Book Selection

A Long View of Research and Practice in Operations Research and Management Science: The Past and the Future

Man Mohan S Sodhi and Christopher S Tang (eds)

Springer-Verlag GmbH, 2010. 317pp. £108.00, Hardback
ISBN: 978-1441968098

Journal of the Operational Research Society (2013) **64**, 1865.
doi:10.1057/jors.2013.122

Edited by Man Mohan Sodhi and Christopher Tang, this book does not fulfil the promise of its over-ambitious title. Nevertheless, it is a high-quality contribution to discussion about the past and future of (in the main) large-scale optimization. The book sets out to honour Professor Arthur M Geoffrion, who has not only contributed considerably to the theory of OR/MS over a long and distinguished career, but has also championed developments in its practice and education. The book consists of a compilation of 13 substantive papers bookended by an introduction and a concluding chapter by the editors. True to the book title, the book is split into two: six papers constitute Part 1 A Long View of the Past; and seven papers and the concluding chapter constitute Part 2 A Long View of the Future.

The six views of the past reflect the development of Geoffrion's main interests over his career. His focus on the development of mathematical programming techniques for solving large-scale problems efficiently in the late 1970s and early 1980s led to the development of solutions for large-scale, multi-commodity distribution problems. In 1978, he co-founded INSIGHT Inc., a management consulting firm specializing in supply-chain management and production planning. In the 1980s, he became interested in modelling formalisms and computer-based modelling environments as an approach to improving the quality, productivity and acceptability of OR/MS in practice. This reviewer found the story of the development of large optimization as described in the various papers (from both academics and practitioners) fascinating. The story is key to the development of the subject and profession of OR/MS in the United States. It is interesting therefore to view the history of OR/MS in the United States from the late 1970s through this particular lens. However, the story of OR over the same period in the United Kingdom looks rather different as it would do elsewhere in

Europe. This is neither here nor there in relation to Part 1, but is relevant for discussion of the future in Part 2.

Understandably, the papers in Part 2 are more varied and the ties to the theme of Geoffrion's career are looser. However, many of the papers do address aspects of the subjects introduced in Part 1 and the challenges of globalization will clearly keep the need for better ways to optimize supply networks on the agenda. Of particular interest are the contributions from commercial organizations: a paper on extending modelling interfaces to deal with uncertainty describes an extension of the LINDO interface; a paper on extending applications in the supply chain describes research projects at HP; and a paper on global trade processes and supply chain management describes the IBM approach, giving as an example its own transformation from a high-tech firm to a globally integrated enterprise. The next chapter, on the subject of the internet, looks at the intersection of cyber-infrastructure with the study on and practice of large-scale optimization as understood in OR/MS. Cyber-infrastructure is the term used for a US National Science Foundation initiative, which includes a focus on the support given to large-scale optimization in disciplines such as physical and biological sciences, engineering and economics.

The next two chapters, addressing health care and happiness, respectively, sit rather oddly with the rest of the book. Undoubtedly, health care will in the future provide plenty of opportunities for OR/MS but this literature review, although it contains a few pointers to the future, seems more suited to Part 1. The paper on happiness has little to connect it to the rest of the book but it is in any case a lively analysis of a future orientated topic. Finally, the concluding chapter by the editors suggests that the future of OR/MS lies in extending the domain of application, improving the research and education. The key they say is to improve the relationship between the client, practice, research and education domains. More-of-the-same-but-better is not very exciting but probably realistic (particularly for large-scale optimization). An opportunity was missed to indulge in some discussion of more adventurous possibilities.

The papers are well written and the book's structure is easy to understand. At £90 it is clearly aimed at the library rather than the individual market. It would be of interest to some of those engaged in large-scale optimization, and for those interested in the history of OR/MS it provides a fascinating case study.

Warwick University

Richard J Ormerod