onstrating how to handle additional constraints. In chapter 7, he enters briefly the project scheduling domain of networks for completeness. In chapter 8, he discusses generalized network flows, that is, networks with flow gains or losses. He includes a thorough discussion of a primal simplex method implementation. In chapter 9, Murty covers the minimum cost spanning tree problem and gives three early algorithms for its solution (Prim's, Kruskal's, and Boruvka's algorithms). He concludes the chapter by looking at constrained minimum cost spanning tree problems and the Steiner tree problem. In the last chapter, Murty presents blossom algorithms for solving matching and edge covering problems in undirected networks.

I compared Murty's book to two other books: *Linear Network Optimization-Algorithms and Codes* by D. P. Bertsekas [1991] and *Algorithmic Aspects of Flows in Networks* by G. Ruhe [1991]. Murty's book, with 623 pages, is in its own class as a more thorough and complete discussion, with more breadth and depth, of network flows and network-flow algorithms than the other two books. In fairness, I must point out that Bertsekas and Ruhe have a somewhat different focus; both give either pseudo-codes or key program source routines for some selected algorithms, whereas Murty doesn't. Readers who want to implement an algorithm quickly may find their books more useful in that respect. Bertsekas includes a chapter on performance comparisons of selected algorithms. Ruhe, on the other hand, discusses parametric flows most extensively. All three books are comparable in terms of style, readability, and notation used.

References

Bertsekas, D. P. 1991, *Linear Network Optimization-Algorithms and Codes*, The MIT Press, Cambridge, Massachusetts.

Ruhe, G. 1991, *Algorithmic Aspects of Flows in Networks*, Kluwer Academic Publishers, Dordrecht, The Netherlands.

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HOEKSTRA, SJOERD AND ROMME, JAC, eds. 1992, *Integral Logistic Structures, Developing Customer-Oriented Goods Flow*, Industrial Press, New York, 164 pp., $49.95.

This book is a practical text concerned with structuring the flow of goods from product development and delivery of raw materials, through processing, to delivery of the finished product.

Hoekstra and Romme present an integral logistic approach developed by the multinational Phillips Company; the authors were management consultants involved in logistic improvement projects. The book is based partly on earlier internal publications and other internal sources that are not freely accessible. The authors' stated purpose is to record the knowledge and experience acquired in the logistic improvement project and to make such information suitable for a transfer to a wider audience.

The authors focus on integral control, which means control of the planning and management of the whole flow of goods, from the arrival of supplies of raw materials and components to the delivery of goods to the customers. Central to the planning concept is the *decoupling point,*

which in general coincides with a main stock point that separates the customer-order part of the activities from the activities that are based on forecasting and planning. The firm must determine where the decoupling point should be for each product-market combination. This is a balancing process between market requirements and lead times in the production and distribution process, and the outcome of the trade-off forms the basis for the whole logistic organization.

The book is, after an introductory chapter, structured in three main parts. In part one, Hoekstra and Romme define concepts, such as basic structure and the decoupling point, for describing and structuring the organization. In part two, they describe methods and procedures, enabling the reader to use the concepts to describe the organization and to make decisions on restructuring. Finally, in part three, they deal with some practical examples that have contributed to the development of the presented logistic concept.

As a whole, the book is absolutely useful for managers, participants in logistics projects, and advisors. It is not written as a course textbook, but I believe that it is good collateral material for business students and students in some operations management courses.

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PERIGORD, MICHEL 1990, *Achieving Total Quality Management: A Program for Action*, Productivity Press, Cambridge, Massachusetts, 379 pp., $45.00.

Total quality management (TQM) has become one of the leading topics of discussion among managers and analysts worldwide. Stories of companies that have become much more successful in competition by adopting new quality management approaches have attracted considerable attention. The Deming Prize competition in Japan and, much more recently, the Baldridge Prize competition in the US highlight governments' encouragement of quality improvement.

The enthusiasm of TQM analysts and advocates is, therefore, easy to understand, but MS/OR analysts often cannot penetrate quickly to the tangible results and reasoning behind the claims. Those who have read a few of the leading experts' books on the subject find contradictions among their methods. Michel Perigord's book is intended to serve both as a good introduction to the subject for the newly interested and as a summary and reconciliation of leading views for the more knowledgeable.

Happily, the book succeeds well in meeting both objectives. Perigord, an engineer in the central quality department of Philips, France and a prominent member of the French Quality Circle and Total Quality Association (AFCERQ), skillfully combines theory and practical experience.

The book is divided into four sections. After reviewing the history of the major TQM approaches and the increasing role of quality in competition, Perigord defines and delineates the terms of TQM and the economics of the firm's quality/price relationship. In section two, he describes the five requirements for quality: conformance to requirements; prevention, which lowers