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Applications of statistical and related methods to new technology and product development process

Part 6: Guidance for QFD-related approaches to optimization

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Part 6: Guidance for QFD-related approaches to optimization

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Partie 6: Lignes directrices pour QFD et approches reliées pour l'optimisation

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Contents

Page

Foreword ..... **v**
Introduction ..... **vi**
1 Scope **1**
2 Normative references **1**
3 Terms and definitions **1**
4 Basic concepts of QFD **1**
5 Integration of QFD and robust parameter design **2**
5.1 Quality engineering 2
5.1.1 General 2
5.1.2 Loss function 2
5.1.3 Types of factors which affect variability 3
5.2 When to use quality engineering 4
5.3 Robust parameter design, QFD, and TRIZ 4
6 Types of QFD and robust design projects **5**
7 QFD and robust parameter design team membership **6**
7.1 QFD uses cross-functional teams 6
7.2 Core team membership 6
7.3 Subject matter experts 6
7.4 QFD team leadership 6
8 Robust parameter design **6**
8.1 General 6
8.2 Signal-to-noise ratio 6
8.2.1 General 6
8.2.2 Signal 6
8.2.3 Noise 7
8.2.4 Three types of SN ratios 7
8.3 Assessing robustness 8
8.4 Two-step optimization 8
8.4.1 General 8
8.4.2 Design of experiments (DOE) 8
8.5 Steps to robust parameter designed experiments 8
8.5.1 General 8
8.5.2 Step 1. Clarify the system's ideal function 9
8.5.3 Step 2. Select signal factor and its range 9
8.5.4 Step 3. Select measurement method of output response 9
8.5.5 Step 4. Develop a noise strategy, and select noise factors and levels 9
8.5.6 Step 5. Select control factors and their levels from design parameters 10
8.5.7 Step 6. Assign experimental factors to inner or outer array 10
8.5.8 Step 7. Conduct experiment and collect data 10
8.5.9 Step 8. Calculate the SN ratio (η) and sensitivity (S) 10
8.5.10 Step 9. Generate factorial effect diagrams on SN ratio and sensitivity 10
8.5.11 Step 10. Select the optimum condition 11
8.5.12 Step 11. Estimate the improvement in robustness by the gain 11
8.5.13 Step 12. Conduct a confirmation experiment and check the gain and reproducibility 11
8.5.14 Conclusions 11
8.6 Case studies in robust parameter design 11
Annex A (informative) **Integration of robust parameter design (RPD) with quality function deployment (QFD) and theory of inventive problem solving (TRIZ)** **12**
Annex B (informative) **Other optimization methods** **13**

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Bibliography **14**

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Foreword

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This document was prepared by Technical Committee ISO/TC 69, *Applications of statistical methods*, Subcommittee SC 8, *Application of statistical and related methodology for new technology and product development*.

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Introduction

Quality function deployment (QFD) is a method to assure customer or stakeholder satisfaction and value with new and existing products by designing in, from different levels and different perspectives, the requirements that are most important to the customer or stakeholder, and ensuring their quality throughout the downstream activities of design, development, supply, building, commercializing, support and retiring from the market. These requirements are well understood through the use of quantitative and non-quantitative tools and methods to improve confidence of the design and development phases that they are working on the right things. In addition to satisfaction with the product, robust parameter design improves the process by which new products are developed and produced.

Reported results of using QFD include improved customer satisfaction with products at time of launch, improved cross-functional communication, systematic and traceable design decisions, efficient use of resources, reduced rework, reduced time-to-market, lower life cycle cost, improved reputation of the organization among its customers or stakeholders.

This document demonstrates the dynamic nature of a customer-driven approach. Since its inception in 1966, QFD has broadened and deepened its methods and tools to respond to the changing business conditions of QFD users, their management, their customers, and their products. Those who have used older QFD models will find these improvements make QFD easier and faster to use. The methods and tools shown and described represent decades of improvements to QFD; the list is neither exhaustive nor exclusive. Users should consider the applicable methods and tools as suggestions.

Robustness assessment is performed as a consideration of overall loss during the product's life cycle. The overall loss is composed of costs and losses at each stage of the product's life. It includes all costs incurred during not only the production stage, but also the disposal stages. When a product is not robust, the product causes many environmental and socioeconomic losses (including losses to the manufacturer and the users) due to poor quality caused by functional variability throughout its usable lifetime from shipping to final disposal. Product suppliers have responsibilities and obligations to supply robust products to the market to avert losses and damages resulting from defects in the products. The role of robust parameter in the QFD process is presented with examples and references to other ISO documents and related materials.

The topics in this document are not exhaustive and vary according to industry, product, and markets. They are considered a guide to encourage users of this document to explore activities needed to accomplish the same goal for their products.

Users of this document include all organization functions necessary to assure customer satisfaction, including business planning, marketing, sales, research and development (R&D), engineering, information technology (IT), manufacturing, procurement, quality, production, service, packaging and logistics, support, testing, regulatory, business process design, and other phases in hardware, software, service, and system organizations.

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