overall organizational objectives.
2. The growth, continuity, and level of contribution of the MIS function within the organization.
3. The classes and types of systems and services to be offered.
4. The role of users in systems development efforts.
5. The types of technology to be employed.
6. The type of management and staff to be developed.
7. The posture of the MIS organization vis-à-vis the user, the host organization, the competitive environment, and the professional milieu.

**Define the MIS policies**

The determination of policies is a critical aspect of strategic planning. Policies are the guidelines to be used in carrying out the strategy. They are specific statements that cover such things as the internal organizational structure of the MIS division; the criteria to be used in deciding upon overall funding levels and resource allocations; the use of steering committees; the procedures to be used in selecting vendors, buying outside services, and/or selling services to outside users; the employment of a data base management scheme; and so forth.

Setting the policy for how the company is going to decide how much to spend for MIS is seldom directly addressed, and it is an area of particular frustration for many companies. Sometimes a mixture of techniques is decided upon as a means of arriving at the MIS budget. These include, for example, a fixed percent of sales or assets; comparable expenditures of similar companies, adjusted for size and profitability; whatever the major company profit centers will agree to pay for; base amounts, plus discretionary increases for high-potential projects; and/or the amount spent last year plus adjustments for inflation. All too often, a lack of policy in this area leads the MIS group to concentrate its attention on justifying the acquisition of major new computer equipment without giving much concern as to underlying reasons for such equipment.

Policies with regard to the allocation of scarce MIS resources are particularly critical since they provide the guidelines by which the portfolio of current and future projects will be selected, funded, and managed. Unfortunately, in many companies where these resource allocation policies have not been well established, MIS management has little incentive to perform
disciplined economic evaluations of new project proposals, and general corporate policies are often not precise enough to be useful in evaluating these proposed projects. Thus, in many instances, the implicit resource allocation policy frequently becomes one of allowing the MIS division the self-indulgence of selecting projects primarily based on its interest in utilizing the latest in information processing technology.

Although such policy setting activity is admittedly difficult, it is essential that it be done in order that subsequent, more detailed planning efforts may have a better chance of success.

Planning to implement MIS strategies

As shown in Figure 2, the plans which are needed to implement MIS strategies can be of several types, each of which has the goal of translating the MIS objectives and strategies into increasingly more detailed and specific plans.

Long-range MIS planning deals with meeting the future MIS needs of the host organization. It is largely conceptual in character and can have a horizon of from five to seven years or longer. It does not deal with specific projects or even groups of projects, but with emerging types of user needs and approaches that might be useful in addressing these needs. It must also plan for the organizational philosophy to guide the MIS organization of the future and for the skills and capabilities that will be needed in developing and managing future systems. An example of this type of plan is the information systems design architectures that are being developed within a number of organizations.

Medium-range MIS planning is what many organizations call their long-range plan. It is the planning that is necessary to meet the host organization's present MIS needs, projected two or five years into the future. It is a portfolio of projects, ranked by importance, coupled with projections for their implementation. It also involves the planning for hardware and software acquisitions and conversions, and for the staffing of multi-year projects and development activities.

Short-range MIS planning is generally equivalent to the MIS annual plan. It involves detailed budget preparation, manpower scheduling, and the creation of timetables for individual projects. It also often includes quantitative statements regarding performance targets for the MIS group. It is relatively operational in character.

The choice of a particular approach or set of approaches to MIS planning, assuming that the strategic planning has been properly done, is particularly important. Many organizations falter in that they attempt to carry out all three types of MIS planning simultaneously, before mastering the intricacies of the short-term plans necessary for the effective management of present activities.

Ideally, the MIS strategy should be translated into current-day decisions by sequentially developing first the long-range conceptual plan, then the medium-range managerial plan, and finally, the short-range operational plan. However, those companies that have very short-term MIS strategic objectives, such as to build credibility with users or to "get away from the crocodiles," should focus first on simple operational plans that include very specific quantitative performance measures for effectiveness and efficiency. Then, once the MIS organization has mastered its short-term challenges, it can extend its planning horizon.

We believe that a majority of companies would find a major investment in long-range conceptual planning for MIS to be of little value, for it appears that most enterprises have not yet mastered medium- and short-range planning. However, since short-range operational planning is relatively straightforward, we will focus our remaining discussion on medium-range planning. The development of medium-range MIS plans generally involves the following activities.

1. Identify potential projects. Fill a "hopper of opportunity" with ideas for projects relating to new computer system development efforts, enhancements to existing computer services, up-
Identifying potential projects

The first step in the development of an information systems plan is to identify those information system projects that have high potential for the organization. There is a wide variety of approaches that can be used to scan for these new opportunities for system development. The following are some of the most common.

1. The isolated approach, where the MIS organization reacts to environmental factors by modifying existing systems to meet new legal requirements; proposes retrofits to existing computer systems to enhance their cost and/or operating characteristics; operates on the basis of its own "intuition" regarding new opportunities; and/or synthesizes a list of requests for changes to existing systems already submitted by user managers.

2. The emulative approach, where the MIS organization picks up ideas for new projects from the successful computer systems of other companies, similar in size or industry group.

3. The bottom-up approach, in which MIS systems analysts interview either selected user executives or, in certain company situations, all major user groups so as to identify the major decision areas, possible information gaps, and operating inefficiencies which could be improved through the use of better computer systems.

4. The reactive approach, in which the MIS organization simply responds to decisions made by either the chief executive officer or some higher level corporate executive as to which are the most appropriate new computer system projects for the MIS division to undertake.

5. The derived top-down approach, used when the host organization has no overall strategy, involves a detailed analysis of the company in order to hypothesize an overall corporate business strategy from which new high-priority computer system ideas can be selectively developed. These ideas are then further refined through interviews and appropriate systems analysis.

6. The top-down approach, in which the MIS organization develops new services as an outgrowth of the existing, substantive company business plan.

7. The interactive approach, in which the MIS organization interacts with other parts of the business during the normal company planning cycle so that the identifications of MIS project ideas, and assessment of their likely business impact, are integrated into the planning activities of management throughout the company.

The important task here for the MIS executive is to select the particular approach or combination of approaches that best fits the company's unique needs at that point in time.

Project selection

Invariably, there comes a point in this planning process where the collected ideas for new projects must be sorted out so that the highest priority applications or services can be undertaken in the near term. A problem of many planning efforts is the failure to perceive, in advance, the need to establish a means for conducting such a screening. Since the MIS effort is—or should be—a service function to the entire enterprise, this sorting out of priorities is difficult, even when well-chosen resource allocation policies have been established. A simple chart to aid in carrying out this ranking is shown in Figure 3, where the project ideas are listed, and the previously selected resource allocation criteria are applied to each project to the maximum extent possible. The major challenge here is to obtain a summary evaluation of these projects without entering into a detailed project feasibility study, since the primary objective of this effort is to decide just which projects should initially be allocated feasibility study funds.

To make these difficult priority rankings, many corporations have established computer applications steering committees in which judgments regarding these alternate investments in new systems are made on an ongoing basis by selected members of top management. In this way, a continuing consensus regarding the need for new system development activities is obtained; and, in cases where trade-offs and compromises must be made, the affected individuals and user organizations have an active voice in the decisions. Unfortunately, many of these committees have not been as successful in carrying out their prescribed role as they might have been. The overriding problem with ineffectual applications steering committees is that they are unable to resolve the many competing demands for limited MIS resources. The committee either becomes a "rubber stamp" for the recommendations of the MIS director or a "buck passer," deferring any hard choices to a higher level of management. More often than not,
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RESOURCE ALLOCATION CRITERIA

Figure 3—Sample project portfolio overview

this failure is due to the absence of a clearcut resource allocation policy, one which provides unambiguous guidelines for choosing among projects—guidelines which are firmly rooted in business considerations, not technical ones.

Develop action plans

If an appropriate approach to scanning and ranking information system development projects is taken, the third step in planning—the development of associated resources and activity schedules—is somewhat more mechanical in nature, although vital in reaching such important decisions as computer equipment selection. Generally, these project schedules are quite precise for the near term and somewhat more general for future years. This is as it should be, since the primary purpose of the planning effort is to make near-term decisions that are consistent with a longer term direction, not to decide on specific computer system projects that are to be undertaken three or four years in the future.

FEEDBACK

It is important to recognize that the planning process and resulting decisions are dynamic, not static. As the bottom part of Figures 1 and 2 indicate, there is an important feedback loop, one which measures progress against plans, and ultimately, against the objectives and strategies themselves. For nothing should be felt to be fixed or “cast in concrete.” Many an MIS executive has wailed “But this isn’t the way we planned things last year” forgetting that a plan is not a forecast of the future, but a way of being better prepared for the future. Plans and strategies should be flexible and able to be modified and changed as circumstances dictate.

CONCLUSION

Although conceptual frameworks, such as the one that we have presented here in this paper, can be helpful to the MIS executive, it can never replace the common sense and good judgment that an experienced manager must possess. The first step that such a manager must take in reassessing the MIS planning efforts of his own organization is to recognize that the MIS function is not an end in itself but a part—and hopefully a vital part—of the larger objectives and activities of the overall enterprise. Then, in considering how to launch a new and/or revised planning effort, the MIS executive should seek to answer the following questions:

1. Are we reasonably adept at estimating costs, benefits, and risks of proposed new computer projects?
2. In general, do our MIS project postimplementation audits indicate that the MIS organization was able to develop projects within cost and timetable estimates, and that users were able to achieve the benefits they committed to at the outset of the project?
3. Is the MIS function now operating above average from an effectiveness and efficiency standpoint?
4. What approaches are we taking to scan for new computer investment opportunities within the organization?
5. Do we have agreed-upon documented objectives, broad strategies, and policies for the MIS function?
6. Are we making sure that the MIS plan will focus on the company’s—rather than the MIS division’s—use of the computer?
7. Are the MIS strategy and plans integrated with our overall corporate strategy and plans?
8. What are the respective roles of top management, the MIS division, and the users groups within our organization in the launching and conduct of the planning effort?

9. What will be the end product of this planning effort?

10. Are we monitoring the planning process itself so as to be in a position to improve our efforts the next time around?

The answers to these questions should provide not only a profile of the current status of MIS planning within an organization; but where the responses are negative—or vague—they should point the way to where beneficial progress can best be made.

REFERENCES


