

## PREFACE

THE MORE DYNAMIC—or topsy-turvy—our world becomes, the greater the need for well designed controls. Yet, in fact, improvements in managerial control have been neglected. We have been so busy updating plans and modifying organizations that the closing phase of the managerial cycle—control—has received comparatively little managerial attention. Consequently, opportunities abound for reshaping controls to fit current needs.

The past neglect of control arises partly from a widespread feeling that controls are always punitive and personally degrading. Actually, when we think of the crucial role of control in landing a man on the moon or in directing a great orchestra, the concept of control shifts to a normal, constructive process. Controls can and should be designed to prompt this latter kind of positive response.

This book outlines a fresh approach to managerial control that stresses positive, future-oriented, behavioral response. Suggestions are made for broadened measurement and feedback to achieve this end. Three facets are stressed:

- (a) The impact of controls on *future* action.
- (b) The *behavioral response* of people, necessary to make controls effective.
- (c) Tying controls to *desired results*, both tangible and intangible.

This constructive, forward-looking view of managerial control is developed in three stages. Part I lays out the structural and behavioral *elements* that should be considered in every control cycle. Part II explores the *application* of these concepts to a variety of situations, starting with repetitive operations, examining projects and resource control, and extending to creative activities and strategy. The balancing of various controls in a total structure and the integrating of controls with other phases of management are considered in Part III on control *systems*.

The framework presented will be useful to managers who design and exercise controls—and to pre-managers who are developing ideas about how to sail better when they are at the helm. Although I have reviewed scholarly discourses and behavioral science reports dealing with control, the inevitable jargon and abstraction of such writings have been translated into language readily grasped by an experienced manager. On the other hand, descriptions of detailed control techniques have also been avoided. To keep the book fairly short and to focus on its major thrust, many excellent techniques for specific applications are only referred to in the suggested readings. My hope is that both the scholar and the manager will be able to move quickly from concepts presented here to a constructive redirection of his own efforts.

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W. H. N.

## CONSTRUCTIVE CONTROL

# I

## BASIC CONCEPTS

Chapter 1: *Role of Control in Purposeful Endeavors*

Chapter 2: *Elements in Design of a Control Cycle*

Chapter 3: *Human Responses to Control*

## chapter I

# ROLE OF CONTROL IN PURPOSEFUL ENDEAVORS

LONG pushed aside by the excitement of planning and the challenge of organizing, refinements of controlling have received comparatively little attention by managers. Today, managerial control offers great opportunities for improving the effectiveness of private and public enterprises.

A fresh, uninhibited attitude is necessary. Too many people think of managerial control as only a repressive, negative activity. Like taxes, control is often regarded as an unavoidable burden. At the same time, we marvel at controls which enable our astronauts to land on the moon, right on target and on time. And we find the scorekeeper a convenient fellow at the ball game. The negative viewpoint arises in large part because of inadequate design of managerial controls and inept use of those we have.

### *Constructive, Future-oriented Control*

To grasp the full potential of managerial control, we need a broad, constructive view of the control process. Our attitudes and expectations should embrace the following points.

1. *Control is a normal, pervasive, and positive force.* Evaluation of results accomplished and feedback of this information to those who can influence future results is a natural phenomenon. The cook watches the pie in the oven; the orchestra conductor listens to his orchestra—and its recordings; the doctor checks his patient; the oil refiner tests the quality of his end-product; the farmer counts his chickens; the football coach keeps an eye on the scoreboard.

The news received may be good or bad, and the “corrective action” may be encouragement or restraint. Assuming a purpose or

goal, each person and manager needs to know what progress he is making. There is nothing sinister nor dictatorial about such controlling. Rather, it is a normal aid in achieving results.

2. *Managerial control is effective only when it guides someone's behavior.* Behavior, not measurements and reports, is the essence of control. We often become so involved with the mechanics of control that we lose sight of its purpose. Unless one or more persons act differently than they otherwise would, the control reports have no impact. Consequently, when we think about designing and implementing control, we must always ask ourselves, "Who is going to behave differently, and what will be the nature of his response?"

Some controls provoke over-reaction. Many profit-centered controls, for instance, lead to excessive preoccupation with very short-run results. On the other hand, controls seeking personnel changes—such as increased employment of blacks—often get token acceptance and may even lead to practices that restrict "equal opportunity." It is the behavioral response to controls that really matters.

3. *Successful control is future-oriented and dynamic.* Long before the Apollo spacecraft reached the moon, control adjustments had been made. Similarly, we don't wait until next year's sales are recorded to make adjustments in packaging or pricing which are necessary to achieve the goal; instead, we use early measurements to predict where our present course is leading, and modify inputs to keep us on target. PERT controls (see Chapter 5) on the construction of a new plant are designed to catch promptly delays in early stages which will put off the completion date; then special attention is focused on overcoming the critical slippage.

In each of these examples evaluation comes early and involves prediction. Fine tuning then can be introduced prior to the main completion date. Even those evaluations made after work is completed yield their chief benefit in guiding similar activity in the future.

The future is uncertain. So most controls provide for adjusting to unexpected conditions. For some routine operations we can safely use a static response—a household thermostat is a control of this kind. But control of a research program presumes that new findings will probably call for actions which cannot be laid out in advance. And in designing pollution controls we must anticipate shifts in social standards that we are expected to meet. In such situations the control design should include monitoring of the environment to flag changes in operating conditions. Increasingly, controls must aid managers in reaching a "moving target."

4. *Control relates to all sorts of human endeavors.* The need for evaluation and feedback is just as pressing in charitable organizations as in profit-seeking corporations. Each is concerned with attaining its goals and each has limited resources. Moreover, control should not be confined to easy-to-measure results. The quality of service in a hospital or bank, the training and promotion of minority workers, and the resourcefulness of a purchasing agent in developing alternative sources for important supplies—all need to be controlled.

Ingenuity may be required to devise measures of intangible output. And in non-profit enterprises the tying of control standards to objectives is often complicated by multiple goals. Nevertheless, constructive managerial control has a vital role to play whenever people join their efforts to achieve some common purpose.

Traditional controls miss many opportunities. To obtain the potential benefits we need a fresh approach—viewing control as a positive force, concentrating on behavioral responses, taking a future orientation, and including intangible and long-run results in a balanced control system.

### *Focus on Evaluation and Feedback*

Control is one of the basic phases of managing, along with planning, organizing, and leading. In this book we shall assume that these other phases of managing are performed satisfactorily. With plans laid, necessary resources assembled and organized, and action initiated by competent leaders, control closes the managerial cycle—comparing actual results with plans and contributing to the next round of planning, organizing, etc.

In practice, the phases of managing are closely intertwined. For example, the output of planning provides the basis for control standards; organizing helps determine who should take corrective action; leading sets the tone for participation in selecting plans, or levels of achievement, and for self-control. We shall frequently draw attention to these interdependencies. But our mission here is to help managers attain balanced, constructive control.

The word "control" has diverse meanings, ranging from financial ownership to a throttle on a motorboat, and from hidden power to psychological influence. However, we shall center our attention on managerial control—the series of steps a manager takes to assure that actual performance conforms as nearly as practical to plan. Confusion can be avoided by *not* using "control" loosely to embrace power, authority, influence, and leadership. These and other

factors contribute to desired results, but if we include all of them in the concept of control the term becomes so broad it loses any clear meaning.

Managerial control always includes evaluation and feedback. So a simple way to check one's thinking is to ask whether these elements are present. The evaluation may occur at various stages and the feedback may go to different people, as we shall see in later chapters. But the cybernetic idea of a process involving (1) appraisal, and (2) opportunity to respond to that appraisal can be found in all control situations.<sup>1</sup>

### Basic Types of Control

Control efforts can be made much more effective by recognizing three different types of control:

1. *Steering-controls.* Results are predicted and corrective action is taken before the total operation is completed. For example, flight control of the spacecraft aimed for the moon began with trajectory measurements immediately after take-off and corrections were made days before actual arrival.

2. *Yes-no controls.* Here, work may not proceed to the next step until it passes a screening test. Approval to continue is required. Quality checks and legal approval of contracts are examples.

3. *Post-action controls.* In this type of control action is completed; then results are measured and compared to a standard. The

<sup>1</sup> The above definition of control is consistent with the common usage among U.S. managers. There is sufficient variation, however, to warrant careful listening when the term is used. For example, R. N. Anthony finds the distinction between planning and controlling hard to draw, and then compounds confusion by using "management control" to embrace both planning and control which occurs between strategic planning and routine operations. (See *Planning and Control Systems*. Boston: Harvard Graduate School of Business Administration, 1965.) In contrast, A. S. Tannenbaum considers all sorts of influence in his *Control in Organizations* (New York: McGraw-Hill Book Company, 1968). H. Smiddy and his associates at General Electric Company tried to side-step the confusion—and the negative connotation of controlling—by emphasizing "measuring" as one of the four basic management processes (along with planning, organizing, and integrating), but this formulation has not gained general acceptance. The present analysis seeks to enrich and sharpen the meaning of a recognized word rather than use old words in unfamiliar ways or invent a new jargon.

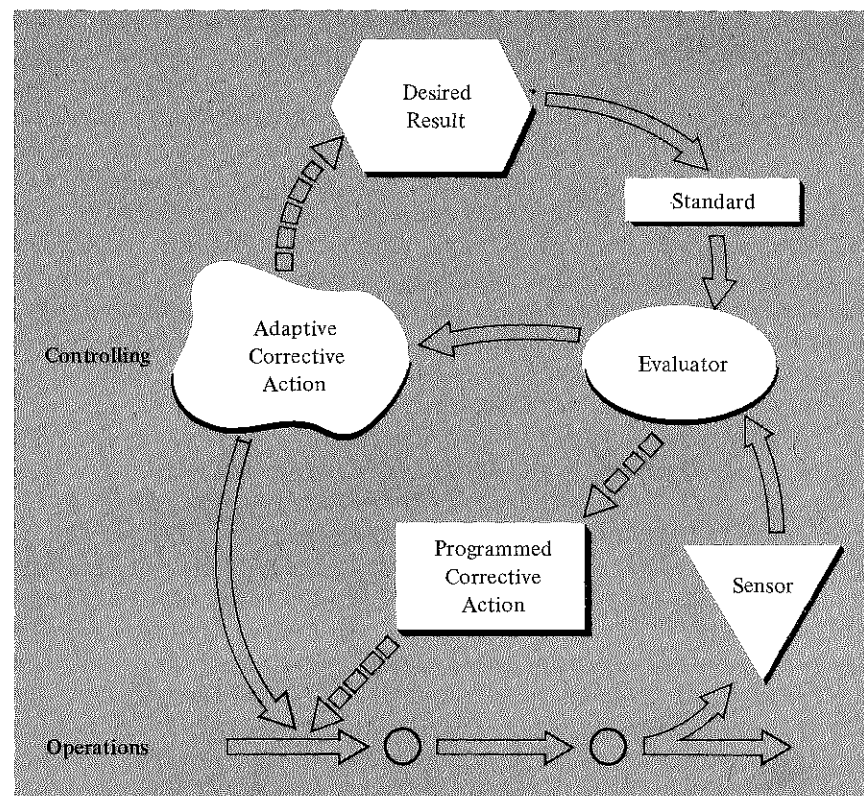


FIGURE 1-1. Control Cycle for Repetitive or Continuous Operations.

typical budgetary control and school report cards illustrate this approach.

All three types may be needed to control a department or major activity. But it is steering-controls that offer the greatest opportunity for constructive effect. The chief purpose of all controls is to bring actual results as close as possible to desired results, and steering-controls provide a mechanism for remedial action while the actual results are still being shaped. Much of the discussion in the following chapters will focus on the design of good steering-controls.

Yes-no controls are essentially safety devices. The consequences of a faulty parachute or spoiled food are so serious that we take extra precautions to make sure that the quality is up to specifica-

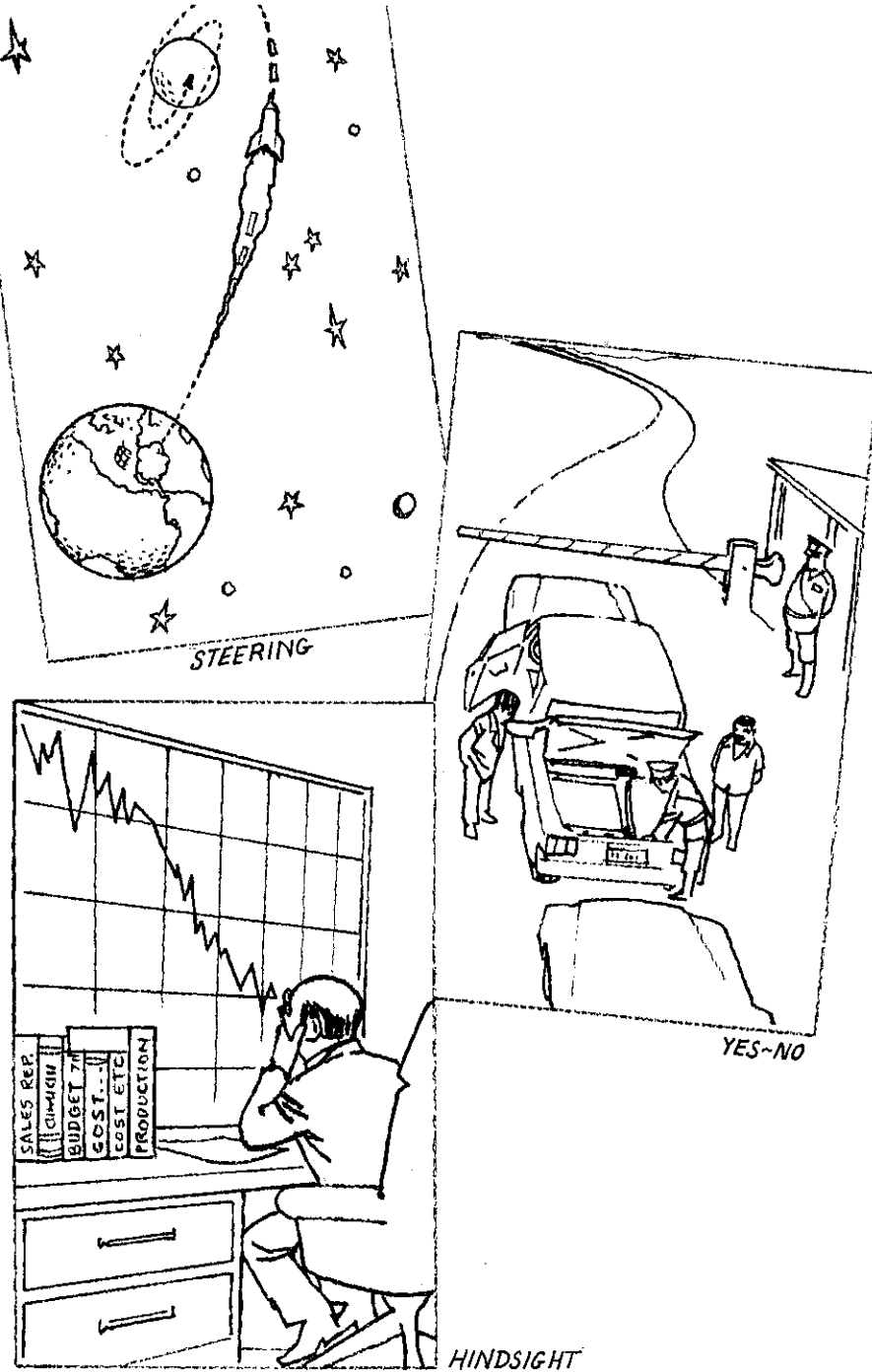


FIGURE 1-2. The Three Types of Control.

tions. Avoidable expense or poor allocation of resources can also be checked by yes-no controls. If we could be confident that our steering-controls were effective, the yes-no controls would be unnecessary; unfortunately, steering-controls may not be fully reliable, or may be too expensive, so yes-no controls are applied.

Post-action controls, by definition, seem to be applied too late to be very effective. The work is already completed before it is measured. Actually, post-action controls do serve two purposes. (a) If rewards (a medal, bonus, discharge, self-esteem, etc.) based on actual results have been promised, these results must be measured and the appropriate rewards made to build future expectations about the close relationship between actual results and rewards. The aim is psychological reinforcement of the incentive scheme. The pay-off in this reinforcement lies in future behavior. (b) Post-action controls also provide planning data if similar work is undertaken in the future.

The appropriate spots to employ these different types of control will be illustrated throughout the book. Often they can be combined into small control systems. Although the idea of a single, fully integrated system for an entire company is appealing, we shall not propose a quick all-embracing formula. The wide diversity of controls coupled with the benefits of keeping them closely in tune with local needs makes such a single system impractical. Instead, better results are achieved by designing a series of localized systems which are tied together with selected checks on overall results.

### *Issues Examined in This Book*

Whether he likes it or not, a person in a managerial post must be deeply involved in control. Our aim is to help him improve the effectiveness of control efforts related to activities under his direction. The contention is that he can achieve results best not by increasing the time he personally spends controlling, but (1) by carefully designing the controls to be used by persons close to the scene of action, and (2) watching how these evaluation devices actually affect behavior in his organization.

The analysis is divided into three parts:

1. *Basic concepts.* The issues and problems arising time after time in almost any control sequence are examined in Chapters 2 and 3. First, the elements in the design of a control cycle are set

forth, and then human responses to controls are explored. These chapters on the formal and human aspects alert us to the basic components of control design.

2. *Adapting design to different situations.* A major obstacle to good control is the widely different kinds of results and operating situations involved. So a second approach deals with an array of situations from routine and stable to broad and uncertain. Chapters 4 through 8 focus on repetitive operations, projects and programs, resources (including financial budgeting), creative activities, and strategy. In some of these areas control techniques are highly developed, whereas in others we are still pioneering.

3. *Control systems.* No managerial control works in isolation. It competes for attention with other controls and is intertwined with the entire managerial process. This interaction of the parts with the whole is analyzed in Chapters 9 and 10—balancing the total control structure, and integrating controls with the total management design. A concluding chapter summarizes the recommended approach; and discusses briefly the salient problems in making a revised control system work.

Throughout the discussion we shall be dealing with steering, yes-no, and post-action controls—suggesting ways these can be adapted to particular needs and also fitted into a balanced system. Although past results help in such controls—because “what is past is prologue”<sup>2</sup>—our emphasis is on influencing behavior to achieve future results.

#### FOR FURTHER READING

BEER, S., *Decision and Control*. New York: John Wiley & Sons, 1966.

For reader who wants to relate cybernetics to managerial control.

JEROME, W. T., *Executive Control*. New York: John Wiley & Sons, 1961.

Broad view of control as integral part of management process.

MOCKLER, R. J., *The Management Control Process*. New York: Appleton-Century-Crofts, 1972.

Comprehensive text covering concepts and techniques related to

<sup>2</sup> Shakespeare, *The Tempest*, inscription on National Archives Building, Washington, D.C.

managerial control. The frequent references provide leads into control literature.

MURRAY, W., *Management Controls in Action*. Dublin: Irish National Productivity Committee, 1970.

Clear report on field study of control, illustrating efficiency control, operating control, and strategic control.