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simulation models.

Many aspects of this book recommend it as an excellent source for both academic and management professionals alike. Each chapter stands on its own, and combined they present a good case for the study of computational organization theory. Without bogging the reader down with programming technicalities, the authors show that their virtual experiments provide a convenient way to test organization theories that can later be tested with real organizations. As a result, both academic and management professionals alike would find this book useful, though the book does focus more heavily on the academic side since the area is still too much in its early stages to offer many tools for managers.

References

- Laird, J.; Congdon, C.B.; Altmann, E.; and Doorenbos, R. 1993, *Soar User's Manual: Version 6*, Electrical Engineering and Computer Science Department, University of Michigan, Ann Arbor, Michigan, and School of Computer Science, Carnegie Mellon University, Pittsburgh, Pennsylvania
- Lawrence, Paul R. and Lorsch, Jay W. 1967, *Organization and Environment: Managing Differentiation and Integration*, Harvard Business School Press, Boston, Massachusetts.

Robert W. Brennan

Department of Mechanical and Manufacturing Engineering, University of Calgary, Calgary, Alberta, Canada T2N 1N4

LILIEN, GARY AND RANGASWAMY, ARVIND 1998, *Marketing Engineering: Computer-Assisted Marketing Analysis and Planning*, revised edition compatible with Office 97, Addison-Wesley Publishers, Reading, Massachusetts, 400 pages, \$118.00.

If engineering is "calculated manipula-

tion or direction," then what is marketing engineering? Lilien and Rangaswamy do not offer a formal definition but suggest that it involves the use of decision models to make marketing decisions. This is in contrast to what they term "conceptual marketing," which relies on mental models to make such decisions.

Marketing Engineering is part of a more comprehensive package consisting of text (Volume 1), a set of 25 software tutorials (Volume 2), and videotapes. It was designed primarily for an MBA elective course in marketing. *Marketing Engineering* is organized into four parts comprising 11 chapters. Part 1 is an introduction in which the authors lay out basic concepts of marketing decision making and market response models. Parts 2 and 3 concern formal models keyed to various marketing decisions—segmentation, positioning, strategic analysis, new-product decisions, advertising, channel choice, and pricing and promotion. In the final chapter, the authors sum up the marketing-engineering approach.

Before getting into an assessment of the pros and cons of this book, a caveat is in order. Lilien and Rangaswamy claim that to read their book, "Students need not have strong backgrounds in quantitative methods." Well . . . any book like this one must cover lots of ground. And in doing so, it must—of necessity—skimp on the details. But the details are just what neophytes need to really understand the concepts. So a broad-brush survey runs the risk that student readers will treat the methods presented as black boxes.

That said, the book is for the most part quite clear and well written. Some chap-

ters, particularly chapter 4 on positioning, provide insightful surveys of complicated topics, and at just the right level for the intended audience. In chapter 7, the presentation of conjoint analysis is excellent. On the other hand, a few chapters—especially chapter 8—could have been updated with the literature reviews. Overall, the book provides at least brief coverage of key formal models useful in marketing.

As with any textbook, one can quibble about the choice and depth of coverage. In my opinion, the forecasting models presented in chapter 5 are either very dated (for example, exponential smoothing) or hardly ever used (for example, input-output analysis). The space devoted to these models might better have been used for a better, deeper explanation of the multinomial logit model. I also felt that some of the curve-fitting models presented as appropriate to new-product decisions really could never be used for that purpose. Life-cycle models, for instance, are really appropriate only to studying product diffusion after the fact.

A helpful feature of Lilien and Rangaswamy's book is the frequent use of examples from the professional literature in marketing science. The authors could have slightly improved these by explaining some of the idiosyncratic terminology employed, but that is a minor concern. Overall the examples illustrate clearly how theory can be used and give students an inkling of how marketing-engineering models can be implemented.

Teachers of marketing with a quantitative bent will want to know how this book can be used. It seems most suitable for a class in which students have a firm back-

ground in statistics and management science. Even then, most of the models would have to be carefully developed in class. No one without a very strong background in management science could read this book unaided and understand the models. That's not a criticism of Lilien and Rangaswamy, who have undertaken a very challenging project here. It's simply to say that a 350-page book is necessarily a survey that must compress lots of technical detail while giving the reader a sense of the strengths and weaknesses of the marketing engineering approach.

Dennis J. Harseman

*College of Business Administration,
University of Cincinnati, Cincinnati, Ohio
45221*

BARD, JONATHAN 1999, *Practical Bilevel Programming: Algorithms and Applications*, Kluwer Academic Publishers, Dordrecht, The Netherlands, 488 pp., \$225.00.

This is probably the best book written on bilevel optimization. It is self-contained, rigorous, and practical. It could be used as a text for a graduate course on multilevel or global optimization and as a reference book for a course in game theory.

Bilevel programming is a static mathematical-programming version of the non-cooperative two-person game introduced by von Stackelberg [1952]. The general statement of problem is as follows: A leader tries to optimize his or her objective subject to some constraints but has to take into account the decisions made by a follower. The follower's decision-making problem involves optimizing his or her own objective subject to some other con-