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Quality management — Customer satisfaction — Guidelines for monitoring and measuring

Management de la qualité — Satisfaction du client — Lignes directrices relatives à la surveillance et au mesurage

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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).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, 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 176, *Quality management and quality assurance*, Subcommittee SC 3, *Supporting technologies*.

This second edition cancels and replaces the first edition (ISO 10004:2012), which has been technically revised.

The main changes compared with the previous edition are as follows:

— alignment with ISO 9000:2015;

— alignment with ISO 9001:2015;

— improved alignment with ISO 10001, ISO 10002 and ISO 10003.

Introduction

0.1 General

One of the key elements of organizational success is the customer's satisfaction with the organization and its products and services. Therefore, it is necessary to monitor and measure customer satisfaction.

The information obtained from monitoring and measuring customer satisfaction can help identify opportunities for improvement of the organization's strategies, products, services, processes and characteristics that are valued by customers, and serve the organization's objectives. Such improvements can strengthen customer confidence and result in commercial and other benefits.

This document provides guidance to the organization on establishing effective processes for monitoring and measuring customer satisfaction.

The satisfaction of persons or organizations that could or do receive a product or a service from a public or a private organization is the focus of this document.

0.2 Relationship with ISO 9001

This document is compatible with ISO 9001, whose objectives it supports by providing guidance on monitoring and measuring customer satisfaction. This document can help address specific clauses in ISO 9001 related to customer satisfaction, including those listed below:

a) ISO 9001:2015, 4.3, on the scope of the quality management system;

b) ISO 9001:2015, 5.1.2, on customer focus;

c) ISO 9001:2015, 6.2.1, on quality objectives;

d) ISO 9001:2015, 8.2.1 c), on customer communication;

e) ISO 9001:2015, 9.1.2, on customer satisfaction;

f) ISO 9001:2015, 9.1.3, on analysis and evaluation;

g) ISO 9001:2015, 9.3.2 c), on management review inputs;

h) ISO 9001:2015, 10.1 on improvement.

This document can also be used independently of ISO 9001.

0.3 Relationship with ISO 9004

This document is compatible with ISO 9004, and supports its objectives through the effective and efficient application of customer satisfaction monitoring and measuring processes. ISO 9004 provides guidance to achieve sustained success of an organization. The use of this document (ISO 10004) can enhance performance in the area of monitoring and measuring of customer satisfaction to facilitate the achievement of sustained success. It can also facilitate the continual improvement of the quality of products, services and processes based on feedback from customers and other relevant interested parties.

NOTE Apart from customers and complainants, other relevant interested parties can include suppliers, industry associations and their members, consumer organizations, relevant government agencies, personnel, owners and others who are affected by the customer satisfaction monitoring and measuring processes.

This document can also be used independently of ISO 9004.

0.4 Relationship with ISO 10001, ISO 10002 and ISO 10003

This document is compatible with ISO 10001, ISO 10002 and ISO 10003. These four documents can be used either independently or in conjunction with each other. When used together, this document, ISO 10001, ISO 10002 and ISO 10003 can be part of a broader and integrated framework for enhanced customer satisfaction through codes of conduct, complaints handling, dispute resolution and monitoring and measurement of customer satisfaction (see Annex A).

ISO 10001 contains guidance on codes of conduct for organizations related to customer satisfaction. Such codes of conduct can decrease the probability of problems arising and can eliminate causes of complaints and disputes which can decrease customer satisfaction.

ISO 10001 and this document can be used together. Guidelines given in this document can support the establishment and implementation of codes of conduct. For example, the processes described in this document can assist the organization to monitor and measure customer satisfaction with these codes of conduct (see ISO 10001:—[1], 8.3). Likewise, the codes of conduct can assist the organization in defining and implementing processes for monitoring and measuring customer satisfaction. For example, an organization can establish a code of conduct with respect to the confidentiality of customer information in monitoring and measuring customer satisfaction.

ISO 10002 contains guidance on the internal handling of product- and service-related complaints. This guidance can help to preserve customer satisfaction and loyalty by resolving complaints effectively and efficiently.

ISO 10002 and this document can be used together. Guidelines given in this document can support the establishment and implementation of a complaints-handling process. For example, the processes described in this document can assist the organization in monitoring and measuring customer satisfaction with the complaints-handling process (see ISO 10002:—[2], 8.3). Likewise, information from a complaints-handling process can be used in monitoring and measuring customer satisfaction. For example, the frequency and type of complaints can be an indirect indicator of customer satisfaction (see 7.3.2).

ISO 10003 contains guidance on the resolution of disputes regarding product- and service-related complaints that could not be satisfactorily resolved internally. ISO 10003 can help to minimize customer dissatisfaction stemming from unresolved complaints.

ISO 10003 and this document can be used together. Guidelines given in this document can support the establishment and implementation of a dispute-resolution process. For example, the processes described in this document can assist the organization in monitoring and measuring customer satisfaction with the dispute-resolution process (see ISO 10003:—[3], 8.3). Likewise, information from a dispute-resolution process can be used in monitoring and measuring customer satisfaction. For example, the frequency and nature of disputes can be an indirect indicator of customer satisfaction (see 7.3.2).

Collectively, ISO 10001, ISO 10002 and ISO 10003 provide guidance which can help to minimize customer dissatisfaction and enhance customer satisfaction. This document complements ISO 10001, ISO 10002 and ISO 10003 by providing guidance on the monitoring and measuring of customer satisfaction. The information gained can guide the organization to take actions which can help to sustain or enhance customer satisfaction.

1) Under preparation.

2) Under preparation.

3) Under preparation.

Quality management — Customer satisfaction — Guidelines for monitoring and measuring

1 Scope

This document gives guidelines for defining and implementing processes to monitor and measure customer satisfaction.

This document is intended for use by any organization regardless of its type or size, or the products and services it provides. The focus of this document is on customers external to the organization.

NOTE Throughout this document, the terms "product" and "service" refer to the outputs of an organization that are intended for, or required by, a customer.

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 9000:2015, *Quality management systems — Fundamentals and vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 9000 and the following 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 https://www.iso.org/obp

3.1
customer
person or *organization* (3.7) that could or does receive a product or a service that is intended for or required by this person or organization

EXAMPLE Consumer, client, end-user, retailer, receiver of product or service from an internal process, beneficiary and purchaser.

Note 1 to entry: A customer can be internal or external to the organization.

[SOURCE: ISO 9000:2015, 3.2.4]

3.2
customer satisfaction
customer's (3.1) perception of the degree to which the customer's expectations have been fulfilled

Note 1 to entry: It can be that the customer's expectation is not known to the *organization* (3.7), or even to the customer in question, until the product or service is delivered. It can be necessary for achieving high customer satisfaction to fulfil an expectation of a customer even if it is neither stated nor generally implied or obligatory.

Note 2 to entry: *Complaints* (3.3) are a common indicator of low customer satisfaction but their absence does not necessarily imply high customer satisfaction.

Note 3 to entry: Even when customer requirements have been agreed with the customer and fulfilled, this does not necessarily ensure high customer satisfaction.

[SOURCE: ISO 9000:2015, 3.9.2]

3.3
complaint

<customer satisfaction> expression of dissatisfaction made to an *organization* (3.7), related to its product or service, or the complaints-handling process itself, where a response or resolution is explicitly or implicitly expected

Note 1 to entry: Complaints can be made in relation to other processes where the organization interacts with the *customer* (3.1).

Note 2 to entry: Complaints can be made directly or indirectly to the organization.

[SOURCE: ISO 9000:2015, 3.9.3, modified — Notes 1 and 2 to entry have been added.]

3.4
customer service

interaction of the *organization* (3.7) with the *customer* (3.1) throughout the life cycle of a product or a service

[SOURCE: ISO 9000:2015, 3.9.4]

3.5
feedback

<customer satisfaction> opinions, comments and expressions of interest in a product, a service or a complaints-handling process

Note 1 to entry: Feedback can be given in relation to other processes where the *organization* (3.7) interacts with the *customer* (3.1).

[SOURCE: ISO 9000:2015, 3.9.1, modified — Note 1 to entry has been added.]

3.6
interested party

stakeholder

person or *organization* (3.7) that can affect, be affected by, or perceive itself to be affected by a decision or activity

EXAMPLE *Customers* (3.1), owners, people in an organization, providers, bankers, regulators, unions, partners or society that can include competitors or opposing pressure groups.

[SOURCE: ISO 9000:2015, 3.2.3, modified — Note 1 to entry has been deleted.]

3.7
organization

person or group of people that has its own functions with responsibilities, authorities and relationships to achieve its objectives

Note 1 to entry: The concept of organization includes, but is not limited to, sole-trader, company, corporation, firm, enterprise, authority, partnership, association, charity or institution, or part or combination thereof, whether incorporated or not, public or private.

[SOURCE: ISO 9000:2015, 3.2.1, modified — Note 2 to entry has been deleted.]

4 Concepts and guiding principles

4.1 General

The concept of customer satisfaction outlined in 4.2, and the guiding principles set out in 4.3, provide the basis for effective and efficient processes for monitoring and measuring customer satisfaction.

4.2 Concept of customer satisfaction

Customer satisfaction is determined by the gap between the customer's expectations and the customer's perception of the product or service as delivered by the organization, and of aspects related to the organization itself.

To achieve customer satisfaction, the organization should first understand the customer's expectations. These expectations might be explicit or implicit, or not fully articulated.

Customer expectations, as understood by the organization, form the primary basis of products and services that are subsequently planned and delivered.

The extent to which the delivered product or service and other organizational aspects are perceived by the customer to meet or exceed expectations determines the degree of customer satisfaction.

It is important to make a distinction between the organization's view of the quality of the delivered product or service and the customer's perception of the delivered product or service and of other organizational aspects, because it is the latter that governs the customer's satisfaction. The relationship between the organization's and the customer's views on quality is further described by the conceptual model of customer satisfaction, as presented in Annex B.

Since customer satisfaction is subject to change, organizations should establish processes to monitor and measure customer satisfaction on a regular basis.

4.3 Guiding principles

4.3.1 Commitment

The organization should be actively committed to defining and implementing processes to monitor and measure customer satisfaction.

4.3.2 Capacity

Sufficient resources should be made available for and committed to monitoring and measuring customer satisfaction, and should be managed effectively and efficiently.

4.3.3 Transparency

The organization should ensure that adequate customer satisfaction information is communicated to customers, personnel and other relevant interested parties, as appropriate.

4.3.4 Accessibility

Customer satisfaction information should be easy to find and use.

4.3.5 Responsiveness

The organization should address the needs and expectations of customers in its use of customer satisfaction information.

4.3.6 Information integrity

The organization should ensure that customer satisfaction information is accurate and not misleading, and that data collected are relevant, correct, complete, meaningful and useful.

4.3.7 Accountability

The organization should establish and maintain accountability for, and reporting on, the decisions and actions taken with respect to monitoring and measuring customer satisfaction.

4.3.8 Improvement

Increased effectiveness and efficiency of the processes to monitor and measure customer satisfaction should be a permanent objective.

4.3.9 Confidentiality

Personally identifiable information should be kept confidential and protected, unless disclosure is required by law or consent for disclosure is obtained from the person concerned.

NOTE Personally identifiable information is information that when associated with an individual can be used to identify him or her, and is retrievable by the individual's name, address, email address, telephone number or similarly specific identifier. The precise meaning of the term differs around the world.

4.3.10 Customer-focused approach

The organization should adopt a customer-focused approach to monitor and measure customer satisfaction and should be open to feedback.

4.3.11 Competence

Organization personnel should have the personal attributes, skills, training, education and experience necessary to monitor and measure customer satisfaction.

4.3.12 Timeliness

Gathering and dissemination of customer satisfaction information should be done at the appropriate time, consistent with the organization's objectives.

4.3.13 Comprehension

The organization should clearly and fully understand the customer's expectations, and the customer's perception of how well those expectations are met.

4.3.14 Continuity

The organization should ensure that monitoring of customer satisfaction is systematic and continuous.

5 Framework for monitoring and measuring customer satisfaction

5.1 Context of the organization

In planning, designing, developing, operating, maintaining and improving of processes for monitoring and measuring customer satisfaction, the organization should consider its context by:

— identifying and addressing external and internal issues that are relevant to the organization's purpose and that affect its ability to achieve the objectives of monitoring and measuring customer satisfaction;

— identifying the interested parties that are relevant to monitoring and measuring of customer satisfaction, and addressing the relevant needs and expectations of these interested parties;

— identifying the scope of the processes for monitoring and measuring customer satisfaction, including their boundaries and applicability, and taking into account the external and internal issues and the needs of interested parties noted above.

5.2 Establishment

The organization should establish a systematic approach to monitoring and measuring customer satisfaction. This approach should be supported by top management, leadership and commitment throughout the organization, and an organizational framework to enable the planning, design, development, operation, maintenance and improvement of processes for monitoring and measuring customer satisfaction.

Planning, design and development includes determination of the methods of implementation, and the allocation of necessary resources (see Clause 6).

Operation includes identifying customer expectations, gathering and analysing customer satisfaction data, providing feedback for improvement and monitoring of customer satisfaction (see Clause 7).

Maintenance and improvement includes the review, evaluation and continual improvement of processes for monitoring and measuring customer satisfaction (see Clause 8).

When measuring and monitoring customer satisfaction, the organization should consider and address risks and opportunities that can arise. This involves:

— monitoring and evaluating processes and internal and external factors concerning risks and opportunities;

— identifying and assessing specific risks and opportunities;

— planning, designing, developing, implementing and reviewing corrective actions and improvements pertaining to identified and assessed risks and opportunities.

As defined in ISO 9000:2015, 3.7.9, risk is the effect of uncertainty, which can be negative or positive. In the context of customer satisfaction monitoring and measurement, an example of a negative effect is insufficient survey response rate resulting from intrusive questioning, and an example of a positive effect is that the organization reconsiders the resources associated with the monitoring of customer satisfaction as a result of a review of the related process. These risks can be addressed by reviewing the allocation and deployment of resources leading to the improvement of customer satisfaction measurement and monitoring methods.

An opportunity is related to identification of a new possible way of realizing positive outcomes, which does not necessarily arise from the organization's existing risks. For example, the organization can identify a new product, service or process as a result of a customer suggestion provided in the course of customer satisfaction measurement.

6 Planning, design and development

6.1 Defining the purpose and objectives

As a first step, the organization should clearly define the purpose and objectives of monitoring and measuring customer satisfaction, which might, for example, include:

— to evaluate customer response to existing, new or re-designed products and services;

— to obtain information on specific aspects, such as supporting processes, personnel or organization behaviour;

— to investigate reasons for customer complaints;

— to investigate reasons for loss of customers or market share;

— to monitor trends in customer satisfaction;

— to compare customer satisfaction in relation to other organizations.

The purpose and objectives influence what, when, how and from whom the data are gathered. They also influence how the data are analysed and how the information is ultimately to be used.

The objectives of monitoring and measuring customer satisfaction should be defined in a manner such that their fulfilment can be measured using performance indicators as specified by the organization.

6.2 Determining the scope and frequency

Based on the purpose and objectives, the organization should determine the scope of the planned measurement, in terms of both the type of data that is sought, and from where it is to be obtained.

The type of information gathered can range from data regarding a specific characteristic, to assessment of overall satisfaction. Likewise, the scope of assessment depends on the type of segmentation, such as:

— by customer;

— by region;

— by time period;

— by market;

— by product;

— by service.

The organization should also determine the frequency of data gathering, which can be on a regular basis, on an occasional basis, or both, as dictated by business needs or specific events (see 7.3).

6.3 Determining implementation methods and responsibilities

Some information regarding customer satisfaction might be obtained indirectly from the organization's internal processes (e.g. customer complaints handling) or from external sources (e.g. reports in the media). Usually, the organization needs to supplement such information with data obtained directly from customers.

The organization should determine how customer satisfaction information is to be obtained, and who is responsible for that activity. The organization should also determine to whom the information is to be directed for appropriate action.

The organization should plan to monitor the processes for obtaining and using customer satisfaction information, as well as the results and effectiveness of these processes.

6.4 Allocating resources

The organization should determine and provide the necessary competent human and other resources for monitoring and measuring customer satisfaction.

7 Operation

7.1 General

To monitor and measure customer satisfaction, the organization should:

— identify customer expectations;

— gather customer satisfaction data;

— analyse customer satisfaction data;

— communicate customer satisfaction information;

— monitor customer satisfaction ongoing.

These activities and their relationship are depicted in Figure 1, and described in 7.2 to 7.6.

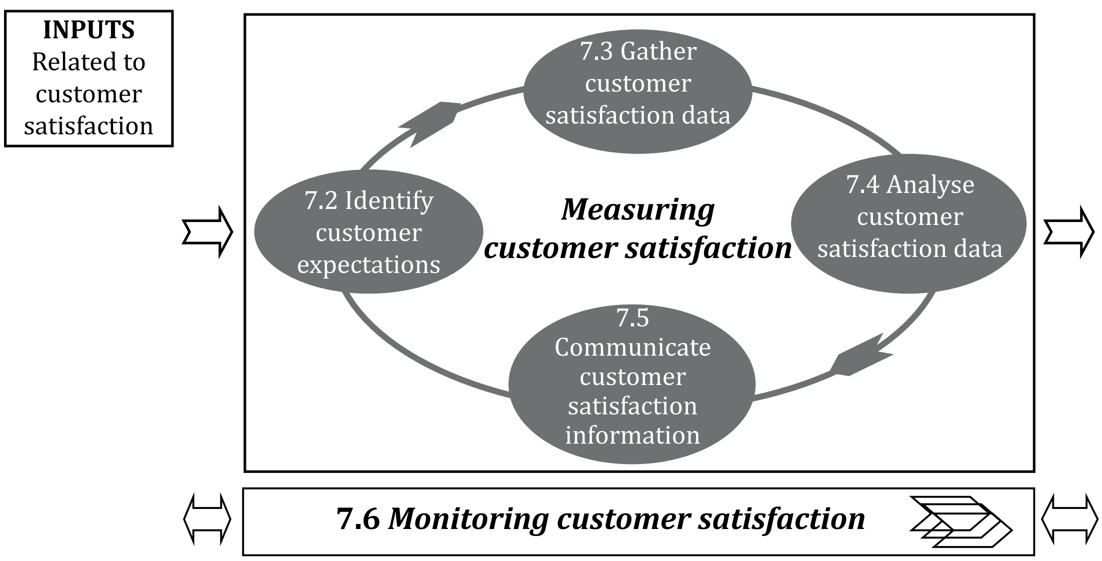

Figure 1 — Monitoring and measuring customer satisfaction

7.2 Identifying customer expectations

7.2.1 Identifying customers

The organization should identify the customers, both current and potential, whose expectations it intends to determine.

Once the “customer” group has been defined, the organization should identify the individual customers whose expectations are to be determined. For example, in the consumer goods sector, such individuals might be regular customers, or they might be occasional customers. When the customer is an enterprise, one or more persons in that enterprise (e.g. from purchasing, project management or production) should be selected.

Further information and guidance is provided in Annex C. Other examples of various types of customers and considerations are provided in C.2.

7.2.2 Determining customer expectations

When determining customer expectations (see Figure B.1), the organization should consider:

— stated customer requirements;

— implied customer requirements;

— other customer desires (“wish list”).

NOTE 1 Codes of conduct for customer satisfaction (see ISO 10001) can also be considered in determining customer expectations.

It is important to recognize that a customer might not always explicitly specify all aspects of the product or service. Items that are presupposed might not be specified. Some aspects might be overlooked, or may not be known to the customer.

As outlined in the conceptual model (see Annex B), it is crucial that the customer’s expectations are clearly and completely understood. How well these expectations are met will influence the customer’s satisfaction. Examples of various aspects to consider in order to better understand customer expectations are provided in C.3.

The relationship between customer expectations and customer satisfaction is further discussed in C.4.

NOTE 2 Information regarding customer expectations can also be used in preparing codes of conduct for customer satisfaction (see ISO 10001:—, Clause 6).

7.3 Gathering customer satisfaction data

7.3.1 Identifying and selecting characteristics related to customer satisfaction

The organization should identify the characteristics of the product or service, of its delivery and of the organization, which have a significant effect on customer satisfaction. For convenience, the characteristics can be grouped into categories such as:

a) product and service characteristics;

EXAMPLE Performance (quality, dependability), features, aesthetics, safety, support (maintenance, disposal, training), price, perceived value, warranty, environmental impact.

b) delivery characteristics;

EXAMPLE On-time delivery, completeness of order, response time, operating information.

c) organizational characteristics.

EXAMPLE Personnel characteristics (courtesy, competence, communication), billing process, complaints handling, security, organizational behaviour (business ethics, social responsibility), image in society, transparency.

The organization should rank the selected characteristics to reflect their relative importance, as perceived by the customer. If necessary, a survey should be carried out with a sub-set of customers to determine or verify their perception of relative importance of characteristics.

7.3.2 Indirect indicators of customer satisfaction

The organization should examine existing sources of information for data that reflect characteristics related to customer satisfaction, for example:

— frequency or trend in customer complaints and disputes (see ISO 10002:—, Clause 8, and ISO 10003), calls for assistance, or customer compliments;

— frequency or trend in product returns, product repair or other indicators of product performance or customer acceptance, e.g. installation or field inspection reports;

— frequency or trend in service nonconformities or other indicators of service performance, e.g. on-time or delayed service delivery;

- data obtained through communication with customers, e.g. by marketing, customer service personnel;
- reports from supplier surveys conducted by customer organizations, which can reveal how the organization is perceived in relation to other organizations;
- reports from consumer groups that might reveal how the organization and its products and services are perceived by consumers and users;
- media reports which might reveal how the organization or its products and services are perceived, and which might themselves also influence customer perceptions;
- sector/industry studies, e.g. involving a comparative assessment of characteristics of the organization's products and services;
- regulatory agency reports or publications;
- comments and discussion in social media.

Such data can provide insight into the strengths and weaknesses of the product, service and related organization processes (e.g. product support, customer service, complaints handling and customer communication). The analysis of such data can help to shape indicators of customer satisfaction. It can also help to confirm or supplement customer satisfaction data gained directly from the customer.

7.3.3 Direct measures of customer satisfaction

7.3.3.1 General

While there might be indirect indicators of satisfaction (see 7.3.2), it is usually necessary to gather customer satisfaction data directly from customers. The method(s) used to gather customer satisfaction data depend on various factors, for example:

- the type, number and geographical distribution of customers;
- the length and frequency of customer interaction;
- the nature of products and services provided by the organization;
- the purpose and cost of the assessment method.

The organization should consider the practical aspects described in 7.3.3.2 to 7.3.3.4 when planning the approach and methods for gathering customer satisfaction data.

Further information and guidance is provided in Annex D.

7.3.3.2 Selecting the method for gathering customer satisfaction data

The organization should select a method for gathering data that is appropriate to the need and the type of data that is to be collected.

The method most commonly used for gathering such data is a survey, which can be either qualitative, or quantitative, or both.

Qualitative surveys are typically designed to reveal characteristics of the product or service, delivery or the organization that are relevant to customer satisfaction. They are typically undertaken to understand or explore individual perceptions and reactions, and to uncover ideas and issues. They are relatively flexible in application, but can be subjective.

Quantitative surveys are designed to measure the degree of customer satisfaction. They are typically conducted to collect aggregate data, using fixed questions or criteria. They are used for determining status, benchmarking, or tracking changes over time.

Brief descriptions of these types of survey methods and a comparison of their relative advantages and limitations are provided in D.2.4.

7.3.3.3 Selecting sample size and method of sampling

The organization should determine the number of customers to be surveyed (i.e. the sample size) and the appropriate method of sampling, in order to gain relevant data on customer satisfaction. The goal is to obtain reliable data at minimum cost. The accuracy of the data gathered is governed by the size of the sample and the way the sample is selected, i.e. the method of sampling.

The sample size can be determined statistically to ensure the precision and confidence levels required in the findings. In addition, the method of sampling used should ensure that the resulting sample represents the population well. Both aspects are further discussed in D.3.

7.3.3.4 Developing the customer satisfaction questions

The product or service and the characteristics of the product or service, of its delivery and of the organization to be surveyed should be clearly defined. Additional characteristics can also be surveyed. When developing the questions to be posed, the organization should first determine the broad areas of interest, and then the sub-set of questions within those areas, with sufficient details to provide information about customer perception.

The scale of measurement, which depends upon how questions are worded, should also be clearly defined. Further guidance on defining the questions and consolidating them into a questionnaire is provided in D.4.

7.3.4 Collecting customer satisfaction data

The collection of data should be systematic, detailed and documented. The organization should specify how the data are to be collected. When selecting the method(s) and tool(s) for collecting data, certain aspects should be considered, for example:

a) customer type and accessibility;

b) timelines for data collection;

c) available technology;

d) available resources (skills and budget);

e) privacy and confidentiality.

When determining the frequency, period or trigger for collecting customer satisfaction data, the organization should consider aspects such as:

— the development or launch of new products and services;

— the completion of significant project milestones;

— when some relevant change is made in products and services, processes or business environment;

— when there is decrease in customer satisfaction, or variability in sales (by region, or season);

— the monitoring and sustaining of ongoing customer relationships;

— customer tolerance to frequency and complexity of surveys.

The data collection might be done by the organization itself. This can be economical and, given the organization's knowledge of the product or service or the customer, it might yield better information. This can also result in a stronger relationship with the customer and a better understanding of customer issues. However, there is a risk that the data might be biased by the relationships of individuals involved in the survey. This risk can be avoided if the data collection is conducted by an independent third party.

7.4 Analysing customer satisfaction data

7.4.1 General

Once the data related to customer satisfaction has been collected, it should be analysed to provide information, which typically includes:

— the degree of customer satisfaction and its trend;

— aspects of the organization’s products and services or processes that might have significant impact on satisfaction;

— relevant information on competitors’ or comparable organizations’ products, services and processes;

— strengths and primary areas for improvement.

When analysing customer satisfaction data, the organization should consider the activities described in 7.4.2 to 7.4.6. Further guidance on each of these activities is provided in Annex E.

7.4.2 Preparing the data for analysis

The data should be checked for errors, completeness and accuracy, and it should be grouped into defined categories, if necessary.

7.4.3 Determining the method of analysis

The method(s) of analysis should be selected depending on the type of data collected and the objective of the analysis. The various methods for analysing data can be classified as either

a) direct analysis, involving analysis of the customer’s responses to specific questions, or

b) indirect analysis, involving the use of various analytical methods to identify potentially influential factors from a body of data.

Typically, both categories of analysis can be used to extract useful information from customer satisfaction data.

7.4.4 Conducting the analysis

The data should be analysed to gain information such as:

— customer satisfaction (overall or by customer category) and trends;

— differences in the degree of satisfaction by customer categories;

— possible causes and their relative effect on customer satisfaction;

— customer loyalty, which is an indicator that the customer is likely to continue to demand the same or other products and services from the organization.

7.4.5 Validating the analysis

The analysis and its conclusions should be validated, which can be done by various means, for example:

— segmenting the data to determine possible sources of variability;

— determining the relevance of product and service characteristics: the characteristics identified as potentially relevant to the customer and their relative importance to the customer (including possible changes in characteristics and the relative importance of the characteristics over time) greatly influence the results of the analysis performed;

— assessing the consistency of the results, by comparison with other indicators or trends in areas that also reflect customer satisfaction, e.g. sales and customer complaints.

7.4.6 Reporting results and recommendations

The results of the analysis conducted should be documented and reported, together with possible recommendations to assist the organization in identifying areas for improvement, in order to ultimately enhance customer satisfaction and serve the larger interests or mandate of the organization.

The report should provide a clear and comprehensive overview of customer satisfaction. In addition to the data collected directly from customers, there might be other characteristics or measures that reflect customer satisfaction, e.g. those cited in 7.3.2.

Key measures of relevant characteristics can be combined into a consolidated value termed the "customer satisfaction index" (CSI). The CSI might, for example, be a weighted average of customer satisfaction survey results and the number of complaints received. The CSI can be a convenient and useful way of measuring and monitoring customer satisfaction over time or space.

The report should also identify the relevant characteristics and components of customer satisfaction, as well as the potential causes of and contributors to customer dissatisfaction.

7.5 Communicating customer satisfaction information

The information gained from the measurement and analysis of customer satisfaction data should be directed to the appropriate functions in the organization, so that steps might be taken to improve the products and services, processes or strategies, in order to serve the objectives of the organization.

In order to help achieve this, the organization should:

— identify or establish the forums and processes to review customer satisfaction information;

— determine what information should be communicated to whom (including customers);

— formulate action plans for improvement;

— review implementation of action plans and outcomes in appropriate forums, e.g. management reviews.

The ongoing implementation of such actions can enhance the effectiveness and efficiency of the organization's quality management system.

Customer satisfaction information (both positive and negative) can help guide the organization to address issues related to meeting stated customer requirements. It can also help the organization to understand and address the customer's expectations, or issues related to the customer's perception of the delivered product or service or of the organization, and thereby enhance customer satisfaction.

Generic guidance on some of the ways in which the information might be used is provided in Annex F.

7.6 Monitoring customer satisfaction

7.6.1 General

The organization should establish a process for monitoring customer satisfaction, to ensure the information gathered is relevant and that it is used effectively to support the organization's objectives. Guidance on monitoring activities is provided in 7.6.2 to 7.6.5.

7.6.2 Examining the customers selected and the data gathered

The organization should verify that the selection of customer(s) or customer group is aligned to the purpose of data gathering, and that the selection is complete and correct. The organization should examine the sources of customer satisfaction data, both direct and indirect, for validity and relevance.

7.6.3 Examining customer satisfaction information

Customer satisfaction information should be monitored by the organization at defined intervals, and by the appropriate level of management. The nature and scope of information monitored is unique to the organization's needs and goals, and might include, for example:

— trends in customer satisfaction data (overall and, for example, by product, service, region, type of customer);

— comparative or competitor information;

— strengths and weaknesses of the organization's products and services, processes, practices or personnel;

— challenges or potential opportunities.

7.6.4 Monitoring actions taken in response to customer satisfaction information

The organization should monitor the process by which relevant customer satisfaction information is provided to appropriate functions, in order to take actions intended to increase customer satisfaction.

The organization should also monitor the implementation of actions undertaken, as well as the effect of such actions on customer response related to specific characteristics, or on the overall measure of satisfaction, or support other organization objectives.

For example, if customer feedback is related to “poor delivery”, the organization should verify that actions are taken to improve delivery, and that this is reflected in improvement of customer satisfaction in subsequent customer feedback.

7.6.5 Assessing the effectiveness of actions taken

In order to assess the effectiveness of actions taken, the organization should verify that the customer satisfaction information gained is consistent with, or is validated by, other relevant business performance indicators.

For example, if the organization's customer satisfaction measurements show a positive trend, it should typically also be reflected in related business indicators such as increased demand, increased market share, increased repeat customers and increased new customers. If the customer satisfaction measurement trend is not reflected in other business performance indicators, it might point to a limitation or flaw in the customer satisfaction measurement and communication processes.

Alternatively, it might indicate that the measurement of customer satisfaction failed to consider other factors that influence the customer's decision.

8 Maintenance and improvement

The organization should periodically review its processes for monitoring and measuring customer satisfaction, in order to ensure that they are effective and efficient and that they yield information that is current, relevant and useful. Typical actions to consider include:

— ensuring that there is a plan, schedule and defined process for monitoring and measuring customer satisfaction;

— reviewing the process of selecting customers and characteristics to ensure they are aligned with business goals and priorities;

— ensuring that the process for capturing customer expectations (implicit and explicit) is current and comprehensive in scope and that it includes verification, where possible with the customer;

— reviewing the indirect indicators of customer satisfaction, including lost customer analysis, to ensure the sources are current, comprehensive and relevant;

— ensuring that methods and processes for direct measurement of satisfaction reflect changing customer conditions and business goals;

— reviewing the methods of analysis of customer satisfaction data to ensure they are valid and adequate;

— verifying that the various components and their relative weights reflect current business priorities, if the customer satisfaction data are consolidated into an indicator such as CSI;

— periodically reviewing the process for validating customer satisfaction information against internal data or other business indicators;

— verifying that the forum and process for ongoing review of customer satisfaction information is appropriate and adequate;

— verifying that the process for communication of customer satisfaction information to relevant functions is operational and effective, e.g. determining if the recipients find the information useful or if the information is utilized;

— identifying impediments and aids to communicating customer satisfaction information in order to promote improvement;

— reviewing risks and opportunities related to customer satisfaction measuring and monitoring;

— evaluating the effectiveness of the actions taken in relation to risks and opportunities.

NOTE Information from the use of code of conduct for customer satisfaction (see ISO 10001), complaints handling processes (see ISO 10002) and dispute resolution processes (see ISO 10003) can assist in the maintenance and improvement of processes for monitoring and measuring customer satisfaction.

Annex A
(informative)

Interrelationship of ISO 10001, ISO 10002, ISO 10003 and this document

Figure A.1 illustrates the organization's processes related to code of conduct, complaint handling, external dispute resolution, and customer satisfaction monitoring and measuring.

Guidance in this document can be used to support the processes addressed in ISO 10001, ISO 10002 and ISO 10003. Outputs from the processes based on ISO 10001, ISO 10002 and ISO 10003 can be used as input for customer satisfaction monitoring and measurement.

NOTE A complaint can be initiated by a customer or another complainant.

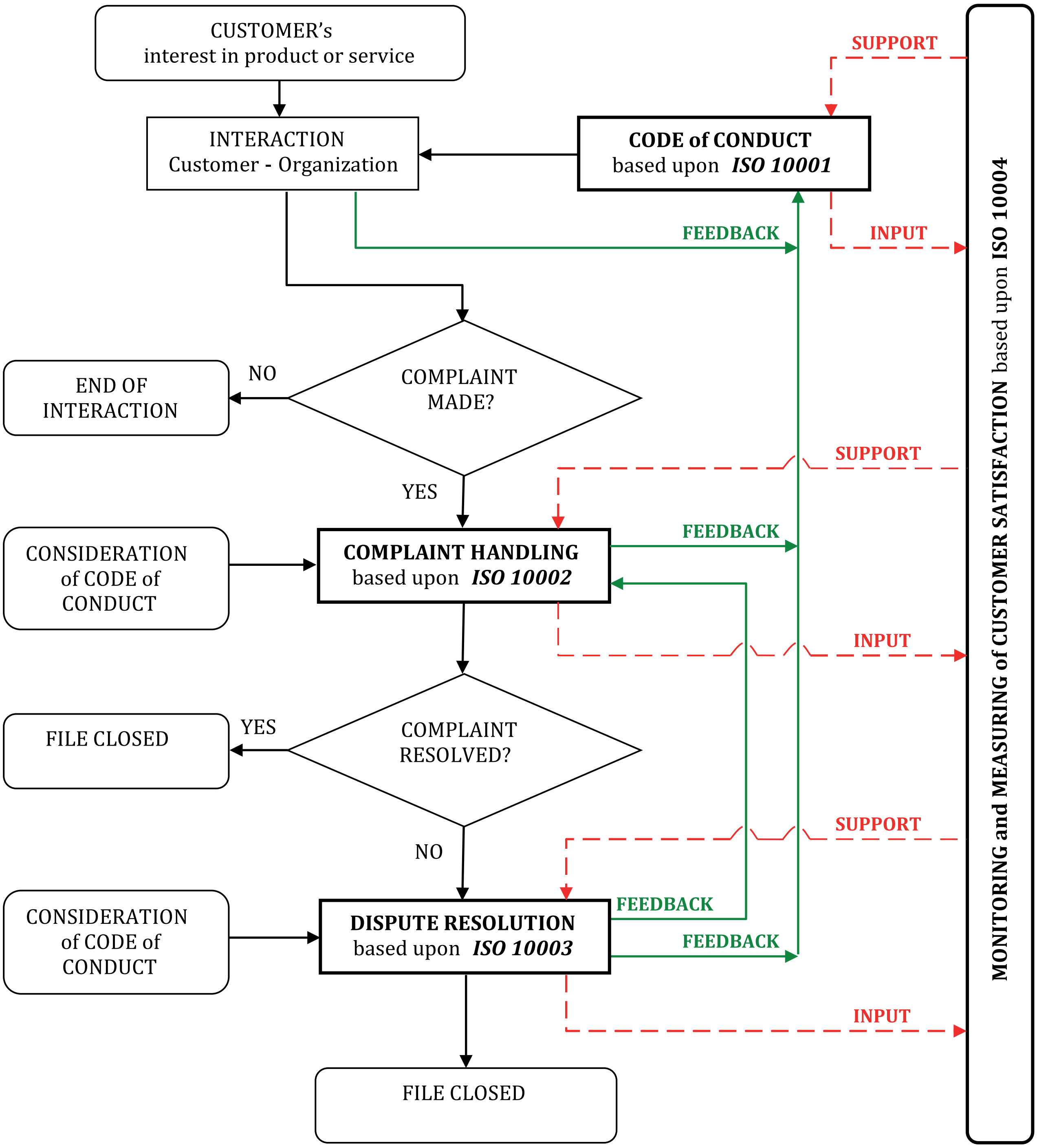

Figure A.1 — Interrelationship of ISO 10001, ISO 10002, ISO 10003 and this document

Annex B
(informative)

Conceptual model of customer satisfaction

B.1 General

This annex provides further information on the conceptual model of customer satisfaction (introduced in Clause 4). It serves as the basis for the guidance provided in this document.

B.2 Conceptual model of customer satisfaction

The relationship between the organization's perspectives and the customer's perspectives regarding product and service quality is illustrated by the conceptual model in Figure B.1.

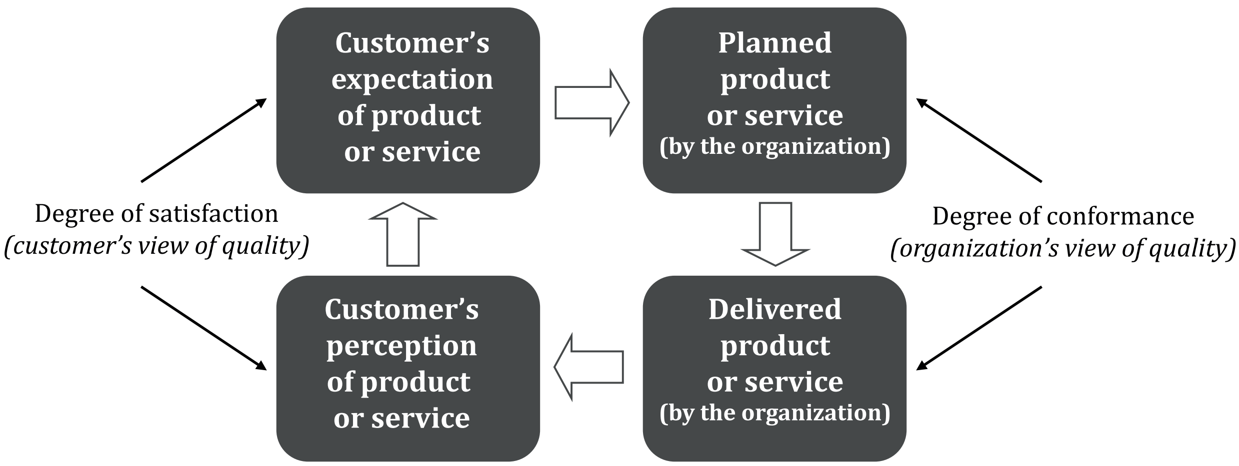

Figure B.1 — Customer satisfaction conceptual model

In this model, the customer's expectation of product or service characterizes the product or service the customer would like to receive. The customer's expectations are mainly shaped by the customer's experience, the information available and the customer's needs. These expectations might be reflected in defined requirements, or they might be assumed and undefined.

The planned product or service characterizes the product or service that the organization intends to deliver. It is generally a compromise between the organization's understanding of the customer's expectations, the organization's capabilities, its internal interests and the technical, statutory and regulatory constraints applicable to the organization and the product or service.

The delivered product or service characterizes the product or service that is realized by the organization.

The degree of conformity, which constitutes the organization's view of quality, is the extent to which the delivered product or service conforms to the planned product or service.

The customer's perception of product or service characterizes the product or service as the customer perceives it. This perception is shaped by the customer's needs, the business environment and alternatives available in the market.

NOTE Customer's perception of product or service also includes other organizational aspects

Satisfaction is a judgement, an opinion expressed by the customer. The degree of satisfaction reflects the gap between the customer's vision of the expected product or service, and the customer's perception of the delivered product or service including other organizational aspects.

Therefore, attention should be paid to both dimensions:

a) the internal measures of quality in the realization processes;

b) the external measures of the customer's view of how well the organization has met the customer's expectations.

As illustrated in the conceptual model, in order to improve customer satisfaction, the organization needs to close the gap between quality expected by the customer and the customer's perception of delivered quality. In order to do so, the organization should address each of the stages in the conceptual model cycle, i.e.:

— thoroughly understand the customer's expectations when defining the planned product or service and ensure that the customer is fully informed about the features and limitations of the product or service (this is the area of requirements capture, communication and product and service design);

— deliver product or service in conformity with the planned product or service (this is the area of operational management and process control);

— understand the customer's perception of the delivered product or service and enhance customer satisfaction through improvements to, and improved information about, the product or service and its constraints (this is the area of communication, marketing and customer relations).

The organization should consider that customer satisfaction is related not only to product, service and delivery characteristics, but also to other organizational aspects.

Annex C
(informative)

Identification of customer expectations

C.1 General

This annex provides further information and guidance on identifying customer expectations, as outlined in 7.2.

C.2 Identifying the customers

Different types of customers to be surveyed (for determination of customer expectations or customer satisfaction) are listed below, illustrated by examples of customers in different sectors.

a) Current customers are those who have bought or received the organization's products and services recently. These might be:

   1) regular customers who buy or receive the organization's products and services;

   EXAMPLE Regular customers of a bakery; regular users of public transportation.

   2) occasional customers who periodically buy or receive the organization's products and services.

   EXAMPLE Customers of computer shops or a pharmacy.

b) Direct customers are those who buy or receive products and services directly from the organization. Such customers usually specify their expectations directly to the organization.

   EXAMPLE Customers of welding equipment or tailoring service.

c) Indirect customers are those who buy or receive the organization's products and services through a dealer, distributor, or another organization. In such cases, it is important for the organization to understand the expectations of the indirect customer, as well as the expectations of the target customer.

   EXAMPLE Customers of mobile phones.

d) Potential customers are those who might be interested in the organization's products and services, but have not yet bought or received the product or service. The expectations of such customers might be influenced by the image of the organization, because they have no experience in dealing with the organization.

e) Lost customers are those who have previously bought or received the organization's products and services, but have ceased to have further interactions with the organization. In such cases, the organization should seek to understand the reasons for the change in the customer's preference.

C.3 Aids to understanding customer expectations

It is the organization's responsibility to understand the customer's expectations and to translate them into requirements. The organization can gain a deeper understanding of customer expectations by considering such aspects as:

— the role played by the customer in designing and delivering the product or service (where applicable);

— ensuring that customer feedback is designed to reveal information on the customer's expectations and perceived value of the delivered product or service;

— the role of other parties (e.g. a third-party deliverer, or a partner, or both) which might affect the satisfaction of customers;

— how the customer intends to use or deploy the product or service;

— customers with different abilities and needs.

C.4 Customer expectations and customer satisfaction

Customer satisfaction contains the following two separate segments:

a) satisfaction with specific elements or aspects of the delivered product or service;

b) overall satisfaction of the customer, which is not the sum (or average) of the individual elements and should therefore be evaluated separately.

The customer often specifies certain elements of the product or service that directly impact satisfaction. However, satisfaction is affected by other characteristics, whose relationship is illustrated in Figure C.1.

NOTE Figure C.1 is based on the Kano model[8].

The model in Figure C.1 links the degree of satisfaction with the fulfilment of expectation, from which different categories of influential characteristics emerge, as described below.

— "Basics" are characteristics of the product or service which the customer expects. Their fulfilment only prevents dissatisfaction. These are usually not expressed explicitly, but they are important.

  EXAMPLE The fact that a pizza is served hot; an anti-lock braking system (ABS) in new cars.

— "Performance" are characteristics of the product or service which directly affect the satisfaction or dissatisfaction of the customer, i.e. the better these are fulfilled, the higher the customer's satisfaction. The customer explicitly looks for these characteristics and attaches a high value to them.

  EXAMPLE The load volume of a passenger car; gasoline consumption; the size of a pizza.

— "Latent opportunities" are characteristics of the product or service which are potentially very important or attractive to customers, but which are not currently articulated or anticipated. These offer future development opportunities and competitive advantage. If such opportunities are not fulfilled, they do not cause dissatisfaction since they were not expected or anticipated, but their fulfilment can have very positive effect on satisfaction. However, it is important to note that such characteristics are subject to change and might rapidly become "expected" factors.

EXAMPLE Unexpected free fresh flowers in hotel room; free service updates for software; additional product training support.

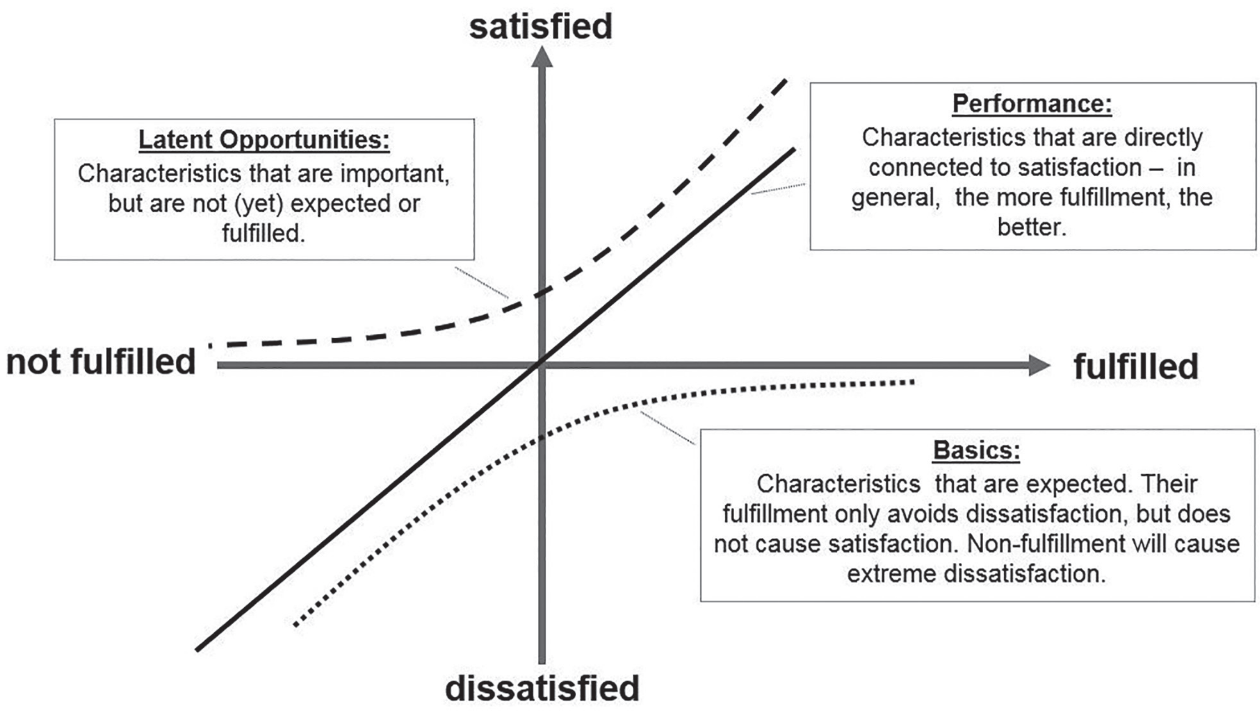

Figure C.1 — Relationship between various characteristics and customer satisfaction

The characteristics considered above should be regularly monitored because customer expectations continually change. For example, air conditioning in automobiles was a latent opportunity when it was first introduced, but is now considered a standard (i.e. basic) feature.

The organization should consider these characteristics when defining the product or service. By going beyond the customer's stated expectations, the organization can enhance customer satisfaction.

The categories described above can further help the organization to prioritize potential actions for improvement that might result from the analysis of customer data, as described in E.4.3.

Annex D
(informative)

Direct measurement of customer satisfaction

D.1 General

This annex provides further information and guidance on the steps and activities associated with direct measurement of customer satisfaction, as outlined in 7.3.3.

D.2 Customer satisfaction survey methods

D.2.1 General

Survey methods measuring customer satisfaction can be broadly categorized as qualitative or quantitative. The organization should select survey methods that are appropriate to the objectives and to the type of data to be collected.

D.2.2 Qualitative surveys

D.2.2.1 General

The primary methods used for conducting qualitative surveys are in-depth personal interviews and discussion groups.

D.2.2.2 In-depth personal interviews

In-depth personal interviews can provide a wealth of information about factors that influence satisfaction and their relative importance, as well as an insight into customer expectations and perceptions. They can be conducted face-to-face or via telephone.

Face-to-face interviews allow a deeper understanding of customer expectations. Their duration can range from 45 min to 60 min, or longer. The interview might be partially structured, i.e. based on an outline which helps to address certain basic themes. It is important to allow the respondent to answer freely, and to record responses literally.

Telephone interviews are less costly and can provide results faster.

D.2.2.3 Discussion groups

Discussion groups are typically composed of five to ten participants. They provide less information at the individual level, but the confrontation and exchange of opinions in the group can reveal common opinions and perceptions regarding the principal strengths and weaknesses of the organization's products and services, as well as the relative importance of the factors of satisfaction. Discussion groups are often a fertile source of information and ideas for improvement.

The two approaches cited above might be combined. For example, in-depth interviews might be followed up with discussion groups. The number of interviews or groups depends on the specific purpose of the survey and on the degree of similarity in the types of customers.

D.2.3 Quantitative surveys

The principal methods of obtaining data through quantitative surveys are:

— face-to-face interviews or telephone interviews;

— self-completion questionnaires, which might be sent by post, or distributed along with the products and services, or provided online (via the internet).

Personal face-to-face interviews are less popular because of the cost and the difficulty in obtaining interviews with industrial customers. The more frequently used methods are questionnaires administered by telephone and self-completion questionnaires by mail.

D.2.4 Comparison of survey methods

The relative advantages and limitations of some popular survey methods are summarized in Table D.1.

Table D.1 — Comparison of survey methods

Method	Advantages	Limitations
Face-to-face interview	— Contact and personal attention — Possibility of complex and directed questions — Flexibility in conducting interview — Immediate availability of information — Ability to verify information	— Takes more time, therefore slower — More costly, especially if interviewees are geographically dispersed — Risk of possible distortion introduced by interviewer
Telephone interview	— Lower cost than face-to-face interview — Flexibility — Ability to verify information — Greater speed of execution — Immediate availability of information	— Non-verbal responses cannot be observed (no visual contact) — Risk of distortion by the interviewer — Information limited by relatively short duration of interview — Customer reluctance to participate
Discussion group	— Lower cost than individual interviews — Partially structured questions — Spontaneous responses resulting from group interaction	— Requires experienced facilitator and related equipment — Outcome depends on participant's familiarity with technique — Difficult if customers are dispersed over wide region
Mail survey	— Low cost — Can reach a widely dispersed geographic group — No distortion by the interviewer — High level of standardization — Relatively easy to manage	— Low response rate — Self-selection of respondents might result in skewed sample that does not reflect the population — Possible difficulty with unclear questions — Lack of behaviour control in answers — Longer time for data collection
Online survey (internet)	— Low cost — Previously prepared questions — No distortion by interviewer — High level of standardization/ comparativeness — Fast execution — Easy evaluation	— Low response rate — Lack of behaviour control in answers — Delay in availability of data — High probability of interruption in case of unclear questions — Assumes customer has the equipment and is familiar with the technology

The advantages and limitations noted in the table assume that data-gathering is done by the organization. If the survey activity is sub-contracted, some of the comments might not apply.

If the survey response rate is low, the organization should consider other ways of supplementing or verifying the information obtained.

D.3 Sample size and method of sampling

D.3.1 Sample size

The sample size should be statistically determined to ensure a specific level of confidence in the results, within a defined margin of error.

The statistically computed sample size might be larger than the size that the organization can support. In practice, the sample size selected is generally a compromise between the desired accuracy and confidence level and the cost or difficulty of sampling.

In the case of qualitative surveys, the sample size is typically small and is usually based on business judgement.

If the number of customers is relatively small, as in a business-to-business context, the entire population might be surveyed. In such cases, several people from each business might be selected.

D.3.2 Method of sampling

The organization also needs to determine how the sample is to be selected, so that the findings are representative of the customer population. Two widely used sampling methods are described below.

One approach is to select customers through a “random sample”, i.e. where the chance of selecting any customer in the population is the same. This might be used when the population is relatively homogenous, or when there is little or no information about the composition of the population.

Another approach is to use “stratified sampling”, in which the customers are grouped into various categories (or “strata”) in accordance with some criteria, e.g. location, product and service knowledge or usage, size, attitude (tolerant/complaining), gender/age of customers and potential value to the organization. Proportional samples are then drawn from each specified stratum of the population.

Random sampling is appropriate if the objective is to obtain information for the population as a whole, Stratified sampling is appropriate when the objective is to ensure that information is gathered from each specified stratum of the population.

D.4 Developing the customer satisfaction questionnaire

D.4.1 Defining the questions

D.4.1.1 General

The design and content of the questions depend on the context and goal in each case, but the steps and considerations outlined below are generally applicable.

D.4.1.2 Determining the information needed

The organization should ensure that the information being sought fully addresses all components of the issue being studied. In addition to the traditional characteristics of quality, delivery and price, there might be other characteristics important to the customer, e.g. communication, or the organization’s behaviour, or the organization’s stance on public issues. Demographics and other relevant characteristics of the target population should also be considered.

D.4.1.3 Selecting the method for gathering information

The method selected by the organization for gathering information is influenced by the type of information being sought, and by logistical considerations in reaching the target population. Logistical considerations could include time, geography, demography, accessibility or other aspects.

D.4.1.4 Defining the content of individual questions

The organization should formulate the individual questions to solicit the information required, and ensure the questions are clear to the respondent.

It is also good practice to invite customer comments and suggestions when formulating the questions, in order to avoid ambiguous or confusing customer responses.

D.4.1.5 Considering the respondent

The manner of questioning should consider how articulate, how well informed, or how familiar the respondent is with the product, service and the organization. The organization should minimize the effort required of the respondent, and ensure the search for information is seen to be appropriate and legitimate.

D.4.1.6 Choosing the question wording

The organization should:

— define clearly the issue in terms of who, what, when, where, why and how;

— use ordinary language, i.e. words that match the vocabulary of the respondents;

— avoid ambiguous words (e.g. “occasional” or “professional”);

— avoid language that might provide cues to the respondent or bias the respondent by indicating the organization’s expectations.

D.4.2 Design of questionnaire

D.4.2.1 General

The questionnaire should begin with clear instructions for use. If appropriate, it should provide guidance on how to address quantitative and/or qualitative questions.

When designing the questionnaire, the considerations outlined below can facilitate the gathering of desired information.

D.4.2.2 Choosing the question structure

The organization should organize the questions in logical sequence where possible, and use more than one question to make it easier for the respondent, if the response involves numerous alternatives.

The questions should be asked in logical order, starting with general questions, followed by more specific queries. Likewise, the priority should be on obtaining basic information first, while the relatively difficult, sensitive or complex questions should follow later.

D.4.2.3 Determining form and layout

The questionnaire should be easy for the respondent to follow, e.g. containing logically arranged and numbered questions in each section, with clear directions or instructions. Information should be written in clear and unambiguous language, and it should be available in alternative formats suitable for existing and potential customers, such as audio, large print, large raised letters, Braille, by email or on an accessible website.

NOTE An alternative format describes a different presentation or representation intended to make information accessible through a different modality or sensory ability. By providing all input and all output (i.e. information and functions) in at least one alternative format (e.g. visual and tactile), more people, including some with language/literacy problems, can be helped. Presentation factors that can affect legibility and ease of understanding include:

— layout;

— print colour and contrast;

— size and style of font and symbols;

— the choice and use of multiple languages.

See ISO/IEC Guide 37.

The layout should be designed to facilitate the analysis of the data gathered, e.g. using vertically aligned columns for responses.

D.4.2.4 Establishing the measurement scale

The measurement scale depends on the type of information being sought and should be clearly defined. When assessing attitudes, a 5-point scale for categories across a continuum is often used.

EXAMPLE 1 “Strongly agree”; “Agree”; “Neutral”; “Disagree”; “Strongly disagree”.

Where greater discrimination is required, a wider scale, e.g. 10-point, might be used.

If the need is to compel the respondent to take a position and avoid a neutral response, the questionnaire can make use of an even number of scale points (e.g. 4 or 6).

EXAMPLE 2 “Very satisfied”; “Satisfied”; “Dissatisfied”; “Very dissatisfied”.

D.4.2.5 Validating by conducting a “pre-test”

A “pre-test” is a preliminary survey conducted with a small, but representative, set of respondents, in order to assess the strengths and weaknesses of the questionnaire. It is a strongly recommended practice, even though it might not be feasible if the number of respondents is limited.

Where possible, all key aspects of the questionnaire should be tested, using the same methods (e.g. by mail or telephone) as in the actual survey. This should be repeated with each significant revision of the questionnaire.

The pre-test results should be analysed to evaluate the method of survey, its scope and clarity, as well as the reaction of respondents, and the survey should be amended as appropriate. For example, if the questionnaire is found to be too long, it might be divided into shorter questionnaires that take less time.

Annex E
(informative)

Analysis of customer satisfaction data

E.1 General

This annex provides further information and guidance on the analysis of customer satisfaction data, as outlined in 7.4.

E.2 Preparation of data for analysis

E.2.1 Data verification

The organization can verify the collected data, e.g. by checking the following aspects:

— errors or mistakes in the data: these might need to be corrected or removed in order to avoid misleading conclusions;

— completeness of data: it is important to check whether the data obtained from the customer is complete, and to decide on how incomplete responses or non-responses are to be treated;

— accuracy of data: if sampling techniques are used, it is advisable to confirm that the sample size and method are consistent with the confidence level and margin of error that might have been specified.

E.2.2 Data categorization

Where applicable, the data collected should be prepared for analysis by:

— coding open-ended responses into categories;

— coding responses into groups or segments of respondents.

E.3 Determination of methods for analysis

E.3.1 General

The organization can select the methods of analysis to be used, depending on the data collected and the objectives. Guidance on the use of some of the statistical techniques cited below can be found in ISO/TR 10017.

E.3.2 Direct analysis

The goal of this analysis is to describe or evaluate the answers of respondents to specific questions. Some commonly used methods of analysis and their objectives are presented in Table E.1.

Table E.1 — Methods of direct analysis

Method	Objective	Example
Mean	To determine the average response	On a scale of 1 to 10, if the responses are 4, 5, 7, 7 and 9, the arithmetic mean is 6.4. The arithmetic mean is a commonly used measure of average value.
Median	To identify the middle response	If all responses are listed in numerical order, the median is the response in the middle. In the above example, the median is 7.[a]
Range	To determine the interval between the smallest and largest values	The age of participants in a meeting ranges from 20 to 65.
Standard deviation	To determine the degree of variability in the data	Units produced by machine A have greater variability than those produced by machine B.
Cross-tabulations	To summarize the distribution of response by some other variable of interest	78 % of London respondents rate overall satisfaction a 9 or a 10, compared to 60 % of Paris respondents.
Pareto analysis	To classify data into categories to assist in prioritizing issues	In terms of product and service quality, it is observed that the majority of problems (80 %) are due to a few key causes (20 %).
Trend analysis	To identify direction (e.g. improving, deteriorating)	The number of complaints has increased by 5 % each year.
Statistical control charts	To monitor performance and identify statistically significant (i.e. non-random) variation	The error rate in shipments delivered in the last quarter was significantly higher than expected.
Student t-test	To test for statistically significant differences between two independent groups	London respondents are significantly more satisfied overall than Paris respondents.
Analysis of variance	To test for statistically significant differences between three or more independent groups	Overall satisfaction differs significantly among London respondents, Paris respondents and Berlin respondents.

[a] For an even number of responses, the median is the average of the two middle responses.

E.3.3 Indirect analysis

The goal of this analysis is to identify factors that have a significant effect on satisfaction, and the relationship between factors. Some commonly used methods of analysis and their objectives are presented in Table E.2.

Table E.2 — Methods of indirect analysis

Method	Objective	Example
Weighted data analysis	To determine the weighted average response	The mean rating for overall satisfaction is 7, considering different kinds of customers and their relative importance.
Correlation	To determine if responses to one question can be used to predict response to another question, and to measure the strength of relationship between variables	Of the various aspects of office operation, satisfaction with "cleanliness" is found to be the best predictor of overall satisfaction, i.e. respondents who are satisfied with cleanliness tend to be satisfied overall, and respondents who are dissatisfied with cleanliness tend to be dissatisfied overall.
Regression	To analyse the relationship between two or more variables, and to measure the effects of one or more variables on a specific response	As satisfaction with cleanliness decreases, overall satisfaction decreases.

E.4 Conducting analysis

E.4.1 General

The results should be systematically processed in accordance with the type of analysis selected.

E.4.2 Data stratification

Data can be classified into defined strata or categories before conducting the analysis. This can reveal useful information, such as differences in the degree of customer satisfaction, e.g. by analysing repeat customers versus one-time buyers, the gender of the buyer, the age of the buyer, the customer location, or by product and service characteristics such as price and features.

E.4.3 Prioritization

The organization can determine and focus on those characteristics of the product or service and other organizational aspects whose improvement would have the more significant effect on satisfaction. Therefore, it is necessary to know the importance the customer attaches to specific characteristics and the effect of those characteristics on overall satisfaction (see also C.4).

— Infrastructure characteristics are those that are accorded a low level of importance by the customer but are necessary for the operation of the business or the product or service, for example: the plate on which a pizza is served. If they were improved, they would have little impact on overall satisfaction. The organization can consider eliminating or reducing investment in them, to reduce costs or provide greater value to the customer.

— Basic characteristics (see C.4) have a relatively low effect on satisfaction, once a certain threshold has been achieved. As with infrastructure characteristics, the organization can consider reducing or eliminating investment in basics. However, their performance should not fall below acceptable level, as that might have a negative impact on overall satisfaction.

— Performance characteristics (see C.4) are important to customers and have a significant effect on overall satisfaction. These are obvious areas of focus. Their level of performance should be maintained, or further improved, if it is found to be cost-effective.

— Latent opportunities encompass characteristics that are currently not recognized or deemed important by the customer (see C.4). If improved or fulfilled, such characteristics, could significantly increase overall satisfaction; they offer the highest potential for improvement of satisfaction.

To help prioritize improvement actions, the various characteristics can be conveniently examined by classifying them in four zones, as illustrated in Figure E.1.

Characteristics in zones 3 and 4 offer the highest potential impact on overall satisfaction.

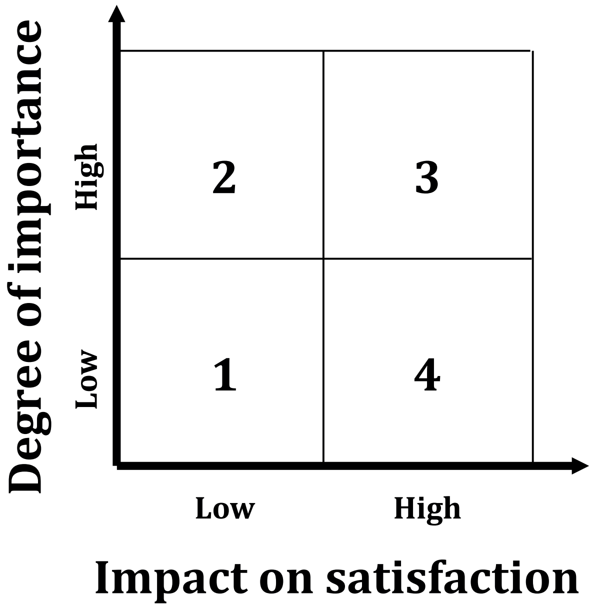

Figure E.1 — Classification of characteristics

E.5 Validation of analysis

The soundness of conclusions reached through the customer satisfaction analysis process can be validated by checking, amongst other aspects, those listed below.

a) Segmentation: if there is a high degree of variability in the responses, it might be due to variability in the quality of the products and services delivered and other organizational aspects, as well as different expectations of different customer segments. However, if other measurements indicate that product and service quality is stable, the variability in response might point to poor customer segmentation.

b) Relevance of the characteristics: one of the goals of analysis is to identify characteristics which can have a significant influence on customer satisfaction, as well as their importance, which would allow the organization to focus its improvement efforts on key characteristics. If the analysis suggests that characteristics with high influence on customer satisfaction might have been overlooked, they might be identified through appropriate research (e.g. focus groups or open questions). The effect of such characteristics on customer satisfaction should be assessed in the next measurement cycle. The individual characteristics that make up overall satisfaction, and their relative importance, can change over time.

c) Consistency of the results: the trend in customer satisfaction measurements should be consistent with other indicators that reflect satisfaction, e.g. repeat purchases or market share. If a positive trend in satisfaction is contradicted by negative trend, for example in sales, it could be for several reasons, for example:

- — the views of the people surveyed are not shared by those who make the decision to purchase;
- — there has been an increase in the customer's satisfaction with a competitor's or comparable organization's products and services;
- — the price differential outweighs the improvements in other characteristics.

E.6 Reporting of the analysis

E.6.1 General

In addition to reporting the overall customer satisfaction and its trend, the organization can report the relevant characteristics and causes, as well as the components and contributors of customer satisfaction or dissatisfaction.

E.6.2 Presentation of results

The organization can present the results of the analyses tailored to the needs and expectations of the audience. It is good practice to avoid identifying specific customers. When identification is intended, prior approval by the customer interviewed is necessary. It should also be in accordance with applicable requirements, regulations and the organization's privacy policy.

Graphic representations are an effective way of displaying information and can be considered when presenting findings, with supporting data gathered in annexes.

A customer satisfaction index (CSI) can be an effective tool for monitoring, reporting and tracking the performance of the organization or its specific aspects, with regard to customer satisfaction. It can be an element of the organization's performance "dashboard", and also a component of the organization's reward system.

E.6.3 Formulation of conclusions and recommendations

The results of the analysis of customer satisfaction data can help the organization to identify the primary areas for improvement, as well as the potential impact of such improvement.

When identifying areas for improvement or recommending specific actions, the organization should give priority to addressing the causes for customer dissatisfaction.

The organization should also seek to understand the reasons for the difference between the product or service quality expected by the customer and the quality of the delivered product or service as perceived by the customer (as shown in the conceptual model in Figure B.1), and should take steps to reduce that gap.

Annex F
(informative)

Using customer satisfaction information

F.1 General

This annex provides guidance by means of examples on how customer satisfaction information might be used to guide improvement in the organization's products and services or processes, as outlined in 7.5.

F.2 Communicating customer satisfaction information

The analysis of customer satisfaction data can provide insight into factors that influence satisfaction. Such information should be reviewed by top management and directed to pertinent functions in the organization for action to be taken that leads to improvement.

The function to which the information should be directed depends on the nature of the information, as illustrated by the examples below.

EXAMPLE 1 The information might be directed to the top management of public or private sector organizations to assist in formulating policies or strategies.

EXAMPLE 2 The information might be directed to the procurement function, if the analysis indicates high customer satisfaction with the quality or functionality of components purchased from specific suppliers.

EXAMPLE 3 The information might be directed to sales, if the data indicates low customer satisfaction with the performance or attitude of staff in direct or indirect contact with customers, indicating the need for better training.

EXAMPLE 4 The information might be directed to the product support function, if the data indicates low customer satisfaction with the speed or quality of response to customer requests for help.

EXAMPLE 5 The information might be communicated to all employees as a step towards customer focus and organizational improvement.

In the examples above, the information provided to appropriate functions can guide the organization in taking improvement actions and can lead to increased customer satisfaction.

The organization should also consider sharing relevant customer satisfaction information and resulting improvement actions with customers. This can demonstrate the organization's responsiveness to customer issues and encourage customer participation in future measurement of satisfaction.

F.3 Using customer satisfaction information

It can be useful to refer to the conceptual model of customer satisfaction (see Clause 4 and Annex B) in order to ensure that the information gained is fully and effectively utilized.

The information gained can provide insight into reasons for the gap between customer's expectation, and the customer's perception of the delivered product or service. Logically, the gap could be because of the following.

— The organization failed to understand customer expectations well, and therefore delivered a product or service below expectations. In this case, the organization should improve the process for understanding expectations, and for fulfilling them.

— The customer had unrealistic expectations, which the organization failed to address and correct. The organization should then inform the customer of the limitations of such expectations and why (via benchmarking, technology briefings, etc.).

— The customer's perception of the delivered product or service is marred by insufficient understanding of the product or service. In such case, the organization should undertake to inform the customer of the full potential of the product or service (features, performance, etc.). It can also be appropriate to benchmark against relative value of comparable products, services and organizations.

— The customer's expectations changed, in which case the organization can consider improving the product or service offering (features, training, support, etc.); or exploring another use or further application of the product or service.

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