



# Engineering decision making and risk management [

Herrmann, Jeffrey W.,  
author

Engineering- Decision making Risk management

Monografía

"Engineering Decision Making and Risk Management uniquely presents and discusses three perspectives on decision making: problem solving, the decision-making process, and decision-making systems"--

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**Título:** Engineering decision making and risk management [Recurso electrónico] Jeffrey W. Herrmann

**Descripción física:** 1 online resource (357 pages) illustrations

**Mención de serie:** E-Libro

**Nota general:** Description based on print version record

**Bibliografía:** Includes bibliographical references and index

**Contenido:** Machine generated contents note: 1. Introduction to Engineering Decision Making 1.1 Introduction 1.2 Decision Making in Engineering Practice 1.3 Decision Making and Optimization 1.4 Decision Making and Problem Solving 1.5 Decision Making and Risk Management 1.6 Problems in Decision Making 1.7 The Value of Improving Decision Making 1.8 Perspectives on Decision Making Exercises References 2. Decision Making Fundamentals 2.1 Decision Characteristics 2.2 Objectives in Decision Making 2.3 Influence Diagrams 2.4 Rationality 2.5 Dominance 2.6 Choice Strategies 2.7 Making Tradeoffs 2.8 Reframing the Decision 2.9 Risk Acceptance 2.10 Measurement Scales Exercises References 3. Multicriteria Decision Making 3.1 Pugh Concept Selection Method 3.2 Analytic Hierarchy Process (AHP) 3.3 Multiattribute Utility Theory (MAUT) 3.4 Conjoint Analysis 3.5 Value of a Statistical Life 3.6 Compensation 3.7 The Impact of Changing Weights Exercises References 4. Group Decision Making 4.1 Ranking 4.2 Scoring and Majority Judgment 4.3 Arrow's Impossibility Theorem Exercises References 5. Decision Making Under Uncertainty 5.1 Types of Uncertainties 5.2 Assessing a Subjective Probability 5.3 Imprecise Probabilities 5.4 Cumulative Risk Profile and Dominance 5.5 Decision Trees: Modeling 5.6 Decision Trees: Determining Expected Values 5.7 Sequential Decision Making 5.8 Modeling Risk Aversion 5.9 Robustness 5.10 Uncertainty Propagation: Sensitivity Analysis 5.11 Uncertainty Propagation: Method of Moments 5.12 Uncertainty Propagation: Monte Carlo Simulation Exercises References 6. Game Theory 6.1 Game Theory Basics 6.2 Zero-sum Games 6.3 Optimal Mixed Strategies for Zero-sum Games 6.4 The Minimax Theorem 6.5 Resource Allocation Games 6.6 Mixed Motive Games 6.7 Bidding 6.8 Stackelberg Games Exercises References 7. Decision-making Processes 7.1 Decision-making Contexts 7.2 Technical Knowledge and Problem Consensus 7.3 Optimization: Search and Evaluation 7.4 Diagnosing Risk Decision Situations 7.5 Values and Ethics 7.6 Systematic Decision-making Processes 7.7 The Decision-making Cycle 7.8 The Analytic-deliberative Process

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**Versión original:** Print version Herrmann, Jeffrey W. Engineering decision making and risk management. Hoboken, New Jersey : Wiley, [2015] xv, 338 pages.,. 9781118919330 (DLC) 2014041070

**Detalles del sistema:** Modo de acceso: World Wide Web

**Fuente de adquisición directa:** E-Libro

**ISBN:** 9781118919330 hardback) 9781118919385 e-book)

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## Baratz Innovación Documental

- Gran Vía, 59 28013 Madrid
- (+34) 91 456 03 60
- informa@baratz.es