including how to make up and use QuickLibraries and external functions.

One of the very powerful features of Visual BASIC for DOS is its ability to provide a text-based graphical user interface (GUI) consisting of menus, windows, buttons, and other controls similar to those available in the Microsoft Windows environment. Chapters 12 to 15 explain how to use these in programs.

In much of the remaining 12 chapters, Cooper describes a number of routines that perform useful scientific and technical functions, such as the simplex optimization of variables, fitting data to functions, smoothing and differentiation of data, matrix algebra, and fast Fourier transform. Output of screen graphics—in particular graphs—to a number of different types of display is covered in a chapter of its own. This naturally leads on to printing from Visual BASIC for DOS to a number of common printers and plotters.

In the last four chapters, the author goes into detail about programming the PC's serial port, the general-purpose interface bus (GPIB), and other means of acquiring measurements of physical properties. Appendix A includes an introduction to DOS for those readers moving from other operating systems; and Appendix B describes the elements of assembly language programming on 8088, and 80×86 based computers. Neither of these are sufficient for a novice to computers but both cover just enough detail for readers familiar with programming on other computers using different languages or operating systems who want to make the move to programming PCs. To supplement these appendices, many books are available that cover in detail DOS use and DOS assembly language programming.

In summary, James W. Cooper's book *Visual BASIC for DOS* will be of most value and interest to experienced programmers who want to get started using Visual BASIC to develop technical and scientific applications. It moves rather quickly through some of the material and is split into 28 convenient, self-contained chapters for easy reference.

Steven Gould
1413 Northshore Woods Drive,
Knoxville, Tennessee 37919

KARLÖF, BENGT and ÖSTBLOM, SVANTE 1993, *Benchmarking: A Sign-Post to Excellence in Quality and Productivity,* John Wiley and Sons, Chichester, England, X + 197 pp., $39.95.

The authors state that they have written this book as a practical guide for all managers concerned with cost and efficiency. Cost and efficiency should be prime concerns of any organization that wants to succeed in a competitive environment; usually only the parts of the system exposed to competition are under direct pressure to improve performance. The benchmarking approach suggests that to achieve excellence, the organization must compare all its parts, including the noncompetitive parts of staff organization, with best practice performance.

The book is structured in nine chapters. In chapter 1, the introduction, Karlöf and Östblom discuss the notions of efficiency and productivity, the effects of benchmarking, the skills needed, and the elements of the benchmarking process in practice. In chapter 2, they discuss aspects

and categories of benchmarking.

For analytical purposes, the authors make (p. 35) a distinction among three key aspects of overall performance: quality, productivity, and time. The quality aspect comprises the delivery of value to the customers, regardless of production cost. Productivity, on the other hand, is a matter of cost minimization for a given output volume. The third aspect, time, is treated separately because it has gained such great importance as a measure of performance. The authors note, however, that time could more stringently be regarded as a subcomponent of productivity.

The categorization of the benchmarking is based on the population in which the best practice organizations are found. When comparisons are made within an organization, for example, branches, subsidiaries, or sales groups, the authors use the notion of internal benchmarking. When best practice is found in similar or identical organizations elsewhere, such as competitors and colleagues, the process is termed external benchmarking. The final category is functional benchmarking, which is used in comparing functions, for example, sales, in top companies in different industries.

The rest of the book is concerned with the implementation of benchmarking. Although the process of benchmarking could be conducted in a number of ways, the authors advocate one in particular. In chapter 3, they outline this approach, a five-stage process: (1) deciding what to benchmark, (2) identifying benchmarking partners, (3) gathering information, (4) analysis, and (5) implementing for effect. They describe the five stages in more detail in chapters 3 through 8. The final chapter is on "bench-

learning," which is the authors' way to relate leadership development and training to the needs of the business.

Waves of fashion have rolled over the fuzzily defined field of management. Some of the latest ideas have been marketed under such labels as business process reengineering and total quality management. Karlöf and Östblom argue that benchmarking is not just another fad. Other management approaches, for example, reengineering, however have also focused on improvement in such measures of performance as cost, quality, service, and speed, because these four measures represent what companies have always seen as what it takes to satisfy their customers [Cypress 1994].

With respect to productivity, the authors suggest different yardsticks that can be used to measure performance. One of these methods is the computation of a ratio measure of value-added productivity per employee. Another approach, which is more appealing from a theoretical point of view, is to make an ABC (activity based costing) analysis. Because ABC analysis, like benchmarking, uses operative processes and their underlying activities as a basis for analysis, it is an excellent method to use for the purpose of benchmarking (p. 54). I was surprised that the authors made no mention of DEA (data envelopment analysis) [Fried, Lovell, and Schmidt, 1993] which in recent years has emerged as a leading tool for evaluating productivity and relative efficiency. In some situations, DEA could be very useful as part of the benchmarking approach.

The book contains only a few references and almost half of them are in Swedish.

The authors mention directly or indirectly the work of others, but unfortunately they do not generally provide precise references to the literature.

If you consider benchmarking a possible way to improve performance in your organization, the book is very recommendable. It gives an overview of the benchmarking process, the demands on the organization, the criteria for success in a benchmarking project, and so forth. It will give you some idea of what benchmarking is about before engaging outside consultants to do some of the work.

References

Cypress, Harold L. 1994, "Reengineering," *MS/OR Today*, February, pp. 18–29.

Fried, Harold O; Lovell, C. A. Knox; and Schmidt, Shelton S., eds. 1993, *The Measurement of Productive Efficiency: Techniques and Applications*, Oxford University Press, New York and Oxford.

Per Nikolaj D. Bukh
Department of Management, University of Aarhus, DK-8000 Aarhus C, Denmark

BROWNE, MAIREAD 1993, *Organizational Decision Making and Information*, Ablex Publishing Corporation, Norwood, New Jersey, 256 pp. $26.95.

Browne provides a review of organizational decision making and how information is used in making decisions and a good review of literature of the various models of organizational decision making. The author compares the classical, bounded rationality and political models of decision making, providing a rich basis for understanding the concept of decision making beyond Simon's commonly cited three-phase model [Simon 1977]. The author points out that although the various models are based on different assumptions and originate from different disciplines, they are compatible.

Organizational Decision Making and Information is the result, perhaps in part, of a research project concerning two theories of decision making and information use formulated from the above-mentioned models. The models were empirically tested using decisions made by high level decision makers over several years. The book is laid out as a dissertation with a problem introduction, review of literature, hypotheses, data collection, and conclusions.

Based upon the existing literature, primarily the work of Mintzberg, Raisinghani, and Theoret [1976]; and Cohen, March, and Olsen [1972], Browne proposes the following two research questions:

(1) Is decision making complex but orderly?

In exploring this research question, Browne tests propositions that the decision-making process contains such routines as decision diagnosis, search and authorization; such phases or supporting routines as communication; such dynamic factors as delays and feedback; and such information behavior by the decision maker as satisficing. Data from the reported project showed that high-level decision making is complex but orderly. However, Browne indicates that decision making does not necessarily follow the rational model in which each task in the process is carried out only once.

(2) Is decision making an exercise in organized anarchy?

To seek answers to this research question, Browne formulates propositions that information is available within an organization through several independent forms of problems, solutions, and so forth; that de-