

## Overview

Intelligent decision support using advanced decision technologies are becoming increasingly important in management. Data warehouses and data mining can be used to store and analyze product, inventory, and sales information. Simulation and optimization, which can be found in advanced planning and scheduling systems, can be employed for inventory, production, procurement, and distribution planning. Intelligent agents can e.g. communicate with different partners in the supply chain, assist in collecting information, share product information, negotiate prices, and distribute alerts throughout the logistics networks.

Thus, the goal of this book was to encourage the exchange of new ideas about intelligent decision support systems and to promote their use in the organizations' decision making processes. The emphasis was also being placed on emerging needs related to distributed and remote decision which could be supported through the web. New thoughts and new ideas for enhancing decision making through the use of web technologies and the World Wide Web was especially welcomed.

This book is an effort to present the path-breaking concept of intelligent decisions and discusses a few applications that demonstrate the need and importance of using advanced decision technologies for decision-making process. The book is divided into five broad chapters...

The first chapter "*Managerial Decision Making Using Cluster Analysis Methods*" by F. Hunka discusses about cluster analysis methods used for classification when nearly nothing is known about the internal structure of the explored data in decision making process. The structure of this chapter is as follows: a part is devoted to short description of cluster analysis with the focus on utilized methods and approaches and then is summarized requirements on the programming system mainly concerning object oriented paradigm. Next part presents the essence of decision making model and also an architectural structure of the model is described. The experimental verification of the

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model is a content of last part. Results and discussion of the problem is summarized in the end.

The second chapter "*Intelligent Software Agents for Data Analysis in Knowledge-based Systems*" by L. Ștefănescu and C.I. Popîrlan provides an overview of the state of research into knowledge-based systems and intelligent software agents and the problems associated with it. Subsequently, it outlines the reasons behind theories in using of multi-agent model for large knowledge-based systems and shows us the benefices for data analysis in a large contact center. It also focuses on the presentation of multi-agent approach using JADE for data analysis in knowledge-based systems, in context of contact centers. Finally, it highlights how contact centers become more complex in their function and organization so that the data analysis becomes more important to ensure consistency and efficiency.

The third chapter "*Decision-Making in the Context of E-Commerce Systems*" by P. Suchánek, D. Vymětal and R. Bucki explains the power of electronic commerce as tool for implementing business activities. In its first part it is describes the structure of e-commerce system and its management system, the methods of e-commerce systems modeling based on process oriented, value-chain oriented and multi-agent system oriented approaches. The second part focuses on e-commerce systems simulations as a decision-making support and the main attention is devoted to definition of production function, equations of state and heuristic management of the production process, all in direct relation to the implementation of simulation system.

The fourth chapter "*Exploiting Fuzzy Cognitive Maps in Resiliency related Management Decisions*" by D. Ward and P. Trucco throws light on the factors that force modern organizations and their management to encompass complex socio-technical-economical systems, risk management, crisis management and expert judgment in multi-actor and multi-criteria fuzzy decision making circumstances. The sum of these factors provides the ideal playing field for fuzzy logic theory and fuzzy cognitive mapping especially in the contexts of management decisions and business continuity management. The authors set out to provide an introduction to fuzzy cognitive maps, explaining the features of them. It further discusses the relative appropriateness to the two case studies. The first case study looks at operational resilience (analysis and allocation) in multi-actor and multi-criteria, collaborative environments. The second case study examines at operational resilience and business continuity management in key resource supply chains, which are now a key feature of modern enterprises and their globalized markets.

The last chapter "*Fuzzy Logic supported by ICT in Managerial Decision-Making*" by P. Wolf speaks about the changes in the paradigms of managerial thinking, complexity of problems needed to be solved, issues that deals with the growing system complexity of

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task, rate of uncertainty and risks of entrepreneurial activities. Further, applications of fuzzy sets in decision-making process are discussed with the scope to set a strategic goal that should be reached using a model situation of setting a strategy of long-term financing of an advertising campaign depending on the market saturation extent and limited amount of finances designed for the advertising campaign of the particular product. Finally, it concludes by highlighting the possibility to make general rules for dealing with particular situations that may occur, solved in most cases by particular case weighed methodology.

In general this book intends to be of great value to various interest groups including academics, researchers, and practitioners engaged in management organization at various strategic levels and whole field of decision making process.

**The Editor,**

A handwritten signature in blue ink, appearing to read 'G. J. ...', is positioned below the text 'The Editor,'.