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Preface

In recent years, distributed decision making has become of increasing importance and awareness in quantitative decision analysis. Particularly in application areas, like supply chain management, service operations, or managerial accounting, distributed decision making has brought about a paradigmatic shift. Consequently, for this second edition of *Hierarchies in Distributed Decision Making* the title has a little been changed. It now describes more precisely what this second edition is aiming at.

Thus, the first edition has been considerably extended by additional chapters on supply chain management, on service operations, and on multi-agent systems. The existing chapters, however, have been enriched as well. The relation to micro economics and to stochastic multi-level programming is made more explicit and in the introduction to principal agent theory self-selection and the problem of truthful communication have been added. In hierarchical production planning, the problem on aggregation-disaggregation is discussed more extensively, and the chapter on managerial accounting has gained by numerous improvements and extensions.

The structure of the text, though, has not been changed. Still Part I gives a fairly elementary introduction to distributed decision making, Part II is devoted to general application areas in the management sciences with an emphasis on hierarchical planning features, and Part III is focusing on negotiations and multi-agent systems. As to application areas, the text is concentrating on problems in organizational theory, in working time and manpower planning, in managerial accounting, in production and operations management, and in supply chain management. Indeed, most of the applications have to do with some aspects of supply chain management, investigating various coordination problems.
in this broad field. In doing so, the reader is provided with a host of comparatively easy-to-understand examples and standard settings. Dealing painfully with the specificities of particular and diverse areas of business administration would not be conductive to gain an understanding of the main concepts of distributed decision making.

Part I of the book and some of the chapters of Part II are now accompanied by exercises (together with the solutions) making it easier to be used as an introductory text on the graduate level. Since the first edition in 1999, I have had the opportunity to present part of the text repeatedly in class not only to my students in Mannheim but also to graduate students at the engineering department of Operations Management of the Bosphorus University in Istanbul as well as the department of Operations Management and Information Technology at the University of Auckland, New Zealand. All these lectures have greatly helped to further clarify basic notions, to simplify and unify the notation, and to add some more easy-to-understand examples.

Thus thanks are due to all these students, particularly to the small groups abroad who had a different background compared to the students in Mannheim. In fact, the text, at least of Part I, should be easily accessible to students having a typical background in business administration, particularly in medium-term production planning. From a formal point of view, the numerous examples are mainly restricted to simple linear programs. Intellectually, the level of abstraction and of conceptual thinking is comparable with the one usually encountered on a graduate level in micro economics.

Since the first edition, a lot of colleagues helped to improve the text. This is due to many members of the European Working Group on Distributed Decision Making, particularly to Prof. Dr. Carsten Homburg and Dr. Michael Krapp who contributed valuable comments. Dipl.-Wirt.-Ing. Erich Kleindienst assisted me in preparing the exercises, and parts of the doctoral theses of Dr. Rüdiger Eichin and Dr. Kirstin Zimmer enriched the text. Dipl.-Kfm. Ralf Bauer, Dipl.-Kfm. Michael Zimmermann, and Dr. Hans-Joachim Vaterrodt read parts of the manuscript and substantially helped to improve the presentation. All their contributions are gratefully acknowledged. Again I would like to express my gratitude to Gabriele Eberhard and particularly to Ruth Pfitzmann who permanently accompanied me in writing the many
versions of the manuscript. Finally, thanks are due to Dr. Werner A. Müller, Springer Publishing House, who encouraged me to prepare this second edition of *Distributed Decision Making*.

Mannheim, March 2003

Christoph Schneeweiss
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