

1. Record Nr.	UNINA9910766892703321
Autore	Hosseinzadeh Lotfi Farhad
Titolo	Fuzzy Decision Analysis : Multi Attribute Decision Making Approach / / Farhad Hosseinzadeh Lotfi [and five others]
Pubbl/distr/stampa	Cham, Switzerland : , : Springer, , [2023] ©2023
ISBN	3-031-44742-5
Edizione	[First edition.]
Descrizione fisica	1 online resource (362 pages)
Collana	Studies in Computational Intelligence Series ; ; Volume 1121
Disciplina	003.56
Soggetti	Fuzzy decision making Multiple criteria decision making
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	<p>Intro -- Preface -- Acknowledgements -- Introduction -- Contents --</p> <p>1 Foundations of Decision -- 1.1 Introduction -- 1.2 Decision Theory -- 1.3 Existential Philosophy of Decision Theory -- 1.4 Decision Science -- 1.5 The Importance and Applications of Decision Science -- 1.6 The Decision-Making Theories -- 1.7 The Reputable Domains and Applications of Decision Making -- 1.7.1 Decision Support Systems and Business Intelligence -- 1.7.2 Strategic Management -- 1.7.3 Healthcare and Medicine -- 1.7.4 Financial Decision-Making -- 1.7.5 Project Management and Scheduling -- 1.7.6 Environmental Planning and Management -- 1.7.7 Supply Chain and Operations Management -- 1.7.8 Engineering and Technology -- 1.7.9 Decision Making in Maintenance and Reliability -- 1.7.10 Human Resources and Talent Management -- 1.7.11 Crisis Management and Emergency Response -- 1.7.12 Public Policy and Governance -- 1.7.13 The Application of Decision Making Would Not End to Mentioned Area -- 1.8 The Reputable and Helpful Models and Techniques of Decision Making -- 1.8.1 Rational Decision-Making Model -- 1.8.2 Decision Trees -- 1.8.3 Cost-Benefit Analysis -- 1.8.4 SWOT Analysis -- 1.8.5 Pareto Analysis -- 1.8.6 Linear Programming (LP), Non-Linear Programming (NLP), and Integer Programming (IP) -- 1.8.7 Queuing Theory -- 1.8.8 Simulation Approaches -- 1.8.9 Data Envelopment Analysis (DEA) -- 1.9 The Hierarchy of Decisions -- 1.10 A Historical Review About</p>

Decision Making -- 1.11 Multi Attribute Decision Making (MADM) --
1.11.1 Multi-Criteria Decision-Making Problems -- 1.11.2 Multi-Objective Decision-Making Problems -- 1.11.3 Design Models in Conditions of Uncertainty -- 1.12 Scale Measurements of Data -- 1.13 Qualitative Data and Ordinal Numbers -- 1.14 Quantitative Data and Cardinal Numbers -- 1.15 Scientometrics in the field of Fuzzy Multi Attribute Decision Making.
1.16 Conclusion -- References -- 2 Fuzzy Introductory Concepts -- 2.1 Introduction -- 2.2 Fuzzy Set Theory: Basic Concepts -- 2.3 Ranking of Fuzzy Numbers -- 2.3.1 Fuzzy Number Ranking Based on -Cuts -- 2.3.2 Fuzzy Number Ranking Based on Hamming Distance -- 2.4 Type-2 Fuzzy Numbers -- 2.5 Type-2 Trapezoidal and Triangular Fuzzy Numbers -- 2.5.1 Arithmetic Operations on Type-2 Trapezoidal Fuzzy Numbers -- 2.5.2 Arithmetic Operations on Type-2 Triangular Fuzzy Numbers -- 2.6 Ranking of Type-2 Interval Fuzzy Numbers -- 2.6.1 Some Ranking Methods for Type-2 Interval Fuzzy Numbers -- 2.7 Conclusions -- References -- 3 Weight Determination Methods in Fuzzy Environment -- 3.1 Introduction -- 3.2 Fuzzy Approximation Methods -- 3.2.1 Fuzzy Row Sum Method -- 3.2.2 Fuzzy Column Sum Method -- 3.2.3 Fuzzy Geometric Mean Method -- 3.3 Fuzzy Shannon Entropy Method -- 3.3.1 Shannon Entropy Method Using Triangular Fuzzy Number -- 3.4 Fuzzy Least Squares Method -- 3.5 BWM Method -- 3.5.1 Fuzzy BWM -- 3.6 Conclusion -- References -- 4 Non-Compensatory Methods in Uncertainty Environment -- 4.1 Introduction: Non-Compensatory Fuzzy Methods -- 4.2 Fuzzy Lexicographic Method -- 4.3 Fuzzy Dominance Method -- 4.4 Fuzzy Max-Min Method -- 4.5 Fuzzy Conjunctive Satisfying Method -- 4.6 Fuzzy Disjunction Satisfying Method -- 4.7 Conclusion -- References -- 5 Simple Additive Weighting (SAW) Method in Fuzzy Environment -- 5.1 Introduction -- 5.2 SAW Method -- 5.3 Choosing a Hospital Location -- 5.4 SAW Method in Imprecise Environments -- 5.5 Interval SAW -- 5.5.1 The First Approach of Interval SAW -- 5.5.2 The Second Approach of SAW-Interval Method -- 5.5.3 Application of Interval SAW Method -- 5.5.4 Fuzzy SAW -- 5.5.5 Fuzzy SAW Method with Predetermined Weights -- 5.5.6 Fuzzy SAW Method with Unknown Weights -- 5.5.7 Fuzzy SAW Application -- 5.6 Conclusion -- References.
6 Technique for Order Preferences by Similarity to Ideal Solutions (TOPSIS) in Uncertainty Environment -- 6.1 Introduction: The Essence of the TOPSIS Method and Its Application -- 6.2 Description of the TOPSIS Method -- 6.2.1 Case Study -- 6.3 Fuzzy TOPSIS Method Using Triangle Fuzzy Numbers -- 6.4 Group Fuzzy TOPSIS Method -- 6.5 Intuitionistic Fuzzy TOPSIS Group Decision Making Method -- 6.6 Applications -- 6.7 Fuzzy DEA-TOPSIS -- 6.8 Conclusion -- References -- 7 Elimination Choice Translating Reality (ELECTRE) in Uncertainty Environment -- 7.1 Introducing Different Versions of the ELECTRE -- 7.2 Electre I -- 7.3 Electre II -- 7.4 Electre III -- 7.5 Electre IV -- 7.6 ELECTRE I for Prioritizing Parks -- 7.7 Fuzzy ELECTRE Method -- 7.7.1 ELECTRE-Fuzzy Trapezoidal Form -- 7.7.2 Manager Selection: Employing ELECTRE Method and Fuzzy Linguistic Variables -- 7.8 The ELECTRE III Method and Interval-Valued Intuitionistic Fuzzy Sets -- 7.9 Unraveling Employee Commitment: Key Factors for Ranking and Evaluation Using the Interval-Valued Intuitionistic Fuzzy Number -- 7.10 Conclusion -- References -- 8 Analytical Hierarchy Process (AHP) in Fuzzy Environment -- 8.1 Hierarchical Decision Structure (Threats and Opportunities) -- 8.2 Analytical Hierarchy Process (AHP) -- 8.3 Analytical Network Process (ANP) -- 8.4 Fuzzy AHP -- 8.4.1 Fuzzy AHP: First Approach -- 8.4.2 Fuzzy AHP: Second Approach --

8.4.3 Fuzzy AHP: Third Approach -- 8.5 Fuzzy Analytic Network Process -- 8.6 Applications of Fuzzy AHP -- 8.7 Conclusion -- References -- 9 VIKOR Method in Uncertainty Environment -- 9.1 Introduction -- 9.2 VIKOR -- 9.3 The Evaluation of Insurance Companies -- 9.4 Fuzzy VOKIR -- 9.5 Choosing a Suitable Tourism Location with Fuzzy VIKOR Method -- 9.6 Data Envelopment Analysis and VIKOR -- 9.7 Conclusion -- References.

10 The Measuring Attractiveness by a Categorical Based Evaluation Technique (MACBETH) in Uncertainty Environment -- 10.1 Introduction of the MACBETH method -- 10.2 Description of the MACBETH Method -- 10.2.1 Lp-Macbeth -- 10.3 Example of the MACBETH Method -- 10.4 The Fuzzy MACBETH Method: Introduction -- 10.5 Description of Fuzzy MACBETH Method -- 10.6 Applications and Example of the Fuzzy MACBETH Method -- 10.7 Macbeth and DEA -- 10.8 Conclusion -- References -- 11 Multi Attributive Border Approximation Area Comparison (MABAC) in Uncertainty Environment -- 11.1 Introduction: The Power of MABAC -- 11.2 Description of the MABAC Method -- 11.3 Numerical Example of the MABAC Method -- 11.4 The Fuzzy MABAC Method -- 11.5 Applications and Example of the Fuzzy MABAC Method -- 11.6 Conclusion -- References -- 12 The Complex Proportional Assessment (COPRAS) in Uncertainty Environment -- 12.1 Introduction -- 12.2 Description of the COPRAS Method -- 12.3 Solving Multi-Criteria Decision Making for Smart Phone Selection by COPRAS -- 12.4 Fuzzy COPRAS Method -- 12.5 Fuzzy COPRAS Approach Under Group Decision Making -- 12.6 Solving Investment Selection with Fuzzy COPRAS: Navigating Complex Criteria in Decision-Making -- 12.7 Conclusion -- References -- 13 The Criteria Importance Through Inter-Criteria Correlation (CRITIC) in Uncertainty Environment -- 13.1 Introduction -- 13.2 CRITIC Method -- 13.3 Project Ranking: Evaluating and Prioritizing Projects Based on Criteria -- 13.4 Fuzzy CRITIC Method -- 13.5 Finding the Perfect Spot: Criteria for Selecting Optimal Locations for Solar Farm -- 13.6 Conclusion -- References -- 14 The Multi-Objective Optimization Ratio Analysis (MOORA) in Uncertainty Environment -- 14.1 Introduction -- 14.2 The MOORA and MOOSRA Methods -- 14.3 Numerical Example of the MOORA Method. 14.4 Fuzzy MULTIMOORA Method Using Triangular Fuzzy Number -- 14.5 Economic Ranking of Urban Areas Using MOORA Method: A Comprehensive Evaluation Approach -- 14.6 Conclusion -- References.
