Raquel J. Fonseca • Gerhard-Wilhelm Weber • João Telhada Editors

Computational Management Science

State of the Art 2014



Contents

Part I Energy **Evaluating Price Risk Mitigation Strategies for an Oil** 3 and Gas Company António Quintino, João Carlos Lourenço, and Margarida Catalão-Lopes Load Shifting, Interrupting or Both? Customer Portfolio Composition in Demand Side Management..... 9 Johannes Gärttner, Christoph M. Flath, and Christof Weinhardt Stress-Testing for Portfolios of Commodity Futures with Extreme Value Theory and Copula Functions 17 Pierre-Antoine Mudry and Florentina Paraschiv **Integrating Consumption and Reserve Strategies for Large** Consumers in Electricity Markets 23 Nigel Cleland, Golbon Zakeri, Geoff Pritchard, and Brent Young Controlled Approximation of the Stochastic Dynamic Programming Value Function for Multi-Reservoir Systems 31 Luckny Zéphyr, Pascal Lang, Bernard F. Lamond, and Pascal Côté A Computational Method for Predicting the Entropy of Energy Market Time Series 39 Francesco Benedetto, Gaetano Giunta, and Loretta Mastroeni Part II Logistics Demand Uncertainty for the Location-Routing Problem 47 with Two-dimensional Loading Constraints Thiago Alves de Queiroz, José Fernando Oliveira, Maria Antónia Carravilla, and Flávio Keidi Miyazawa

Location Game and Applications in Transportation Networks	55
A GRASP Algorithm for the Vehicle-Reservation Assignment Problem Beatriz Brito Oliveira, Maria Antónia Carravilla, and José Fernando Oliveira	63
A Heuristic for the Time-Dependent Vehicle Routing Problem with Time Windows Vincent Huart, Sylvain Perron, Gilles Caporossi, and Christophe Duhamel	73
Integer Programming Based Approaches for Multi-Trip Location Routing	79
An Agent-Based Approach to Schedule Crane Operations in Rail-Rail Transshipment Terminals	91
Vertical and Horizontal Collaboration in Inventory and Transportation	99
Part III Production	
Experimental Study and Statistical Analysis of Human Factors' Impact in Cell Production System	107
Planning Production and Workforce in a Discrete-Time Financial Model: Optimizing Cash-Flows Released Pedro Martins	115
Evaluating Supply Chain Resilience Under Different Types of Disruption Sónia R. Cardoso, Ana Paula Barbosa-Póvoa, Susana Relvas, and Augusto Q. Novais	123
Exact Solution of Combined Cutting Stock and Scheduling Problems Nuno Braga, Cláudio Alves, and José Valério de Carvalho	131
Fair Transfer Prices of Global Supply Chains in the Process Industry Songsong Liu, Roberto Fucarino, and Lazaros G. Papageorgiou	141

The Influence of Corporate Social Responsibility on Economic Performance Within Supply Chain Planning Bruna Mota, Maria Isabel Gomes, Ana Carvalho, and Ana Paula Barbosa-Póvoa	151
A MIP Model for Production Planning in the Roasting Coffee Industry	157
Optimization of Production Scheduling in the Mould Making Industry Bárbara Esperança Virgílio, Marta Castilho Gomes, and Ana Paula Barbosa-Póvoa	165
Constraint Aggregation in Non-linear Programming Models for Nesting Problems	175
Part IV Optimization Methods	
A Hybrid Genetic Algorithm for the One-Dimensional Minimax Bin-Packing Problem with Assignment Constraints Mariona Vilà and Jordi Pereira	183
The Partial Choice Recoverable Knapsack Problem	189
Stopping Times for Fractional Brownian Motion	195
An Empirical Design of a Column Generation Algorithm Applied to a Management Zone Delineation Problem Víctor M. Albornoz and Linco J. Ñanco	201
Modeling Multi-Stage Decision Optimization Problems	209
A New and Innovative Approach to Assess and Quantify the Value for the Customer	215
Bus Driver Rostering by Column Generation Metaheuristics Vítor Barbosa, Filipe Alvelos, and Ana Respício	225

	C , ,
(VI	Content

A Matheuristic Based on Column Generation for Parallel	222
Machine Scheduling with Sequence Dependent Setup Times Filipe Alvelos, Manuel Lopes, and Henrique Lopes	233
Population Games with Vector Payoff and Approachability	239