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## What People Are Writing About

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## What People Are Writing About

### Authors

Philip Tibbs, R. V. Hartley, Arthur V. Corr, D. R. Carmichael, H. M. Helm Jr., James H. McLean, Shirley M. Arbesfeld, E. John Larsen, Joseph F. Schirger, and Donald Madden

# what people are writing about

## BOOKS

**Financial Analysis Techniques for Equipment Replacement Decisions** by ELLY VASSILATOU-THANOPOULOS, *NAA Research Monograph No. 1*, National Association of Accountants, New York, 1965, 67 pages, \$2.

*Equipment replacement decisions deserve more careful analysis than they get in most companies, the author believes. In this research monograph, the first of a series on management accounting to be published by NAA, she suggests ways*

*of applying the standard capital investment analysis techniques to equipment replacement.*

In the companies Mrs. Vassilatou-Thanapoulos visited in the course of her research, capital equipment replacement decisions are guided largely by intuition and experience. There are a number of reasons:

Individual outlays for equipment are often smaller than other capital expenditures, and they arise more frequently. Thus, businessmen are reluctant to apply elaborate analytical methods, methods that they frequently do not understand very well anyway. Costs and revenues

associated with a piece of equipment usually cannot be determined as readily as those associated with other capital outlays because of the dependent nature of the equipment.

Yet, the author argues, equipment replacement outlays, which in total often exceed spending for expansion, are important enough to justify careful analysis. And the objective measures of investment worth used in evaluating major capital projects are equally helpful in making equipment replacement decisions. Allowance must be made, of course, for the special characteristics of replacement decisions, chiefly the fact that retention of

## REVIEW EDITORS

In order to assure comprehensive coverage of magazine articles dealing with management subjects, MANAGEMENT SERVICES 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 SERVICES. Unsigned reviews have been written by members of the magazine's staff.

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Mrs. Vassilatou-Thanopoulos reviews the principal measures of investment worth used in appraising capital investment proposals and suggests how they can be adapted to replacement decision making. As she notes, none of these techniques is new. For those companies that are not using them in replacement planning, however, this report should serve as a valuable guide to improved decision making.

**The Critical-Path Method** by L. R. SHAFFER, J. B. RITTER, and W. L. MEYER, McGraw-Hill Book Company, New York, 1965, 224 pages, \$9.50.

*The various network sequencing techniques for project planning and control are finding a wide range of applications, ranging from research project management to scheduling of steps in a consulting engagement. This book explains one of those techniques, critical path method, in terms that any businessman can follow.*

CPM (critical path method), although originally developed for factory use, has provoked its most enthusiastic response in the construction industry. This book, by three professors of civil engineering at the University of Illinois, is slanted toward the construction industry, from which the examples are taken.

Nevertheless, it is a usable handbook for project planners in any field. Emphasis is on the application of the method rather than on the mathematical theory behind it or on the detailed calculation process. Only a knowledge of arithmetic is required to follow the discussion.

The book explains the purpose and function of CPM, tells how to apply it with or without a computer, and describes analytical methods suitable both when there is only one way to perform an operation in a project sequence and when there are multiple ways. Diagrams and charts show how to con-

struct both arrow and circle diagrams.

**Sales Analysis, NICB Study in Business Policy No. 113**, National Industrial Conference Board, New York, 1965, 90 pages, \$3.50 to associates and to governmental agencies, \$17.50 to non-associates.

*Based on a survey of practices in 155 American and Canadian companies, this research study reviews current methods of and problems in sales analysis for marketing control.*

Nearly every company now makes systematic, continuing studies of its sales and its selling effort for purposes of planning and control, this study notes. Often sales analysis has developed on a piecemeal and uncoordinated basis. But increasing requirements for sales data and the availability of computers to do the calculations have encouraged the use of improved techniques in recent years.

This study reviews the specific uses companies make of sales analyses, various groupings and forms of sales information, the problems of defining and meeting sales information needs, ways of presenting sales data effectively, and methods used to ensure that proper use is made of sales reports. Twenty-one case studies, illustrated by samples of sales reports and other documents, detail the techniques of individual companies of various sizes in various industries.

The report is intended as a working manual for all who are involved in the preparation and use of sales reports. It should be helpful to any sales executive or accountant interested in knowing what current practice is in other companies.

**The Computer Age** by GILBERT BURCK, Harper & Row, New York, 141 pages, \$3.95.

*This compilation of a recent series of Fortune articles is a once over lightly survey of some of the more far-reaching implications of the computer revolution.*

This little volume does not live up to its billing as "the first thorough examination of the computer in our way of life," but it does offer a lively and provocative analysis of a few of the significant issues raised by the computer.

The author does not really explain what a computer is or how it works. Except for one applications-oriented chapter on real time systems, which briefly summarizes such systems as the Air Force's SAGE, American Airlines' SABRE, Lockheed Aircraft Corporation's ADA, and some railroad projects, he devotes little space to the work that computers are actually doing in industry.

Instead he concentrates on such global questions as these: Will automation reduce employment? (His answer is no.) Will the computer lead to more centralization of management? (Yes.) Will it wipe out middle management? (Just about.) Will computers ever learn to think like human beings? (Maybe.) Many of the answers are arrived at on the basis of very little hard information.

Despite its publication in a business magazine, this is not really a book for businessmen. The executive who wants guidance in coping with the problems and potential of electronic data processing in his company will not find it here. For the general reader, however, the volume is a good guide to the computer age — if not to the computer.

## MAGAZINES

**The Role of the Financial Vice President in a Growth Company** by JOSEPH MORSE, *California Management Review*, Spring, 1965.

*Financial managers' responsibilities have increased as changes in the size and complexity of American corporations have produced a shift in orientation from sales and production to planning and controls. According to the author, himself a financial executive, their jobs encompass four functions: (1) raising capital; (2) participating in the*

allocation of capital to present or new producing divisions; (3) auditing, controlling, and planning the use of allocated capital; and (4) managing the financial department. Morse discusses the first three of these functions.

The financial vice president's prime function is to obtain capital on the most favorable basis, which, according to Mr. Morse, should be on a basis which maximizes the return to present equity, with the financial vice president acting as a representative of existing owners. Several types of securities that might be used by the company (as well as the relevant income tax and security laws) are discussed along with off-balance financing (leases).

The author favors little or no payment of dividends in a growth company. In the past the payment of dividends was an indication of a well managed company. However, a company that pays dividends must sell stock to finance growth. The stockholders must pay tax on the dividends and accordingly have less to invest. The company also must pay large costs on each new issue. Would not both the company and the shareholder be better off if no dividend has been paid?

The usual standard in capital allocation is return on investment, a better yardstick than increase in sales or even in profits. However, the phrase return on investment raises complex problems. For example, what is the investment? Two definitions are suggested: (1) return on total assets (to see how efficiently the business as a whole is operated) and (2) return on common stock equity (to appraise the yield to risk of investors who control the corporation).

Several ways of evaluating capital investment are described. Mr. Morse recommends the use of mathematical formulas to evaluate capital investment decisions but warns that these formulas should be used in conjunction with experience, common sense, and intuition. He raises the question as to

Tibbs et al.: What People Are Writing About what the minimum rate of return should be but offers no answer. This might have been a good place to mention the average cost of capital concept.

As part of the investment process, a recurring audit (not an audit in the usual sense) should be made of all major investments. An investment audit is an appraisal, like those involved in the capital budgeting decision, of the rate of return and the competence of management. Two interesting questions are posed, "What constitutes an asset?" and "What is the value of an asset?" However, no answers are given. The techniques used to make an investment audit effective are similar to those required to make any program effective, including the use of charts as an aid in appraisal and control. Before-the-fact evaluation, i.e., budgeting, is also essential to effective planning and control.

PHILIP TIBBS

*The Ohio State University*

**Wanted: Top Business Managers** by PAUL B. WISHART, *Management Review*, March, 1965.

*In this article Mr. Wishart indicates the urgent need for managers, discusses the changes in management that will affect the training of future managers, and suggests some of the responsibilities that must be accepted by industry and the business school in order to attract, develop, and keep the type of men needed.*

According to Mr. Wishart, economic expansion; retirement, death, and obsolescence of present managers; and higher turnover because of the growing pace and complexity of the management job are creating a growing need for managers. The strong competition among companies for MBA graduates, the increasing use of executive search agencies, and the growing number of help wanted ads are all evidence of this need.

The time-honored method of developing a manager by letting him "learn the business" is no longer

practical, Mr. Wishart feels. The content of products and processes has become so technical that it would require a lifetime for a manager to get training in all the special areas involved. Thus, a broad-based education is required of today's manager in order to motivate and organize the more highly educated employee.

So far, Mr. Wishart says, business management has responded remarkably well in meeting all the changes. However, more dramatic and drastic changes are to be expected in the next decade.

The major responsibility for the development of future managers lies on the shoulders of industry. The climate created by industry determines to a large extent the kind of young men that will be attracted to the profession. Current managers must train themselves to look for, to hire, and to support understudies who are more capable than themselves. Current recruiting devices (application forms, interviews, tests, etc.) must be used carefully because they may weed out the genius as well as the below average applicant. Because of the changing situation, the individual who has proved successful as a manager in the past may no longer serve as a norm in hiring future managers. The successful manager of the future will be the "one with the skill and courage to use change as the basis for making the right risk-taking decisions." A company will be unwise to narrow its choice to a select group or adhere to the seniority system in granting promotions.

After a potential manager is hired, it is essential that he be constantly challenged. When a good man feels he is at the top of his job he will leave. Furthermore, a manager must be encouraged to keep himself abreast of new developments—to avoid obsolescence.

As for the formal preparation of managers, the Committee for Economic Development's pamphlet, "Education of Tomorrow's Managers," concludes "that academic standards are too low, that prepar-

ation is not effective in the development of managerial abilities, and that graduates are not as well prepared as they should be for starting careers in business." Business must accept part of the blame because it has not made the excitement and challenge of management known to the public. It must do something about this if the best young talent is going to be attracted to the profession. As a partial solution, the author suggests that industry maintain a close relationship with various department heads in universities and keep them informed of the needs of the management profession. Also, industry should take advantage of every opportunity to speak to students who are trying to select a career for themselves.

Mr. Wishart's theme can be summed up as follows: In order to get the 200,000 top business managers needed in this changing business world, industry must make a conscious effort to attract top young talent to the management profession, and the business schools must keep abreast of the needs of industry so that they can provide the broad-based education required of the future manager.

R. V. HARTLEY  
*University of Illinois*

### **Choosing and Using an Outside EDP Center, *Administrative Management*, January, 1965.**

*Companies need not invest in expensive equipment to enjoy the benefits of rapid data handling. This article suggests when and how to use an EDP service bureau.*

Smaller companies are discovering that they can use outside electronic data processing centers to handle such routine clerical jobs as payroll, inventory control, and accounting. Other companies use these centers for specially designed programs. Some that are considering switching to EDP use outside centers as a testing ground before installing new systems and costly machines.

This article identifies the four

major types of service center: (1) affiliates of equipment manufacturers that make their special machines and programming services available to the public, (2) independent companies in business specifically to sell their own machine time and programming services, (3) time sellers with excess capacity on EDP equipment who sell unbooked machine time to outsiders, and (4) banks that are prepared to take over the handling of operations such as payroll. The advantages and limitations of each type are discussed.

Many service centers have developed standard programs for common clerical functions. They give the client the benefit of the experience of the center at a cost substantially below that of a specially tailored program. This is fine provided it does the job. However, such a system may not quite fit the procedures in a particular case, and the cost of adjusting it may make it more expensive than a specially designed program. As an indication of what is available in this area, the article identifies and describes briefly some of the package programs offered by IBM's Service Bureau Corporation.

The form in which the data arrive at the EDP center is a significant factor in determining the service cost. Usually, before they can be fed into the machines, the data must be in one of three forms: punched cards, paper tape, or magnetic tape. The cost of the service will be substantially lower if the data arrive in forms that can readily be translated into punched cards or tape. Some companies find it profitable to handle all the preliminary processing themselves.

The variety of EDP services now available makes it possible for nearly any user to select the type best suited to his needs. A clear understanding of the kinds of service available, together with a knowledge of the specific qualifications needed in a particular case, is essential.

ARTHUR V. CORR  
*New York University*

### **The Teaching of Statistics in Business Schools—A Summary Report by EDWIN B. COX, *The American Statistician*, February, 1965.**

*A survey of present college business statistics courses results in conclusions and suggestions for the future form of statistics education in business schools.*

This article summarizes the report submitted by the Committee for the Study on the Teaching of Statistics in Business Schools, which is one of a series of studies on the status of statistics instruction by the American Statistical Association's Section on Training.

A questionnaire was sent to collegiate schools of business. The Committee felt the responses were representative of the present practice and planning affecting statistics instruction for the majority of students in business schools.

The study resulted in the following conclusions:

1. Most business schools have required at least one course in statistics, but advanced statistics courses and the application of statistics in other courses have been limited.

2. Recent developments have forced devotion of extensive attention to discussion and planning in the quantitative area.

3. The growing importance of quantitative subjects in business schools, with accompanying increases in qualified faculty, creates the opportunity and the need to establish a separate department of quantitative subjects.

4. The sequence of business courses in mathematics, statistics, and quantitative methods should be more effectively integrated.

5. More thought and effort should be devoted to increasing the role of the computer in statistics courses.

6. The growth in the amount and quality of quantitative instruction in business schools may attract a sufficient number of qualified persons to bring desirable changes in the variety and quality of statistics courses offered.

7. The advent of the computer, revised secondary school instruction, and the enthusiastic encouragement of businessmen have resulted in students who are better prepared for and more interested in quantitative methods.

8. The business faculty should meet this opportunity with courses and instruction that stimulate and encourage the student to work in statistics and the total quantitative area to the fullest extent possible.

9. Students with the interest and ability may then become outstanding specialists in application of quantitative methods to business and economic problems.

D. R. CARMICHAEL, CPA  
*University of Illinois*

**Providing Management with Control Information** by T. F. TYSON, *Cost and Management*, January, 1965.

*In Mr. Tyson's opinion, the majority of businesses are burdened with antiquated accounting systems that fail to provide management with timely, accurate, appropriate, and well presented information. Most companies suffer from drunkenness caused by an overwhelming maze of reports and malnutrition caused by lack of a regular, balanced diet of reliable information. Often the information gathered is more costly to produce than its value justifies and presents questions rather than propositions for alternate courses of action. This article offers some suggestions for solving this problem.*

Management must bear the blame for the deficiencies of present information systems, the author declares. In many instances management has failed to establish objectives, plans, policies, and procedures. Organizational structures are not properly designed or defined in relation to the goals of the business. Accounting systems, including the code and classification of accounts, do not reflect the organization structure. Bottlenecks impede the flow of information, and there is confusion between cost and

Tibbs et al.: What People Are Writing About value. As a result, management does not know the vital areas of business on which attention should be focused.

Mr. Tyson believes that in ten years many progressive corporations will surrender the title "controller" and substitute the title "information manager." The change will be necessary to emphasize the importance of reporting capability as a means of survival. However, in his opinion, many accountants will not be ready for the greater responsibilities unless they open their eyes and broaden their views.

In addition to the commonly produced reports concerning income and expenditure, cash forecasts, labor costs, efficiency and performance, and flow of funds, there is a large body of information not getting through to management. In many instances there is need for more comprehensive information related to inventory control, invoice analysis, accounts receivable control, labor turnover, direct costing, and variances.

Mr. Tyson believes that this type of information is absolutely necessary for effective control. However, before such information can be of maximum value, management must develop a sound organization structure. Therefore, Mr. Tyson reiterates as principles of organization the principles of objectivity, specialization, coordination, authority, responsibility, definition, correspondence, span of control, balance, and continuity.

To replace outdated, bottleneck-producing accounting systems, Mr. Tyson recommends the development of an information retrieval system tailored to the mission of the business. Such a system would involve the organization and coding of source information, the use of a system of indexing to locate or identify each subject item, and the development of means by which items are physically stored and/or brought before the requestor. The information cycle would encompass generation, reduction, analysis, dissemination, use, storage, retrieval, correlation, and re-use.

Difficulties arise in the installation of such a system because of differences in viewpoints, generics, semantics, and syntax. However, Mr. Tyson believes that the payoff from an effectively designed system can be substantial despite the problems of design and installation. Increased managerial efficiency will enhance the accountant's position, negating the threat of redundancy that now faces the accounting profession.

H. M. HELM, JR.  
*The University of Texas*

**The Profitability of a Firm's Purchase of Its Own Common Stock** by EUGENE F. BRIGHAM, *California Management Review*, Winter, 1964.

*This article illustrates the advantages for a company of investing in its own stock if other investment opportunities are limited.*

In recent years many well known companies have purchased significant amounts of their own stock through the open market. The principal reasons for such purchases seem to be these: (1) Acquisition-minded companies frequently find it easier to buy another company with treasury stock than with cash or a new issue of shares. (2) Some companies simply consider the purchase as an investment. Professor Brigham examines the rationale behind the purchase as an investment and discusses two ways in which it can be profitable.

Although the United States economy as a whole has grown rapidly during the postwar years, some sectors have not shared in this expansion. Serious investment problems have arisen in stagnant industries where demand is increasing too slowly to permit the profitable investment of all internally generated funds.

The excess funds could be distributed as dividends, but taxes, at ordinary income rates, would absorb some of the distribution. On the other hand, if these funds were invested in the company's own stock, any gain to withdrawing stockholders would be taxed at cap-

ital gains rates. The reduction of outstanding shares through purchase and retirement would increase the earnings per share of the remaining shares. The wealth of the continuing shareholders is thereby increased without detriment to those who sell out.

A second reason for investing in one's own stock is based on the assumption that a firm can reduce its over-all cost of capital through the use of debt in the capital structure. A company that has used retained earnings to retire debt could lower its cost of capital by incurring some debt and retiring common stock with the proceeds. If the Modigliani-Miller thesis (that capital structure has no effect on cost of capital) is correct, this second reason is invalid.

JAMES H. MCLEAN  
*The Ohio State University*

**ROI for New-Product Policy** by PHILIP A. SCHEUBLE, JR., *Harvard Business Review*, November-December, 1964.

*Return on investment as a performance measurement is winning growing use for evaluation of capital expenditures but is seldom applied as a guide for day-to-day decisions, chiefly because of the difficulty of calculating it and the limitations of classical accounting concepts in providing information. The author offers solutions to these two problems that would permit the application of return on investment analysis to marketing investments.*

"Classical accounting philosophy," according to Mr. Scheuble, will lead management toward the selection of unprofitable ventures and the rejection of highly desirable ones. Accounting is concerned with the periodic determination of net income, whereas the profitability of investments must be considered over the entire life of the project. According to accepted accounting methodology, all costs relative to a new product can be either expensed as incurred or amortized over future periods. The

first method can crush a potentially profitable product. The second can protect a very unprofitable one. Estimated earnings to be realized from a new product must be related to the necessary investment over a specified period of time. Moreover, accounting procedures do not give effect to the time value of money.

Mr. Scheuble makes two suggestions to facilitate return on investment analysis: the use of nomographs and the use as a time base of the maturity of the project rather than its entire economic life. He also presents a formula analyzing each of the components of a firm's total return on investment which shows not only the profitability of the various products but also how intensively total assets are being utilized and the degree of excess capacity.

The calculations necessary to determine the ROI can be both laborious and time-consuming. In most cases absolute precision is gladly traded for rapidity of solution. With the use of a nomograph the ROI can be calculated in a matter of seconds. The data needed are the desired rate of return; the time base or period necessary for the product to reach maturity; average annual income; and the total investment needed. By locating these four points on the nomograph the analyst can tell whether the annual average income is sufficient to amortize the investment and provide the desired return. The nomograph can be used to determine total investment if the other factors are known, or with all cost and volume data available the problem can be worked back to determine the ROI.

Although the maturity period of a product investment cannot be determined exactly, it is easier to predict than total life, and its use forces new products to become self-supporting within a calculable period. For practical purposes, maturity is reached when sales show signs of stabilizing. What is being sought is a point in time that can be used as a yardstick of the results achieved by the original in-

vestment. When a product has reached maturity it is usually necessary to consider new major expenditures of effort.

An analysis of ROI for an enterprise would show the following components: (1) contribution to income from old products ( $R_o$ ), i.e., those having reached maturity, as defined above, related to the assets employed; (2) new products ( $R_n$ ), i.e., those not having reached maturity compared to that portion of total assets used to support these new products ( $a$ ); and (3) the return from the investment in new products ( $R_i$ ) in relation to investment costs, ( $k$ ), which must be determined from a separate analysis. ( $k$  is the proportion of all assets devoted to the new investment divided by the sum of old assets plus new assets.) The ROI for the enterprise can be expressed as:

$$R = R_o (1-a) + R_n a + R_i k + j(1-a)(R_n - R_o)$$

( $j$  = new assets divided by the sum of the old and new assets.) This relationship holds true where costs of new investments are expensed rather than capitalized. To determine the firm's ROI if these costs are capitalized, divide  $R$  by  $(1 + k)$ .

Assume these values:  $R = 18\%$ ;  $R_o = 20\%$ ;  $R_n = 15\%$ ;  $a = 30\%$ ;  $k = .11$ ;  $j = .0055$ . Solving  $R_i$  gives you  $-4.5\%$ . By contrast, an analysis of the income statement may show a satisfactory ROI. The parameter  $a$  is of particular importance in indicating the utilization of assets for new products and the level of excess capacity. The use of  $k$  as a measure of the magnitude of new product investment should direct management to a fuller utilization of total assets. And  $j$  reflects the new assets acquired for the new products. When considered with the other parameters, the smaller the value of  $j$  the greater the utilization of the old facilities.

It has been shown empirically that the first business to enter a new market can achieve and maintain its market position even though competitors enter later offering con-



sumers lower prices. Aggressive action is necessary to take advantage of quick-breaking opportunities. Thus the nomograph and using a shorter economic life can help management steer new product programs more effectively.

SHIRLEY M. ARBESFELD, CPA  
*New York University*

**The Accountant's Responsibility for Effective Management Control** by JAMES C. COHRS, *Management Controls*, February, 1965.

*Mr. Cohrs, a partner in the Dallas office of Peat, Marwick, Mitchell & Co., summarizes what he acknowledges are fundamental concepts and procedures well known to accountants, but his emphasis is upon these concepts and procedures as prerequisites to effective management control of the modern business enterprise.*

The key to establishing sound management controls is effective reporting and interpretation of operating results: goals which may be achieved through responsibility reporting. Responsibility reporting produces reports that are timely, accurate, and readily understood; that report operating results according to individual management responsibility; and that compare performance with predetermined objectives, give timely emphasis to trouble spots, and indicate courses of corrective action.

Prerequisites for an effective responsibility reporting program are management backing, a well defined organization structure, an adequate accounting system, a system of budgetary controls, and a continuing program of evaluation and review. Once management has provided an organization structure that clearly defines responsibilities, the accountant can design his accounting system, including the chart of accounts and the cost system and perhaps a budgetary program, with the objective of yielding a series of integrated reports that summarize performance at each level of the organization.

Requirements for effective ac-

Tibbs et al. What People Are Writing About  
counting reports include elimination of all unnecessary details and useless figures; rounding figures when appropriate; avoiding technical accounting terminology; and including ratios, comparisons, and other tools of measurement. Always the accountant must design his reports to satisfy the needs of the readers, not his own tastes.

Underlying the reporting structure is a chart of accounts, supported by an appropriate coding system, which accumulates revenues and expenses according to areas of responsibility, function, and expense classification. The accounts should be designed so that cost items can be readily recorded without detailed analysis or reconstruction of accounts. Illustrating the requirements of a coding system, Mr. Cohrs hypothecates a maintenance department segregated between field and plant activities. To facilitate the preparation of necessary responsibility reports, maintenance expenditures in this system would be coded according to nature of expense, function performed, foreman responsible for expenditure, location of responsibility (plant or field), general ledger classification, and final responsibility (manufacturing). Mr. Cohrs suggests designing an eight-digit code to satisfy these reporting requirements.

Although responsibility reporting can be developed without an underlying budgetary system, a sound budget program operates on the principle of responsibility reporting. To be effective, budgets should be integrated with actual financial accounts and should not contain such uncontrollable items as allocated overhead costs.

Once an effective responsibility reporting system is achieved, the accountant should take an active role in counseling his management associates in the interpretation of his reports, pointing out trouble spots requiring attention and suggesting alternative courses of action. Mr. Cohrs concludes that the accountant's main responsibility in developing effective management

control must be the motivation of corrective action; this cannot be achieved unless the accountant takes an active role in working with his fellow managers.

The merit of Mr. Cohrs' article is not that it presents anything particularly new but that it concisely summarizes the principal elements in responsibility reporting for effective management control and the accountant's role in the preparation and interpretation of reports.

E. JOHN LARSEN, CPA  
*University of Southern California*

**Analysis of Investment Alternatives Which Affect Warranty Costs** by LARRY R. GSELLMAN, *The Engineering Economist*, Fall, 1964.

*This paper points out the importance of considering the time value of money when analyzing investment proposals that are designed to affect warranty costs.*

The author notes that in general industry has overlooked the need for "time value of money" analysis in dealing with warranty cost problems even though the importance of warranty cost analysis has been magnified by the increased length of warranties and the expectation of even greater increases in their length in the future.

The author develops a general solution to a problem where failures which follow the normal distribution can be eliminated by a design change that would increase production cost. The present worth of the increased production costs is matched against the present worth of the savings associated with the elimination of the warranty work on the component that has proved troublesome in the product design. This excess present worth approach was selected rather than the internal rate of return since the formula for the present worth of the savings would prove difficult in the trial and error approach of the internal rate of return model. A trial and error solution would be difficult since the formula does not lend itself to the use of present worth tables.

The proposed model is illustrated by a sample problem that familiarizes the reader with the application of the present worth formula that is derived in the paper and stresses the need for considering the time value of money.

The article is well written and worth attention since it focuses on an emerging problem that to date has been given little discussion. Although the paper deals with a specific case involving a normal distribution it nevertheless is sufficiently detailed to provide the approach that would be required to perform a "time value" analysis in problems involving distributions other than the normal.

JOSEPH F. SCHIRGER  
New York University

**Synchromation of Distribution Functions Increases Profits** by E. R. AMERIE, *Cost and Management*, November, 1964.

*The author proposes a "total systems" approach to distribution as a key to synchronization of planning and control efforts in the future. (Synchrotation is his word to denote synchronization of all the parts making up a total system.)*

Distribution functions currently comprise industry's third largest cost, and this area seems to provide significant opportunities for profit improvement. By "streamlining all the distribution functions into a single profit centre accountability structure," the author suggests, we may be able to alleviate many of the inadequacies inherent in present corporate distribution organizations.

The objectives of distribution can be stated generally to be the provision of maximum customer service (delivering products to consumers with a minimum of delay) while minimizing all relevant costs, particularly investment in inventories. An efficient organizational structure is obviously essential to optimal accomplishment of these objectives, but it does not appear to the author that many companies have approached distribution in

this perspective. Instead, the situation is chaotic. Overlapping departments generate a multiplicity of decision making centers, thereby tending to impair clear lines of authority and responsibility. If this situation is in fact unrecognized and unnoticed by top management, as the author contends, it indicates even more vividly the need for thorough analysis and coordinated efforts toward improvement in these functional areas.

Study of the distribution system therefore must begin with the organizational structure. Only within the most efficient framework can a company hope to attain its predetermined goals while minimizing relevant costs. The author proposes an organizational structure designed to provide an integrated approach to problems of distribution. The function would be divided as follows:

*Executive Office Level*—sales demand forecasting, traffic, purchasing, production planning and inventory control, and package design

*Synchromated Level*—production planning, inventory control, purchasing, receiving, shipping, materials handling, traffic, and customer service

*Distribution Center Level*—local cartage and shipping, receiving, materials handling, inventory control, facility maintenance, and customer service—order processing. (The external sales organization would be completely segregated from all activities going on inside the center.)

Company chief executives would formulate general objectives and philosophies, but departmental goals must be translated more specifically at lower levels. The synchromated level would be headed by a factory manager with a planning-distribution manager reporting directly to him and acting as an intermediary between his position and the operating levels within this function. A distribution center would normally be headed by a distribution manager, and he, together with the factory manager, would report to a vice president

responsible for the entire distribution activity.

After analyzing the organizational structure, the author would direct subsequent studies to specific areas in which these functional activities will occur. Research can serve to indicate markets in which sales effort is potentially most productive. Thorough analysis of competitors' activities may provide a foundation for development of appropriate strategies and marketing programs, and minimum criteria for sales and profits can be established on a product-location basis. (A logistics approach to sales effort should prevail.) Secondly, since present distribution facilities normally do not coincide with population centers, the planning of future outlets should proceed similarly in a logistics perspective because only in this way can transportation costs be reduced significantly.

The author further indicates that computer technology is becoming increasingly important to the optimization of distribution efforts, particularly in the areas of inventory control, stock replenishment, and centralization of stock locations. Similar innovations will eventually pervade every area of distribution, and the full implications of these changes on management techniques are as yet unknown. Given these factors, a "total systems" approach to distribution is essential, and it should certainly ease the path of progress that is to come.

The author implicitly concludes that the distribution function will eventually command its own organizational structure. He contends that a broad approach, encompassing thorough analysis of all relevant areas, is essential to the development of an integrated distribution functional organization as a "single profit centre accountability structure." In effect, he argues that the optimal accomplishment of distribution's stated objectives depends to a very large extent on the successful implementation of this approach.

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