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

Part 4: Analysis of non-quantitative and quantitative Voice of Customer and Voice of Stakeholder

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National foreword

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

Part 4: Analysis of non-quantitative and quantitative Voice of Customer and Voice of Stakeholder

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

Partie 4: Analyse du retour client (Voice of Customer) ou du retour des parties prenantes (Voice of stakholders) quantitatif et non-quantitatif

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Contents

Page

Foreword ... **iv**
Introduction ... **v**
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 ... **2**
7 VOC and VOS analysis team membership ... **2**
7.1 VOC and VOS analysis uses cross-functional teams ... 2
7.2 Core team membership ... 2
7.3 Subject matter experts ... 2
7.4 VOC and VOS analysis team leadership ... 2
8 Seven management and planning tools ... **3**
9 Analysis of the voice of customer (VOC) or voice of stakeholder (VOS) ... **3**
9.1 General ... 3
9.1.1 Benefits of VOC and VOS analysis ... 3
9.1.2 Sources of VOC and VOS ... 4
9.1.3 Information contained in VOC and VOS ... 5
9.2 Translating VOC and VOS into customer needs ... 7
9.2.1 General ... 7
9.2.2 Verbal translation ... 7
9.2.3 Cause-to-effect diagram ... 7
9.2.4 Customer voice table ... 9
10 Structuring information sets ... **10**
10.1 General ... 10
10.2 Affinity diagram ... 10
10.2.1 General ... 10
10.2.2 Steps to make an affinity diagram ... 10
10.3 Hierarchy diagram ... 11
10.3.1 General ... 11
10.3.2 Steps to make a hierarchy diagram ... 12
11 Prioritization ... **13**
11.1 General ... 13
11.2 Applying AHP to customer needs ... 14
11.3 Steps to AHP using a spreadsheet ... 15
11.4 AHP survey format for customer needs prioritization ... 16
11.5 Sample size for customer needs prioritization ... 17
11.6 Applying AHP to a customer needs hierarchy ... 18
11.7 Analytic network process (ANP), fuzzy AHP, and fuzzy ANP ... 19
12 Quantification ... **19**
12.1 General ... 19
12.2 Quality planning table ... 20
Bibliography ... **25**

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

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 the parts in the ISO 16355 series can be found on the ISO website.

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Introduction

Quality Function Deployment (QFD) is a method to ensure 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. These requirements should be 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, QFD improves the process by which new products are developed.

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, and 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 have found that these improvements make QFD easier and faster to use. The methods and tools shown and referenced in this document represent decades of improvements to QFD; the list is neither exhaustive nor exclusive. Users should consider the applicable methods and tools as suggestions, not requirements.

This document is descriptive and discusses current best practice, it is not prescriptive by requiring specific tools and methods.

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

Part 4: Analysis of non-quantitative and quantitative Voice of Customer and Voice of Stakeholder

1 Scope

This document describes the analysis of the voice of the customer (VOC) and the voice of the stakeholder (VOS). These include translation of VOC and VOS into true customer needs, prioritization of these needs, and competitive benchmarking of alternatives from the customer's perspective. This document also provides recommendations on the use of the applicable tools and methods.

Users of this document include all organization functions necessary to ensure customer satisfaction, including business planning, marketing, sales, research and development (R and 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 16355-1:2015, *Applications of statistical and related methods to new technology and product development process*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

4 Basic concepts of QFD

The basic concepts of QFD are described in ISO 16355-1:2015, 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 16355-1:2015, 5.1.

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5.2 Flow of product development with VOC and VOS analysis

5.2.1 Organization of the VOC and VOS analysis

The flow of VOC and VOS analysis methods and tools can vary according to the organization and project requirements. Typically, they begin with broad concerns and through prioritization flow down to specifics.

5.2.2 Outline of VOC and VOS analysis

Figure 1 illustrates the organization of the clauses of this document. Here is an outline of the specific steps and their respective clause numbers. Further in the document, each clause describes the step and suggests applicable methods and tools with guidance that can be used to accomplish the step.

Customers and Stakeholders
9.1.1 Benefits of VOC/VOS analysis
9.1.2 Sources of VOC/VOS
9.1.3 Information types in VOC/VOS
9.2 Translating VOC/VOS int customer needs
10 Structuring information sets
11 Prioritizing customer needs
12 Quantifying customer needs

Figure 1 — VOC and VOS analysis outline

6 Types of QFD projects

QFD projects can encompass new developments, as well as generational improvements, to existing products. The types of QFD projects are referenced in ISO 16355-1:2015, Clause 6.

7 VOC and VOS analysis team membership

7.1 VOC and VOS analysis uses cross-functional teams

Cross-functional teams are referenced in ISO 16355-1:2015, 7.1

7.2 Core team membership

Core team membership is referenced in ISO 16355-1:2015, 7.2.

7.3 Subject matter experts

Subject matter experts involvement is referenced in ISO 16355-1:2015, 7.3.

7.4 VOC and VOS analysis team leadership

VOC and VOS analysis teams can be led by members of business functions such as sales, marketing, market research, customer service, customer support, and others with firsthand knowledge or contact with customers and stakeholders.

NOTE The VOC or VOS team leader can take a position of being function-agnostic so as to remain neutral to any business department or activity.

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8 Seven management and planning tools

The seven management and planning tools are referenced in ISO 16355-2:2017, 8.2.

9 Analysis of the voice of customer (VOC) or voice of stakeholder (VOS)

9.1 General

9.1.1 Benefits of VOC and VOS analysis

The benefits of VOC and VOS analysis include the following.

a) Simplify complex statements into single issue statements.

EXAMPLE A VOC can state that the process should be "quick and easy," but are both equally important? The VOC should be simplified into "quick" and "easy" so that the customer can prioritize more precisely.

b) Discover unspoken or latent customer or stakeholder needs.

EXAMPLE A VOC can state that the customer wishes to tag photographs with meta information. It is reasonable to conclude that the customer can also with to tag videos, music and audio, and other types of non-text information for ease of retrieval.

c) Improve accuracy of prioritizing which customer needs matter most.

Accurate prioritization requires having subject matter knowledge. Generally, customers have more knowledge about their needs than about solutions. Similarly, producers have more knowledge about solutions than customers. So, if VOC or VOS is about a solution, translating it into a need first helps customers prioritize more accurately.

EXAMPLE A VOC for web access states account should have no more than one screen to login, and should have high security. Both are product functions of ease of access and user account security. Translating these into customer needs, these could mean "I can login quickly just to check on my bank balance while at the register", and "my money is safe when making online payments." Depending on the use case, there would be different priorities, and it would be more accurate for customers to prioritize these statements as needs rather than as product functions.

d) Quantify current and hoped for levels of satisfaction.

EXAMPLE A customer buying a laptop computer can more easily state a desire to store twice as many photographs as now, rather than needing a 500 GB hard drive.

e) Benchmark alternatives.

EXAMPLE A customer can more easily relate to how many photos can be stored on one laptop vs another model.

f) Identify selling points.

EXAMPLE Sales promotion and labelling can point to photo storage capacity instead of hard drive size.

g) Keep from arriving at solutions too quickly.

EXAMPLE If solutions are identified before key stakeholder needs have been clarified, then the ability to reconfigure the solution to satisfy missing needs can be precluded. As an example, in information and communications technology (ICT) solution designs, key information access needs can be blocked if extreme information security measures have been committed too early in the solution design. Similarly, if information access needs are translated into solutions independently of consideration of security needs, then solution security vulnerabilities can be introduced that are difficult or costly to address during solution development.

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