

1. Record Nr.	UNINA9910876652503321
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Titolo	How to do systems analysis // John E. Gibson, William T. Scherer, William F. Gibson
Pubbl/distr/stampa	Hoboken, N.J., : Wiley-Interscience, c2007
ISBN	1-280-90112-8 9786610901128 0-470-13059-8 0-470-13058-X
Descrizione fisica	1 online resource (364 p.)
Collana	Wiley series in systems engineering and management
Altri autori (Persone)	SchererWilliam T GibsonWilliam F
Disciplina	658.4/032
Soggetti	System analysis
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	HOW TO DO SYSTEMS ANALYSIS; Contents; Preface; A Personal Note from William T. Scherer; A Personal Note from William F. Gibson; A Personal Note from Scott F. Ferber; Original Preface from Jack Gibson; Acknowledgments; 1 Introduction; 1.1 What Is a System?; 1.2 Terminology Confusion; 1.3 Systems Analysis Equals Operations Research Plus Policy Analysis; 1.4 Attributes of Large-Scale Systems; 1.5 Intelligent Transportation Systems (ITS): An Example of a Large-Scale System; 1.6 Systems Integration; 1.7 What Makes a "Systems Analysis" Different?; 1.8 Distant Roots of Systems Analysis 1.9 Immediate Precursors to Systems Analysis 1.10 Development of Systems Analysis As a Distinct Discipline: The Influence of RAND; Historical Case Study: IIASA (A); Exercises; Case Study: Fun at Six Flags?; Historical Case Study: IIASA (B); 2 Six Major Phases of Systems Analysis; 2.1 The Systems Analysis Method: Six Major Phases; 2.2 The Goal-centered or Top-Down Approach; 2.3 The Index of Performance Concept; 2.4 Developing Alternative Scenarios; 2.5 Ranking Alternatives; 2.6 Iteration and the "Error-embracing" Approach; 2.7 The Action Phase: The Life Cycle of a System; Exercises Case Study: Methodologies or Chaos? Part A Case Study: Methodologies

or Chaos? Part B; Case Study: Wal-Mart Crisis!; 3 Goal Development; 3.1 Seven Steps in Goal Development; 3.2 On Generalizing the Question; 3.3 The Descriptive Scenario; 3.4 The Normative Scenario; 3.5 The Axiological Component; 3.6 Developing an Objectives Tree; 3.7 Fitch's Goals for an Urbanizing America: An Example of Objectives Tree Construction; 3.8 Content Analysis of Fitch's Goals; 3.9 Validate; 3.10 Iterate; Case Study: Distance Learning in the Future?; Historical Case Study: Goals of 4C, Inc.

4 The Index of Performance 4.1 Introduction; 4.2 Desirable Characteristics for an Index of Performance; 4.3 Economic Criteria; 4.4 Compound Interest; 4.5 Four Common Criteria of Economic Efficiency; 4.6 Is There a Problem with Multiple Criteria?; 4.7 What Is Wrong with the B-C Ratio?; 4.8 Can IRR Be Fixed?; 4.9 Expected Monetary Value; 4.10 Nonmonetary Performance Indices; Exercises; Case Study: Sky High Airlines; Case Study: Bridges-Where to Spend the Security Dollars?; Case Study: Measuring the Process and Outcomes of Regional Transportation Collaboration

Case Study: Baseball Free Agent Draft 5 Develop Alternative Candidate Solutions; 5.1 Introduction; 5.2 The Classical Approach to Creativity; 5.3 Concepts in Creativity; 5.4 Brainstorming; 5.5 Brainwriting; 5.6 Dynamic Confrontation; 5.7 Zwicky's Morphological Box; 5.8 The Options Field/Options Profile Approach; 5.9 Computer Creativity; 5.10 Computer Simulation: a Tool in Option Development; 5.11 Why a Dynamic Simulation for Creating Options?; 5.12 Context-Free Simulation Models?; 5.13 Bottom-Up Simulation or Top-Down?; 5.14 Lessons from the Susquehanna River Basin Model 5.15 The Forrester Urban Model (FUM) and Societal Values

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## Sommario/riassunto

This book focuses on systems analysis, broadly defined to also include problem formulation and interpretation of proposed alternatives in terms of the value systems of stakeholders. Therefore, the book is a complement, not a substitute to other books when teaching systems engineering and systems analysis. The nature of problem solving discussed in this book is appropriate to a wide range of systems analyses. Thus the book can be used as a stand-alone book for teaching the analysis of systems. Also unique is the inclusion of broad case studies to stress problem solving issues, making How to

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