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Other Engineering Activities; 2.3 Functional; 2.4 Operational; 2.5 Structural; 2.5.1 The Standards for Systems Engineering; 2.6 Generic; 2.7 Quantitative; 2.7.1 The Return on Investment in Systems Engineering; 2.8 Temporal; 2.8.1 The Successes and Failures of Systems Engineering; 2.8.2 The Evolution of Systems Engineering; 2.8.3 The Evolution of the Role of the Systems Engineer; 2.9 Scientific 2.9.1 Frameworks for Systems Engineering 2.9.2 The Principle of Hierarchies; 2.9.3 The Hitchins-Kasser-Massie Framework (HKMF); 2.9.4 The Overlapping Streams of Work; 2.9.5 What the Standards Seem to Have Achieved; 2.9.6 Systems Engineering Is a Discipline; 2.10 The Emergent Properties Dichotomy; 2.11 The Answers to the Questions Posed in Chapter 1; 2.11.1 What Is Systems Engineering?; 2.11.2 Why Are There Different Opinions on the Nature of Systems Engineering?; 2.11.3 Why Does Systems Engineering Succeed at Times?; 2.11.4 Why Does Systems Engineering Fail at Other Times? 2.11.5 Why Does Systems Engineering Seem to Overlap Project Management and Problem-Solving? 2.11.6 Why Do the Textbooks about Systems Engineering Cover Such Different Topics?; 2.11.7 What Do System Engineers Actually Do in the Workplace?; 2.11.8 Is Systems Engineering an Undergraduate Course or a Post Graduate Course?; 2.11.9 Which Come First, Functions or Requirements?; 2.11.10 Why Is There No Standard Definition of a System?; 2.12 Summary; References; Chapter 3 Perceptions of Problem-Solving; 3.1 Big Picture; 3.1.1 Assumptions Underlying Formal Problem-Solving

Sommario/riassunto

This book will change the way you think about problems. It focuses on creating solutions to all sorts of complex problems by taking a practical, problem-solving approach. It discusses not only what needs to be done, but it also provides guidance and examples of how to do it. The book applies systems thinking to systems engineering and introduces several innovative concepts such as direct and indirect stakeholders and the Nine-System Model, which provides the context for the activities performed in the project, along with a framework for successful stakeholder management. A list of the figures and tables in this book is available at <https://www.crcpress.com/9781138387935>.
FEATURES
Treats systems engineering as a problem-solving methodology
Describes what toolssystems engineers use and how they use them in each state of the system lifecycle
Discusses the perennial problem of poor requirements, defines the grammar and structure of a requirement, and provides a template for a good imperative construction statement and the requirements for writing requirements
Provides examples of bad and questionable requirements and explains the reasons why they are bad and questionable
Introduces new concepts such as direct and indirect stakeholders and the Shmemp!
Includes the Nine-System Model and other unique tools for systems engineering
