Management Control and Decision Systems

Text, Cases and Readings

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To our children—Christopher, Andrea, Nadine, and Clifford—who kept asking what their dads were doing; and to our wives, Linda and Helen, who explained and without whose support this work could not have been completed.

Preface

The role of a manager is comparable to that of a catalyst: to bring about results from actions of the components and constituents in an organization, and to utilize resources in the most effective manner possible. Unfortunately, when dealing with human beings, there are no simple formulas or rules which best determine how a manager should interact with members of the organization to achieve desired results. Many prescriptive approaches have been suggested by which the manager could make appropriate decisions leading to the effective control. Contingency theory is one of the approaches which has clearly demonstrated there is no "one best way" and that situational variables often determine the outcome in a given circumstance. How then is the manager to exercise control? How should decisions be made to achieve organizational objectives? It is toward a better understanding of how to answer these questions that this book has been written.

A review of approaches to control in management decision systems shows a shift from a mechanistic or cybernetic control theory approach, to an open system or socio-technical approach. The changes taking place have been reviewed and indicate new directions involving systems theory, information feedback, and organizational considerations. As has been pointed out, "few things have been more baffling to managers than the results of some of their attempts to develop workable performance measures and controls, thus channeling the energies of their employees toward the firm's objectives." In part, the difficulties stem from a lack of appreciation of all the aspects that impinge on decision-control systems. Not only are formal controls needed, as is discussed in chapter four, but controls that involve organizational choice and depend on the interaction of the manager with members of the organization. Managers also must recognize the importance of autonomous work groups, the need for self control on the part of organization members, the motivational and conflict aspects intrinsic in the work situation, and the consideration of how power is exercised to achieve control and influence performance.

This book attempts to examine the critical aspects needed to achieve effective control in an organization. Control is an inevitable correlate of organization and deals with leadership, decision making, group processes, motivation, and the exercise of power and authority. Although each aspect of the control question has been tackled separately, a balanced and integrative approach is required to obtain a full perspective of the problem. Because, "Evaluation of results accomplished and feedback of information to those who can influence future results is a natural phenomenon", control is a key element of the manager's role.

The organization of the book reflects our perspective on the critical elements of control. The first chapter involves a consideration of the overall system and the interaction of behavioral and control decisions. Chapter two leads directly from the global view to a more definitive treatment of decision making. To emphasize the difference in approach taken here, from others, the title of the second chapter incorporates management and systems as an integral aspect of decisions. Decision styles provide a contingency perspective in that alternative styles are considered more appropriate in different control situations.

Making a decision by itself leads nowhere. Work is accomplished when individuals are motivated to perform. How motivation affects controls is dealt with in chapter three which delves into the psychology of behavior in order to better understand the human being. Even when individuals are motivated to perform, managers must provide the technical systems which support the work effort. Although the socio-technical approach is helpful in designing and operating systems, there are specific considerations which are purely technical in nature, such as optimal control, value of control, life cycle changes, or adaptive-computer based systems. Chapter four attempts to provide a balance for the motivation basis for control. Many books treat one or the other of these aspects of control, but seldom offer a balanced perspective.

Chapter five is concerned with what are the realities of making control decision work. Organizations, by definition, are political entities; and a manager who ignores this will have difficulty in achieving results. The integration of politics and decision making with the behavioral and technical bases of control, when considered from a systems perspective, provides a complete treatment of the problem of control in organizations.

The readings that have been included are designed to supplement the text material and provide an even broader perspective on the issues. For example, readings covered in the chapter on a New Approach to Management Control and Decision Systems provide a more detailed discussion of the introductory overview in chapter one. This is followed by an examination of how an organization impacts on goal effectiveness in chapter three, Motivational Bases for Behavioral and Control Decisions. The emphasis is continued in chapter four—Technical Bases for Behavioral and Control Decisions—but the direction shifts slightly to the heuristic and modeling procedures which underlie adaptive controls. Because of the importance of goal formation as a decision process, performance, and performance appraisal are considered as essential elements of dynamic strategies. In chapter five—Political Bases for Behavioral and Control Decisions—understanding decision systems and the politics involved provide a realistic description of the application of the subject matter in the first four chapters.

We acknowledge the support of the Decision Systems Program at University of Southern California as the vehicle for the development of the integrated approach to the concepts present. The review provided by Associate Dean John Buckley is gratefully acknowledged in addition to comments and suggestions from our colleagues in the Management Dept. at U.S.C.

Alan L. Patz
Alan J. Rowe

Los Angeles
July, 1977

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Management Decision Systems– An Integrative Approach

Effective management decisions, ones that lead to both individual achievement and organizational results, are difficult to obtain and to implement. Although the problems associated with decision making never have been static, in today's turbulent environment the decision maker is confronted with difficulties that involve continuous change in type, scope and complexity. It is because of this environment that new decision making procedures are being sought to cope with these problems. Among them is the management decision systems approach which appears to hold considerable promise in terms of achieving the objective of more effective organizational systems. This approach considers management decision making as part of a social process in which human behavior *interacts* with an organization's information and technical procedures, as well as the economic and political realities that exist in the organization. Management decision systems, in effect, is a systems view of the organization in which problem solving becomes an important consideration and the focus is on dynamic and changing interactions between behavioral and control decisions.

These interactions, behavioral and control, occur in at least three main types of organizational settings: the technical, socio-technical, and social systems. Technical systems are primarily concerned with those situations where the emphasis is on the physical nature of the task to be performed. For example, as shown in Figure one, behavioral decisions that affect quality, output and product mix become the performance standard for purchasing, production, and inventory control. Quality standards are reflected in control charts and sampling plans, while product mix and output standards are related to daily, weekly, and even monthly production quotas, inventory targets or purchasing plans. In turn, control decisions influence and affect behaviorally oriented decisions. These interactions, which influence the performance of a system, operate in many respects as a closed loop feedback system. However, it is important

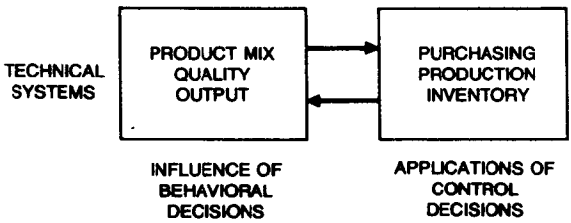

Figure 1. Technical Behavior/Control Interactions

to recognize that any system which involves behavior cannot be treated on a mechanistic level. Thus, if a decision is made concerning the technical system, then the control decision that adjusts the response must balance the technical or physical aspects of the system with the behavior of individuals expected to perform to the standards specified.

As a simple example of how the relationship between output standards and production quotas operates, we cite the case where persistent failure to reach standards may in fact simply reflect an impossible requirement in terms of a behavioral output; or it could reflect a faulty production plan or control decision. Behavioral decisions, ones that influence performance, must be sensitive to and concerned with the consequences of control decisions. In turn, control decisions must be responsive to the changing requirements of behavioral decisions.

Not only is there interaction between decisions whose emphasis is primarily the control of the system, as indicated by production control, or quality control; but there is also interaction among the three subsystems: technical, socio-technical, and social systems. This is shown in Figure two in which control decisions and behavioral decisions are shown for all three sub-systems.

The content or the descriptions shown in the boxes are intended to indicate the kind of decisions that are involved with each of the three sub-systems. For example, when dealing with social systems, or the organization as a whole, strategic planning, management style, and organization climate become critical in terms of behaviorally oriented decisions; while for control decisions, at the social system level, motivation, participation and organizational change become the important considerations. In addition, we must recognize that strategic planning affects other sub-systems, such as the technical system and product mix or organization design. These sub-systems, in turn, might also affect production as well as the level of motivation. In fact, with even the small level of detail shown in Figure two, it is possible to create a merry-go-round effect which most managers would prefer to avoid. This cyclic nature is precisely what the interaction of behavioral and control decisions portend. Managers who choose to avoid this problem, find that under most circumstances it is still not possible to avoid.

Because of the cyclic nature of the problem, it is possible for management to focus its attention on some of the interactions and disregard others. As previously indicated, the management decision systems approach emphasizes the socio-technical and

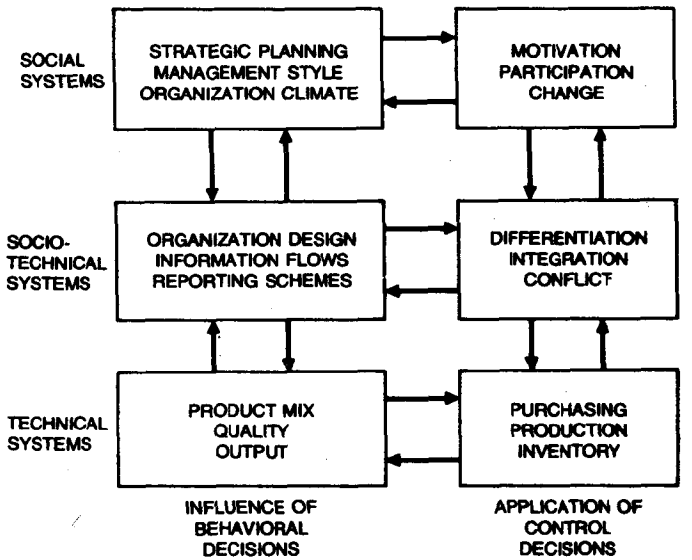

Figure 2. Interactive Behavior/Control Systems

social systems aspect of the problem and places less emphasis on the purely mechanistic or technical aspect of control systems. It does not disregard the application of computers, information, heuristics, or control methodology, but rather tries to develop an integrated approach which ties together the requirements of the technical systems with the behavioral decisions and characteristics of social systems. In choosing this emphasis the management decision systems approach recognizes that there are no mutually exclusive sets of categories. Rather, there are interactive categories and some whose effects are more dominant than others. For example, the physical problems of running a refinery tend to be far more critical than the human problems. Yet, in an organization such as a university, which predominately involves human interactions, the social interaction becomes the most critical, as in many other companies such as insurance companies, department stores, and government bureaucracies. These are diagrammed as shown in Figure two as the kind of interactions one might expect at each level and also among and between levels. The complexity of the interactions is what makes the decision and control problems of any major organization a very complex and difficult process.

SOCIO-TECHNICAL SYSTEMS

Having looked at the technical systems we next consider the socio-technical systems where there is an attempt to balance the physical or technical problems with the human requirements and the behavioral aspects of the problem. This is done primarily to reduce the disruptive effects of conflict that might arise. For example, a company that requires

around the clock operation needs people to work all three shifts. There is a technical demand and, at the same time, there are the behavioral considerations. The individuals who must work on the second or third shift have conflicts because of the disruptive nature to their home life or social life. It is this type of concern that Lawrence and Lorsch have attempted to deal with in terms of differentiation and integration in organizations.

The differentiation effect is concerned with the formal reporting relationships, the criteria for rewards, and the alternative control procedures among several parts or units of an organization. Integration deals primarily with the quality of the state of collaboration that exists among departments in achieving unity of effort or the demands of the organization or the environment.[1] Stated another way, for any given organization some of its parts have to be closely interconnected, while others can operate in a more or less independent fashion in order to perform most effectively. Where there are rigid standards and where reporting schemes place heavy demands on the organization, obviously this is the type of environment that requires a more formal or closely integrated system to perform effectively. Precisely what is required in a specific organization depends, in a contingency sense, on the environment, the amount and kind of information to be processed, the available technology, and the degree to which the units depend on one another for their input.

It is important to observe that behavior and control problems interact and do require explicit management attention. If social and technical consideration are taken jointly, then the decisions regarding organizational design, information flows, reporting schemes and other aspects of the interaction have the potential for disruptive conflict. This conflict can only be reduced and organizational performance improved where proper attention is given to the balance between both the social and technical requirements.[2]

SOCIAL SYSTEMS

The decisions that result from strategic planning, which involve choices of management style, establishment of organizational climate, and direction or goals of the company, are among the most important of the social or policy considerations of an organization. They are important because they significantly affect and are affected by many of the critical management control concerns: how best to motivate?; how to achieve participation?; and most importantly, how to change in order to cope with and adapt to new and changing environments? The interaction of behavior and control in social systems focuses on the inexorable laws governing human behavior. Managers, who want to know why some plans or styles or climates work only part of the time and why some that appear reasonable don't work at all when they come face to face with human beings, have not considered the human behavior that is involved in the organization and its control systems.

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[1] *Paul R. Lawrence and Jay W. Lorsch,* Organization and Environment *(Boston: Harvard Graduate School of Business Administration, 1967), pp. 10–11.*

[2] *For some documentation of this assertion, see John J. Morse and Jay W. Lorsch, "Beyond Theory Y,"* Harvard Business Review, *XLVIII (May-June, 1970), pp. 61–68; for some additional discussion of this and related literature, see Richard M. Hodgetts,* Management: Theory, Process, and Practice *(Philadelphia: Saunders, 1975), chaps. 17–18.*

In other words, when we reach the social systems level, behavior and control interactions become part and parcel of the information, technical, economic and political systems. The social process is the process of management decision making which is embodied in the management decision systems approach. It is designed to focus on the social and socio-technical process and has a potential three-part pay off. It offers the opportunity to accomplish the technical requirements of an organization, to recognize the demands of human behavior, and to attend to the realities of a political environment.

Although the approach proposed here appears to be reasonably straightforward, it is by no means a simple or direct approach. As amplified in the next chapter, it depends upon the simultaneous consideration of three important aspects of organizations: one, dynamic strategies; two, adaptive controls; three, goal effectiveness. Each of these factors will be treated later to indicate how a management decision systems approach can cope with all aspects of an organization: the technical; the socio-technical; and the social system, in order to achieve more effective organizational performance and improve decision making and control.

1

READINGS

As noted in Chapter 1, there are two basic and interactive kinds of decisions that have to be made in order to establish control in organizations. First, there are behavioral decisions concerned with what is ultimately expected from an organization. Second, there are control decisions concerned with how to obtain these expectations. Both sets of decisions, however, are further complicated by interactions on three different levels: technical, socio-technical, and social. These decisions at different levels, affect and are affected by each other.

This complicated behavioral and control decision maze must be entered somewhere, and the first article by Rowe provides some needed directions. His thesis, so often overlooked, is that whatever behavioral and control decisions must be made, there are three basic issues to be considered:

1. The characteristics of the decision maker.

2. The problems most likely to be encountered in the process of reaching a decision.

3. The environment in which the decision must be implemented.

In other words, the message to all decision makers is to consider (1) Who am I?, (2) What am I really facing in terms of making a decision?, and (3) Am I realistically considering the resources available to me as well as the opportunities in the environment when evaluating my decision alternatives? These questions, especially the first, are not easy to answer; but we do elaborate at length in Chapters 3 and 5.

In an attempt to go beyond these basic issues, Lorange and Scott Morton define a framework for management control systems. Their argument hints at the de-