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Nota di contenuto	Cover; Title page; Copyright page; Dedication; Contents; Foreword; Preface; 1: Introduction to Quality by Design; 1.1 What is Quality?; 1.2 Why Quality by Design?; 1.3 How to Design for Quality; 1.4 New Product Development and QFD; 1.4.1 Reflections on the Development of QFD; 1.4.2 Reflections on the Evolution of NPD Philosophy; 1.5 Technology Development and Functionality Design; 1.6 Outline of This Book; PART I: Optimizing Design for Function; 2: Quality Function Deployment; 2.1 Historical Development and Definition of QFD; 2.2 The Nature of QFD; 2.3 Benefits of QFD 2.4 Two Dominant Approaches to QFD2.4.1 Akao's Matrix of Matrices Model; 2.4.2 The Four-Matrix Model; 2.5 Shortcomings of QFD; 2.6 Review Comments on QFD; 2.6.1 Comments on QFD's Development Trends and Evolutions; 2.6.2 Comments on QFD's Shortcomings; 2.6.3 Comments on QFD's Applications; 2.7 Concluding Remarks; 3: Expanded System of QFD; 3.1 Overview of EQFD System and Its Implementation Process; 3.2 Thirty-Six Steps of the EQFD Implementation Process; I. Business and Product Planning; II. Technology Development Planning; III. Request for Quotation (RFQ); IV. Prototype Design V. Engineering Verification Test (EVT)VI. Design Verification Test (DVT); VII. Production Verification Test (PVT); VIII. Shop Floor Real-Time

Management and Abnormality Management; 3.3 Reinforcement of EQFD for the Original QFD; 3.4 EQFD Application; 3.4.1 Quality Deployment; 3.4.2 Technology Deployment; 3.4.3 Cost Deployment; 3.4.4 Reliability Deployment; 3.4.5 Shop Floor Management; 3.4.6 Summary; PART II: Optimizing Design for Functionality; 4: R&D Paradigm; 4.1 R&D Strategy as Prediction and Prevention; 4.2 Conventional Approach to R&D; 4.3 R&D Paradigm Shift; 5: Functionality Evaluation
5.1 Energy Transformation and Technology Development5.2 Evaluation of Technology; 5.3 Signal-to-Noise Ratio; 5.3.1 Dynamic SN Ratio; 5.3.2 Static SN Ratio; 5.4 Comparative Assessment of Functionality; 5.4.1 Conventional Evaluation Indicators; 5.4.2 Using the SN Ratio; 5.5 Examples; 5.5.1 Two Measurement Systems; 5.5.2 Two Designs; 6: Functionality Design; 6.1 R&D and Robust Engineering; 6.2 Parameter Design for Robustness; 6.2.1 Key Concepts; 6.2.2 Key Tools; 6.2.3 Process Steps; 6.3 Common Problems of RE Application in Practice; 6.4 Robust Technology Development; 6.5 Case Studies
6.5.1 Optimization of a Current-Voltage Conversion Circuit6.5.2 Robust Engineering of a Voltage Adjustment Component; 6.5.3 Accuracy Engineering of a Measurement System; 6.5.4 Stability Engineering of a Cutting Machine; 6.5.5 Summary; 7: Managing for Paradigm Shift; 7.1 Winning Quality-Based Technology Leadership; 7.2 Key Success Factors; 7.2.1 Technical Aspect; 7.2.2 Managerial Aspect; 7.3 Benefit to the Organization; 7.4 Slogan or Strategy?; PART III: Integration Strategy; 8: Structure for Design Activity Integration; 8.1 Universal Roadmap and Nine Tools for Design Engineering
8.2 Integration of QFD and Other Breakthrough Strategies

Sommario/riassunto

Provides a clear, useful framework and methods for R&D, including robust technology development, product planning, and product design and development management Quality Strategy for Research and Development integrates the Japanese and Western perspectives on Quality Function Deployment (QFD), updates the strategy of Robust Engineering (RE), and relates their unique frameworks to current, widely adopted philosophies of quality assurance. Featuring real-world case studies, more than thirty tables, and over seventy figures, this essential guide identifies key issues and p