Management Science

Publication details, including instructions for authors and subscription information:
http://pubsonline.informs.org

Book Reviews

To cite this article:
(1967) Book Reviews. Management Science 13(12):C-424-C-428. https://doi.org/10.1287/mnsc.13.12.C424

DAVID J. WARREN has been named assistant manager of the Operations Research & Systems Dept. at Esso Mathematics & Systems, Inc., Florham Park, New Jersey. He has worked in the Operations Research Section and was head of the Marketing Section when Esso Mathematics was formed.

LEON WHITE, MIT, has been appointed College News Editor of Management Science, Series C.

BOOK REVIEWS

Editor: Philburn Ratoosh, Center for Research in Management Science, Stephens Hall, University of California, Berkeley, California 94720

BARNETT, C. C. JR. AND ASSOCIATES, *The Future of the Computer Utility*. New York: American Management Association, 1967. Pp. 158. $9.00.

This book is a research report prepared in a non technical manner by nine students at the Harvard University Graduate School of Business Administration for business managers desiring information about multiple user, on line, time sharing computer systems. It should be of primary interest to the operating managers whom management scientists assist.

The authors' objectives were to provide information to managers, to present a classification scheme helpful in defining computer utilities, to present systematic coverage of the positions of organizations most intimately involved in the growth of computer utilities, and to present some predictions about the future of these computer utilities.

The book is divided into eleven chapters followed by a bibliography, glossary, and index. Chapter titles are: "What is a Computer Utility?", "Important Trends in Data Processing", "Fundamentals of Time Sharing and Data Communications", "Availability of Utility Requirements", "Current Computer Utility Offerings", "The Long Run Potential of the Computer Utility Concept", "The Practicality of the Computer Utility", "The Problem of Regulation", "The Influence of the Interested Parties", "The Future of the Utility Concept", and "Impact on the Businessman".

The authors define "computer utility" as a generic term which describes a whole spectrum of computer oriented facilities offering various services to a variety of dissimilar users with a system which includes a time shared central computer hooked up through a communications network to remotely located terminal devices.

They propose a classification scheme based upon a distinction between an information bank (IB) which only provides a user with access to an information file supplied and maintained by the utility, and data transformation utilities (DTU) which allow users to supply some of the data and to have operations performed on these and other data supplied by the utility. Their use of the term "information bank" is perhaps unfortunate but the basic distinction is valid. In some areas the term "data bank" has gained considerable currency and is, at least, consistent with the concept of a data transformation utility. However, this is a dynamic field and neither term is included in the USA Standard Vocabu-

lary for Information Processing. The reviewer suggests that the terms "data bank" and "information bank" be used interchangeably for operations of the first type described above while the terms "information transformation utility" and "data transformation utility" could be used interchangeably for operations of the second type.

The data transformation utilities are further classified by the authors as either computation or commercial processing utilities following the existing distinction between scientific and business computer installations. In their computation utility the user normally would use conversational mode to perform complex mathematical calculations on relatively small amounts of data inputs while the commercial processing utility user would normally not need conversational mode, and would perform relatively few and routine operations on relatively large amounts of inputs. Each of these primary classifications is further subdivided into dedicated and non dedicated, general purpose types of services.

Chapter two presents background information on recent developments in hardware, software, availability of qualified people, and the changing nature of the service bureau industry. They conclude that the personnel shortage is top management's biggest problem of this decade.

Chapter three is concerned with the fundamentals of both time sharing and data communications. Chapter four discusses the availability of the hardware, software, communications and data requirements of the computer utilities. Chapter five describes some of the time shared computer services which were operational in late 1965. Chapter six on the long run potential of computer utilities concludes that the information bank has wider applicability for business firms than the data transformation type of utility. Chapter seven is addressed to the economics of computer utilities while chapter eight discusses the regulatory problems of the computer utility concept, and chapter nine discusses the marketing strategies of the principal computer manufacturers and communications carriers.

Chapters ten and eleven contain the authors' predictions concerning the future of the computer utility concept and its impact upon businessmen. They conclude that unless communications charges can be reduced from present levels the non dedicated DTU type of service is not feasible outside large metropolitan areas, and the inquiry only type of IB is not, generally speaking, economically feasible from the standpoint of the supplier of the service. Where utilities can serve many users who have related tasks to perform the outlook is rosier but those utilities offering a dedicated DTU service will encounter difficulties. The most likely to succeed are the utility offering standard program packages to large audiences and the utility offering man-machine interactive problem solving capability while those which can offer participation in a common data base to which users contribute (such as a credit bureau) will also flourish. They expect that computer utilities will not be regulated as such and that within the next five years many computer utilities will be established. The major factors which will slow the development of computer utilities are expected to be transmission costs, standardization of hardware and software, compilation of data bases, and security.

In summary this is an interesting book on an important and timely topic which is well worth reading.

Alfred L. Kahl, Jr.
University of Georgia

W. J. FABRYCKY AND PAUL E. TORGERSEN, *Operations Economy: Industrial Applications of Operations Research*, Prentice-Hall, Englewood Cliffs, New Jersey, 1966, pp. 486, $16.00.

According to the authors, this book extends those familiar procedures of engineering economy dealing with economic evaluation of alternative projects to include methods for evaluating operational alternatives. In this sense, this book is another addition to the "new" group of engineering economy texts such as *The Analysis of Management Decisions* by Morris or *Economic Analysis for Engineering and Managerial Decision-Making* by Barish. This reviewer's impression is that this text departs further from the traditional engineering economy texts and resembles more closely texts in operations research. In other words, the authors cover the selected topics of OR at a level which is meaningful to the upper class student in undergraduate business school or the first-year student in graduate school of business administration, or possibly, industrial engineering. There are six parts and appendices, together with over 200 numerical problems in the text.

Part 1 introduces the working definitions of terms, the process of model building, and some topics from statistics and probability, including Monte Carlo method. Although some mention was made about the conflict of objectives (p. 7) and about effectiveness and efficiency in Barnard's sense (pp. 8–10), there seems to be room for including such concepts as suboptimization, decision-making under uncertainty, subjective probability, and decision maker's utility function.

Part 2 starts with break-even analysis, economic theory of production function, and a fairly complete discussion of manufacturing progress (learning) models. Next two chapters make up the traditional subject area of engineering economy. Beginning with the concepts of present value and various depreciation methods, several yardsticks for evaluating alternative equipment are examined for the cases of single alternative, multiple alternatives, multiple alternatives under unequal service life and sunk cost. The problem of replacement is then considered with the identical equipment, by MAPI, and under improving equipment and/or inflation.

Finally, there is a brief discussion of units which fail. Although the coverage of equipment investment is at a fairly detailed level, the concept of economic life seems to require further clarification. For example, the concept of infinite planning horizon can be introduced especially under the case of unequal service life (pp. 160–162). Also the discussion of risk dispersion as an objective criterion would have been beneficial.

The treatment of statistical quality control in Part 3 covers various control charts, $\bar{X}$ and R charts, P chart, and C chart, while single, double, and sequential plans are discussed under acceptance sampling. This is followed by inventory control models next. Under deterministic models, EOQ model is modified to treat the cases of finite replenishment rate, quantity discount, variable unit cost due to learning process, and finite shortage cost. Then, the authors proceed to explain probability models of reorder point system through the Monte Carlo analysis, numerical approach and mathematical analysis.

Obviously the authors made a choice here of excluding periodic order cycle system, inventory models under constraint, aggregate production smoothing

problem, and sequencing-dispatching problem. One can legitimately raise the question as to whether the treatment of the inventory control model can be complete without at least mentioning some of these topics, especially in view of the fact that the coverage of deterministic models with finite shortage cost takes up ten pages (pp. 276–285).

In part 5, waiting line problems are examined under deterministic and probabilistic settings. The derivations of elementary waiting line models are given under exponential, constant, and unspecified service time distribution. Also the usage of the finite population queuing table is explained within the context of maintenance problem. The last section has three chapters on distribution methods, simplex method of linear programming and dynamic programming, respectively. Emphasis is placed on the mechanics of solving numerical problems rather than on the exposition of underlying theory. For example, duality in linear programming takes up a mere two pages. Similarly, dynamic programming is examined in the contexts of several simple numerical examples in shipping, procurement, and replacement problems.

This book is a useful addition to the growing list of texts in operations research and may also be used as supplementary material for courses in production management. Numerous problems strengthen the pedagogical value of this text. One major drawback of this text seems to be in placing undue emphasis on mechanical extensions of the basic models. Perhaps it can be hoped that the book may be improved in the future by concentrating more on the basic concepts and their underlying assumptions and leaving the modification and extension of the basic conceps to the user.

Y. S. Chang
Boston University

HAIRE, MASON, GHISELLI, EDWIN E. AND PORTER, LYMAN W., *Managerial Thinking: An International Study*. New York: John Wiley & Sons, Inc., 1966, $7.50, 298 pp.

This is an excellent slim volume on three counts. *First*, although it represents the barest scratching of the surface of the underlying wealth of knowledge pertaining to international aspects of the management phenomenon, it is a research-based monograph dealing with managerial thinking in various cultural settings.

Second, although it is tentative methodologically, it demonstrates how to engage in meaningful and fruitful research albeit using questionnaires—a research tool which is looked upon by many social scientists as less than adequate. Fourteen countries and some 3639 (table 2) managers were involved in this study of managerial attitudes concerning the managerial role, leadership styles and satisfaction associated with managerial positions. In a sense this study rejuvenates the use of questionnaires (the authors are all psychologists).

Third, in a decade when the magnitude of theorizing appears to have enveloped the testing of theories, this book also represents a partial testing of modern organization theory—especially the theoretical formulations of the late Douglas McGregor.

The findings of this study are numerous and if there is a single broad finding which emerges from it, "it must be the existence of recognizable cultural clusters of countries." Of course, the nature of international and comparative manage-

ment can hardly be considered without taking this cultural aspect into account. While some attribute everything to culture, and while no one can deny the cultural influence permeating the myriad aspects of life, it is more fruitful to empirically determine, as Haire, Ghiselli and Porter have done, the nature and form of cultural influence in given types of human endeavor.

This is a short book of 181 pages (excluding the appendices) and is enjoyable reading. It is unpretentious in what it says and will certainly give a meaningful boost to the studies in the relatively new sciences of management/administration. It should be a required reading for all, especially graduate students, in the schools of business. One only wishes, *post facto*, that the volume was also available as a paper back at a nominal cost for classroom use.

S. Benjamin Prasad
Ohio University

BOOKS RECEIVED

ABRAMOWITZ, IRVING *Production management*. New York: The Ronald Press Company, 1967 $8.00, 362 pp.

ADELMAN, IRMA AND THORBECKE, ERIK (Eds.) *The theory and design of economic development*. Baltimore, Maryland: The Johns Hopkins Press., 1967, $12.95, 427 pp.

ALEXIS, MARCUS AND WILSON, CHARLES Z. *Organizational decision making*. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1967, $10.00, 447 pp.

BOWMAN, EDWARD H. AND FETTER, ROBERT B. *Analysis for production and operations management*. Homewood, Illinois: Richard D. Irwin, Inc., 1967, $9.50, 870 pp.

CAMERON, RONDO *France and the economic development of Europe 1800–1914*. Chicago: Rand McNally & Company, 1967, $3.75, 346 pp.

CARSON, DAVID *International marketing: A comparative systems approach*. New York: John Wiley & Sons, Inc., 1967, $9.97, 539 pp.

DRAKE, ALVIN W. *Fundamentals of applied probability theory*. New York: McGraw Hill Book Company, 1967, $9.75, 283 pp.

DUFFIN, RICHARD J., PETERSON, ELMOR L. AND ZENER, CLARENCE M. *Geometric programming*. New York: John Wiley & Sons, Inc., 1967, $12.50, 278 pp.

DYE, THOMAS R. *Politics, economics and the public: policy out-comes in the American states*. Chicago, Illinois: Rand McNally and Company, 1967, $6.00, 340 pp.

ENKE, STEPHEN (Ed.) *Defense management*. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1967, $12.95, 385 pp.

GOODWIN, HERBERT F. AND MOORE, LEO B. *Management thought and action in the words of Erwin H. Schell*. Cambridge: The M.I.T. Press, 1967, $7.50, 227 pp.

GREEN, PAUL E. AND FRANK, RONALD E. *A manager's guide to marketing research: Survey of recent developments*. New York: John Wiley & Sons, Inc., 1967, $7.95, 185 pp.