



The consumer and standards

Guidance and principles
for consumer participation
in standards development

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1 Introduction

The purpose of this publication is to give guidance to those who represent consumer interests in the technical committees of the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC). It may also serve as a guide for the corresponding work at national level or to assist those who recommend the use of International Standards, for example delegates to the World Trade Organization (WTO).

The aim of consumers engaged in standardization work is to ensure that standards for consumer products are as comprehensive as possible and correspond to real consumer needs. It should be emphasized, however, that consumer interest in this work goes further than standards development. Consumers and their organizations can play a crucial role in raising general public awareness of the existence of agreed standards, thereby ensuring that buyers demand products manufactured, or services rendered, according to these standards.

After specifying how International Standards affect consumers and presenting several key definitions, the publication explains in some detail both the principles and procedures of consumer participation in standardization work and concludes with guidance on consumer expectations from certification, as summarized below.

Principles of consumer participation in standardization work

This first main section begins with an overview of standards development procedures, cited from ISO/IEC Guide 59, *Code of good practice for standardization*, and briefly presents the history of consumer participation in standards work. Moreover, general information is given on the duties, responsibilities and management of ISO and IEC technical committees.

Also provided is the list of recommendations made by ISO and IEC to their members in the context of consumer representation, which state that at the national level members should:

- **support** ISO and IEC initiatives aimed at encouraging consumer representation in standardization;
- **orchestrate** consumer participation in relevant policy matters, and in the initiation and planning of standards work programmes;
- **invite** consumer interests to participate in all technical committees working on standards projects of interest to the consumer;
- **encourage** the active participation of consumers in national delegations to technical committees that are developing consumer-relevant International Standards;
- **guide** consumer representatives on standards procedures and provide them with technical briefings;
- **communicate** the results of their work to the public;
- help find solutions to **finance** consumer representation, when required;
- keep in **contact** with the public to “sound out” consumer opinion;
- study the way other consumer committees work, so as to **improve** their own national structures, where appropriate;
- **coordinate** all activities arising from these recommendations within the same country.

Another simple and straightforward list sets out the minimum requirements to secure effective consumer participation even if resources are limited, based on the selection of “key moments” when consumers especially need to play a role in the work.

Procedures for consumer participation in standardization work

The second main section gives the criteria for **setting consumer priorities** and lists the priority areas selected by COPOLCO for product standards. After briefly discussing how to distinguish between product and service standards, it also suggests a preliminary list of service sectors to be considered as a priority.

Any product has a number of properties, and only some of these are subject to standardization. The relevant choice depends on the aim of the standard – the following aims (of direct importance to consumers), therefore, are presented in some detail: prevention of misunderstanding; health, safety and protection of the environment; interaction and compatibility; fitness for purpose; and variety control. Guidance is then given on how to meet these aims through the **selection of requirements** to be standardized.

A major part of this section studies the technical details involved in deciding on product standard requirements, including: the values of characteristics; methods of testing, sampling and inspection; marking and labelling requirements; the need for accompanying documents; packaging and storage; and graphic symbols. Two important sub-sections take a look at the procedures for starting work on new projects (initiation, project selection, justification and formal proposal for a standard) **and for improving existing projects** (adapting, amending, adding requirements).

In addition, a practical and concise presentation is made of the best strategies that consumer representatives can use **to get results**: understanding and adapting to the way standards bodies do their work; and us-

ing the most effective tactics to build alliances, deal with different personalities and know when persistence is required to meet their goals.

Consumer expectations from certification

The final section explains the relevance of third party certification systems. Consumers need confirmation that products conform to standards in the areas of greatest importance to the public, so requirements in the certification field are presented in terms of safety, performance or fitness for use, significance to the end-user, and credibility for consumer acceptance.

The publication is completed by a set of references for consultation, which includes the most consumer-relevant ISO/IEC Guides and standards.

2 How International Standards affect consumers

Consumers expect that services and products will be consistent in quality, durability and ease of use. International Standards are voluntary rules and guidelines that help to ensure:

- safer, healthier, more environmentally sound products and services;
- products with improved quality and reliability;
- better operational compatibility between products and greater consistency in the delivery of services;
- improved choice and access to goods and services;
- lower costs for consumers;
- better product or service information.

While the contributions of experts from industry, business and government are essential to ensure the technical validity of standards, an important element of the standards process is that all interested and materially affected parties must have the opportunity to take part. Consumer and user contributions to the standards development process add a balanced, impartial view and help to produce voluntary standards which reflect more accurately the needs and desires of the entire marketplace. This is true at all levels of standards development.

User influence in standardization benefits both industry and society. Not only is the consumer perspective integrated into the standardization process, but also participation in the process results in a more informed consumer. These people are more likely to assist in the use and implementation of standards in whose preparation they have been involved. The role of the informed consumer should extend to making the general public aware of the existence of standards and to encouraging the demand for products and services conforming to these standards.

3 Definitions

3.1 standardization

activity of establishing, with regard to actual or potential problems, provisions for common and repeated use, aimed at the achievement of the optimum degree of order in a given context

NOTE 1 – In particular, the activity consists of the processes of formulating, issuing and implementing standards.

NOTE 2 – Important benefits of standardization are : improvement of the suitability of products, processes and services for their intended purposes, prevention of barriers to trade and facilitation of technological cooperation.

[ISO/IEC Guide 2:1996, *Standardization and related activities – General vocabulary*, definition 1.1]

3.2 standard

document, established by consensus and approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context

NOTE – Standards should be based on the consolidated results of science, technology and experience, and aimed at the promotion of optimum community benefits.

[ISO/IEC Guide 2:1996, definition 3.2]

3.3 consensus

general agreement, characterized by the absence of sustained opposition to substantial issues by any important part of the concerned interests and by a process that involves seeking to take into account the views of all parties concerned and to reconcile any conflicting arguments

NOTE – Consensus need not imply unanimity.

[ISO/IEC Guide 2:1996, definition 1.7]

4 Principles of consumer participation in standardization work

4.1 General procedures for the development of standards

The procedures recommended for the conduct of standardization are stated in Clause 4 of ISO/IEC Guide 59, *Code of good practice for standardization*. This reads as follows :

“Written procedures based on the consensus principle should govern the methods used for standards development. Copies of the procedures of the standardizing body shall be available to interested parties in a reasonable and timely manner upon request.

Such written procedures should contain an identifiable, realistic and readily available appeals mechanism for the impartial handling of any substantive and procedural complaints.

Notification of standardization activity shall be made in suitable media as appropriate to afford interested persons or organizations an opportunity for meaningful contributions. This entails timely notification in appropriate media of new, current and completed standards development activities, and reporting on status changes as appropriate.

On the request of any interested party, the standardizing body shall promptly provide, or arrange to provide, a copy of a draft standard that it has submitted for comments. Any fees charged for this service shall, apart from the real cost of delivery, be the same for domestic and foreign parties. Interested parties, wherever located, shall be provided with reasonable opportunity to review and comment on draft standards. Prompt consideration and response, if so requested, shall be given to all views and comments received,

including, for instance, explanation why a deviation from relevant international standards is necessary.

Formal approval of standards should be based on evidence of consensus.

All standards should be reviewed on a periodic basis and revised in a timely manner. Proposals for the development of new or revised standards, when submitted according to appropriate procedures by any materially and directly interested person or organization, wherever located, should be given prompt consideration.

All approved standards shall be published promptly. Copies shall be made available under reasonable terms and conditions to any person, wherever located.

Proper records of standards development activity shall be prepared and maintained.”

The application of these principles to practical standards work is amplified further in Clause 5 of this document but the formal explanation is to be found in the ISO/IEC Directives – Part 1: Procedures for the technical work, and the ISO/IEC Directives: Supplement – Procedures specific to ISO¹⁾.

4.2 Historical background

In 1964 the ISO Council adopted resolution 48/1964 to promote consumer participation in standards work. Similar thinking was reflected in the decisions taken the same year by the IEC Council and Committee of Action. In 1977,

1) A similar supplement to the *ISO/IEC Directives* was also published for the IEC.

the ISO Council set up COPOLCO, the ISO Council Committee for consumer policy, with IEC participation, which provides a forum where the systems which are found useful in different countries may be discussed, to allow criteria to be developed based on member bodies' experience.

In 1978 COPOLCO adopted a resolution stating that their usage of the term 'consumer' was: "COPOLCO ... understands the term 'consumer' to mean an individual member of the general public purchasing or using goods, property or services for private purposes". This is a broad definition and suggests that national members of ISO and IEC put in place organizational structures to take account of widely based opinions. Thus this step implies that representative consumer bodies must be identified in each country to allow the expression of these opinions through these structures.

In order to address that need, ISO and IEC published a joint policy statement to promote consumer participation in standardization work in 1979. With input from COPOLCO, ISO and IEC published the revised *ISO/IEC Statement on consumer participation in standardization work* in 2001, and circulated it to the national bodies of both organizations.

With the advent of national consumer organizations in many countries, the obvious starting point for the member body is to establish liaison with any such organization, or organizations. If none exists it may be necessary to draw together a committee of ordinary members of the public with experience of consumer products in use. It is, however, essential that the member body remains responsive to local developments. Whatever system is established, it should be possible to reflect changes in the climate of opinion and of organizations, so that the system remains broadly representative of the consumer interests in that country.

4.3 General information on duties and responsibilities of technical bodies

The task of preparing International Standards is carried out through technical committees of ISO and IEC.

The decision to set up a technical committee is taken by the ISO Technical Management Board (the Standardization Management Board in IEC), which also approves the scope of the committee, taking into account the justification of the work (see page 20). Within the scope, the committee determines its programme of work. This programme is contained in a business plan for the committee. Each plan is subject to approval by the Technical Management Board. The business plans contain timetables for the development of every work item, from conception to publication. Work items may be cancelled if sufficient progress cannot be maintained.

Technical committees will take into consideration any working data supplied by consumers through their member bodies and by other international organizations such as Consumers International (CI). Technical committees are required to ensure that all necessary aspects of a subject are dealt with, that duplication or contradiction of the work of other ISO and IEC technical committees is avoided, and that particular attention is paid to the results of the work of committees at policy level and committees of general application.

The members of technical committees are representatives of the member bodies of ISO or IEC, working in collaboration, when appropriate, with other ISO and IEC technical committees or with other international organizations. ISO and IEC recognize as a basic principle of standards activities that the interests of governments, manufacturers, all categories of users, and any others concerned should be taken into account. This implies that, for standardization work at international level, delegations to technical committee meetings should be in a position to represent all interests within their respective countries.

At the international level, Consumers International plays an important role in helping to channel consumers' views into standardization. With 271 members in over 122 countries,

Consumers International helps to coordinate consumers' activities over a wide geographic area. CI representatives participate in ISO and IEC technical committees in areas of particular interest to consumers. Examples within ISO include work on child restraint devices in cars, mechanical contraceptives, quality management systems, complaints handling, environmental management and environmental labelling. Within IEC, CI has been active in technical committees dealing with safety and performance of domestic appliances and electric blankets.

4.4 Recommendations

In the *ISO/IEC Statement on consumer participation in standardization work*, ISO and IEC jointly recommend to their national bodies that, when arranging consumer representation, they should act as follows:

Support

Support ISO and IEC initiatives aimed at encouraging consumer representation in standardization.

Orchestrate

Provide for consumer participation at the national level in the initiation and planning of the programmes of standards work, both national and international, as well as in policy matters relevant to the consumer.

Invite

At the national level, consumer interests should be invited to participate in all technical committees carrying out standards projects affecting the interests of the consumer.

The degree of participation should reflect the relative importance to consumer interests of the particular project.

(Where consumer resources are limited, an alternative system of consumer representation is set out below in 4.5 as offering a minimum requirement).

Finance

If consumers are not able to finance their participation in the standardization process themselves, the national body should enable consumers to participate in priority areas of consumer interest. It should be recalled that consumers form an integral part of the consensus-building process.

Encourage

Where a technical committee is developing an International Standard primarily of interest to consumers, national bodies should seek the active participation of consumers in national delegations.

It is essential that they are involved when the delegation is briefed and that the consumer view is taken into account when decisions on the national position are taken.

To assist national bodies in this effort, technical committees should include a statement in their new work item requests to highlight the fact that a specific international standardization matter is of particular interest to consumers.

Guide

Standards work can be technical and complex in nature. Where possible and necessary, national bodies should provide consumer representatives with guidance on standards procedures and briefing on technical issues in order to make their contribution both effective and based on knowledge of real possibilities.

Consumer representatives should receive early notice concerning upcoming meetings and should receive documents in sufficient time to review them thoroughly. There should also be access for persons with disabilities, for anyone who requires it.

Communicate

National bodies should ensure effective communication to consumer groups, other relevant organizations and the general public, of the results of their standards work of interest to consumers. Whenever possible they should use publicity expertise and new possibilities offered by technological development (such as the Internet) to encourage feedback and application of standards.

Contact

National bodies should be encouraged to “sound out” consumer opinion through existing consumer organizations or, if no such organizations exist, on their own initiative.

National bodies should provide a mechanism to allow consumer representatives to request that standards projects be initiated and to ensure that these initiatives have normal opportunities to progress.

Improve

National bodies are invited to study the composition and terms of reference of the various consumer committees of other national bodies, and to consider whether any changes in their own national structures would be appropriate in order to comply with these recommendations.

Coordinate

Particular attention should be paid to a close coordination of all activities arising from these recommendations within the same country. This would also facilitate a common approach to matters of consumer interest in international standardization.

4.5 When resources are limited

Key moments

When consumer resources are limited, the minimum requirements for securing effective consumer participation within the means available and keeping within the time scale required by the work are set out below. These requirements are based on the selection of “key moments” in the work, when consumers are especially invited to play a role. During the standards-writing process, consumer input should be sought in particular at the following stages:

- the establishment of standardization work programmes;
- at the time of selection of priority areas of work for technical committees. Additionally consumer representatives need to decide upon areas where consumer participation is essential and areas where they merely wish to be kept informed;

- as soon as a subject is proposed to the standards body for study, at the time when the feasibility of the project is being established and prior to the establishment of the draft proposal;
- when establishing the scope of the standard (e.g. safety, fitness for function), listing the characteristics, assigning the tasks to the members of the committee and determining whether research among consumers is necessary;
- during the technical committee’s work, whenever a decision is to be made that affects the established scope and/or the required performance level(s);
- whenever national delegations are briefed for their participation in international standards work, encouraging representation of consumer interests in national delegations;
- following the circulation of a draft, when the committee considers all the comments received;
- at the voting stage.

Finding representatives

For the priority areas, persons duly commissioned and representative of the consumer interests should be located and nominated. This will also require the organization of an effective system of communication between these representatives and the officer in charge of that work within the national standards body.

5 Practice of consumer participation in standardization work

5.1 Consumer priorities

Criteria for setting priorities

The policy statement on consumer participation emphasizes the need for a process to determine priority areas of work of consumer interest within a technical committee or a national standards body and for identifying consumer representatives to participate in work on these chosen areas.

COPOLCO has a specialized working group, Priorities from the consumer's point of view, which meets and reports annually on priority areas of consumer interest in international standardization. Among their tasks are: identifying new priority areas, evaluating progress in existing priority areas and fostering consumer participation. COPOLCO has adopted the following criteria for setting priorities for standards work of consumer interest, which the Priorities working group applies in its ongoing review of priorities:

- **Safety and health related to**
 - Electricity
 - Medical and mechanical/physical hazards
 - Radiation
 - Fire hazard
 - Electromagnetic compatibility
 - Installation and maintenance
 - Strength and toxicity of materials
 - Instructions for use/labelling
 - Disposal
 - Provision for the disabled and other vulnerable consumers (e.g. elderly persons, children).

- **Protection of the environment**
 - Environmental and energy labelling requirements
 - Disposal of product, waste and packaging
 - Resource conservation
 - Raw materials conservation
 - Energy conservation
 - Noise abatement
 - Pollution, air and water
 - Life-cycle analysis
 - Environment management systems.
- **Fitness for purpose**
 - Technical efficiency
 - Reliability
 - Durability
 - Convenience in use.
- **Ergonomics and anthropometrics, including impact of increasing age on mental and physical capabilities**
 - Energy consumption
 - Instruction for use/information
 - Privacy of personal data.

Priority areas for standardization

The following²⁾ is an example of the list of priorities set by COPOLCO:

- Air and water quality
- Small electronic and electrical domestic appliances, DIY (do it yourself) motor operated tools

2) The priorities listed here are not in order of importance. The list is reviewed annually, with some areas added and deleted as a result of this annual review.

- Medical and hospital services, medical home use devices
- Child related products (including child resistant devices, toys, child care articles, playground equipment)
- Smart cards, including banking services
- Equipment for persons with disabilities
- Environmental management systems
- Large powered domestic appliances
- ECO, environmental and energy labelling
- Contraceptive devices
- Protective clothing and equipment
- Bicycles
- Sport equipment
- Furniture
- Public information symbols.

5.2 Deciding on objectives

Product or service standard

Distinguishing between a product and a service standard

It is usually easy to decide if a product or a service standard is needed in particular circumstances. There may be occasions when it is not clear which type is needed, or, if both product and services need to be specified, then which aspect should have precedence. For example, one of the major areas of service standardization is likely to be that of financial services. One aspect of this might be the provision of cash to consumers via Automatic Teller Machines (ATM). Specifications to control the properties of these machines could be needed, but will be closely dependent on the properties of the information network backing the machines. This network will influence the level of service received by the consumer. Similarly the siting, user interface and reliability aspects of each machine might be included in either a product or a service standard.

Service sectors

Over the past few years, COPOLCO has been exploring priority areas in services of potential interest for international standardization. It has identified general consumer expectations for services as a whole, financial services

(including insurance) and tourism as being key areas for future proposals.

Other areas of interest have been identified as follows :

- Care services
- Hire services, including car rentals
- Housing including rentals
- Postal services, telecommunication
- Transport, public transport.

Aims of product standards

Any product has a number of properties, and only some of them are subject to standardization. The choice depends on the aims of the proposed standard, e.g. :

- prevention of misunderstanding
- health
- safety
- protection of the environment
- interface
- interchangeability
- fitness for purpose
- variety control.

These aims are referred to in more detail in the documents listed as References.

NOTE – In standards, the aims of individual requirements are not usually indicated, although the purpose of the standard and of some requirements can usefully be explained in its Foreword. However, these aims should be identified at the earliest possible working stage to facilitate the taking of decisions regarding the inclusion of individual requirements in the standard.

Prevention of misunderstanding

International standards are usually published in English and French, and sometimes Russian (at the discretion of the ISO member body for the Russian Federation, GOST R). The language in which they were first written may have been one of these three or another. The native language of a standards user may be any other of the world's tongues and may not be known by these writers. It is essential that if standardization is to be achieved, a single message be conveyed by the authors to all the users. To ensure this, it is necessary for all

readers of a standard to form exactly the same concepts, follow the same reasoning processes and arrive at the same conclusions as those intended by the original authors. Therefore the words used in any standard must be carefully chosen to ensure unequivocal interpretation by any reader, irrespective of his or her mother tongue.

Technical terms provide another potential source of confusion, so the promotion of mutual understanding and reduction of misunderstanding usually requires the definition of terms used in the technical requirements, of symbols and signs, and the establishment of test methods and sampling methods, concerning each technical requirement specified in the standard.

Health, safety and the environment

If health, safety aspects, the protection of the environment or economical use of resources are relevant to the product, the requirements should be included because, in some countries, they may be made mandatory and, if not harmonized, would constitute technical barriers to trade.

These requirements may need to have certain characteristics with limit values (maximum or minimum) or closely defined sizes and, in some cases, even constructional stipulations. The levels at which these limits are placed should be such that the element of risk is reduced as much as practicable. General guidance on dealing with safety in standards is contained in ISO/IEC Guide 51, *Safety aspects – Guidelines for their inclusion in standards*. The particular problems relating to children are covered in more detail in ISO/IEC Guide 50, *Safety aspects – Guidelines for child safety*.

Aspects (such as requirements dealing with health and safety, environment, etc.) that could form part of governmental regulations or mandatory standards should receive priority when preparing an International Standard. To facilitate the principle of reference to standards in governmental regulations (see ISO/IEC Guide 15, *ISO/IEC Code of principles on "reference to standards"*) the relevant aspects should be published in a separate standard or a separate part to it. However, when such a separation is impracticable, such aspects should be

grouped together either in one clause, or in a separate section of the International Standard.

Interaction

For products that must work together, any standards to be published should also be compatible. Separate clauses or documents may be needed to define the relationships between the different items, for example the size of the module used in building layouts. In general interface and interchangeability requirements, if relevant, are subject to international standardization because they may be deciding factors in regard to the possible use of the product.

International standardization of a particular product may be limited to interface or interchangeability aspects and disregard other aims. If the aim of international standardization is to ensure interchangeability, both the dimensional and the functional aspects of the product should be considered.

Fitness for purpose

General

Ensuring fitness for purpose may require the specification in International Standards of some dimensional, mechanical, physical, chemical, acoustical, thermal, electrical, biological, ergonomic or other properties.

Levels of characteristics

It is often necessary to allow for more than one category, type or grade of a product within the same standard (or in separate standards if necessary). Designers, users and consumers often need such variations for specific purposes or for economic reasons. Standards should therefore be prepared in such a way that these needs can be met, though it is essential that any correlation between purposes and values be clearly indicated.

NOTE – Different categories or levels for different regions or countries may also be included if this is justified by their significance for trade.

When considering variations, it should be noted that this approach may not be appropriate for standards dealing with safety, health or the environment.

Function

Requirements concerning the fitness for purpose of a product sometimes take the form of a requirement concerning the conditions under which a designation or mark may be applied to a product. For example, a wristwatch may be classified as "shock resistant". A minimum category or level of the property in question ("shock resistance" in the example above) is not generally specified if it is not intended that the product have the designation or mark applied to it.

Variety control

Variety control, if relevant, may be the aim of international standardization. It should usually be limited to widely used materials, substances and elements such as fasteners or other machine parts. For some consumer goods, the standardization of a certain variety at the international level may be justified. The justification may lie in factors such as world trade, economy, safety and consumer protection, or the availability of interchangeable elements.

Variety may relate to size or to other characteristics. The relevant International Standard should contain the assigned values (usually a series) and specify their tolerances.

Aims of service standards

Quality

To establish the levels of minimum requirements for a specific service.

Measuring quality of services

To standardize methods for measuring the attainment, retention and improvement of the service requirements.

Provision of information

To establish the required information and its presentation. The informational approach to service standardization will improve transparency, by allowing consumers to compare services and enhance choices, and thereby help to reduce financial risks, for example.

Safety

To establish levels of safety for services. The aim, in this case, is to minimize or entirely prevent any danger to life or health resulting from the use or provision of the service.

Requirements to be standardized

Selection of requirements

Standards should specify all those and only those characteristics and requirements that are necessary to define the properties of the product or its performance, to meet the aim of the standard. If it is not practicable to include all characteristics and requirements in one standard, reference can be made to other relevant standards. These requirements should be specified together with the required limiting values and tolerances where applicable, and the test methods to measure the characteristics specified.

Performance based

Standards should always be prepared in such a way that they facilitate and do not hinder the development of technology. Usually this is accomplished by specifying product performance requirements rather than product design requirements.

Objective

Generally, only such characteristics as can be objectively verified should be included in the standard.

Clearly stated

The characteristics and requirements should be clearly stated and be precise, valid and specific. They should be free from subjective elements, and the use of such phrases as "sufficiently strong to" or "of adequate strength" etc. should be avoided.

Not based on manufacture

Requirements for manufacturing processes should not be included in standards, unless it is otherwise impossible to adequately specify the product.

NOTE – Where it is necessary, in a third party certification scheme, to specify controls for manufacturing processes, such requirements should be included in the specific rules for the certification scheme based on the standard.

5.3 Deciding on product standard requirements

Choice of values of characteristics

Categories of values

Particular property values may be specified for one of several reasons:

- Values which are required because there are absolute limits set by factors which override any decisions by specification writers or product manufacturers, for example the surface temperature of a cooking appliance.
- Values which may be relatively freely assigned to divide a continuous range, for example the standard dimensions of timber.
- Values stated by the manufacturer to inform the user, for example the wool content of a textile.

Limit values

For some purposes, limit values (maximum or minimum) should be specified, particularly for safety or for some performance requirements.

Usually one limit value is prescribed for each characteristic. In the case of several widely used categories or levels, several limit values will be required.

Limit values of strictly local application should not be included in an International Standard.

Assigned values

For some purposes, assigned values or series of assigned values may be specified, particularly for variety control and some interface purposes. They may be chosen according to the series of preferred numbers given in ISO 3, *Preferred numbers – Series of preferred numbers* (see also ISO 17, *Guide to the use of preferred numbers and of series of preferred numbers*, and ISO 497, *Guide to the choice of series of preferred numbers and of series containing more rounded values of preferred numbers*), or according to some modular system or other determining factors, as appropriate.

Assigned values of strictly local application should not be included in an International Standard.

If a consistent system of assigned values is needed, then any extraneous values should be omitted to prevent the artificial creation of demand.

In standardizing a rationalized series of assigned values, any existing series should first be examined for acceptability for worldwide application.

NOTE: If a series of preferred numbers is used, attention should be paid to the difficulties that may arise if fractions (such as 3.15) are introduced. They may sometimes be inconvenient or require unnecessarily high accuracy, in which case they should be rounded off in accordance with ISO 497. The introduction of different values for use in different countries (whereby both the precise value and the rounded off value are contained in the International Standard) should also be avoided.

Values to be stated by the manufacturer

There may be some properties of a product that influence the performance of the product that should not be specified if an unspecified number of varieties might be allowed. For some kinds of textiles, for example, the wool content need not necessarily be specified; it may, however, be required that the wool content be indicated on an informative label. The International Standard can list all characteristics that may be chosen freely by the manufacturer but the values of which he must state. This statement can be in various forms (name plate, label, accompanying document, etc.).

The International Standard may also introduce categories or levels of products or qualifying terms and may require that the terms ("antimagnetic watch"; "high fidelity apparatus"; "tropical performance"; etc.) or figures or other codes be used only if the relevant requirements are met.

Stating that the values of a characteristic should be specified by the manufacturer instead of specifying the actual values is not permissible in the case of health and safety requirements (See ISO/IEC Guide 51, *Safety aspects – Guidelines for their inclusion in standards*).

Methods of testing, sampling and inspection

Technical requirements, test methods and sampling are interrelated elements of product standardization and should be considered together. However, the different elements may appear in separate clauses in a standard, or in separate standards. The rules governing these requirements are outlined below. If the standard is intended to be used for third-party certification, additional rules should also be taken into account.

Test methods subject to standardization are those that are related to technical requirements (characteristics):

- which are, or are likely to be, specified in standards, technical specifications, technical regulations, etc. ;
- or that determine the performance of a product ;
- or whose values are to be stated by the supplier.

Normally, test methods applicable only in research should not be included in International Standards.

When preparing standards on test methods, technical committees are encouraged to use well-defined reference materials, if any.

Criteria for the development of test methods

A test method should be given for each of the performance characteristics listed in a standard.

The following points should be taken into consideration:

- the test methods should be defined in such a way that the test results correspond as closely as possible to the performance results as experienced by consumers when using the product in practice ;
- the test methods must be objective and give meaningful and reproducible results ;
- details of test methods should be defined with a view to optimum usefulness to the consumer, taking into account the ratio between the value of the product and the expense involved in carrying out the tests ;
- where use has to be made of accelerated test procedures or of methods that have only

an indirect relationship with the practical use of the product, the technical committee should provide the necessary guidance for correct interpretation of test results in relation to normal use of the product.

Alternative test methods

If more than one adequate test method exists for a characteristic, preferably only one should be the subject of an International Standard.

If, for any reason, more than one test method is to be standardized, the referee (often called "reference") method shall be identified in the International Standard to settle doubts or dispute. For example, one of the methods may be easier to perform but needs some special apparatus which may not be widely available, or one may be more quickly carried out but has a different accuracy.

When two or more test methods have sufficient accuracy for the purpose of the standard, they may all be included, but it shall also be stated that they are equivalent.

Choice of test methods according to accuracy

The tolerance on the value of the characteristic to be assessed shall determine the choice of the test method to be used, and the accuracy of the test method shall be in relation to the tolerances.

When it is considered technically necessary, each test method should incorporate a statement as to its limit of accuracy.

Assessment of every single item or of samples

Some characteristics of a product may need to be assessed on each item and others by statistical methods.

Whether or not the conformity of every single item of a product should be assessed depends upon the nature of the requirement and of the product. In drafting International Standards, it should be carefully considered whether the conformity requirement is really intended to apply to every single item.

If there are requirements (for example concerning health and safety) compliance with

which should be assessed on every single item of the product, this fact should be indicated in the relevant standard.

While statistical methods should preferably not be used for the detection of defects having dangerous consequences (for example for the assessment of compliance with safety requirements), their application may sometimes be unavoidable (for example in the case of destructive tests). In such cases, provision should be made to keep the risk at a sufficiently low level (for example by increasing the size of the sample or by introducing more severe limiting values for certain characteristics).

If there are requirements that are to be met by the product, but concerning which the non-detection of a certain percentage of non conforming items is acceptable, it is preferable to include statistical methods of assessment in accordance with ISO 2859, for inspection by attributes, or with ISO 3951 for inspection by variables.

If there are requirements that need not necessarily be met by every single item of a product, because only an average value and permissible deviation are specified, the number of items to be tested or the number of sequential tests to be considered in determining averages and dispersions should also be specified. In some cases, statistical methods could preferably be combined directly with the acceptance criterion by relating the size of the tolerance to the number of samples. Furthermore, it is sometimes useful to address requirements to the outcome of a single test as well as to the average value of several.

If the character of the product and that of the relevant technical requirement are such that a type test would be an appropriate method of assessment, the International Standard may also include the method to be applied for the type testing. In these cases the standard should mention the necessity of re-testing the product whenever the materials or the manufacturing process are modified, and also of periodic re-assessment of the conformity of the product even if no such modifications were introduced, in order to reveal possible unwanted changes. Type tests are mainly concerned with the approval of a particular design of product, and

in themselves cannot be taken as evidence of the conformity to that standard of products subsequently produced in quantity.

Sampling

By means of sampling inspection, it is possible to judge, from a limited number of items of a product, the conformity of the lot.

If the International Standard recommends sampling inspection, it should specify how the samples are to be taken, the statistical method to be adopted (attributes, variables), and the sampling plans and procedures to be followed.

Sampling and statistical procedures and acceptance criteria are directly interrelated and should be considered together. If the International Standard is likely to be used for third party certification, additional rules should also be taken into account (see ISO/IEC Guide 7, *Guidelines for drafting of standards suitable for use in conformity assessment*).

General aspects of the assessment of conformity

If a statistical method for the assessment of the conformity of a product is prescribed in the International Standard, statements concerning conformity with the standard relate to the conformity of the population or the lot. In some cases, special measures may be needed in order to prevent such statements being misunderstood. If the standard is likely to be used for third party certification, additional rules should also be taken into account (see ISO/IEC Guide 7).

If it is indicated in the International Standard that every single item should be tested according to the standard, then any statement concerning the conformity of the product with the standard means that every single item has been tested and that it has met the corresponding requirements.

An International Standard on test methods usually does not imply any obligation to carry out any kind of test. It merely states the method by which the assessment, if required and referred to (for example in the same or another standard, in a regulation, in contract documents), should be carried out.

The fact that test methods are in use which differ from that most acceptable for general application should not preclude the latter from being specified in an International Standard.

Other requirements

Marking and labelling requirements

International standards may require:

- marking identifying the manufacturer and his address or responsible vendor, i.e. trade name, trademark or identification mark;
- marking identifying the product, i.e. model or type reference or designation.

Guidance on the information which should be supplied for products may be found in ISO/IEC Guide 14, *Purchase information on goods and services intended for consumers*.

Marking can be applied, inter alia, by means of plates (sometimes called "nameplates"), labels, stamps, colours, threads (in cables) as appropriate.

If indications with regard to warnings, date of manufacture (or code indicating this) and date of expiry, etc. are necessary, the corresponding requirements should be included in the clause of the standard dealing with marking and labelling.

Standards with labelling requirements

Standards containing a reference to the marking of the product should specify, where applicable:

- the content of any marking that is used to identify the product;
- the means of presentation of such marking;
- the location on the product or in some cases the package, where such marking should appear;
- other information as may be required.

Symbols specified for marking shall be in conformity with any relevant standard. If the application of a label is required by a standard, the standard should also require that the label and its legend be durable, permanently legible and universally understandable. Where necessary, the standard may also specify the nature of the labelling and how it is to be attached, affixed or applied to the product or its package.

Standards listing characteristics for which suppliers are required to state values that are not specified shall specify how the values are to be stated.

Documents accompanying the product

Standards may require that the product be accompanied by some kind of document, e.g. instructions for use or other information appearing in or on the product package (see ISO/IEC Guide 37, *Instructions for use of products of consumer interest*). When relevant, the content of such documents should be specified in the standard.

Warnings

Standards that contain references to hazardous chemicals and/or instruments and processes should include a general warning.

Packaging and storage

General

When relevant, a standard should specify requirements for packaging and conditions of storage and transportation of the product, either to protect the product, or to prevent hazards, contamination or pollution (see the outline below or ISO Guide 41, *Packaging – Recommendations for addressing consumer needs for greater detail*).

Protection

The packaging should protect the contents in such a way that neither their performance, nor their reliability, are affected by

- outside mechanical forces, such as impact or vibration;
- contamination by undesirable substances, for example water or air;
- climatic conditions, for example heat or cold.

Handling

The packaging design should facilitate

- transport and storage of the product both at the distribution level and in the home;
- opening and remaining open of the packaging when needed;

- closing and remaining closed of the packaging when needed ;
- removal of the contents from the packaging ;
- complete emptying of the packaging.

Safety in storage, leakage of contents

The contents, where potentially harmful, should not leak through the packaging due to :

- lack of a seal ;
- deterioration of the packaging caused by outside influences, such as light or foreseeable mechanical forces ;
- deterioration of the packaging caused by the contents.

Where the contents are potentially harmful, the packaging should be clearly labelled with relevant warning and instructions for storage and disposal.

Where time affects the safety of the product, the packaging should be clearly labelled to that effect, for instance by way of a phrase such as "Do not use after (date)".

Safety in storage of packaging material

The packaging material should not be potentially harmful as a result of :

- emission of substances that may endanger human or other forms of life ;
- contamination of the contents by the packaging, including those specific cases where the combination of packaging material and contents may cause problems.

Safety in use, harmful contents

Where contents are potentially harmful :

- the packaging should not mislead and should be clearly distinguishable, in colour and shape or by any other means if necessary, from food or beverage packaging ;
- the packaging should be clearly labelled with relevant warnings and instructions for use ;
- relevant warnings and instructions for use, such as "Keep out of children's reach", should be repeated on any inner packaging.

Safety in use, opening and closing

Where contents or packaging are potentially harmful on opening, or on removal of contents :

- opening instructions should be given clearly and in the appropriate place ;
- opening means should be suited to the contents, packaging and potential users. In some cases, two or more groups of users may have different, possibly conflicting, requirements with respect to opening means. For example, packaging of pharmaceuticals that may come within reach of children should have child resistant closures, while the same closure should be easy for a handicapped person to open (possibly with the help of an auxiliary device) ;
- closing devices should be designed in such a way that they cannot fall inside the container ;
- the packaging should facilitate the safe withdrawal of the contents.

Safety in use, closures

Where contents may become harmful if the packaging is left open :

- clear closing instructions should be given, for example "Materials with noxious fumes" ;
- closing devices should be suited to the contents, packaging and potential users.

Safety in disposal

Where possible, the packaging and remainder of the contents should be capable of safe disposal by normal means, with no short or long term danger to human beings or the environment. Biodegradable materials are preferred.

Clear instructions on disposal of packaging and/or contents should be given whenever normal means of disposal are inappropriate.

Recycling processes, if any, should not cause harm in the short or long term to human beings or the environment.

Consumer requirements on graphic symbols

In view of the growth of international trade in products of consumer interest and the growth of international communication and exchanges of services as a whole, consumers have felt a need for internationally standardized graphic symbols, including pictograms that are easily recognizable and which, in a well-defined and unambiguous way, may give valuable information to consumers. Moreover, this need is emphasized by the growing complexity of consumer products and services, the functional aspects of which are not always immediately clear to the consumers. This may at best give rise to confusion and at worst to accidents.

In many cases, information and warnings on products of consumer interest may be given advantageously in the form of graphic symbols. This will help the consumer to make best and proper use of the product during installation, daily use (including storage), maintenance and disposal, and reduce the risk of hazards of a chemical, mechanical or electrical nature. Special consideration should be given to "vulnerable" consumer groups, such as children, certain groups of handicapped persons, and even illiterate persons. Information concerning public services and facilities should also be given in the form of graphic symbols.

Consumers are aware that internationally standardized symbols already exist in many areas but that in many others there is still an uncovered need. International standardization may be the tool that can help create internationally accepted and implemented graphic symbols to the advantage of consumers and society as a whole:

From the consumer's viewpoint, there are certain basic principles that should be adhered to when devising graphic symbols:

- symbols should be easily understandable and recognizable (it is important that symbols be tested among consumer groups before they are adopted);
- they should be easy to distinguish from each other;
- they should also be chosen in certain cases bearing in mind the possibility of making them tactile or giving tactile equivalents;

- the number of symbols should be restricted to cover areas where a real need has been ascertained (the consumers should not need to learn a special picture language);
- the same symbols should be used for the same functions irrespective of the type of product or functional context;
- during a transitional period, it may be expedient to use a supplementary text in the national language;
- when the information to be conveyed has a bearing on consumers' health and safety, the use of symbols alone can involve heavy risks.

For more information, see ISO/IEC Guide 74, *Graphical symbols: Technical guidelines for the consideration of consumers' needs*³⁾.

5.4 Procedures for starting work

New projects

Initiation

Two situations may occur when new work is considered, the first being where the item does not fall within the scope of an existing technical committee or sub-committee, the second situation being where a technical committee covering the area is already in existence.

A proposal for work by a new technical committee may be made to the technical management board by:

- a national body;
- a technical committee or subcommittee;
- a policy development committee;
- the technical management board
- the Chief Executive Officer;
- a body responsible for managing a certification system operating under the auspices of the organization (IEC only);
- another international organization with national body membership.

3) Under development – publication expected by 2004.

Work within the responsibilities of an existing committee may be proposed to it by:

- a national body;
- the secretariat of that technical committee or subcommittee;
- another technical committee or subcommittee;
- an organization in liaison;
- the technical management board or one of its advisory groups;
- the Chief Executive Officer.

The detail of these procedures is set out in the *ISO/IEC Directives*, Part 1, particularly in clauses 1 and 2, and the *ISO/IEC Directives Supplement*.

Selection of projects

All standards representatives exert their broadest influence when new standards projects are created. However, the resources that consumer representatives can apply are always limited. Therefore, selection of the best projects for support by consumer representatives will usually be necessary. Though much of the evidence at that early stage may be difficult to quantify, consumer representatives should make every effort to reach objectively justified conclusions.

Justification for a proposed standard

It is important that all parties concerned, including consumers, be consulted right from the beginning of discussions on the justification for a proposed standard and on its possible scope and field of application. To ensure that consumers' interests are taken into account, it is essential that consumers be consulted at this early stage. Similarly, if the proposal emanates from consumers, the other parties interested in the establishment of the standard should be consulted in turn.

Proposal

The proposal for a standard should cover, in particular, the following considerations and be supported, where possible, with evidence and data:

- The scope of the proposed standard: this should precisely define the work and indicate the specific area concerned.
- The specific aim of and reason for the proposed standard, e.g.
 - encouragement of international trade
 - protection of consumers
 - safety and health
 - protection of the environment.
- Particular reference should be made to the aspects of standardization required, the problems the standard is expected to solve or the difficulties it is intended to overcome.
- The main interests that may benefit from or be affected by the proposed standard, e.g.
 - industry
 - consumers
 - trade
 - governments
 - distributors.
- Feasibility of the proposed standard, e.g.
 - restriction or encouragement of competition
 - new technology
 - widening or restriction of consumer choice
 - effects, if any, on production costs
 - improvements in safety.
- Timeliness of the proposed standard — is the existing technology reasonably stabilized or are advances in technology likely which may rapidly make the standard obsolete?
- Urgency of the need for the proposed standard, e.g. from the safety point of view.
- Likelihood of governmental regulations: if the standardization activity is the subject of regulations or is likely to be, this should be indicated including, if possible, where such regulations might occur.

Existing projects

Adapting requirements

Adapting an existing project is usually less costly in terms of resources than starting a new one. Can an existing standard be amended to correct the situation where an important consumer need is unsatisfied? If this is the case, can the existing requirements be altered by being tightened or relaxed to satisfy this need? For example does an otherwise good standard expose the user to the risk of being cut by sharp edges, and could this be prevented by increasing the specified edge radius?

Adding requirements

Alternatively, can new requirements be added to an existing standards project to better fit consumer needs? For example, have functional requirements taken precedence over safety in a project and does this balance need to be corrected by adding safety requirements to the document?

5.5 Getting results

General

Planning by representatives

Consumer representatives are supported by their national bodies or other organizations to influence discussions for the benefit of the general public using goods or services. In such discussions, the representatives of manufacturing interests usually outnumber consumer representatives, and may form the majority of the technical committee. Careful planning can considerably increase the effectiveness of the actions of representatives when negotiating in these circumstances.

Business Plans

All ISO and IEC committees are required to manage their work by producing business plans. In these plans, the resource costs and justifications for all current and proposed projects must be shown, and the plans are subject to approval by higher levels in the organizations. If consumer representatives

wish to introduce new proposals, these need to be incorporated into a business plan before any work can be done within the standards body. Some degree of influence on the contents of the business plan of a technical committee is therefore a necessary condition for getting work started. The success of any particular proposal will probably reflect the quality of the preparatory work that has been put into it.

Strategy

Consensus

Both the ISO and IEC base their decisions upon consensus. This can mean that if sufficiently strong arguments are used, and repeated often enough, then an undesirable aspect may be removed from a standard or a work proposal. At the very least, its incorporation may be delayed. The requirement for consensus is thus the strongest tool that a consumer representative can utilise, but a single vote will not in general be sufficient to overturn a committed majority.

Assembly of data

Before any meeting or series of meetings, all the needed facts should be assembled. If necessary, they should be organized as a formal presentation to convince doubters of the validity of the case supported by the consumers.

Procedures

Knowledge of the procedures prescribed for the conduct of the relevant organization's business is important. If they have not been properly followed in a case where a decision has gone against the consumer position by a narrow majority, then it may be worth appealing. Both international bodies have mechanisms for appeal, but to use them generally requires that it can be shown that faulty procedures were followed. To demonstrate failures of this type requires intimate acquaintance with the Directives of the international bodies.

Alliances

Where one vote may not make a difference, then a group of votes may. The consumer representative should take pains to foster similar thinking amongst other committee members. Where possible the positions of other members on various matters should be investigated, as a rigid negative on one aspect might be accompanied by an abstention or a positive view on some other important area. Mutual respect for the fixed and negotiable parts of each member's position may allow an atmosphere of compromise to develop. In this way, all parties to a discussion may be able to fulfil the bulk of their requirements, while no single party would achieve all of its goals.

Tactics

Personalities

Different representatives achieve their goals in very different ways. One may achieve his/her objectives by careful preparation, while someone else succeeds by the strength of the personal relationships that he or she builds. What is needed in all cases is a willingness to listen and to weigh all the arguments, together with the imagination to envisage how different points of view may best be accommodated in a single document. The one sure recipe for failure is a lack of preparation, leading to an inability to marshal the facts in time to speak at a critical moment.

The convenor or chairperson of any committee or working group wields significant power in these organizations. Consumer representatives will, of necessity, have to establish a good working relationship with the people in these positions. If this proves to be impossible, the representative may have to consider whether another personality might be more successful in the particular group. If limits upon national resources mean that there is no possible replacement, then both the representative and the supporting national body should be aware of this constraint upon the probability of success.

Persistence

Few representatives will be fortunate enough to achieve major successes at a single meeting. Without the readiness to continue to examine all sides of the case, to collect new data and refresh arguments, and to reiterate the basic points, the effectiveness of representation is much reduced. If the course of arguments can be accurately predicted, then better preparation can reduce the need for repetition. However, the degree of freedom for on-the-spot negotiation allowed to the delegates from different nations varies considerably. In some cases, multiple meetings may be needed even where there is basic agreement, so that proper agreement can be obtained by feedback from national steering groups.

6 Consumer expectations from certification

6.1 General

When impartial evidence is sought by consumers that the product they are buying complies with a standard, such evidence can be given, for example, through a third party certification system operating a mark of conformity or issuing a certificate of conformity (see ISO/IEC Guide 23, *Methods of indicating conformity with standards for third party certification systems*). Suppliers often suggest that their own declaration of conformity should suffice and this is an alternative method of providing assurance. The difference lies in the effectiveness of implementation and the transparency of the systems.

Certification of products can assist consumers in making better-informed purchasing decisions. The certification system should be appropriately designed and the message it conveys should be understandable to them. Before a certification system is implemented, its relevance to consumer needs should be considered.

6.2 Safety – a priority

The consumer's first requirement is to be protected from unacceptable risk, so certification should confirm that the product complies with applicable safety standards.

6.3 Performance related to defined end-use

Consumers are also interested in the product's performance, or fitness for use. They need to have information on the end-use for which the product is designed. An analysis of likely end-uses, and of the characteristics which relate to them, should be made at the outset before drafting a standard or a set of standards upon which certification is to be based, and this analysis should be reviewed and revised as necessary

during the development of the standard or set of standards. It is important to ensure the active participation of consumers, retailers and comparative testing organizations in this analysis, as only in this way will certification properly serve consumers' needs. This may indicate the need for a graded standard, identifying a number of possible end uses, e.g. the grades of carpet suitable for different areas in the home. Subsequently, at the point of sale, information to the consumer on the "end uses" covered by the standard and certification system should be provided. This is in accordance with ISO/IEC Guide 23. This standard states, "in cases where the standard contains different grades, or types, descriptive words – but preferably symbols, which are universally understandable – should appear in close proximity to the mark of conformity indicating which grade or type is being certified".

6.4 The standard's significance

The usefulness of certification to consumers requires that the standard meet their expectations. ISO/IEC Guide 46, *Comparative testing of consumer products and related services – General principles*, and ISO/IEC Guide 7, *Guidelines for drafting of standards suitable for use in conformity assessment*, give guidance on the development of such standards.

6.5 Credibility to consumers

The related certification system should conform to the ISO/IEC guides developed by the ISO Council committee on conformity assessment, CASCO. Consumer acceptance will depend upon three things: how well the standard in question reflects the specified end uses of the products; the integrity of operation of the system and its quality control procedures; and the impact on consumers of the publicity given to the certification mark.

7 References

ISO 3, *Preferred numbers – Series of preferred numbers*

ISO 17, *Guide to the use of preferred numbers and of series of preferred numbers*

ISO 497, *Guide to the choice of series of preferred numbers and of series containing more rounded values of preferred numbers*

ISO 2859, *Sampling procedures for inspection by attributes*

ISO 3951, *Sampling procedures and charts for inspection by variables for percent nonconforming*

ISO/IEC Guide 2, *Standardization and related activities – General vocabulary*

ISO/IEC Guide 7, *Guidelines for drafting of standards suitable for use in conformity assessment*

ISO/IEC Guide 14, *Purchase information on goods and services intended for consumers*

ISO/IEC Guide 15, *ISO/IEC code of principles on “reference to standards”*

ISO/IEC Guide 23, *Methods of indicating conformity with standards for third-party certification systems*

ISO/IEC Guide 37, *Instructions for use of products of consumer interest*

ISO Guide 41, *Packaging – Recommendations for addressing consumer needs*

ISO/IEC Guide 46, *Comparative testing of consumer products and related services – General principles*

ISO/IEC Guide 50, *Safety aspects – Guidelines for child safety*

ISO/IEC Guide 51, *Safety aspects – Guidelines for their inclusion in standards*

ISO/IEC Guide 59, *Code of good practice for standardization*

ISO/IEC Guide 71, *Guidelines to address the needs of older persons and persons with disabilities when developing standards*

ISO/IEC Guide 74, *Graphical symbols: Technical guidelines for the consideration of consumers' needs*

ISO/IEC Statement on consumer participation in standardization work

ISO/IEC Statement on addressing the needs of older persons and people with disabilities in standardization work

ISO/IEC Directives – Part 1: *Procedures for the technical work*

ISO/IEC Directives – Supplement: *Procedures specific to ISO*

ISO/IEC Directives – Supplement: *Procedures specific to IEC*

Useful Web sites :

ISO – www.iso.org

IEC – www.iec.ch

CI – www.consumersinternational.org