

1. Record Nr.	UNINA9910488721403321
Autore	Bukhman Isak
Titolo	Technology for innovation : how to create new systems, develop existing systems and solve related problems // Isak Bukhman
Pubbl/distr/stampa	Gateway East, Singapore : , : Springer, , [2021] ©2021
ISBN	981-16-1041-X
Descrizione fisica	1 online resource (541 pages)
Collana	Management for Professionals
Disciplina	658.514
Soggetti	TRIZ theory Technological innovations
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Intro -- Preface -- Acknowledgments -- About Author Teacher-Genrich S. Altshuller -- Recommendations -- Contents -- About the Author -- 1 The Ideas of TRIZ -- 1.1 How TRIZ Started -- 1.2 Structure of TRIZ -- 1.3 Benefits of Using TRIZ -- Reference -- 2 The Multi-screen Vision of System Evolution -- 2.1 A One-Screen Vision of System Evolution-Ordinary Thinking -- 2.2 A Four-Screen Vision of System Evolution-Specification Requirements -- 2.3 A Six-Screen Vision of System Evolution-Creative Thinking -- 2.4 A Nine-Screen Vision of System Evolution-Engaged Imagination -- References -- 3 Laws of System Evolution and Development -- 3.1 The First Group of Laws -- 3.1.1 The Law of System Completeness -- 3.1.2 The Law of Shortening the Flow of Energy Through a System -- 3.1.3 The Law of Synchronization/Timing of the Parameters of a System -- 3.2 The Second Group of Laws -- 3.2.1 The Law of Increasing Degree of Ideality -- 3.2.2 The Law of Non-uniform Evolution of Subsystems (System Components), Creating System Contradictions -- 3.2.3 The Law of Transitioning to a Super-System -- 3.3 The Third Group of Laws -- 3.3.1 The Law of Transitioning to the Micro-Level -- 3.3.2 The Law of Increasing Controllability/Flexibility of a System (Law of Dynamism) -- References -- 4 Stages of System Evolution -- 4.1 The First Stage of System Evolution-New System Creation -- 4.2 The Second Stage of System Evolution-Parts Improvement and Development -- 4.3 The

Third Stage of System Evolution-Dynamization of the System -- 4.4
The Fourth Stage of System Evolution-Transition to Self-control and
Self-development of the System -- References -- 5 Curves of System
Generations and System Evolution -- 5.1 S-Curve of System Generation
Development -- 5.2 Relations of S-Curves of System Generations --
5.3 The Curve of System Evolution -- Reference -- 6 System
Contradictions.
6.1 System Contradictions -- 6.2 The List of 39 Parameters for
Formulating System Contradictions -- 6.3 Inventive Principles for
System Contradiction Elimination -- 6.4 Altshuller Matrix-A Table of All
Conflicting Combinations of the 39 Parameters -- Acknowledgements
-- 7 Physical Contradictions -- 7.1 Physical Contradictions -- 7.2
Separation Principles for Physical Contradiction Elimination -- 8
Software Contradictions -- 8.1 Software Contradictions -- 8.2 List of
24 Parameters for Software Contradictions Formulation -- 8.3 Software
Principles for Software Contradictions Elimination -- 8.4 Table of
Different Combinations of Conflicting Parameters for Software-Related
Problems -- Acknowledgments -- 9 Resources and Parameters of
Resources -- 9.1 Resources of Time -- 9.2 Resources of Space -- 9.3
Resources of Substances -- 9.4 Resources of Fields -- 9.5 Parameters
-- 9.6 How to Define and Use Resources -- 10 Science for System
Development and Evolution -- 10.1 The Power of Science -- 10.2 The
Scientific Knowledge Database -- 10.2.1 The Functional Navigation
System for Effects Selection -- Acknowledgements -- 11 Substance-
Field Modeling and Analysis -- 11.1 Substance-Field Modeling and
Analysis -- 12 System of Standard Solutions -- 12.1 Standards of Class
1 -- 12.2 Standards of Class 2 -- 12.3 Standards of Class 3 -- 12.4
Standards of Class 4 -- 12.5 Standards of Class 5 -- Acknowledgments
-- References -- 13 The Method of Simulation by Little Manikins --
13.1 The Method of Simulation by "Little Manikins" (SLM) -- References
-- 14 The Algorithm for Inventive Problem Solving (ARIZ-85C) -- 14.1
Structure of ARIZ-85C -- 14.2 Guide to Diagrams of Typical Conflicts
-- 14.3 ARIZ-85C. Part 1: Problem Analysis-Problem Transition From
An Initial Problem Statement to a Distinctly Constructed Statement and
Model of a Mini-Problem.
14.4 ARIZ-85C. Part 2: Creating a List of Time, Space, Substance, and
Field Resources with Associated Parameters -- 14.5 ARIZ-85C. Part 3:
Realization of the Transition From a Problem to a Solution -- 14.6
ARIZ-85C. Part 4, Step 4.1.: The Method of Simulation by Little
Manikins -- References -- 15 Root-Cause Analysis -- 15.1 Root-Cause
Analysis (RCA) -- 16 Value Methodology -- 16.1 A Short History of
Value Methodology -- 16.2 Benefits of Using Value Methodology --
16.3 VM and Phases of the Life Cycle of Products, Systems, or
Procedures -- 16.4 Function Analysis -- 16.5 Trimming -- References
-- 17 Function Modeling and Analysis and Trimming Method -- 17.1
Function Model Elements -- 17.2 Building a Functional Model of the
Device -- 17.3 Trimming Method-Design Simplification Strategy -- 18
Technology for Innovation: Strategy of System Development and
Related Problem-Solving -- 18.1 Innovation Roadmap, Part 1: System
Analysis and the Problem Statement -- 18.1.1 Project Scenario --
18.1.2 Root-Cause Analysis (Chap. 15) -- 18.1.3 Functional Modeling
and Analysis (Chap. 17) -- 18.1.4 Hybrid (Alternative) System Design
-- 18.1.5 Failure Mode and Effects Analysis (FMEA) -- 18.1.6
Trimming: Design Simplification Strategy (Chap. 17 -- Appendix A) --
18.1.7 Problem Selection for Further Solution -- 18.2 Innovation
Roadmap, Part 2: Problem-Solving, Concept Development -- 18.3
Innovation Roadmap, Part 3: Concept Scenario Creation -- 18.3.1
Concept Evaluation and Selection (Appendix A) -- 18.3.2 Hybrid

Concept Design -- 18.3.3 Concept Scenario Creation -- Appendix A:
Wind Turbine Project -- Appendix B: Training Courses for All Levels of
Innovation Specialist Preparation -- Appendix C: Technology for
Innovation Implementation Plan for Companies -- Glossary --
References.
