

Table of Contents

Foreword xxv

Preface xxix

Section 1 Theoretical Foundations of Logistics

Chapter 1

The Premises of Logistics: The Organisation of Warships in France in the 17th and 18th Centuries 1

Jacques Colin, Aix Marseille University, France & ESC Rennes School of Management Aix-en-Provence, France

Chapter 2

Optimization of the Vertex Separation Problem with Genetic Algorithms 13

Héctor J. Fraire Huacuja, Tecnológico Nacional de México, Instituto Tecnológico de Ciudad Madero, Mexico

Norberto Castillo-García, Tecnológico Nacional de México, Instituto Tecnológico de Ciudad Madero, Mexico

Chapter 3

Supply Chains under Security Threat: The First National Exploratory Study in Mexico 32

Miguel Gastón Cedillo-Campos, Transportation Systems and Logistics National Laboratory, Mexican Institute of Transportation, Mexico

A. Bueno-Solano, Mexican Institute of Transportation (IMT), Mexico

R. G. González-Ramírez, Pontificia Universidad Católica de Valparaíso, Chile

E. Jiménez-Sánchez, Mexican Institute of Transportation (IMT), Mexico

G. Pérez-Salas, Natural Resources and Infrastructure Division, ECLAC - United Nations, Chile.

Chapter 4

Intentional Food Contamination in the Food Supply Chain: Proposal of a Management System for its Prevention 56

Ramón Navarrete Reynoso, Universidad de Guanajuato, Mexico

Cecilia Ramos-Estrada, Universidad de Guanajuato, Mexico

Omar J. Purata, Universidad de Guanajuato, Mexico

Chapter 5

- Clio-Combinatorics: A Novel Framework to Analyze Military Logistics Choices Using Operations Research Techniques 79
Jesus Gonzalez-Feliu, Ecole des Mines de Saint-Etienne, France
Antoine Parent, Sciences Po Lyon, France

Chapter 6

- Optimization of Utility Functions in an Admissible Space of Higher Dimension 102
German Almanza, University Autonomous of Juarez City, Mexico
Victor M. Carrillo, University Autonomous of Juarez City, Mexico
Cely C. Ronquillo, University Autonomous of Juarez City, Mexico

Section 2 Implementations of Logistics

Chapter 7

- Analyzing Airport Capacity by Simulation: A Mexican Case Study 115
Catya Zuniga, Aeronautical University in Queretaro, Mexico
Miguel Mujica Mota, Amsterdam University of Applied Sciences, The Netherlands
Alfonso Herrera García, Instituto Mexicano del Transporte, Mexico

Chapter 8

- VisTHAA: A Statistical Tool for Comparison of Heuristics 151
Laura Cruz-Reyes, National Mexican Institute of Technology, Mexico
Mercedes Pérez Villafuerte, National Mexican Institute of Technology, Mexico
Marcela Quiroz-Castellanos, National Mexican Institute of Technology, Mexico
Claudia Gómez, National Mexican Institute of Technology, Mexico
Nelson Rangel Valdez, National Mexican Institute of Technology, Mexico
César Medina Trejo, National Mexican Institute of Technology, Mexico
Enith Martínez-Cruz, National Mexican Institute of Technology, Mexico

Chapter 9

- Modelling the Route Choice: The Role of Volume-Delay Functions in Transport Planning 178
Eric Moreno-Quintero, Mexican Transportation Institute, Mexico

Chapter 10

- The Influence and Management of the Supply Chain Performance of Manufacturing SMEs in Aguascalientes 210
Gabriela Ortiz Delgadillo, Universidad Politécnica de Aguascalientes, Mexico
Octavio Hernández Castorena, Universidad Politécnica de Aguascalientes, Mexico
Ma. de Lourdes Yolanda Margain Fuentes, Universidad Politécnica de Aguascalientes, Mexico
Francisco Javier Ornelas Zapata, Universidad Politécnica de Aguascalientes, Mexico

Chapter 11	
Comparison of Two Random Weight Generators for Multi-Objective Optimization.....	222
<i>Victor M. Carrillo, Universidad Autónoma de Ciudad Juárez, Mexico</i>	
<i>German Almanza, Universidad Autónoma de Ciudad Juárez, Mexico</i>	

Chapter 12	
A Hybrid Metaheuristic Algorithm for the Quay Crane Scheduling Problem	238
<i>Laura Cruz-Reyes, National Mexican Institute of Technology, Mexico</i>	
<i>Arturo Lam Alvarez, National Mexican Institute of Technology, Mexico</i>	
<i>Marcela Quiroz-Castellanos, National Mexican Institute of Technology, Mexico</i>	
<i>Claudia Gómez, National Mexican Institute of Technology, Mexico</i>	
<i>Nelson Rangel Valdez, National Mexican Institute of Technology, Mexico</i>	
<i>Guadalupe Castilla Valdez, National Mexican Institute of Technology, Mexico</i>	
<i>Javier Gonzalez Barbosa, National Mexican Institute of Technology, Mexico</i>	

Chapter 13	
Temperature Modeling of a Greenhouse Environment.....	257
<i>Sergio Steve Juárez-Gutiérrez, Universidad Politécnica de Aguascalientes, Mexico</i>	
<i>Araceli Gárate-García, Universidad Politécnica de Aguascalientes, Mexico</i>	
<i>Tania Aglaé Ramírez delReal, Universidad Politécnica de Aguascalientes, Mexico</i>	
<i>Ervin Jesús Alvarez-Sánchez, Universidad Veracruzana, Mexico</i>	

Section 3 Applications of Innovative Logistics

Chapter 14	
Multi-Objective Simulated Annealing Algorithms for General Problems	280
<i>Juan Frausto Solís, Tecnológico Nacional de México, Mexico</i>	
<i>Héctor Joaquín Fraire, Tecnológico Nacional de México, Mexico</i>	
<i>José Carlos Soto-Monterrubio, Tecnológico Nacional de México, Mexico</i>	
<i>Rodolfo Pazos-Rangel, Tecnológico Nacional de México, Mexico</i>	

Chapter 15	
Emergency Department Logistic Optimization Using Design of Experiments: From Triage to High Quality of Service	293
<i>Jose Antonio Vazquez-Ibarra, Universidad Politecnica de Aguascalientes, Mexico</i>	
<i>Rodolfo Rafael Medina-Ramirez, Universidad Politecnica de Aguascalientes, Mexico</i>	
<i>Irma Jimenez-Saucedo, Universidad Politecnica de Aguascalientes, Mexico</i>	

Chapter 16	
Implementing a Container Ship Stowage Problem for Humanitarian Aid in Palestine Based on Cultural Algorithms	309
<i>Alberto Ochoa-Zezzatti, Juarez City University, Mexico</i>	
<i>Julio Arreola, Juarez City University, Mexico</i>	
<i>Kyrk Haltaufuerhyde, Cardiff Technological University, UK</i>	
<i>Vinicius Scarandangotti, Sassari University, Italy</i>	

Chapter 17

- A Hybrid Intelligent Risk Identification Model for Configuration Management in Aerospace Systems 319
Jose Nava, Pinnacle Aerospace, Inc., Mexico
Alejandro Osorio, Pinnacle Aerospace, Inc., Mexico

Chapter 18

- Hybrid Multi-Annealing Simulated Annealing Applied to Vehicle Routing Problem: A Case of Study 346
Ernesto Liñán Garcia, Universidad Autónoma de Coahuila, Mexico
Carlos Gonzalez-Flores, Universidad Autónoma de Coahuila, México
Linda Crystal Cruz-Villegas, Universidad Autónoma de Coahuila, Mexico

Chapter 19

- Maritime Logistics 361
Aylin Caliskan, Yasar University, Turkey
Yucel Ozturkoglu, Yasar University, Turkey

Chapter 20

- A Mobile Application for Helping Urban Public Transport and Its Logistics..... 385
Juan J. G. Mancha, National Mexican Institute of Technology, Mexico
Mayra S. H. Guerrero, National Mexican Institute of Technology, Mexico
Ana Gpe. Velez Chong, National Mexican Institute of Technology, Mexico
Javier Gonzalez Barbosa, National Mexican Institute of Technology, Mexico
Claudia Gómez, National Mexican Institute of Technology, Mexico
Laura Cruz-Reyes, National Mexican Institute of Technology, Mexico
Gilberto Rivera, Autonomous University of Sinaloa, Mexico

Section 4 Optimization in Logistics

Chapter 21

- A Review of the Main Options of Tools for Optimizing Operations (in Companies, Manufacturing, and Supply Chains) 408
Arturo Cordova Rangel, Polytechnic University of Aguascalientes, Mexico
Irma Jimenez Saucedo, Polytechnic University of Aguascalientes, Mexico

Chapter 22

- The Application of Hanoi Towers Game in Logistics Management 422
José Alberto Hernández Aguilar, Autonomous University of Morelos State, Mexico
Augusto Renato Pérez Mayo, Autonomous University of Morelos State, Mexico
Santiago Yip Ortuño, Autonomous University of Morelos State, Mexico
Alberto Ochoa-Zezzatti, Autonomous University of Juarez City, Mexico
Julio César Ponce Gallegos, Autonomous University of Aguascalientes, Mexico

Chapter 23

Determining Maximum Load of Passengers and Goods to an Aerotaxi in Southwestern Chihuahua	434
<i>Alberto Ochoa-Zezzatti, Juarez City University, Mexico</i>	
<i>Alfonso Uribe, Juarez City University, Mexico</i>	
<i>Eder Fuentes, Juarez City University, Mexico</i>	

Chapter 24

Use of GVRP as a Model of Two Specific Real World Problems and Its Bioinspired Solution	451
<i>Jorge Rodas, Universidad Autónoma de Ciudad Juárez, Mexico</i>	
<i>Daniel Azpeitia, Universidad Autónoma de Ciudad Juárez, Mexico</i>	
<i>Alberto Ochoa-Zezzatti, Universidad Autónoma de Ciudad Juárez, Mexico</i>	
<i>Raymundo Camarena, Universidad Autónoma de Ciudad Juárez, Mexico</i>	
<i>Tania Olivier, Universidad Autónoma de Ciudad Juárez, Mexico</i>	

Chapter 25

Strategic Designing and Optimization of Mixed Flow Impeller Blades for Maritime Applications	470
<i>Apurba Kumar Roy, Birla Institute of Technology, India</i>	
<i>Supriyo Roy, Birla Institute of Technology, India</i>	
<i>Kaushik Kumar, Birla Institute of Technology, India</i>	

Chapter 26

An Estimation of Distribution Algorithm-Based Approach for the Order Batching Problem: An Experimental Study.....	509
<i>Ricardo Pérez-Rodríguez, Center for Research in Mathematics, Mexico</i>	
<i>Arturo Hernández-Aguirre, Center for Research in Mathematics, Mexico</i>	

Chapter 27

Determining the Relationship between Time of Construction and Cranes Organization by Applying the Bees Algorithm for Reducing the Time of Construction of Houses.....	519
<i>Alberto Murillo, Universidad Autónoma De Nayarit, Mexico</i>	
<i>Daniel Azpeitia, Juarez City University, Mexico</i>	
<i>Perla Aquilar, Universidad Autónoma De Nayarit, Mexico</i>	
<i>Yolanda Camacho, Universidad Autónoma De Nayarit, Mexico</i>	
<i>Alberto Ochoa-Zezzatti, Juarez City University, Mexico</i>	

Compilation of References	530
--	------------

About the Contributors	575
-------------------------------------	------------

Index.....	585
-------------------	------------