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Nota di contenuto	Cover -- Title Page -- Copyright -- Contents -- List of Contributors -- About the Authors -- Foreword -- Preface -- Acknowledgments -- About the Companion Website -- Chapter 1 Introduction to Trade-off Analysis -- 1.1 Introduction -- 1.2 Trade-off Analyses Throughout the Life Cycle -- 1.3 Trade-off Analysis to Identify System Value -- 1.4 Trade-off Analysis to Identify System Uncertainties and Risks -- 1.5 Trade-off Analyses can Integrate Value and Risk Analysis -- 1.6 Trade-off Analysis in the Systems Engineering Decision Management Process -- 1.7 Trade-off Analysis Mistakes of Omission and Commission -- 1.7.1 Mistakes of Omission -- 1.7.2 Mistakes of Commission -- 1.7.3 Impacts of the Trade-Off Analysis Mistakes -- 1.8 Overview of the Book -- 1.8.1 Illustrative Examples and Techniques Used in the Book -- 1.9 Key Terms -- 1.10 Exercises -- References -- Chapter 2 A Conceptual Framework and Mathematical Foundation for Trade-Off Analysis -- 2.1 Introduction -- 2.2 Trade-Off Analysis Terms -- 2.3 Influence Diagram of the Tradespace -- 2.3.1 Stakeholder Needs, System Functions, and Requirements -- 2.3.2 Objectives -- 2.3.3 System Alternatives -- 2.3.4 Uncertainty -- 2.3.5 Preferences and Evaluation of Alternatives -- 2.3.6 Resource Analysis -- 2.3.7 An Integrated Trade-Off Analyses -- 2.4

Tradespace Exploration -- 2.5 Summary -- 2.6 Key Words -- 2.7 Exercises -- References -- Chapter 3 Quantifying Uncertainty -- 3.1 Sources of Uncertainty in Systems Engineering -- 3.2 The Rules of Probability and Human Intuition -- 3.3 Probability Distributions -- 3.3.1 Calculating Probabilities from Experiments -- 3.3.2 Calculating Complex Probabilities from Simpler Probabilities -- 3.3.3 Calculating Probabilities Using Parametric Distributions -- 3.3.4 Applications of Parametric Probability Distributions -- 3.4 Estimating Probabilities. 3.4.1 Using Historical Data -- 3.4.2 Using Human Judgment -- 3.4.3 Biases in Judgment -- 3.5 Modeling Using Probability -- 3.5.1 Bayes Nets -- 3.5.2 Monte Carlo Simulation -- 3.5.3 Monte Carlo Simulation with Dependent Uncertainties -- 3.5.4 Monte Carlo Simulation with Partial Information on Output Values -- 3.5.5 Variations on Monte Carlo Simulation -- 3.5.6 Sensitivity Analysis -- 3.6 Summary -- 3.7 Key Terms -- 3.8 Exercises -- References -- Chapter 4 Analyzing Resources -- 4.1 Introduction -- 4.2 Resources -- 4.2.1 People -- 4.2.2 Facilities -- 4.2.3 Costs -- 4.2.4 Resource Space -- 4.3 Cost Analysis -- 4.3.1 Cost Estimation -- 4.3.2 Cost Estimation Techniques -- 4.3.3 Learning Curves -- 4.3.4 Net Present Value -- 4.3.5 Monte Carlo Simulation -- 4.3.6 Sensitivity Analysis -- 4.4 Affordability Analysis -- 4.4.1 Background -- 4.4.2 The Basics of Affordability Analysis Are Not Difficult -- 4.4.3 DoD Comparison of Cost Analysis and Affordability Analysis -- 4.4.4 Affordability Analysis Definitions -- 4.4.5 "Big A" Affordability Analysis Process Guide -- 4.5 Key Terms -- 4.6 Excercises -- References -- Chapter 5 Understanding Decision Management -- 5.1 Introduction -- 5.2 Decision Process Context -- 5.3 Decision Process Activities -- 5.3.1 Frame Decision -- 5.3.2 Develop Objectives and Measures -- 5.3.3 Generate Creative Alternatives -- 5.3.4 Assess Alternatives via Deterministic Analysis -- 5.3.5 Synthesize Results -- 5.3.6 Develop Multidimensional Value Model -- 5.3.7 Identify Uncertainty and Conduct Probabilistic Analysis -- 5.3.8 Assess Impact of Uncertainty -- 5.3.9 Improve Alternatives -- 5.3.10 Communicating Trade-Offs -- 5.3.11 Present Recommendation and Implementation Plan -- 5.4 Summary -- 5.5 Key Terms -- 5.6 Exercises -- References -- Chapter 6 Identifying Opportunities -- 6.1 Introduction -- 6.2 Knowledge -- 6.2.1 Domain Knowledge. 6.2.2 Technical Knowledge -- 6.2.3 Business Knowledge -- 6.2.4 Expert Knowledge -- 6.2.5 Stakeholder Knowledge -- 6.3 Decision Traps -- 6.4 Techniques -- 6.4.1 Interviews -- 6.4.2 Focus Groups -- 6.4.3 Surveys -- 6.5 Tools -- 6.5.1 Concept Map -- 6.5.2 System Boundary -- 6.5.3 Decision Hierarchy -- 6.5.4 Issues List -- 6.5.5 Vision Statement -- 6.5.6 Influence Diagram -- 6.5.7 Selecting Appropriate Tools and Techniques -- 6.6 Illustrative Examples -- 6.6.1 Commercial -- 6.6.2 Defense -- 6.7 Key Terms -- 6.8 Exercises -- References -- Chapter 7 Identifying Objectives and Value Measures -- 7.1 Introduction -- 7.2 Value-Focused Thinking -- 7.2.1 Four Major VFT Ideas -- 7.2.2 Benefits of VFT -- 7.3 Shareholder and Stakeholder Value -- 7.3.1 Private Company Example -- 7.3.2 Government Agency Example -- 7.4 Challenges in Identifying Objectives -- 7.5 Identifying the Decision Objectives -- 7.5.1 Questions to Help Identify Decision Objectives -- 7.5.2 How to Get Answers to the Questions -- 7.6 The Financial or Cost Objective -- 7.6.1 Financial Objectives for Private Companies -- 7.6.2 Cost Objective for Public Organizations -- 7.7 Developing Value Measures -- 7.8 Structuring Multiple Objectives -- 7.8.1 Value Hierarchies -- 7.8.2 Techniques for Developing Value Hierarchies -- 7.8.3 Value Hierarchy Best Practices -- 7.8.4 Cautions about Cost and Risk Objectives -- 7.9 Illustrative Examples -- 7.9.1 Military Illustrative Example -- 7.9.2 Homeland Security Illustrative

Example -- 7.10 Summary -- 7.11 Key Terms -- 7.12 Exercises -- References -- Chapter 8 Developing and Evaluating Alternatives -- 8.1 Introduction -- 8.2 Overview of Decision-making, Creativity, and Teams -- 8.2.1 Approaches to Decision-Making -- 8.2.2 Cognitive Methods for Creating Alternatives -- 8.2.3 Key Concepts for Building and Operating Teams -- 8.3 Alternative Development Techniques. 8.3.1 Structured Creativity Methods -- 8.3.2 Morphological Box -- 8.3.3 Pugh Method for Alternative Generation -- 8.3.4 TRIZ for Alternative Development -- 8.4 Assessment of Alternative Development Techniques -- 8.5 Alternative Evaluation Techniques -- 8.5.1 Decision-Theory-Based Approaches -- 8.5.2 Pugh Method for Alternative Evaluation -- 8.5.3 Axiomatic Approach to Design (AAD) -- 8.5.4 TRIZ for Alternative Evaluation -- 8.5.5 Design of Experiments (DOE) -- 8.5.6 Taguchi Approach -- 8.5.7 Quality Function Deployment (QFD) -- 8.5.8 Analytic Hierarchy Process AHP -- 8.6 Assessment of Alternative Evaluation Techniques -- 8.7 Key Terms -- 8.8 Exercises -- References -- Chapter 9 An Integrated Model for Trade-Off Analysis -- 9.1 Introduction -- 9.2 Conceptual Design Example -- 9.3 Integrated Approach Influence Diagram -- 9.3.1 Decision Nodes -- 9.3.2 Uncertainty Nodes -- 9.3.3 Constant Node -- 9.3.4 Value Nodes -- 9.4 Other Types of Trade-Off Analysis -- 9.5 Simulation Tools -- 9.5.1 Monte Carlo Simulation Proprietary Add-Ins -- 9.5.2 The Discipline of Probability Management -- 9.5.3 SIPmathTM Tool in Native Excel -- 9.5.4 Model Building Steps -- 9.6 Summary -- 9.7 Key Terms -- 9.8 Exercises -- References -- Chapter 10 Exploring Concept Trade-Offs -- 10.1 Introduction -- 10.1.1 Key Concepts, Concept Trade-Offs, and Concept Exploration -- 10.2 Defining the Concept Space and System Concept of Operations -- 10.3 Exploring the Concept Space -- 10.3.1 Storytelling-Enabled Tradespace Exploration -- 10.3.2 Decisions and Outcomes -- 10.3.3 Contingent Decision-Making -- 10.4 Trade-off Analysis Frameworks -- 10.5 Tradespace and System Design Life Cycle -- 10.6 From Point Trade-offs to Tradespace Exploration -- 10.7 Value-based Multiattribute Tradespace Analysis -- 10.7.1 Tradespace Exploration and Sensitivity Analysis.
10.7.2 Tradespace Exploration and Uncertainty -- 10.7.3 Tradespace Exploration with Spiral Development -- 10.7.4 Tradespace Exploration in Relation to Optimization and Decision Theory -- 10.8 Illustrative Example -- 10.8.1 Step 1: Determine Key Decision-Makers -- 10.8.2 Step 2: Scope and Bound the Mission -- 10.8.3 Step 3: Elicit Attributes and Utilities (Preference Capture) -- 10.8.4 Step 4: Define Design Vector Elements (Concept Generation) -- 10.8.5 Step 5: Develop Model (s) (Evaluation) -- 10.8.6 Step 6: Generate the Tradespace (Computation) -- 10.8.7 Step 7: Explore the Tradespace (Analysis and Synthesis) -- 10.9 Conclusions -- 10.10 Key Terms -- 10.11 Exercises -- References -- Chapter 11 Architecture Evaluation Framework -- 11.1 Introduction -- 11.1.1 Architecture in the Decision Space -- 11.1.2 Architecture Evaluation -- 11.1.3 Architecture Views and Viewpoints -- 11.1.4 Stakeholders -- 11.1.5 Stakeholder Concerns -- 11.1.6 Architecture versus Design -- 11.1.7 On the Uses of Architecture -- 11.1.8 Standardizing on an Architecture Evaluation Strategy -- 11.2 Key Considerations in Evaluating Architectures -- 11.2.1 Plan-Driven Evaluation Effort -- 11.2.2 Objectives-Driven Evaluation -- 11.2.3 Assessment versus Analysis -- 11.3 Architecture Evaluation Elements -- 11.3.1 Architecture Evaluation Approach -- 11.3.2 Architecture Evaluation Objectives -- 11.3.3 Evaluation Approach Examples -- 11.3.4 Value Assessment Methods -- 11.3.5 Value Assessment Criteria -- 11.3.6 Architecture Analysis Methods -- 11.4 Steps in an Architecture Evaluation Process -- 11.5 Example

Evaluation Taxonomy -- 11.5.1 Business Impact Factors -- 11.5.2 Mission Impact Factors -- 11.5.3 Architecture Attributes -- 11.6 Summary -- 11.7 Key Terms -- 11.8 Exercises -- References -- Chapter 12 Exploring the Design Space -- 12.1 Introduction -- 12.2 Example 1: Liftboat.
12.2.1 Liftboat Fractional Factorial Design of Experiments.

Sommario/riassunto

Presents information to create a trade-off analysis framework for use in government and commercial acquisition environments This book presents a decision management process based on decision theory and cost analysis best practices aligned with the ISO/IEC 15288, the Systems Engineering Handbook, and the Systems Engineering Body of Knowledge. It provides a sound trade-off analysis framework to generate the tradespace and evaluate value and risk to support system decision-making throughout the life cycle. Trade-off analysis and risk analysis techniques are examined. The authors present an integrated value trade-off and risk analysis framework based on decision theory. These trade-off analysis concepts are illustrated in the different life cycle stages using multiple examples from defense and commercial domains. Provides techniques to identify and structure stakeholder objectives and creative, doable alternatives Presents the advantages and disadvantages of tradespace creation and exploration techniques for trade-off analysis of concepts, architectures, design, operations, and retirement Covers the sources of uncertainty in the system life cycle and examines how to identify, assess, and model uncertainty using probability Illustrates how to perform a trade-off analysis using the INCOSE Decision Management Process using both deterministic and probabilistic techniques Trade-off Analytics: Creating and Exploring the System Tradespace is written for upper undergraduate students and graduate students studying systems design, systems engineering, industrial engineering and engineering management. This book also serves as a resource for practicing systems designers, systems engineers, project managers, and engineering managers. Gregory S. Parnell, PhD, is a Research Professor in the Department of Industrial Engineering at the University of Arkansas. He is also a senior principal with Innovative Decisions, Inc., a decision and risk analysis firm and has served as Chairman of the Board. Dr. Parnell has published more than 100 papers and book chapters and was lead editor of Decision Making for Systems Engineering and Management, Wiley Series in Systems Engineering (2nd Ed, Wiley 2011) and lead author of the Handbook of Decision Analysis (Wiley 2013). He is a fellow of INFORMS, the INCOSE, MORS, and the Society for Decision Professionals.