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Collana	Explorations in Creativity Research
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Nota di contenuto	Front Cover; Creativity in Engineering; Copyright Page; Dedication; Contents; List of Figures; List of Tables; Foreword; Preface; The Approach of This Book; Why is This Book Different?; Outline of Chapters; Acknowledgments; 1 Introduction; The Sputnik Shock; The Link between Creativity and Engineering; What is Creativity?; The Definition of Creativity; The Four Ps of Creativity; The Fifth P; Paradoxes of Creativity; Summary; 2 The Importance of Creativity in Engineering; The Economics of Creativity; Engineering and Engineers; Change; The Need for Creativity Creative Engineering Problem SolvingThe Oil Crisis of 1973; Oil Crisis-Solution Pathways; Oil Crisis-Technology Push and Market Pull; Case Study: Creativity and Innovation in Aerospace; 3 Phases: Creativity and the Design Process; Problem Solving and Creativity; Knowledge and Problem Solving; Problem Recognition; Finding Good Problems; Problem Awareness; The Effect of the Problem on Creativity; Idea Generation; Idea Evaluation; Solution Validation; General Models of Creative Problem Solving; Other Models of Problem Solving; The Extended Phase Model; Engineering Problem Solving: Design Engineering Design as CreativityEngineering Divergent Thinking; Constraints and Design; Freedom versus Constraint; Engineering Models of Design; 4 Product: The Creativity of Things; What are

Products?; External Indicators of Creative Products; The Fundamental Criteria of the Creativity of Products; Further Criteria of the Creativity of Products; The Hierarchical Organization of Creative Products; Situation versus Domain Relevance of Creative Products; Product Creativity as a System; Latent Functional Creativity; Measuring the Creativity of Products; Consensual Assessment; Rating Scales
The Creative Solution Diagnosis Scale (CSDS) Industrial Design and Engineering; Summary; 5 Process: Generating Creative Ideas; Unsystematic Creativity; Effortless Creativity; Blind Combinations; Luck; Intuition; Systematic Production of Novelty; Generating Variability; Divergent Thinking; Other Concepts of Novelty-Generating Thinking; Thinking Tactics That Generate Variability; Constructing Remote Associates; Building Unusual Categories; Building Broad Networks; Accommodating Rather than Assimilating; Using Creativity-Facilitating Cognitive Styles; Meta-Cognition
Avoiding the Wrong Approach Barrier Measuring Divergent Thinking; Scoring Divergent-Thinking Tests; A Creativity Quotient?; Other Tests of Creative Thinking; The Test of Creative Thinking-Drawing Production; Tests Based on Problem Solving; Convergent Thinking: The Prepared Mind; Intuition and Convergent Thinking; The Prepared Mind; The Problem of Too Much Knowledge; The Unprepared Mind; Knowledge and Creativity; Knowledge as the Source of Ideas; Knowledge Defines What is Creative; Knowledge Guides and Shapes Creativity; The Interaction Between Divergent and Convergent Thinking
Generating and Exploring Variability

Sommario/riassunto

A comprehensive overview of how creativity is dependent upon a person, product, process, and place and how those 4Ps of creativity are critical in applied settings-like engineering-for novel, effective, and practical solutions.
