

MANAGEMENT BY SYSTEM

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To Jean, Robin, and Debra

PREFACE TO THE SECOND EDITION

In the ten years since the first edition of this work was published under the title "Streamlining Business Procedures," the systems and procedures function throughout American business and government has grown greatly in size, in the significance of its contribution, and in the recognition it has earned from top management.

Some measure of this growth can be found in the following facts:

1. A recent survey made by the American Management Association reveals that today virtually every one of our large companies, 85 per cent of the medium-sized ones, and more than half of even the small ones have either a full-time person or a whole staff whose main responsibility is that of improving the organization's systems and procedures.

2. The Systems and Procedures Association of America, founded in 1947, has—within the past decade—grown from an organization of 9 chapters to one of 63 chapters in the United States and Canada.

3. Courses in systems and procedures design and closely related subjects are now offered by over one hundred American colleges and universities. Similar educational opportunities are offered by a number of other organizations. Illustrative of these are the permanent "Systems and Procedures Course" given at the American Management Association Academy and the "Systems Engineering Course" of the United States Air Force School of Logistics.

One does not need to look far for convincing explanations of this rise in interest and importance.

First among them is the continued growth in size and complexity of business organizations themselves. In the face of decentralization, merger, and diversification, professional managers have developed an increasing awareness of the role that soundly conceived systems and procedures can play in modern business management. They

have come to recognize that behind customer complaints, lack of control, poor policy execution, and interdepartmental conflict one is almost sure to find cumbersome, inadequate, or unnecessary systems and procedures.

Closely related as a second underlying cause is the spiraling cost of performing the paper work of today's business and governmental organizations. The significance of this element is underscored by the fact that, in recent decades, the nation's clerical employees have grown in number about five times faster than the labor force as a whole.

A final major cause is the advent of the electronic computer and of integrated data-processing techniques. These have required the development and application of new approaches not only to systems design itself, but also to structuring the organization for carrying out the whole paperwork function.

To keep pace with these trends and developments in the systems and procedures activity, this revision contains wholly new chapters on three key subjects. First among these is Chapter 11, which outlines an approach to the development of an integrated system of management reports that facilitate the decision-making and control processes. Next, Chapter 12 covers the method of carrying out an electronic computer feasibility study and of avoiding the most common types of mistakes that have been made in the application of this powerful new tool. Chapter 14 treats the subject of integrated data processing by defining the term, describing a number of representative applications, and setting forth an approach to the development of IDP applications.

In addition to these new chapters, much of the material appearing in the first edition has been revised and supplemented. Among the subjects to which the most substantive revisions have been made are the following:

1. The major obstacles to systems and procedures improvement work and what can be done to overcome them.
2. How to organize, administer, and control the systems and procedures staff effort.
3. The top-management approach to systems and procedures analysis. This material, in particular, is aimed at helping the systems and procedures staff man to be a broad-gauged administrative analyst and problem solver instead of just a technically oriented "machine man."

Finally, a word of explanation is needed for the change in the title of this work. The new title, "Management by System," is simply a reflection of the growth in significance of the systems and procedures function that has been taking place. No longer merely a matter of office routine or paperwork mechanics, business systems and procedures are, today, one of the major administrative tools through which large-scale enterprise is operated and controlled.

As was true of the first edition, the thinking and experience of many of my associates in McKinsey & Company is reflected in this revision. In addition, I acknowledge particularly the substantial help that Douglas Axsmith and Ronald Daniel gave me in preparation of the chapter on electronic data processing. I am also greatly indebted to Miss Kay Glavin for her help in reading proofs and preparing the Index.

Richard F. Neuschel

PREFACE TO THE FIRST EDITION

In his book, "The Social Problems of an Industrial Civilization," Elton Mayo states: ¹

In modern, large-scale industry the three persistent problems of management are:

1. The application of science and technical skill to some material good or product.
2. The systematic ordering of operations.
3. The organization of teamwork—that is, of sustained cooperation.

"Streamlining Business Procedures" is concerned with the development of a logical, organized, top-management approach to the second of these "persistent problems of management." Its principal theme is that the continuous simplification, strengthening, and adaptation of business procedures are major requisites for the achievement of a "systematic ordering of operations."

Much of the book is aimed at answering the "why" and "how" implicit in this central theme.

In its answer to the first question, the book seeks to spread an understanding of the vital part procedures play in modern business management. It treats procedures not as mere matters of paper-work mechanics or clerical detail, but as one of the basic administrative techniques through which the complex business organization acts and by which it controls and coordinates its actions. This broad perspective emphasizes the far-reaching benefits that can be realized from an intelligent and continuing effort to improve business procedures.

In answering the "how" of streamlining procedures, the book discusses the principles of organizing, planning, and administering a

¹ Elton Mayo, "The Social Problems of an Industrial Civilization," Division of Research, Graduate School of Business Administration, Harvard University, Boston, 1945, pp. 69-70.

procedures program as well as the methods of attacking individual procedures studies.

In light of this statement of scope, the book is designed for three types of readers.

First is top operating management, which must take the initiative in launching the procedures development and improvement program. This is the group that must see that the problem and the opportunities it holds are recognized, that sound objectives and policies are established, that the correct organization is set up to handle the program, and that the endeavor is efficiently administered.

Second are the line supervisors of the organization. Regardless of the type of business or the activity being supervised—whether it be order processing and invoicing, purchasing, accounting, production or inventory control, or any other—one of the intrinsic functions of supervision is to determine the procedures and methods by which the responsibilities attached to the position are to be carried out. Among the objectives of this part of the book are to create an awareness of how effective procedures can facilitate the supervisor's job and how the procedures of each unit must be integrated with those of all other groups comprising the organization.

Finally the book is directed to the staff specialists who are engaged more or less continuously in procedures analysis and improvement work. In the past decade this group has grown rapidly in numbers, and its function has been given formal recognition in the organization structure of many American companies. For these practitioners the book seeks to develop a fundamental approach to or a way of thinking about procedures problems. This material includes a body of practical, tested techniques for carrying out procedures studies as well as some basic rules of conduct for handling the varied human relations phases of the work.

Grateful acknowledgment is given to my many associates in McKinsey & Company whose thinking and practice in the solution of business problems have had a very real impact on the substance of this work. Particular appreciation is expressed to Howard C. Adams and Ewing W. Reilley, who read the original manuscript and contributed many valuable suggestions as well as generous encouragement. In addition, I am greatly indebted to Mary Skemp Perkins for her excellent work in editing the manuscript, reading proofs, and preparing the Index.

Richard F. Neuschel

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Part One

**THE CASE FOR A
"SYSTEMATIC ORDERING OF OPERATIONS"**

Chapter 1

THE ROLE OF PROCEDURES IN BUSINESS MANAGEMENT

Of all the persons employed in American business today, one of the largest occupational groups neither produces nor sells the products or services of its employers. This is the army of administrative labor performing the so-called "paper work" of business—an army made up of clerks, stenographers, and office-machine operators; of accountants, bookkeepers, programers, and statisticians; of schedulers, expeditors, checkers, messengers, and so on.

Back in 1870, which marks the beginning of our shift from an agricultural to an industrial economy, about 80,000 of the nation's workers were engaged in clerical occupations. In the 90-year period since then, perhaps one of the most significant changes in the social-economic distribution of workers has been the constant and rapid increase in the ratio of these clerical employees to the total workers of the country. During this period, while the total of those gainfully employed was increasing about five times, the clerical group multiplied itself over one hundred times.

The 80,000 clerical employees in 1870 represented less than 1 per cent of the nation's workers. By the turn of the century, this percentage had risen to 2.5, by 1910 to 4.6, and by 1930 to 8.2. Today, on the basis of the most recent census, the figure probably stands above 14 per cent and is still growing. This means, in absolute figures, that of the nation's 65 million workers, over 9 million are engaged in the clerical activities of modern business.

Nine million people are difficult to visualize, particularly as a segment of our business community and not of our total population. For that reason, let us think of the relative importance of this occupational group in these terms: 9 million people are just about ten

times the number of persons of all occupations working in the nation's textile industry; over six times the total workers in food-processing industries; more than eight times those employed in our chemical and petroleum industries; almost three times more than the total employees in our transportation and communications industries; and over 50 per cent more than all the workers in our metal, machinery, automobile, and aircraft industries combined.

This phenomenal growth of administrative labor, both in numbers and in ratio to production labor, gives us cause to inquire into the role that this group plays in modern business management. What function do these people perform, these 9 million who, in a sense, neither "toil" nor "spin"—these workers who neither produce their company's product nor sell it?

If, in seeking an answer, we were to follow a specific customer's order through the various departments of a manufacturing company, we might come first upon a clerk entering the order in a register and then upon a credit man checking his records to determine the company's previous credit experience with the customer. Next we might watch an order interpreter converting the customer's purchase specifications into nomenclature readily understood by the personnel responsible for filling the order. From the interpreter's notes, a typist would type the order on a standard form, copies of which would then be distributed to many points throughout the company. One copy would likely be routed to the engineering department as notice to furnish blueprints and a bill of materials to the factory. Another copy would flow to the production control department where, in our wanderings, we would see a clerk scheduling the order and sending a delivery-promise date to the sales department for transmission to the customer. At other points we would watch clerks determining material requirements from bills of material and filling out purchase or stock requisitions; dispatchers releasing work orders and operation sheets; clerks posting production progress records and machine-load charts; correspondents answering the customer's inquiry regarding the status of his order; timekeepers issuing and collecting timecards and calculating elapsed times; inspectors recording the results of their inspection and filling out scrap tickets; and finally typists preparing shipping papers and an invoice to the customer.

And then, to support or control this basic, serialized process, we would find a whole host of ancillary activities feeding or flowing from

it. There would be purchasing department buyers referring to purchase history records and typists filling out purchase orders or receiving slips. There would be clerks recording receipts or disbursements on inventory control cards, pricing stock requisitions, checking suppliers' invoices, preparing payrolls, and computing salesmen's commissions. There would be accountants accumulating material, labor, and factory burden charges against the job. Finally, we would see the results of the sale and of the effort required to fill the order being incorporated in the various reports constituting the company's management information structure—production volume reports, worker efficiency reports, sales reports, product cost reports, financial statements, and so on.

If we were to extend our observation to other types of businesses, we would find much the same picture—whether bank or brokerage house, insurance company or department store, public utility or common carrier. Perhaps the most marked difference we would encounter in these other businesses is that, in many of them, clerical activity becomes an even greater part of the whole function than it was in our hypothetical manufacturing company. Indeed, in some of them, such as banks and insurance companies, clerical labor becomes very nearly the entire means for performing all the business of the enterprise.

It is true, of course, that the precise nature of the clerical operations performed and the form of the documents used would vary from one type of business to another. Invoices to customers might be replaced by premium notices to policyholders or bank statements to depositors. Production volume reports might be replaced by reports of freight tonnage carried. The normal receiving and invoice verification procedures would, in department and specialty stores, be supplemented by merchandise marking. But, throughout all these businesses, the mechanics of the clerical work carried on and, perhaps more significant, the fundamental purposes of this work would remain much the same.

Essentially, these nonproduction workers in all types of business are engaged in preparing, sorting, checking and distributing, posting, analyzing, and filing a tremendous variety and volume of forms, records, and reports. The performance of these activities has become known variously throughout American business as procedures, systems, clerical routines, or paper work.

THE FUNCTION OF PROCEDURES

In every business there exists some such network of clerical processes, written or unwritten, simple or complex, carefully developed or casually improvised. These are the activities which business executives, often with considerable justification, are quick to deprecate as "red tape"; but without them no business of any size could operate.

Procedures are the means by which all repetitive business action is initiated, carried forward, controlled, and stopped. It is through forecasting and budgeting procedures that financial and operating plans are developed; through purchasing procedures that materials are procured; through employment and transfer procedures that the labor force is recruited and utilized; through order-processing procedures that the manufacturing process or the shipment of finished goods from stock is initiated; through production planning, scheduling, and dispatching procedures that men, materials, and machines are coordinated; through material control procedures that investment in inventories and losses from obsolescence are minimized; through inspection procedures that qualitative standards are applied to the product and its components; through accounting procedures that the information required for control of costs, profits, and assets is gathered, summarized, and reported.

These are but a few of the activities carried on day after day in a manufacturing enterprise. They are sufficient, however, to show that the procedures performed by nonproduction personnel are among the basic tools which make it possible for management to manage. They are the mechanism through which action and control are achieved. They are the traffic laws and signals governing the form, the direction and rate of movement, the stopping places, and the ultimate destination of each instruction and piece of information through which today's complex business enterprise functions. They make control possible by providing for inspection and recording of performance and by specifying the performance data to be submitted to the managerial group.

Because these procedural activities are performed by clerical personnel and because they involve paper work rather than production operations, a pervasive misconception exists that procedures are peculiar to the office. This, of course, is not true. The notion persists,

however, with the result that too many companies have taken an unrealistic and ineffective approach to the task of streamlining procedures.

Perhaps the most marked characteristic of procedures as an administrative tool is their widespread application. They are not purely an office phenomenon, in terms of either participants or areas affected. They are no more restricted to the office than are policies, organization charts, or any other administrative tool. They play a vital role in the operation of every department and in the performance of every function of a business. We have seen, for example, that paper work is an integral part of the production process—that by governing the flow of materials and tools it determines how effectively men and machines are used. The forms prepared and records maintained by shop clerks, schedulers, storeskeepers, or receiving clerks are just as much a part of the company's action and control pattern as are sales orders, cost sheets, help requisitions, or budget reports.

It should be recognized, however, that the role of procedures in carrying on the activities of a department varies considerably from function to function. For example, a smaller part of the personnel in the sales and industrial relations departments is generally engaged in procedural routines than is true in the accounting or production control departments. In the latter departments, procedures and record keeping are so great a part of the whole that these functions become known as the accounting *system* and the production control *system*. But whatever the department—however much judgment, planning, administrative skill, or technical knowledge is required; however variable and nonrepetitive its activities—a significant part of its work will always require established routines for getting things done in a prompt, orderly, and consistent manner.

Procedures and top management. In considering the role of procedures up to this point, the emphasis has been on facilitating and controlling the work of the various functional groups comprising the business. But procedures play as significant a part—though perhaps a less perceptible one—in the affairs of top management as they do in the performance of the departmental or divisional functions.

1. *The formulation and continuous reappraisal of major plans and policies* are well-recognized top-management responsibilities. But plans and policies are rarely self-executing. Their implementation generally requires the careful development and installation of procedures that will ensure timely and effective execution. Let us suppose,