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## What People Are Writing About

### Authors

S. J. Lambert III, E. A. Devine, Chiou-hsiung Chang, John N. Kissinger, Gordon S. May, and Eugene R. Rozanski

# what people are writing about

## BOOKS

**Managing Computer System Projects** by JOHN C. SHAW, CPA, and WILLIAM ATKINS, with contributions by ARNOLD E. DITRI and HOWARD J. PETERSON, McGraw-Hill Book Company, New York, 1970, 286 pages, \$16.50.

*This manual for the computer systems analyst comes close to being definitive.*

If a book like this had been available ten years ago, there would have been far fewer computer sys-

tem failures. But, of course, it could not have been. For this book grew out of the experience of many people over a long period of time—not only of the authors, a partner and a principal, respectively, in the management services division of Touche Ross & Co., but also of other consultants in the firm and of their clients.

There are two basic approaches to system development, according to these authors. One is “a series of free-form study/design activities. Projects have been undertaken without specific goals in mind. Rather, the idea has been to dig in and see what was to be found. One study activity led to the next

in a series of ‘successive approximations.’”

Such an approach, the authors say, has considerable merit in research situations. In a practical business environment, however, this approach is difficult to manage and budget.

The approach that is more often productive is structured and results-oriented. “System development . . . begins with the stipulation of the end product to be achieved. Then a series of orderly steps—projects, activities, tasks, and subtasks—is followed. Each step is fully documented; each is reviewed and approved. Both progress and expenditures are check-pointed at

## REVIEW EDITORS

In order to assure comprehensive coverage of magazine articles dealing with management subjects, MANAGEMENT ADVISER has arranged with fifteen universities offering the Ph.D. degree in accounting to have leading magazines in the field reviewed on a continuing basis by Ph.D. candidates under the guidance of the educators listed, who serve as the review board for this department of MANAGEMENT ADVISER. Unsigned reviews have been written by members of the magazine's staff.

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each key activity or phase in the development effort . . . system development has become a structured professional discipline.”

That is what this book is about. Its focus is on the methodology of project management as applied to computer systems; it presents “philosophies, approaches, and proven techniques by which project management methods have been used for the controlled, effective development of computer-based data processing and information systems.”

The various steps are spelled out chapter by chapter: planning: initial investigation, preliminary system study, system planning study; development: system requirements, system specifications, technical requirements, implementation planning, programing, user training, system testing; implementation: conversion, post-implementation review, ongoing maintenance requirements. Each activity is spelled out in detail, with the aid of more than 100 illustrations, including sample forms, outlines, checklists, and flow charts.

This book, as the preface points out, “has several generations of predecessors, including standards manuals used at individual EDP installations and a series of working manuals covering EDP techniques created and implemented by the consultants of Touche Ross.” The book is itself, in essence, a manual, and therein lie both its great merit and its weaknesses.

The style is that of a manual, marked by a good deal of jargon and excessive use of the passive voice (in an attempt to avoid overuse of the imperative). It is a very helpful work for anyone who has use for an EDP systems manual, but it has one defect characteristic of all manuals: It is deadly dull.

**Modern Research for Administrative Decisions** by LOUIS HOUGH, Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1970, 609 pages, \$12.95.

*This book, a not so simple primer of operations research, is more than a mere catalog of techniques. The author tries to explain what the scientific method is all about.*

The title of this book is somewhat misleading. It is not really about administrative research but about operations research (although the term is not mentioned until page 47). The simpler types of business research are ignored altogether.

#### **Not another catalog**

Mr. Hough does not explain his choice of title, but it seems probable that he was seeking to avoid the impression that he was producing yet another summary of the principal OR methods and their applications. His aim does seem to be more ambitious.

Mr. Hough's emphasis is on the scientific method, as practiced in the physical sciences and little understood in business. Before he gets down to the usual OR techniques (queue theory, inventory analysis, PERT, linear programing, the assignment problem, the transportation and simplex methods, Monte Carlo) he devotes several chapters to the principles of controlled quantitative investigation and the way in which they can be applied in business.

The need, he says, is for “greater insight into the kinds of studies that should be conducted. The selection of appropriate problems, the methodological design of the investigations, and the search for adaptive improvements in the research procedures are fundamental.”

#### **Scientific method stressed**

Early chapters explain the scientific method, such procedural concepts as experimentation and the use of control groups, the elements of decision theory, objectives and criteria for decisions, and administrative diagnosis of problems. There are seven chapters on model build-

ing and one on the use of the computer in research before the familiar OR techniques are described.

Included under decision theory are analytical methods for handling uncertainty, the subjective probabilities used in Bayesian statistics, research designs, and the systems analysis point of view.

Except in the chapters on techniques, the book is less mathematical than might be expected. Many of the examples use simple arithmetic.

Even so, this is not a simple book. For the nonmathematician who can read it, however, it could be valuable. By avoiding the typical “techniques in search of a problem” approach, Mr. Hough may succeed in convincing some businessmen that truly scientific research into their operations is possible and even desirable.

**Financial Motivation for Executives** by GRAEF S. CRYSTAL, American Management Association, New York, 1970, 255 pages, \$8.

*This little volume offers more usable information on executive compensation than many a full shelf of more ponderous tomes.*

A number of specific topics are discussed in this book, among them the evaluation of executive performance, the design of integrated total compensation plans, the use and abuse of executive bonuses, the advantages and pitfalls of deferred compensation, and the problems of stock option plans.

Throughout, however, the emphasis is on motivation, which should, the author says, be the purpose of executive compensation. To achieve it, he concludes, the executive's opportunities for reward should be meaningful and commensurate with the risks involved, and his actual rewards should vary with demonstrated performance so that he will know he can control his rewards by controlling his performance.

All this, it is true, is easier said

than done. But Mr. Crystal has more specific suggestions. Two of them—which seem especially novel in view of the general obsession with tax gimmicks and stock options—are particularly valuable:

### ***Tax laws can change***

“Tax advantages . . . are ephemeral . . . build a compensation package on the bedrock of real motivation rather than the shifting sands of taxation.”

“The objective” (of tax-saving compensation plans) should be “to put as many after-tax dollars as possible in . . . executives’ pockets . . . for the lowest net cost” to the company.

Mr. Crystal’s other principles of executive compensation, although more routine, are equally sound:

### ***Build on self-interest***

“. . . assume that the individual executive is interested primarily in his own welfare and only secondarily, if at all, in the company’s welfare . . . devise plans that . . . allow the individual executive to pursue his own self-interests both freely and unabashedly” and in the process assist the company in accomplishing its objectives.

“Keep the reward commensurate with the risk.”

“Determine just what it is the company really wants and then ‘incent’ it with meaningful rewards.”

“. . . see to it that outstanding performers receive a great deal more than merely mediocre ones do.”

“Put less emphasis on minimizing total turnover and be more concerned with keeping outstanding performers and losing poor ones.”

Avoid the “golden handcuffs” approach. It probably does keep some people from leaving, but “by and large, the only thing that is consistently maintained is the level of employee mediocrity.”

“Stress the intelligent use of status symbols and other forms of low-cost psychological gratification.”

“Provide at least some degree of individualization in the executive compensation package.”

“Face and adequately prepare for the inevitable problem of executive obsolescence.”

As these quotations indicate, Mr. Crystal has a lively (if sometimes overcute) style. His simplicity and directness, however, are refreshing in a field often marked by hedging and excessive detail.

Mr. Crystal does go into considerable detail about some things (how to conduct a salary survey, for example), but he is always clear and always willing to take a stand. (For example, point-factor evaluation plans “can cause serious damage to a company’s compensation program.”)

His book is a breath of fresh air in a musty field. Its commonsense concentration on fundamentals should be particularly helpful to accountants, whose natural interest in taxation is likely to lead them off the main track.

**Every Employee a Manager: More Meaningful Work Through Job Enrichment** by M. SCOTT MYERS, McGraw-Hill Book Company, New York, 1970, 233 pages, \$8.95.

*A book that really explains job enrichment (or job enlargement) and how to use it to improve employee performance is greatly needed. Unfortunately, this is not it.*

Job enlargement or enrichment has been much talked about in recent years as a way of stimulating employees to perform at capacity. It is especially popular among advocates of Dr. Douglas McGregor’s Theory Y, which assumes (in the words of Dr. Myers), “that people prefer to discipline themselves through self-direction and self-control . . . that people respond better to challenges than to authority, that people seek responsibility, and that under the right conditions they can enjoy work.”

When this book was written Dr.

Myers was a visiting professor of organizational psychology and management at MIT’s Alfred P. Sloan School of Management, on leave from the personnel department of Texas Instruments, Inc. Since TI has pioneered in the use of Theory Y and related techniques, he might seem to be just the one to explain how job enrichment really works in practice.

### ***Too little on job enrichment***

From that point of view, however, this book is a disappointment. In the first place, very little of it is about job enrichment. The first two chapters, which deal with theories of human effectiveness and the conditions under which people work well, provide a somewhat tedious but probably necessary introduction to the subject. The chapter entitled “Job Enrichment” is 41 pages long. The subject is touched upon occasionally in the fourth chapter—about the role of the supervisor in industry, organizational climate, management systems, and, of all things, the American abroad—and hardly mentioned in the final chapter, which consists of a basic review of how to run a personnel department, covering such topics as staffing, performance review, compensation, training, attitude measurement, and labor relations.

### ***Too generalized***

Even the 41 pages on job enrichment are not very meaty. Dr. Myers complains that “Most reports on job enrichment are situational descriptions which offer little guidance for supervisors in dissimilar circumstances.” His discussion avoids this pitfall but falls into the opposite one; it is so generalized that it lacks concreteness. Even his examples from TI’s and other companies’ experience are not case studies but mechanical descriptions of curricula for supervisory training programs and the organization of task forces.

A major weakness of the book is that it seems to have been com-

piled by combining textbook-like summaries of research with procedures manuals from TI. The style, despite an avowed intent on the author's part to write "in everyday language," alternates between sentences like "When lower-order needs are maintained at adequate levels, dissatisfactions stemming from them are minimized" and detailed descriptions of specific company procedures.

This book has value for someone who has not kept up with modern theories of employee motivation. For someone who really would like to try job enrichment in his firm, it is an inadequate guide.

**The Turned-On Executive: Building Your Skills for the Management Revolution** by AUREN URIS and MARJORIE NOPPEL, McGraw-Hill Book Company, New York, 1970, 234 pages, \$7.95.

*The title may turn some prospective readers off, but as self-help books go this one is not bad.*

The pace of business life has speeded up, and the executive has to be more efficient in managing his job. That, essentially, is the "management revolution" to which the title of this book refers. To "turn on" means "to develop skills to meet the new pace and level of performance."

Thus, this book boils down to another self-help book. But it has certain advantages over the run of the mill. It was written by journalists rather than by a consultant with a particular technique (or firm) to sell or by a missionary-minded zealot who sermonizes off the top of his head. This means not only that it is well organized and crisply written but also that it was planned with the needs of the reader rather than the author in mind.

Furthermore, the book has been thoroughly researched. Nothing in it is very original, but other people's recommendations have been collected and screened with

care. The authors had the considerable resources of their own organization, the Research Institute of America, to draw on, and RIA is strong in this field.

The topics covered are well chosen: how the executive can improve his techniques of planning his time, overcoming psychological blocks, making decisions, using creativity, strengthening his memory, writing reports and memos, dictating material that is longer and more difficult than letters, preparing and delivering speeches, running meetings, reducing his personal paper work, winning at office politics, getting along with people, and making the best use of his secretary and his wife.

The suggestions offered are small, concrete, and numerous. (The best ones are in the chapters on planning time and making better use of dictation.)

Some readers may be somewhat repelled by the superpromotional style. Some examples: ". . . read the checklist of time-saving ideas below. It may suggest shortcuts you can start applying right now. . . . These shortcuts have worked for other executives, they can work for you." "Here are six approaches you can use to create a new frame of reference." And each chapter ends with a section headed, "Pinpointers—for action now."

However, the style is clear and concise. A lot of material is covered in a relatively short space. The book can be read in a couple of hours, and the value received is probably worth the investment of that much time.

**Management Planning and Control: Mathematical Models** edited by JOHN LESLIE LIVINGSTONE, McGraw-Hill Book Company, New York, 1970, 616 pages, \$12.95.

*This anthology consists of 21 articles by 24 different authors that apply mathematical techniques to four major areas of management accounting: cost information systems, cost standards and control,*

*cost-profit-volume analysis, and planning and budgeting.*

To the older accountant (and in this case "older" need not mean very old) this book is likely to be forbidding. It is heavily mathematical, and it is primarily intended to serve as a textbook. Yet a mathematical textbook may be just what is needed by an "older" accountant who still has a number of years to go before retirement.

### ***Wave of the future***

For in management accounting—as in a number of other fields of management — mathematical analysis may well be the wave of the future. It is clear that Professor Livingstone thinks so; in his introduction he shows a tendency to equate mathematical with "rigorous and precise."

The plan of the book is novel. The articles (nearly all of which were taken from *The Accounting Review* and *The Journal of Accounting Research*) were chosen and grouped so as to "create a continuous flow of ideas from one article to the next. The objective was to present an integrated, sequential development of the section topic, and not simply a collection of individually worthwhile but largely unrelated articles."

### ***Accompanied by commentary***

Each article is followed by an analytical commentary which examines and evaluates the logical chain of argument in the article (along with explaining any mathematical step that may not have been clear in the article itself).

Within each subject area the articles are divided into two groups: those that can be understood by someone trained only in "simple algebra" and those that utilize linear algebra and such associated techniques as linear programming.

Actually, Professor Livingstone says, because "the mathematics contained in this book is not there for its own sake, but rather for its

usefulness in managerial accounting . . . only a few essential mathematical techniques were accepted for inclusion." These include basic algebra and elementary vector and matrix theory together with such linear matrix models as input-output analysis and linear programming. Calculus and probability theory, for example, are largely excluded.

Apparently this is the sort of thing that college students of accounting are now studying. Their seniors can take fair warning.

### **Briefly listed**

**Professional Mail Surveys** by PAUL L. ERDOS, McGraw-Hill Book Company, New York, 1970, 289 pages, \$17.50.

Many a consultant can make good use of surveys—for work in compensation planning, market analysis, personnel relations, and various other fields. This book tells all about it, from the choice of research method to the editing and publication of results. It is a comprehensive manual for a specialty with which many consultants have little familiarity.

**How to Survive the Business Rat Race** by ROBERT C. SAMPSON, McGraw-Hill Book Company, New York, 1970, 254 pages, \$8.95.

This book, based, the author says, on the findings of the behavioral sciences, aims to tell the aspiring executive not only how to achieve his professional goals but also how to live a full, well rounded personal life.

**Legally Available U.S. Government Information** by MATTHEW J. KERBAC, Van Nostrand Reinhold Company, New York, 1970, 750 pages (2 volumes), \$86.

The Public Information Act of 1967 gave the public legal access to the files, records, and data banks of all federal agencies. This ref-

erence book specifies what information is available from which agency and where and how to get it. Included are descriptions of the kinds of information available, organizations and function summaries, policies and procedures for releasing information, addresses and phone numbers of offices in each agency that have been assigned responsibility for implementing the Public Information Act, costs of obtaining material, appeal procedures for each agency, and rules for release of personnel information.

**Optimization Theory for Large Systems** by LEON S. LASDON, The Macmillan Company, New York, 1970, 523 pages, \$14.95.

This book summarizes the most important algorithms, many of them recently developed, for both linear and certain types of nonlinear OR programs. Some of these techniques were first published as recently as 1969. Highly technical and heavily mathematical, this book is only for the specialist.

**Prepare Now for a Metric Future** by FRANK DONOVAN, Weybright and Talley, New York, 1970, 212 pages, \$5.95.

In a few years the United States will stand virtually alone in a metric world. This author, assuming that we, too, will have to convert eventually, tells how other countries have managed the changeover and suggests how we might go about it. He also reviews the history and features of the various measurement systems. The approach is to the layman.

**Business and Hardcore Unemployed: A Management Guide to Hiring, Training and Motivating Minority Workers** by LLOYD ZIMPEL and DANIEL PANGER, Frederick Fell, Inc., New York, 1970, 320 pages, \$9.95.

Designed as a "working manual,"

this book discusses how to recruit, interview, select, test, orient, discipline, promote, and provide supporting services for minority-group employees. It includes a structured sensitivity training course for supervisors and an appendix listing employment techniques, Negro media, and various resources for help in hardcore hiring.

**The Successful Speaker's Planning Guide** by EDWARD HEGARTY, McGraw-Hill Book Company, New York, 1970, 275 pages, \$7.95.

This popular-style manual, by a professional speaker, covers every aspect of planning a speech, from "Why Organize?" to "Sixteen Ways to End Your Speech." Included are how to tailor the speech to the audience, how to use anecdotes, how to use visuals—and a three-point "fast plan" for whipping up a speech on the spur of the moment. The style is breezy but somewhat breathless.

**Management and Computer Systems** by EDWARD O. JOSLIN, College Readings, Inc., Post Office Box 2323, Arlington, Virginia 22202, 1970, 354 pages, \$4.95 (paperbound).

This collection of 42 1968 or later articles (including three from **MANAGEMENT SERVICES**) deals with the problems of managing a computer facility and what the computer can do for managers. Topics covered include EDP installation, programming, computer conversion, time sharing, cost estimating, data communications, documentation, and management information systems.

**How to Get Results from Interviewing: A Practical Guide for Operating Management** by JAMES M. BLACK, McGraw-Hill Book Company, New York, 1970, 203 pages, \$8.95.

Aimed at the operating manager rather than the personnel executive, this book describes the types

of interviewing situations that executives who are not professional interviewers are likely to encounter in the normal course of business—employment, appraisal, promotion, counseling, discipline, and exit—and makes practical suggestions on how they can improve their effectiveness in each of them. There is also a chapter titled, "What You Should Know About Testing."

**Essentials of Cost Accounting** by JOHN DEARDEN, Addison-Wesley Publishing Company, Inc., Reading, Massachusetts, 1969, 143 pages, \$6.95 paperbound.

This programmed instruction text is intended for the self-instruction of managers who must analyze, interpret, and use cost data rather than for accountants. It assumes some knowledge of elementary accounting.

**Studies in Machiavellianism** by RICHARD CHRISTIE and FLORENCE L. GEIS, Academic Press, Inc., 111 Fifth Avenue, New York, 1970, 415 pages, \$12.50.

This book describes some 50 experiments aimed at studying how persons classified as "Machiavellian" in their approach to interpersonal relations behave in a variety of situations. It also contains data on the prevalence of the Machiavellian personality in various occupational and ethnic groups. Although the approach is rigorously scientific, the administrator or consultant who has occasion to manipulate people cannot fail to get some useful ideas from it.

**Operational Research on Active Service** by MICHAEL TOWNSEND, Anbar Publications Ltd., Wembley, London, England, 1970, 32 pages, 10 shillings (\$1.20) paperbound.

This little booklet abstracts 50 magazine articles describing applications of operations research in the fields of planning and scheduling, stock control and purchasing, investment and accounting, trans-

port and distribution, and marketing and selling. The sources are almost evenly divided between American and British publications.

**Handbook of Modern Manufacturing Management** by HAROLD B. MAYNARD (Editor-in-Chief) and others, McGraw-Hill Book Company, New York, 1970, 4,602 pages, \$24.50.

This compendium of articles by 86 contributors (including one from a CPA firm, Reginald L. Jones of Arthur Andersen & Co.) stresses management techniques rather than technical information. General areas covered include the manufacturing function, organizational relationships, manufacturing control, manufacturing facilities, plant engineering and maintenance, products and materials, personnel, motivation of employees, and supporting services and activities.

## MAGAZINES

**Behavioral Aspects of the Computer** by GEORGE A. FIELD, *MSU Business Topics*, Autumn, 1970.

*This article discusses some of the effects the computer has had on the behavior of management, customers, and others affected by the computer system.*

After it became apparent that the computer would have important business applications, many companies acquired computers as status symbols without having the necessary knowledge, skills, and resources to use them effectively. The problem was compounded, Mr. Field points out, by the fact that more often than not the computer was purchased rather than leased. This was a result of management's desire for the status that owning a computer conveyed, the lack of information about the computer's obsolescence rate, the lack of leasing sources and services, and

computer manufacturers' stress on sales rather than leasing because these manufacturers were short of funds. Since the early computers were often obsolete in about three years, the purchaser was often stuck with a relic.

### *Another status symbol*

The acquisition of a mathematician became another status symbol for management. Partly because management did not understand the role that these specialists could play and partly because of management's fear of them, these mathematicians were frequently underutilized. Today, as their supply increases and as their knowledge becomes more dispersed throughout the firm, they are beginning to lose some of their high status.

Besides being a status symbol, Mr. Field explains, the computer is also a key to power for the person who controls it because he gains control over the flow of vital information. The computer manager receives credit for the valuable information the computer provides, but other managers within the firm may find their strength undercut and their domain reduced. On the negative side, the computer may also be used to conceal or distort data.

### *Nonrational choice*

Mr. Field further points out that when it comes to choosing the location in which to install the computer management seems to be nonrational. Most often the computer is installed where resistance is lowest. Back when the computer was new this was usually in such data-rich areas as accounting or production. This was primarily because the computer was viewed as a data processing device rather than as a management planning and communication tool. Once misinstalled, the computer showed remarkable resistance to change. By 1969, Mr. Field says, the control of the computer was largely in the hands of a data processing man-



ager skilled in computer techniques but lacking the background necessary to be a manager of corporate intelligence.

### ***Used as scapegoat***

The computer has often been used as the scapegoat in rationalizing and communicating objectionable decisions. It also has been personified, being perceived by employees as a significant extension of the management personality. Mr. Field believes that the computer's role in communication and its implications should be studied further.

Another common view of the computer is that it is an idiot with which management matches wits in order to shape its perception of the firm. Mr. Field says that one of the jobs of lower and middle management is to insulate upper management from unpalatable facts. This is done by explaining away or denying the validity of certain data. At other times the data are distorted by techniques such as time juggling, changing data classifications, rounding off, writing off, falsification, fabrication, and omission.

### ***Used to deceive***

In addition to deceiving upper management, William H. Reynolds has suggested, lower management also uses the computer to manipulate higher management by its mass reporting capabilities and by the aura of professionalism the presentations convey. This may produce a shift in power within the organization.

A company's customers and the general public are also affected by the computer. They suffer from poor programming or poor computer management, for example, when a customer is billed for an account he has already paid. In fact, Mr. Field mentions that a society has been formed in England to fight the computer, employing such devious tactics as overpaying ac-

counts by one penny in order to require human intervention.

Another danger, Mr. Field mentions, is the fact that stored data may be retrieved by alien firms when time sharing is used. In addition to this danger there is the possibility of computer errors because of physical or mental (programming) ailments of the equipment.

In summary, Mr. Field says the computer has assumed a central role in the repression of the most basic forces in the organization. He says this is not a criticism of the computer's hardware or the system within which it operates.

If properly used, the computer can perform all the duties for which it was designed. What is needed is a system to provide management with information on what is transpiring "inside the heads and hearts of the people connected with the firm."

S. J. LAMBERT, III  
*Louisiana State University  
at Baton Rouge*

**Corporate Financial Models in Planning and Control** by THOMAS J. GORMAN, *The Price Waterhouse Review*, Summer, 1970.

*With the profit squeeze of recent years there has become less and less room for errors in business decisions. As a result, many companies have started building "models" of their businesses so that proposed changes can first be tested in the models, thereby avoiding the ill effects of unwise changes in the business itself.*

Mr. Gorman describes a corporate financial model in this article, comparing it to the floor plan of a building or a road map. Such a model enables a manager to predict (with some degree of accuracy) the outcome of various decisions before actually implementing them in the business itself.

A model differs from a "pilot plant" in that the model is full-

scale. This, of course, promotes certain advantages, and Mr. Gorman supplies a list. He also lists the disadvantages, stressing the value of information and planning.

### ***Model described***

In describing the model (financial in this case), Mr. Gorman starts with the balance sheet and income statement. From these as well as from other supplemental data a description of the firm in mathematical terms is developed. This is, in essence, a series of equations, which are ultimately solved simultaneously.

Some consider that anything which has been quantified possesses a high degree of accuracy. However, accuracy (and detail) often conflict with simplicity, also a desirable characteristic. This is a common problem in model building; the model must be simple enough to be practical yet complex enough to generate reasonably accurate predictions. Dividing the model into subsystems, such as (1) engineering and capital budgeting and (2) accounting and finance, may make it somewhat easier to handle.

### ***Data selection***

One of the major problems in building the model is the selection of the data to be included. Key questions to be asked about the data are:

- (1) The significance of the data,
- (2) The homogeneity of the data,
- (3) The amount of data required,
- (4) The simplicity of assumed relationships.

Once the data are selected, certain statistical techniques are applied (generally correlation and regression analysis) to develop equations that properly relate the various variables. An example (an oversimplification) would be the

relationship between store traffic and sales volume for a department store. In the development of these equations a decision must be made as to their degree: Shall only linear relationships be used or equations of a higher order? A good portion of this article was used to describe the development of the various equations and the factors considered. It should be noted that in several instances approximations served well, thereby eliminating much unnecessary detail.

In conclusion, the author points out that validation of the model is the critical test. If it does not yield accurate predictions it is useless, regardless of the care and planning put into its creation. Mr. Gorman states, "This testing is inevitably a never ending chore which must be conscientiously pursued through each stage of development and implementation of the model."

Management must have a proper attitude toward the model and view it for what it is—a tool. It is often easier to cling to the old than become familiar with the new, and managers are no exceptions to this tendency. In order to use the model appropriately computers are often required, necessitating a degree of familiarity on the part of the user rather than an attitude of awe or fear. Assessment of one's own attitudes toward methods of modern decision making brings the sobering realization that wanting or not wanting to become familiar with these new tools is irrelevant; there simply is very little margin for error in the present-day world.

E. A. DEVINE

*Louisiana State University  
at Baton Rouge*

**Ten Ways to Cut Costs This Month**  
by RICHARD L. GANZI, *Business Management*, September, 1970.

*Potentially significant savings in the majority of companies are not to be found in such well-picked-over areas as production streamlining,*

*purchasing practices, or executives' salaries but rather in seldom-scrutinized clerical operations.*

Today's profit squeeze has prompted many business executives and the consultants who review their operations to seek various means to improve revenue and to cut production and administrative costs. It is surprising that many companies, while taking great pains to improve manufacturing technology and marketing effort, are not looking in the right places, Mr. Ganzi states. "Really big deposits of corporate fat and inefficiency are found in seldom-scrutinized clerical operations."

#### **Common sense**

This article applies common sense to office management. The moves this author claims can cut clerical costs are quite simple and, perhaps, so obvious that it is easy to overlook them, especially when management is busy striving to meet its production plan and its marketing strategy.

#### **Ten suggestions**

Mr. Ganzi suggests ten ways to reduce clerical costs: (1) Eliminate excessive overtime. (2) Take a hard look at postage costs. (The author says he recently received thirteen separate pieces of mail from a prominent brokerage house in one morning.) (3) Lower customer service costs, that is, give more services than the competition gives without overdoing it. (4) Smooth out clerical work peaks by rescheduling, or, if that is not possible, determine how high the peak is and arrange to clear it with minimum manpower. (5) Determine how much each employee should accomplish and adopt that as the standard. (6) Re-examine duplication costs. (7) Try using part-timers. (8) Take a close look at each clerical worker's assigned load, and then look around for similar work that can be handled with the employee's skills. (9) Bring all the related clerical functions to-

gether and appoint one full-time supervisor. (10) Get supervisors on the management team by bringing the supervisors in on planning, budgeting, and training and by closely relating their incomes to the performance of their units.

#### **No substitute**

As Mr. Ganzi states, his ten tips are no substitute for a careful, concerned, long-range program of clerical cost reduction (profit improvement) based on a thorough study of particular needs. But the ten tips are, at least, a short-range cost-cutting tool.

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**Statistics Aids Accounting in the Development of Performance Standards** by VIRGINIA L. HUNTINGTON, CPA, *The Woman CPA*, March, 1970.

*Variance analysis is an important element of management control. To determine how large a variance must be to be significant, this author suggests the use of statistical methods.*

Management frequently utilizes performance standards as a means of control and motivation. The type of standards adopted will depend primarily upon the particular management's philosophies. They may reflect practical expectations or lofty aspirations; they may be self-determined at the level of the individual employee involved or handed down from higher levels of authority; they may be difficult or easy to attain; and they may be subjectively or objectively derived.

The principle of management by exception calls for emphasis on situations in which actual and standard performance differ significantly. A problem that frequently arises is how to develop a range of chance deviation around the standard beyond which variance should be considered significant. The au-

thor suggests that a statistical approach to performance models and to significant difference may improve the relevance and consistency of variance analysis.

### **Standards**

Formal statistical analysis is not generally applicable to variances from subjectively determined standards. Therefore, the author recommends "intuitive assessment, comparisons with past information, or the employment of subjective probabilities" as three approaches to defining a range of chance deviation from such standards. The third method is of particular interest because it calls for the assignment of subjective probabilities to a range of different performance outcomes. The performance standard is then defined as the expected value of the resulting distribution, and significant variances are defined in terms of the distribution's standard deviation.

### **Real world**

But the author warns against using this method "solely because of its mathematical dress." If the subjectively determined distribution does not reflect "real world" conditions, derivations from it will be meaningless from a practical standpoint, however mathematically correct.

If the rules of statistical sampling are observed, objectively determined performance standards and ranges of chance deviation from such standards are suited to the use of powerful tools of mathematical analysis. Professor Huntington notes that "even limited observations can provide useful inferences concerning a universe since a (properly determined) sample statistic is an estimator of a universe parameter within determinable bounds of error." To illustrate the practical value of this fact, the author reports the results of a number of successful industrial applications.

Simulation facilitates the analysis of a system by forcing explicit definition of the system's boundaries and the relationships among its variables. The better the resulting model the more closely its behavior under different sets of circumstances should approximate the system it represents.

### **A performance model**

The author claims that a performance model superior to the traditional point-estimate budget is an interval-estimate "two-part profit summary model for the firm, supported by subsidiary models for various functional activities." For this two-part profit model, the performance standards are the mean variable margin rate and the mean rate of return on investment, derived from a representative sample of accounting data from previous periods (adjusted to reflect management's expectations of future improvements). The limits of random fluctuations from these standards can be set at two standard deviations from their means. Purely random fluctuations in performance should fall within this range better than 95 per cent of the time. Accordingly, performance results outside the range are likely to be significant and require management's attention.

### **Functional models**

While the two-part profit model is useful as an over-all review mechanism, the functional activity models are more important from a control standpoint. Located at subsidiary management levels, these performance models "allow the detection of significant deviations from standard at the points of occurrence, before an out-of-control state is reflected in the summary model." Such models should be constructed in the same manner as the two-part summary model, using historical cost accounting data, revised for new market information, to develop interval standards of performance. At

the subsidiary levels, such standards are probably best stated in terms of physical units, but translation to dollar or rate standards is possible. The particular performance variable to be evaluated will depend, of course, upon the type of functional activity involved.

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**Managing the Conversion of a Production Planning and Inventory Control System** by ROBERT J. SHAW, *Management Controls*, June, 1970.

*More and more companies are discovering that a sound production planning and inventory control (PP&IC) system can play a key role in profit planning and control. The development and installation of such a system will usually involve a project of such magnitude and complexity that it can be achieved only if a program master plan (PMP) is developed as a guide. Mr. Shaw indicates the basic steps in developing such a plan and gives some practical suggestions as to how they may be accomplished. He also discusses some aspects of the management of the plan.*

The author discusses several aspects of the development of a program master plan (PMP) for a production planning and inventory control system (PP&IC). They include a review of systems concepts; the establishment of an installation organization plan, master schedule, and task program plan; the estimation of manpower resources and a summary of manpower requirements; the estimation of computer time; and the development of task schedules and manpower charts.

Initially a review of systems concepts should be prepared, with the objective of providing all levels of management with an understanding of the results to be expected from the installation of a PP&IC system. A review of output reports

and existing personnel capabilities should be included.

### **Organization plan vital**

Of primary importance is the establishment of an installation organization plan and the assignment of responsibilities. An organization chart should be helpful. An installation program manager, responsible for coordinating and controlling the installation procedures, should report directly to a relatively high executive level. Task leaders, each in charge of a subsystem or support effort, should be selected from the departments most directly affected by the tasks. Each support force should be assigned a person in charge, who would then be responsible to the task leaders.

A master schedule which defines the tasks to be accomplished and shows scheduled starting and completion dates for each task will provide the necessary yardstick against which to compare written progress reports. Task program plans utilized for coordinating the task planning and estimating procedures should show subtasks itemized by task planning teams.

### **Manpower resources**

Mr. Shaw points out that "... there should be a common understanding of the design capabilities and responsibilities for each of the resource skills used in planning; otherwise, the estimate may not reflect the relative efforts required by these skills. This may result in confusion at a later point in time when the resources are being marshalled to support the program master plan. Such confusion can be avoided through prior preparation of detailed job descriptions of each resource." Estimates of manpower resources should cover both primary and supporting manpower. All estimates should be in terms of a uniform unit and should be made by the most qualified persons. "Time estimates should reflect the

optimum time required, assuming there are no constraints on the availability of resources." A summary of manpower requirements will provide a basis for assigning priorities of tasks and the development of budgets.

Computer time estimates should show the effect on overall computer burden and indicate any necessary revisions in equipment. These estimates will be most effective if they are prepared by the computer department.

### **Scheduling technique**

The author makes it clear that the choice of a technique to develop schedules for a PP&IC system installation is crucial. Gantt charts may be misleading, particularly in depicting and controlling the interrelationships among subtasks and analyzing the impact of schedule slippages. In some cases slippages have no effect on overall completions, while in other instances they may be critical to the scheduled completion of a project. CMP or PERT techniques may be used in developing task schedules. A rather detailed explanation of time-phased network schedules is given in the article. This technique is recommended for projects containing fewer than 700 subtasks. Non-scaled network computer programs are recommended for projects involving more than 700 subtasks.

The final phase in the development of a PMP is the construction of a manpower chart matching manpower requirements for each time period with existing resources. It is in this phase that consideration may be given to the use of overtime, to subcontracting procedures, or to personnel recruitment.

### **Progress reports**

The key to proper management of the PMP is a system of periodic progress reports prepared by task leaders. These should be measured against published schedules initially issued to all participants. "The im-

plementation program manager's key function is one of controlling and coordinating activities rather than executing minute details. It is important therefore that he review progress as reported and take corrective action to overcome program slippages." Informal communication cannot be relied upon for the many important decisions that will be necessary throughout the life of the design effort.

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### **Evaluating Advertising Effectiveness** by ROBERT S. SAVESKY, *The Price Waterhouse Review*, Summer, 1970.

*This article describes a case study in which quantitative methods along with readily obtainable marketing data were utilized to evaluate the effectiveness of past advertising. This evaluation was used as a basis for budgeting future advertising expenditures and devising marketing strategies.*

For most companies, the control of advertising expenditures is a difficult task. It is difficult because of the lack of scientific standards by which to judge the relationship between a given level of inputs (expenditures) and the resulting outputs (sales). As a result, advertising policy is often set by tradition or some arbitrary rule such as the per cent of sales policy.

In this article Mr. Savesky describes a case study performed for a manufacturer who was introducing a new nationally distributed retail product. The analysis utilized operations research techniques, the computer, and readily available marketing data in developing a measurement of advertising effectiveness. The objective was to aid management in planning future advertising expenditures and marketing strategies.

Initially, the company's marketing management formulated a six-month advertising budget for the new product on the basis of the

number of households in each of its sales districts. The introductory advertising strategy included: (1) national and spot TV advertising, (2) occupant ten-cents-off coupons, and (3) a five-cent allowance to the grocer for each unit sold plus five cents for point of purchase displays.

### **Criteria developed**

The study described by the author began with an analysis of this first six-month program. The first step was to develop a set of criteria with which actual results could be compared. Mr. Savesky lists five criteria that should be met by a sales district with effective advertising:

1. High dollar sales volume compared to the level of promotional expenditures
2. High share of the market compared to other districts
3. High sales density for the product in terms of sales volume
4. High-sales-volume market in terms of total units sold
5. High sales growth through some combination of market expansion and brand switching.

### **Regression analysis used**

The author then demonstrates how various statistical techniques could be used to measure how well each sales district met each of the predetermined criteria. Particular emphasis is given to the use of the statistical technique of linear regression analysis in measuring each sales district against Criterion 1. This technique provided management with a means of estimating the sales volume that should have been attained in each district on the basis of the actual amount and type of advertising expenditure. A graphic display could then be prepared for management showing actual sales, estimated sales, and variance for each sales district. In addition, each sales district was ranked from greatest positive va-

riance to greatest negative variance.

As Mr. Savesky notes, this summary told management which district responded well and which poorly to the level of advertising expenditures. With this knowledge, management could investigate the characteristics present in those districts that performed well and improve the characteristics of sales districts that performed poorly.

### **Chart prepared**

The author also illustrates the methods that were used to measure each sales district's performance against Criteria 2 and 3. The result was a chart which depicted a two-way analysis of the company's market share and each district's sales density classified into high, medium, and low groups. Similar types of analyses were prepared for Criteria 4 and 5 but are not illustrated in the article.

This first phase of measuring advertising effectiveness on the basis of the first six months' data ended with a listing of each sales district and its relative ranking in meeting each of the five predetermined sales criteria. With this information and the proper marketing research in high-performing sales districts, management was now in a better position to set marketing strategy and advertising expenditures for the second six months.

### **Periods compared**

The second phase of this analysis was performed at the end of the second six-month period in order to determine the effectiveness of the revisions made in the original advertising budget and marketing strategy. The analysis was similar to the one performed for the first six months; now, however, the two periods could be compared. In addition, gains or losses in market share for each sales district between periods could be calculated.

In the author's opinion, the quantitative approach illustrated in this

article provided management with information which, when combined with good business judgment, aided in choosing among possible marketing approaches and provided a more effective basis for allocating advertising resources. He also suggests beneficial effects that this type of systematic analysis may have on all levels of marketing management. Management is encouraged to structure its decision making process in such a manner as to incorporate quantitative interpretation. If relationships can be stated quantitatively, then mathematical models can be constructed.

Mr. Savesky's description of the quantitative methods employed and the illustrations prepared for management's analysis are easily followed. Much of the marketing data used in the analysis exists within the firm; however, the analysis shows how these available data can be used far more effectively. Any businessman who is concerned with the effectiveness of his advertising program should find the systematic approach described in this article very informative.

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