Technical Report

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

Part 9: Unified case study applying QFD to hardware, service, software, and hybrid products

Application des méthodes statistiques et des méthodes liées aux nouvelles technologies et de développement de produits —

Partie 9: Étude de cas unifiée appliquant la méthode QFD aux matériels, aux services, aux logiciels et aux produits hybrides

Reference number
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Contents

Page

Foreword ..... **vi**
Introduction ..... **vii**
1 Scope **1**
2 Normative references **1**
3 Terms and definitions **1**
4 Basic concepts of QFD **1**
5 Integration of VOC and VOS analysis and product development methods **1**
5.1 QFD support for product development methods 1
5.2 Flow of product development with VOC and VOS analysis 2
5.2.1 Organization of the VOC and VOS analysis 2
5.2.2 Outline of VOC and VOS analysis 2
6 Types of QFD projects **3**
7 QFD team membership **4**
7.1 QFD recommends the use of cross-functional teams 4
7.2 Core team membership 4
7.3 Subject matter experts 4
7.4 QFD team leadership 4
8 Seven management and planning tools **4**
9 New technology and product development voices **4**
9.1 Voice of business 4
9.1.1 General 4
9.1.2 Strategic planning 5
9.2 Voice of project 12
9.2.1 General 12
9.2.2 Identify projects 12
9.2.3 Prioritize and select projects 14
10 Voice of customer (VOC) **21**
10.1 Identify customers 21
10.1.1 Identify customer characteristics 21
10.1.2 Identify customer applications or modes of use 22
10.1.3 Other methods for identifying customers and stakeholders 23
10.2 Prioritize and select customer segments 23
10.3 Acquire VOC 25
10.3.1 General 25
10.3.2 *Gemba* visit checklist 26
10.3.3 Customer process model 27
10.3.4 *Gemba* visit table 29
10.3.5 *Gemba* visit log 32
10.3.6 What customers think 32
10.3.7 Other sources of VOC 35
10.4 Analyze voice of customer (VOC) 36
10.4.1 General 36
10.4.2 Benefits of VOC analysis 36
10.4.3 Information contained in VOC 37
10.4.4 Translate VOC into customer needs 40
10.4.5 Structure customer needs 44
10.4.6 Prioritize customer needs 46
10.4.7 Customer needs quantification and plan 49
10.4.8 Gemba visit guide 53
10.5 Deploying solutions 53

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11 Blitz QFD® ... 54
11.1 General ... 54
11.2 Effect-to-cause wishbone diagram ... 54
11.3 Maximum value table (MVT) for service ... 54
11.4 Maximum value table (MVT) for bagel ... 55
11.5 Maximum value table (MVT) for toaster ... 56
11.6 Maximum value table (MVT) for information systems ... 57

12 Comprehensive QFD ... 57
12.1 General ... 57
12.2 Comprehensive QFD deployments ... 59

13 Comprehensive service QFD matrices ... 59
13.1 General ... 59
13.2 Customer phase quality deployment ... 60
13.2.1 Customer needs-service requirements matrix (house of quality) ... 60
13.2.2 Customer phase cost deployment ... 68
13.3 Customer phase function deployment ... 70
13.3.1 Function tree ... 70
13.3.2 Customer needs-functions matrix (proportional distribution) ... 71
13.4 Customer phase reliability deployment ... 72
13.4.1 General ... 72
13.4.2 Failure mode affinity diagram ... 72
13.4.3 Failure mode hierarchy diagram or fault tree ... 72
13.4.4 Customer needs-failure modes matrix ... 73
13.4.5 Design failure mode and effects analysis (DFMEA) ... 74
13.5 System and subsystem phase deployments ... 75
13.5.1 System phase technology deployment ... 75
13.5.2 Subsystem phase deployments ... 79

14 Comprehensive processed, chemical, and food product QFD matrices ... 81
14.1 General ... 81
14.2 Customer phase quality deployment ... 81
14.2.1 General ... 81
14.2.2 Customer needs-bagel characteristics matrix (house of quality) ... 81
14.3 System phase intermediate batch deployment ... 82
14.3.1 General ... 82
14.3.2 System phase bagel characteristics - dough characteristics matrix ... 82
14.4 Component phase recipe deployment ... 83
14.4.1 General ... 83
14.4.2 Component phase dough characteristics - ingredients matrix ... 83
14.4.3 Component phase robust design ... 84
14.5 Preproduction phase manufacturing process deployment ... 85
14.5.1 General ... 85
14.5.2 Dough characteristics – manufacturing process matrix ... 85
14.6 Preproduction quality control ... 85
14.7 Final processed product specifications ... 86
14.8 Preproduction phase on-site service operations deployment ... 87
14.8.1 General ... 87
14.8.2 Finished bagel characteristics - final baking matrix ... 87
14.9 Preproduction phase standard operating procedures ... 87
14.10 Other operations ... 88

15 Comprehensive assembled or manufactured product QFD matrices ... 89
15.1 General ... 89
15.2 Customer phase quality deployment ... 89
15.2.1 General ... 89
15.2.2 Customer needs-toaster characteristics matrix (house of quality) ... 89
15.3 Component phase deployments ... 90
15.3.1 General ... 90
15.3.2 Component phase functional requirements – component parts matrix ... 91

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15.3.3 Component phase quality assurance (QA) table ... 91
15.4 Preproduction manufacturing and assembly phase deployments ... 92
15.4.1 General ... 92
15.4.2 Preproduction phase components – manufacturing operations matrix ... 92
15.4.3 Preproduction phase components testing ... 92
15.4.4 Preproduction phase quality control (QC) process planning ... 93
15.4.5 Preproduction phase quality control (QC) table for component assembly ... 94
16 Comprehensive information, software, and digitalized products QFD matrices ... 95
16.1 General ... 95
16.2 Software QFD with agile development ... 95
16.3 Customer phase quality deployment ... 96
16.3.1 General ... 96
16.3.2 Customer needs-information systems functional requirements matrix (house of quality) ... 96
16.4 Component phase deployment ... 97
16.4.1 General ... 97
16.4.2 Non-functional requirements ... 97
16.5 Production phase ... 97
16.5.1 General ... 97
16.5.2 Functional requirements-testing matrix ... 98
16.5.3 Potentially shippable product ... 98
17 Project results and next steps ... 98
17.1 Customer satisfaction and sales ... 98
17.2 Next projects ... 99
18 Quality assurance network diagram ... 99
Bibliography ... 102

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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*.

A list of all parts in the ISO 16355 series is found on the ISO website.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies is found at www.iso.org/members.html.

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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.

The case study presented in this technical report illustrates how comprehensive QFD and related methods and tools were used by a company which operated 70 % of the U.S. airport food and beverage market, and set a strategic goal to increase top line revenues. It was recognized by this company that its strategic goal could not be achieved with the approach traditionally followed by the company to develop new products and services, which was a product-out approach focused on unit cost reduction. While cost reduction could positively impact per-item profit, top-line revenue growth could only come from increasing prices and number of items sold. That is why they decided to adopt QFD (a market-in approach) to increase the quality perceived by multiple customer segments and who would demand more product and be willing to pay a higher price.

As a result of applying QFD thinking and methods the company transformed the design of the food products, the way these were processed, and the way they were sold. This included transforming the design of airport facilities and staff skills including the customer sales interface, on-site food preparation areas, staff training and the supply chain of both innovative product materials and process equipment. It was a way of achieving a whole-system transformation that achieved their strategic targets in a short period.

The full scope of comprehensive QFD methods and tools were not all used by this company, but based on public information available in the original food and beverage case study,[1] an extrapolation into this single case study has been made using additional QFD related case studies included in the first eight parts of the ISO 16355 series of standards. The purpose is to show that QFD tools and methods are readily tailorable for different products, processes, services, software, and system transformations. Thus, some figures and tables have been modified from other case studies to exemplify how they might have looked had they been used in the original food and beverage case. It is generally not recommended that a single project use all these tools due to the time and resources required.

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

Part 9:
Unified case study applying QFD to hardware, service, software, and hybrid products

1 Scope

This document applies the various details and case studies from ISO 16355-1 through ISO/TR 16355-8 to a unified case study based on public information available from a food and beverage case study.[1] By reframing the different case studies into a single story, the relationships and information flows of QFD are more easily followed. This document briefly explains how the methods and tools of QFD and associated methods might work in this food and beverage study. Detailed steps are found in the ISO 16355 series as referenced in this document and readers are able to use these when implementing QFD.

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, and other phases in hardware, software, service, and system organizations.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 16355-1, *Application of statistical and related methods to new technology and product development process — Part 1: General principles and perspectives of quality function deployment (QFD)*

3 Terms and definitions

For the purpose of this document, the terms and definitions given in ISO 16355-1 apply.

4 Basic concepts of QFD

The basic concepts of QFD are referenced in ISO 16355-1:2021, Clause 4.

5 Integration of VOC and VOS analysis and product development methods

5.1 QFD support for product development methods

QFD support for product development methods is referenced in ISO 16355-1:2021, 5.1.

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