
**Systems and software engineering —
Systems and software product
Quality Requirements and Evaluation
(SQuaRE) — Common Industry Format
(CIF) for usability: Context of use
description**

*Ingénierie des systèmes et du logiciel — Exigences de qualité et
évaluation des systèmes et du logiciel (SQuaRE) — Format industriel
commun (CIF) pour l'utilisabilité: Description du contexte d'utilisation*



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Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Conformance	1
3 Terms and definitions	1
4 Purposes and types of context of use descriptions	4
4.1 General.....	4
4.2 Initial outline of the context of use.....	6
4.3 Detailed context of use descriptions.....	6
4.4 Context of use for an evaluation.....	7
4.5 Context of use information included in a product description.....	7
5 Elements of a context of use description	8
5.1 General.....	8
5.2 Subject of the context of use description.....	9
5.3 User population.....	10
5.4 Goals and responsibilities of the user group and the organization.....	13
5.5 Tasks of the users.....	14
5.6 Environment(s) of the user.....	16
5.7 Problems.....	18
Annex A (informative) Initial outline of the context of use	20
Annex B (informative) Users of the context of use	21
Annex C (informative) Example of a context of use checklist	23
Bibliography	32

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

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.

ISO/IEC 25063 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and systems engineering*, in collaboration with Technical Committee ISO/TC 159, *Ergonomics*, Subcommittee SC 4, *Ergonomics of human-system interaction*.

Introduction

The human-centred design approach of ISO 9241-210[4] is well established and focuses specifically on making systems usable. Usability can be achieved by applying human-centred design and testing throughout the life cycle. In order to enable a human-centred approach to be adopted, it is important that all the relevant types of information related to usability (information items) are identified and communicated. This identification and communication enables the usability of a system to be designed and tested.

This International Standard provides a framework and consistent terminology for describing the context of use of an interactive system. It is intended to assist developers in documenting and communicating usability-related information through the system development life cycle.

The Common Industry Format (CIF) for Usability family of International Standards is described in ISO/IEC TR 25060[19] and is part of the SQuaRE series (ISO/IEC 25000[17] to ISO/IEC 25099) of standards on systems and software product quality requirements and evaluation.

The CIF family of standards uses definitions that are consistent with the ISO 9241 series of standards (Ergonomics of human system interaction), as this is the terminology that is normally used for this subject matter.

CIF standards are planned for the following information items:

- Context of use description (ISO/IEC 25063);
- User needs report (ISO/IEC 25064);
- User requirements specification (planned ISO/IEC 25065);
- User interaction specification;
- User interface specification;
- Evaluation report (planned ISO/IEC 25066);
- Field data report.

The CIF standards are part of the “Extension Division” of the ISO/IEC 25000 “SQuaRE” series of International Standards (see [Figure 1](#)).

Quality Requirements Division 2503n	Quality Model Devision 2501n	Quality Evaluation Division 2504n
	Quality Management Devision 2500n	
	Quality Measurement Devision 2502n	
Extension Devision 25050 - 25099		

Figure 1 — Organization of SQuaRE series of International Standards

Context of use is defined in ISO 9241-11.[2] The system quality model in ISO/IEC 25010[18] incorporates context of use.

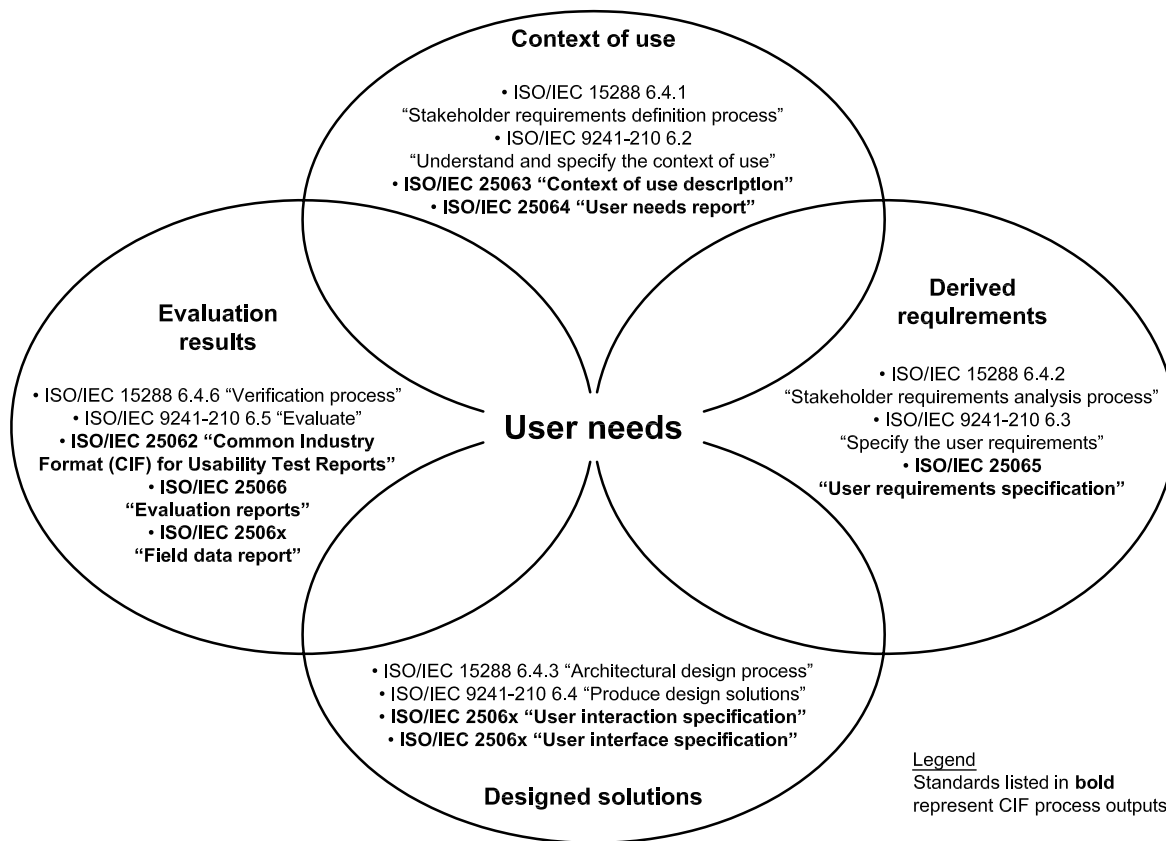


Figure 2 — Relationship of CIF documents to user centred design in ISO 9241-210[4] and system life cycle processes in ISO/IEC 15288[7]

Figure 2 illustrates the interdependence of these information items with the human-centred design activities described in ISO 9241-210[4] as well as the corresponding System Life Cycle processes described in ISO/IEC 15288.[7] The figure depicts the activities as a set of intersecting areas. The circles overlap to represent that the activities are not separate, but rather, overlapping in time and scope and the outcome of each activity provides the input to one or more other activities. As each human-centred design activity can provide input to any other, there is no starting point, no end point, or linear process intended.

Human-centred design relies on user needs that are first identified based on the Context of Use analysis. User needs are documented in the User Needs Report (ISO/IEC 25064), which is an intermediate deliverable that links the Context of Use Description (ISO/IEC 25063) that contains Information about the users, their tasks and the organizational and physical environment, to the user requirements. These items are developed during the Stakeholders Requirements Definition Process described in ISO/IEC 15288.[7]

The "Produce design solutions" activity focuses on designing user interaction that meets user requirements. This activity takes place during the Architectural Design, Implementation, and Integration processes described in ISO/IEC 15288[7] and produces the information items "User Interaction Specification" and the "User Interface Specification".

The "Evaluate" activity starts at the earliest stages in the project, evaluating design concepts to obtain a better understanding of the user needs. Design solutions can be evaluated multiple times as the interactive system is being developed, and can produce various types of evaluation report, and usability data such as that described in ISO/IEC 25062[20] can support the ISO/IEC 15288[7] validation process that confirms that the system complies with the stakeholder requirements.

Systems and software engineering — Systems and software product Quality Requirements and Evaluation (SQuaRE) — Common Industry Format (CIF) for usability: Context of use description

1 Scope

This International Standard specifies the contents of both high-level and detailed descriptions of context of use for an existing, intended, designed or implemented system, product or service.

The context of use description is applicable to software and hardware systems, products or services (excluding generic products, such as a display screen or keyboard). The description of the context of use is intended to be used as part of system-level documentation resulting from development processes such as those in ISO 9241-210 and ISO/IEC JTC 1/SC 7 process standards.

This International Standard does not prescribe any kind of method, life cycle or process.

The context of use information item can be integrated into any type of process model.

NOTE For the purpose of establishing process models, ISO/IEC TR 24774[16] and ISO/IEC 15504-2[9] specify the format and conformance requirements for process models, respectively. In addition, ISO/IEC 15289[8] defines the types and content of information items developed and used in process models for system and software life cycle management. ISO/IEC 15504-5[10] and ISO/IEC 15504-6[11] define work products, including information items, for the purpose of process capability assessment. Process models and associated information items for human-centred design of interactive systems are contained in ISO/TR 18529[13] and ISO/TS 18152[12], respectively.

This International Standard also describes the purposes for which context of use descriptions are used, and identifies the intended users of context of use descriptions.

While this International Standard specifies the required content elements of a context of use description, it does not prescribe any particular structure or layout for documenting the context of use.

2 Conformance

A description of the context of use conforms to this International Standard if it contains all the required elements specified in [Clause 5](#).

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

accessibility

extent to which products, systems, services, environments and facilities can be used by people from a population with the widest range of characteristics and capabilities to achieve a specified goal in a specified context of use

Note 1 to entry: Context of use includes direct use or use supported by assistive technologies.

[SOURCE: ISO 26800:2011, 2.1]

3.2

context of use

users, tasks, equipment (hardware, software and materials), and the physical and social environments in which a system, product or service is used

[SOURCE: ISO 9241-11:1998, 3.5, modified — In the definition, “product” has been replaced by “system, product or service”.]

Note 1 to entry: In this International Standard, equipment is described as part of the technical and technological environment.

3.3

effectiveness

accuracy and completeness with which users achieve specified goals

[SOURCE: ISO 9241-11:1998, 3.2]

3.4

efficiency

resources expended in relation to the accuracy and completeness with which users achieve goals

[SOURCE: ISO 9241-11:1998, 3.3]

3.5

goal

intended outcome

[SOURCE: ISO 9241-11:1998, 3.8]

3.6

human-centred design

approach to system design and development that aims to make interactive systems more usable by focusing on the use of the system; applying human factors, ergonomics and usability knowledge and techniques

Note 1 to entry: The term “human-centred design” is used rather than “user-centred design” in order to emphasize that this standard also addresses impacts on a number of stakeholders, not just those typically considered as users. However, in practice, these terms are often used synonymously.

Note 2 to entry: Usable systems can provide a number of benefits including improved productivity, enhanced user wellbeing, avoidance of stress, increased accessibility, and reduced risk of harm.

[SOURCE: ISO 9241-210:2010, 2.7]

3.7

information item

separately identifiable body of information that is produced and stored for human use during a system or software life cycle

[SOURCE: ISO/IEC 15289:2006, 5.11]

3.8

interactive system

combination of hardware, software and/or services that receives input from and communicates output to users

Note 1 to entry: This includes, where appropriate, packaging, branding, user documentation, online help, support and training.

[SOURCE: ISO 9241-210:2010, 2.8]

3.9**persona**

representation of a type of user that includes a concise summary of the characteristics of the user that is most informative to the design or illustrative of specific user requirements

Note 1 to entry: A persona typically includes behaviour patterns, goals, skills, attitudes, and environment, with a few fictional personal details to make the persona a realistic character.

3.10**requirement**

condition or capability that must be met or possessed by a system, system component, product, or service to satisfy an agreement, standard, specification, or other formally imposed documents

Note 1 to entry: Requirements include the quantified and documented needs, wants, and expectations of the sponsor, customer, and other stakeholders.

[SOURCE: ISO/IEC/IEEE 24765:2010, 3.2506]

3.11**satisfaction**

freedom from discomfort, and positive attitudes towards the use of the product

[SOURCE: ISO 9241-11:1998, 3.4]

3.12**stakeholder**

individual or organization having a right, share, claim, or interest in a system or in its possession of characteristics that meet their needs and expectations

[SOURCE: ISO/IEC 15288:2008, 4.29]

3.13**system**

combination of interacting elements organized to achieve one or more stated purposes

Note 1 to entry: A system may be considered as a product or as the services it provides.

Note 2 to entry: In practice, the interpretation of its meaning is frequently clarified by the use of an associative noun, e.g. aircraft system. Alternatively the word system may be substituted simply by a context-dependent synonym, e.g. aircraft, though this may then obscure a system principles perspective.

[SOURCE: ISO/IEC 15288:2008, 4.31]

3.14**task**

activities required to achieve a goal

[SOURCE: ISO 9241-11:1998, 3.9]

3.15**usability**

extent to which a system, product or service can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use

[SOURCE: ISO 9241-210, 2.13]

3.16**user**

person who interacts with a system, product or service

Note 1 to entry: A person who uses the output or service provided by a system. For example, a bank customer who visits a branch, receives a paper statement, or carries out telephone banking using a call centre can be considered a user.

[SOURCE: ISO 26800:2011, 2.10]

3.17

user experience

person's perceptions and responses that result from the use and/or anticipated use of a product, system or service

Note 1 to entry: User experience includes all the users' emotions, beliefs, preferences, perceptions, physical and psychological responses, behaviours and accomplishments that occur before, during and after use.

Note 2 to entry: User experience is a consequence of brand image, presentation, functionality, system performance, interactive behaviour, and assistive capabilities of the interactive system; the user's internal and physical state resulting from prior experiences, attitudes, skills and personality; and the context of use.

Note 3 to entry: Usability, when interpreted from the perspective of the users' personal goals, can include the kind of perceptual and emotional aspects typically associated with user experience. Usability criteria can be established so as to assess aspects of user experience.

[SOURCE: ISO 9241-210:2010, 2.15]

3.18

user interface

all components of an interactive system (software or hardware) that provide information and controls for the user to accomplish specific tasks with the interactive system

[SOURCE: ISO 9241-110:2006, 3.9]

3.19

user need

prerequisite identified as necessary for a user, or a set of users, to achieve an intended outcome, implied or stated within a specific context of use

[SOURCE: ISO/IEC 25064:2013, 4.19]

3.20

user requirements

usage requirements

requirements for use that provide the basis for design and evaluation of interactive systems to meet identified user needs

Note 1 to entry: User requirements are derived from user needs and capabilities in order to make use of the system in an effective, efficient, safe and satisfying manner.

Note 2 to entry: User requirements specify the extent to which user needs and capabilities are to be met when using the system. They are not requirements on the users.

Note 3 to entry: In software-engineering terms, user requirements comprise both "functional" and "non-functional" requirements based on user needs and capabilities.

[SOURCE: ISO/IEC TR 25060:2010, 2.21]

4 Purposes and types of context of use descriptions

4.1 General

The description of the context of use provides common information that is needed for use in conjunction with the other information items that are to be produced relating to human centred design. Information about the context of use provides a basis for designing a product that is usable in the intended context of use, and helps maintain a human-centred design focus within the project.

Context of use information can be captured in a variety of forms, and descriptions of the context of use can be formatted to meet the needs of particular audiences.

EXAMPLE 1 Sources of context of use information include:

- Documentation of conducted interviews with users.
- Documentation of observations of users in their real environment.
- Diaries completed by users over a period of time describing their real context of use.
- Documentation of conducted observations of users.
- Documentation of user performance measurements.
- Video files of individual users showing them in their real environment.

EXAMPLE 2 Examples of different representations that can be used to describe the context of use (or parts of the context of use) include:

- Complete descriptions of users, tasks, equipment (hardware, software and materials), and the physical and social environments that constitute a detailed context of use description using a structured format (such as [Annex C](#)).
- Narrative descriptions of the context of use (referred to as “scenarios of use”, “context scenarios”, “as is” scenarios or “problem scenarios”) for each user group, typically based on user interviews.
- Descriptions of users in terms of personas, which represent a type of user by providing a concise summary of characteristics of an instance of a user, and can include issues such as goals, tasks, skills, attitudes, and environmental conditions.

The most common types of context of use descriptions are listed below, described in more detail in the sub-clauses indicated. Depending on the particular design and development situation it could be necessary to describe some or all of these.

[4.2](#) Initial outline of the context of use

[4.3](#) Detailed context of use descriptions

[4.3.1](#) Current context of use

[4.3.2](#) Intended context of use

[4.3.3](#) Context of use specified as a part of user requirements

[4.3.4](#) Context of use of the implemented system, product or service

[4.3.5](#) Context of use of the deployed system, product or service

[4.4](#) Context of use for an evaluation

[4.5](#) Context of use as part of a system, product or service description

The potential users of each type of context of use description are listed in [Annex B](#).

A context of use description should be treated as an evolving repository of information. The content of the description will grow as an increasing amount of detail is added in the course of the design process.

NOTE Information about a particular context of use can be used in the development of more than one interactive system.

4.2 Initial outline of the context of use

An initial description of the context of use can be based on the assumptions of the project (often derived from the business case). At this stage it will not be complete, although some aspects, such as the potential users, will be known. For more details, see [Annex A](#).

4.3 Detailed context of use descriptions

4.3.1 Current context of use

Analysis of the context of use of existing or similar systems, products or services (including manual systems if appropriate) can provide information on a whole range of context issues including deficiencies and baseline levels of performance and satisfaction. Information about the current context of use can be used to identify needs, problems and constraints that might otherwise be overlooked, but which design of the future system should take account of.

NOTE 1 Some aspects of the current context will persist, even if the system is highly novel.

NOTE 2 If a product concept is available or an existing product (such as a predecessor or a competitive product) is used as the reference point for a new design, information in the current context of use will provide an outline of the goals of the users of such a product, their tasks and the way in which the tasks are to be performed that will be relevant for the intended context of use.

4.3.2 Intended context of use

The purpose of this description of the context of use is to provide a basis for designing the system, product or service for the types of users who are intended to use it, the tasks that are to be undertaken and the environment(s) in which it is intended to be used. It will incorporate the relevant aspects of the existing context of use, if there is one.

The intended context of use of a system, product or service might include changes to the current context of use.

EXAMPLE 1 A manufacturer of monitoring equipment, which is currently used by medical practitioners in clinical settings, wishes to respond to the increasing demand for monitoring equipment that can be used by patients, and their carers, in their own homes.

The context of use description should differentiate those components of the context of use that will remain fixed and those components of the context of use that can be subject to change.

EXAMPLE 2 When designing an interactive whiteboard for a primary school, the teaching room is part of the given technical environment, that can't be changed. When designing a whole teaching room, the teaching room can be designed in conjunction with the interactive whiteboard.

EXAMPLE 3 When designing a universal remote control, the products to be remote-controlled are part of the given technical environment, that can't be changed. When designing a remote control as part of a specific product, the remote control is part of the system to be designed.

NOTE The intended context of use will be refined iteratively, taking account of an evolving understanding of user and business needs and practical constraints including the development time and budget, until a realistic range of user types and characteristics, environmental characteristics and tasks can be specified as part of user requirements for which the system is required to achieve specified levels of usability.

4.3.3 Context of use specified as a part of user requirements

The context of use should be specified as a part of the user requirements specification to clearly identify the conditions under which the requirements apply. Each relevant user, task and environmental characteristic needs to be identified in order that the full range of contextual issues can be taken into account in design.

This makes the scope of user requirements explicit by defining the contexts of use in which the system product or service is required to achieve acceptable levels of usability (derived from the intended context of use).

NOTE The specified context of use could be documented separately for use in conjunction with the user requirements, or the relevant parts could be embedded in the user requirements.

Practical constraints could mean that the specified context of use is a subset of the originally intended context of use, or the results of user research could result in a specified context of use that is wider than the originally intended context of use.

4.3.4 Context of use of the implemented system, product or service

The description of the context of use of the implemented system, product or service is often more detailed than that specified as part of the user requirements, for example including details of tasks and user interactions. This additional information should be documented and should provide the basis for the specific context(s) to be used for evaluation (4.4) and context of use information that is included as part of the product description (4.5).

NOTE Any differences between the originally intended context of use, the context of use specified as part of the user requirements, and the context of use of the implemented system need to be identified, in case these differences could affect the usability of the system.

4.3.5 Context of use of the deployed system, product or service

The context of use of the system, product or service after deployment takes account of any new ways the system is being used, and is typically determined by follow-up evaluation studies.

NOTE Follow-up evaluation studies can be aimed at determining if the system/product/service is meeting its requirements or at determining how its use is evolving. For example, users often find ways of using the system to carry out tasks not included in the original context of use, or user groups not previously anticipated might start using the system. Differences between the specified context of use and the context of use of the deployed system may require changes in the design to accommodate the changed context of use.

4.4 Context of use for an evaluation

Depending on the purpose of the evaluation, the description of the context of use that is part of an evaluation report will be derived from the current context of use of an existing or implemented system, product or service, the intended context of use or the context of use in which user requirements apply.

The context of use for evaluation needs to be described as part of the test scenarios for user based testing, and for expert inspections when these are based on usage scenarios.

Some components of the context of use are not applicable for every type of evaluation (for example, tasks are not used for some types of inspections).

NOTE 1 For user-based testing, the context of use for evaluation needs to reproduce the key aspects of a subset of the context of use in order for evaluation results to be valid.

NOTE 2 A future CIF standard is intended to provide requirements and recommendations for the content of usability evaluation reports. When published, the provisions of that standard will supersede the provisions in this International Standard for the context of use to be used for evaluation.

4.5 Context of use information included in a product description

A product description intended for potential acquirers of interactive systems or users should include a description of the intended context of use of the product.

NOTE The level of detail can vary, for example a description on the Web might contain more detailed information than a printed product description.

5 Elements of a context of use description

5.1 General

5.1.1 Overview of requirements and recommendations

A detailed description of the context of use as described in [4.3](#) (current, intended, part of user requirements, for the implemented system and for the deployed system) shall include all the elements specified in [5.2](#) to [5.6](#).

Other types of context of use description described in [Clause 4](#) (initial outline, used for evaluations, used as part of a product description) only need to include the items indicated in the relevant columns in [Table 1](#).

Table 1 — Items that can be included in a context of use description

	Initial outline of the context of use	Detailed description of the context of use	Context of use as part of an evaluation report	Context of use as part of a product description
Subject of this context of use description (5.2)				
The system, product, service or concept (for which the context of use is being described).	shall	shall	shall	shall
The purpose of the system, product, service or concept from the perspective of the intended users of the context of use description.	shall	shall	shall	shall
Summary of any preconditions and/or constraints that affect the design of the interactive system.		shall		
User groups (5.3)				
Identification of all the user groups. Separate description of each distinctly different user group of the system, product or service.	shall	shall	shall[1]	shall
Identification of other stakeholders who could have an impact on the use of the system, product or service	shall	shall		
The relationship between each relevant user group and the system, product or service in terms of key goals and constraints.		shall		
The characteristics of each user group including any users whose physical or psychological characteristics are at the extremes of the normal range.		shall	shall[1]	
Description of characteristics that are judged to be likely to affect usability with an explanation of the basis for the judgement.		shall	shall*	
Goals (5.4)				
A list of the goals of the different user groups described as intended outcomes that people are trying to accomplish (including personal goals when relevant).	shall	shall	shall[2]	shall
Any goals defined by the organization that provides and/or develops the interactive system that are likely to affect usability.		shall		
Any responsibilities that are judged to be likely to affect usability		shall	shall*	
Tasks (5.5)				
A list of tasks that are to be carried out by each user group to achieve their goals.		shall	shall*	
For each task, the characteristics that are judged to be likely to affect usability with an explanation of the basis for the judgement.		shall	shall*	

Table 1 (continued)

	Initial outline of the context of use	Detailed description of the context of use	Context of use as part of an evaluation report	Context of use as part of a product description
Environment(s) (5.6)				
All actual or intended usage environments.		shall	shall*	
Characteristics that are judged to be likely to affect usability.		shall	shall*	
KEY shall = required, blank = optional, * = if applicable, [1] = the groups for which usability is being evaluated, [2] = the goals that are within the scope of the evaluation				

The assessment of which characteristics are likely to affect usability should be based on human factors knowledge and any previous experience with this type of system, product or service.

EXAMPLE It would not be necessary to include “sufficient electrical power” and “absence of vibrations” in the description of the context of use of office software, even though vibrations would negatively affect mouse pointing accuracy, and a power outage would stop the system altogether.

There is always some uncertainty about which characteristics of the context of use will definitely affect usability and which will not. Therefore the extent of the description of the context of use is a matter of judgement of the likelihood of the impact of each characteristic on usability. There are risks associated with either underspecifying or overspecifying the context of use.

A description of the current context of use can include any identified problems that are observed or reported (see 5.7).

5.1.2 Scope of the context of use

A context of use description can be of one instance of a context of use, or could include a range of contexts of use in which the system, product or service is used, or in which it is intended to be used.

The description could also clarify how the context of use changes with time (for example, users’ expertise, tasks and usage environments could change as users gain more experience with using a system).

5.2 Subject of the context of use description

5.2.1 System, product or service and its purpose

The system, product, service or concept (for which the context of use is being described) shall be identified.

EXAMPLE 1 A new planning tool for ergonomic seating design is to be developed. There is no similar product available, nor a detailed product specification. There is a concept of the product, focusing on the characteristics of the product’s capabilities, design guidelines and innovations to be introduced in the product.

The purpose of the system, product, service or concept shall be described. This description shall be from the perspective of the intended users of the context of use description (for example the development team).

NOTE This provides the basis for identifying and describing the context of use. It is important to identify and resolve any discrepancies between the intended or assumed purpose of the system, product or service, and the actual usage identified as a result of user research.

The scope of what is the subject of design or evaluation will determine what needs to be described as part of the context of use.

EXAMPLE 2 When designing or evaluating software for an existing model of cell phone, the software is the subject of the context of use description and the physical cell phone is part of the technical environment that is described in the context of use. When designing or evaluating a cell phone and its software, both the cell phone and the software are the subject of the context of use description (so the cell phone would not be described as part of the context of use).

5.2.2 Preconditions and constraints

In a detailed description of the context of use, preconditions or constraints that could affect the design of the interactive system in a way that affects the usability shall be summarized in the description of the subject of the context of use description and detailed in the relevant sections of the context of use description (typically the organizational environment).

NOTE This can be regarded as the context of use of the design and development process (but with different content to the context of use of a system, product or service).

The preconditions and/or constraints include design precondition and/or constraints, and organizational preconditions and/or constraints. The former are imposed from sources other than the organization developing the system, product or service whereas the latter are imposed by the organization itself.

Design preconditions and/or constraints (not imposed by the organization) include the following:

- Legal considerations (also jurisdiction);
- Available Information (e.g. existing knowledge, research findings);
- Business intelligence;
- Competition; and
- Seasonal determinants (e.g. number of users varies because of holiday season).

Development organizational preconditions and/or constraints (imposed by the organization) include the following:

- Corporate design;
- Budget constraints;
- Time constraints for the duration of development and deployment;
- Strategic focus of business;
- Confidentiality policies; and
- Access to users.

5.3 User population

5.3.1 Users and other stakeholder groups

All the user groups (existing or intended users, or for an evaluation report the groups for which usability is being evaluated) shall be identified.

Users include both:

- users directly interacting with the system; and
- users of the products or service provided by the system (indirect users).

Users can be classified as primary or secondary:

- primary users carry out the tasks that produce the intended output of the system; and
- secondary users carry out support tasks (such as administering or maintaining the system).

User groups can be differentiated by the tasks they are performing, their jobs, the environment in which they are using the system, product or service, or in terms of their characteristics, capabilities or personal style. If user groups have been identified but are not further documented for the system to be designed or evaluated, these user groups should be stated.

In an initial outline or detailed description of the context of use, the context of use description shall include other stakeholders who could have an impact on the use of the system, product or service (for example managers of users).

EXAMPLE 1 A medical advice call centre is set up supported by an online system. The staff in the call centre are users of the online system, and the callers receiving information are users of the service provided by the call centre. Administrators monitoring use of the system would be secondary users. Other stakeholders include the sponsors who might determine the care pathways to be followed.

NOTE 1 Applying a classification to the users of an interactive system provides information on which to base user needs research and user requirements specification.

EXAMPLE 2 The users of a mobile phone are expected to be 80 % English speaking, 10 % French speaking and 10 % speakers of other languages. User needs research will have to address users with different native languages and language specifics.

In a detailed description of the context of use, the relationship between each relevant user group and the system, product or service shall be described in terms of key goals and constraints.

NOTE 2 Important aspects of the context of use can be communicated using personas.

5.3.2 The characteristics of each user group

5.3.2.1 General

In a detailed description of the context of use and a context use for evaluation, the characteristics of each user group shall be documented.

The description of the characteristics shall include the range of actual or intended users including any users whose physical or psychological characteristics are at the extremes of the normal range.

NOTE 1 The inclusion of information about the characteristics and capabilities of users with disabilities will enable the design to take account of accessibility as well as usability objectives.

There are sometimes alternative ways of identifying user characteristics: either by describing the specific psychological, social, physical and sensory characteristics, or by identifying groups with specific tasks, job roles or demographics that are associated with particular characteristics.

NOTE 2 The characteristics of a user group can also be documented by exclusion, i.e. by describing who does not belong to the user group.

EXAMPLE "All users who are aged between 18 and 25".

5.3.2.2 Psychological and social characteristics

Any variations in psychological and social characteristics that are judged to be likely to affect usability shall be described in a detailed description of the context of use and when applicable in an evaluation report. An explanation of the basis for the judgement shall be provided. Any other variations in psychological and social characteristics that could potentially affect usability may also be identified.

The following list gives examples of characteristics that could be relevant:

a) Long term characteristics:

- Cognitive abilities, including memory and reaction time;
- Cultural background, including conventions, stereotypes and mindsets;
- Language(s); and
- Level of literacy.

b) Task-related characteristics:

- Knowledge and skills.

User expectations and mental models based on their previous experience can affect knowledge and skills. Even with a new product, people can have experience with similar products or a particular interaction style, so the type of previous experience needs to be understood:

- Motivation; and
- Expertise, power users.

c) Social and organizational characteristics:

- Resistance to change;
- Willingness to take risks;
- Depth and type of organizational structure; and
- Policy driven versus choice driven.

NOTE 1 ISO 9355-1:1999, [5] Annex A provides informative material describing aspects of people's information processing that are relevant.

NOTE 2 Users can vary in their understanding of products both in terms of the functionality they offer and the ways in which they are operated. Where the results of accumulated knowledge and prior experience are identified as sources of markedly different mental models of use, they can give rise to different user groups, whose characteristics need to be separately described, e.g. expert and novice users.

5.3.2.3 Physical and sensory characteristics

Any physical and sensory characteristics that are judged to be likely to affect usability shall be described in a detailed description of the context of use and when applicable in an evaluation report. An explanation of the basis for the judgement shall be provided. Any other characteristics that could affect usability may also be described.

The following list provides examples of characteristics that could be relevant:

a) Body dimensions.

NOTE 1 For information on the global distribution of the user population's body dimensions, see ISO 7250-1. [4]

b) Biomechanical capabilities.

NOTE 2 Variation of biomechanical skills (the ability of a person to use their body to perform a task) within populations is likely to be greater than variation between populations.

c) Haptic capabilities

NOTE 3 The ability to detect single or multiple touch of fingers or other parts of the body and distinguish forms with the fingers can be important for user interface design.

- d) Visual and auditory abilities. The possibility of various types of visual or auditory impairments should be taken into account.
- e) Handedness.

NOTE 4 While body sizes vary between ethnic groups, the distribution of functional characteristics (i.e. the visual, auditory, biomechanical and cognitive abilities) can be considered as equivalent for user interface design.

EXAMPLE An operator for a machine control must have a good visual and haptic ability to see and recognize and operate machine controls as well as the physical capability to manipulate large mechanical handles.

5.3.2.4 Demographics

Any demographics that are judged to be likely to affect usability shall be described in a detailed description of the context of use and when applicable in an evaluation report. An explanation of the basis for the judgement shall be provided. Any other demographics that could affect usability may also be described.

NOTE 1 Demographics identify groupings of particular physical, sensory, psychological and social characteristics.

NOTE 2 For a context of use for evaluation, many general physical and psychological characteristics (such as strength, visual acuity and cognitive capabilities) can be adequately sampled through demographic variables such as age, gender and education. The main exceptions are relevant previous experience, specialized knowledge or skills and culture.

EXAMPLE 1 Age has profound effects on both psychological and physical user characteristics. Thus it is always important to know the age range of the intended user population.

EXAMPLE 2 Gender especially affects physical differences, body dimensions and strength.

5.4 Goals and responsibilities of the user group and the organization

5.4.1 User group goals

A list of the goals of the user groups identified in [5.3.1](#) shall be provided (for an evaluation report, the goals that are within the scope of the evaluation), expressed in terms of intended outcomes that people are trying to achieve, and without reference to any specific means of achieving them.

NOTE When used for design, this will help shape the concept of an interactive system.

User group goals can be derived from organizational goals ([5.4.2](#)) or responsibilities ([5.4.3](#)).

When the user's personal experience is important, relevant goals **can** also include the individual's personal goals meeting needs such as to acquire new knowledge and skills, to communicate personal identity and status and to provoke pleasant memories.

In most cases, the list of goals can be limited to the most important, frequent or representative goals.

Goals can be documented in a hierarchical way to document their relative importance and the dependent goals if appropriate. A detailed hierarchy and analysis of the goals can be elaborated during user research activities like user needs analysis and user requirements specification.

For a consumer product, creative concepts from existing products can provide input to the list of user goals. If the list of user goals (or tasks, see [5.5.1](#)) is based on assumptions (e.g. from creative concepts or from organizational sources), the user goals stated in the early versions of a context of user description should be qualified as assumptions, to be verified and detailed during subsequent human-centred design.

It is important to identify any discrepancies between the intended or assumed goals for the system, product or service, and the goals identified as a result of user research. Discrepancies can also occur because different user groups have different goals. These differences will need to be analysed and to be resolved in the requirements specification.

5.4.2 Organizational goals and policies

In a detailed description of the context of use, any goals and policies defined by the organization that implements the interactive system that are judged to be likely to affect usability shall be described, and be listed and denominated as such in the context of user description. An explanation of the basis for the judgement shall be provided. Any other goals and policies that could affect usability may also be described.

The following list gives examples of organizational goals and policies that could be relevant:

- task performance times;
- efficiency metrics;
- payment procedures;
- design guidelines;
- corporate design policy;
- promoting specific products and services; and
- security issues.

NOTE To avoid a mix-up of organizational goals and user goals it is important that organizational goals are clearly differentiated from the user's perspective. A contradiction of user goals and organizational goals might also occur. Where such contradictions occur, it is not the role of the context-of-use description to attempt to resolve these contradictions, but merely to identify their occurrence.

EXAMPLE The organization states that entering a phone number is essential for authentication of user data and provides important marketing data. User research indicates that users would prefer not to provide this data.

5.4.3 Responsibilities

Any responsibilities that are judged to be likely to affect usability shall be described in a detailed description of the context of use and when applicable in an evaluation report, if they could potentially influence the design or evaluation of the system, product or service. An explanation of the basis for the judgement shall be provided. Any other responsibilities that could affect usability may also be described.

Jobs often create responsibilities that will result in user goals.

Consumers can also accept responsibilities (for example when using internet resources).

5.5 Tasks of the users

5.5.1 Task attributes

A list of tasks that are to be carried out by each user group to achieve their goals shall be included in the context of use description in a detailed description of the context of use and when applicable in an evaluation report.

NOTE The level of detail used to describe tasks will depend on the complexity of the tasks.

In a detailed description of the context of use and when applicable in an evaluation report, any characteristics of each task that are judged to be likely to affect usability shall be described, and any

other characteristics that could affect usability may also be described. An explanation of the basis for the judgement shall be provided.

The following list gives examples of task attributes:

- a) goal of carrying out the task;
- b) task result or outcome;
- c) the frequency and importance of the tasks;
- d) variability in inputs to be handled;
- e) information needs related to the task;
- f) any potential negative consequences if the task is not completed or is completed incorrectly;
- g) task duration;
- h) task complexity;
- i) task invariance, or flexibility and discretion in whether and how to carry out the task;
- j) task dependencies;
- k) serial/parallel activities;
- l) roles and responsibilities of those performing the task;
- m) allocation of function between people, and between people and technology; and
- n) task load (see ISO 10075-2[6]).

If the list of tasks is based on assumptions based on creative concepts or use of a similar existing system, product or service, the tasks stated in the early versions of a context of use description should be qualified as assumptions, to be verified and detailed during subsequent human-centred design.

5.5.2 Task representations

Tasks will usually need to be analysed and represented. This information is logically part of the task element of a context of use description, but is usually documented separately.

The following techniques are examples of task representations:

- a) workflow diagrams;
- b) task sequences;
- c) user/task matrices;
- d) procedural descriptions of tasks;
- e) task flowcharts and hierarchies; and
- f) task scenarios.

NOTE Task scenarios are sometimes called use cases, scenarios, user stories, epics, task storyboards.

These techniques provide information that can be used as an input to the user interaction specification.

5.6 Environment(s) of the user

5.6.1 General

Identify all actual or intended usage environments. Each separate facility or environment should be described separately.

5.6.2 Technical and technological environment

In a detailed description of the context of use and when applicable in an evaluation report, the used, intended or anticipated computing or other technological facilities that are judged to be likely to affect usability shall be described. An explanation of the basis for the judgement shall be provided. Any other used, intended or anticipated computing or other technological facilities that could affect usability may also be described.

The following list gives examples of the technical and technological environment:

- a) tools, equipment and support materials;
- b) hardware configuration(s): e.g. processor speed, memory size, network, storage, input, and output devices;
- c) screen(s): e.g. resolution, and colour depth; if relevant, also include display (monitor) size and whether multiple monitors are used;
- d) input device(s): e.g. keyboard, pointer device, touchscreen, camera;
- e) software configuration(s): e.g. browser version, operating system version, database;
- f) connectivity: e.g. hard wired internet, wireless internet, cell network, stand alone not connected;
- g) mobility: e.g. single fixed physical environment, multiple similar physical environments, multiple dissimilar environments;
- h) assistive technologies available to users with disabilities;
- i) documentation and information (paper or online); and
- j) personal protective equipment.

NOTE For custom products the facilities could be quite precise, for consumer products the technical environment could be described as an acceptable range or an anticipated environment.

5.6.3 Social/organizational environment

In a detailed description of the context of use and when applicable in an evaluation report, the social and organizational environment(s) that are judged to be likely to affect usability shall be described. An explanation of the basis for the judgement shall be provided. Any other social and organizational environment(s) that could affect usability may also be described.

The following list gives examples of the social and organizational environment:

- a) group work dynamics, leadership and team morale;
- b) time pressures and constraints;
- c) interruptions;
- d) supervisory practices;
- e) monitoring conditions and incentives;

- f) support or availability of assistance;
- g) use alone or as a member of a group;
- h) organizational culture and values;
- i) management system requirements;
- j) social connectivity;
- k) inter-organizational responsibilities and obligations;
- l) legal constraints; and
- m) shared information.

NOTE The information environment could include: a) Information source, e.g. totally internal, mixed, totally external; b) Information destination, e.g. totally internal, mixed, totally external; c) Information reliability, e.g. precise, generally correct, estimated; d) Information time sensitivity, e.g. dynamically changing information, static information.

EXAMPLE 1 Due to security policies, users of an Enterprise Data System have no access to external websites. Deployment of product support must consider availability of web based help, documentation and/or update management.

EXAMPLE 2 Users of call-centre software are likely to work under stress and will have keep in mind that their phone communication could be monitored for quality reviews.

5.6.4 Physical environment

In a detailed description of the context of use and when applicable in an evaluation report, the physical environment(s) that are judged to be likely to affect usability shall be described. An explanation of the basis for the judgement shall be provided. Any other physical environment(s) that could affect usability (for example if a product might be used outside its usual environment) should also be described.

The following list gives examples of the physical environment:

- a) space;
 - b) time, location;
 - c) workplace characteristics;
- EXAMPLE Open-plan office, multi person office, single user workstation, control room, shop floor, vehicle.
- d) lighting, sunlight, darkness;
 - e) extreme temperatures;
 - f) ambient noise, traffic;
 - g) motion or crowding; and
 - h) vibrations.

For other examples see ISO 9241-5[22], ISO 9241-6[23] and ISO 11064-6[24].

5.7 Problems

5.7.1 General

The description of an existing context of use can include any identified problems that are observed or reported.

NOTE 1 Problems can be related to the performance of the whole system, or particular components of the context of use.

NOTE 2 Identified problems can be an input to a User Needs Report (ISO/IEC 25064), and are documented using the same structure as in ISO/IEC 25064.

5.7.2 Problems description

Problems can be identified in trouble reports, from customer service representatives, and by user surveys, focus groups, etc.

The following information should be provided when documenting a problem:

- Description of the problem in terms of what is wrong or seems to be wrong (e.g. user cannot perform a particular activity, system crashes when user does x);

EXAMPLE 1 System crashes when users enter incorrect code for purchase item.

- Source of identified problem (trouble reports, surveys, etc.);

EXAMPLE 2 Trouble reports, customer service representatives reports.

The following information could also be provided when the problem is likely to be further analysed:

- Probable cause (judgement as to what might most likely caused the problem);

EXAMPLE 3 Incorrect code error processing routine not functioning properly.

- Probable effect (positive and negative);

EXAMPLE 4 Lost sales of items in online catalogue and decrease in customer satisfaction.

- Value of resolving (e.g. cost/benefit).

EXAMPLE 5 Cost of solving estimated to be 6 h of programmer's time with a benefit of more sales and higher customer satisfaction.

5.7.3 Deficiencies in effectiveness, efficiency or satisfaction

Deficiencies in effectiveness, efficiency or satisfaction occur when the output of the task or the resources that it takes are not acceptable and/or the user is not satisfied with the system, product, service or task.

The following information should be provided when documenting a deficiency:

- Condition under which the deficiency occurred;

- User group that produced the deficient output;

EXAMPLE 1 Customer Service Representatives.

- Description of the output (including its characteristics, e.g. format, media);

EXAMPLE 2 Verbally and in print (if requested) proposed solutions for customers' problems with software.

- Requirement for the effectiveness and/or efficiency and/or satisfaction);

EXAMPLE 3 Solution has to be correct, provided within 10 min, and customers must be satisfied (rating at least 5 on a 7 point scale).

- Deviation from the requirement (e.g. missing data, incorrectness of information, response time deviation);

EXAMPLE 4 Solutions are incorrect 20 % of the time, provided in over 10 minutes 40 % of the time and customer satisfaction averages 4 on the 7 point scale, users report high levels of stress.

- Source of identified deficiency (subject matter experts, supervisor, trouble reports, etc.);

EXAMPLE 5 Supervisor information and customer satisfaction surveys.

- Method of measurement (e.g. errors, time measurements, satisfaction score);

EXAMPLE 6 Errors (as reported by customer follow-ups and supervisor reviews, task time and satisfaction scores (from customer satisfaction surveys).

- Cause(s), penalties and value of solving (e.g. cost/benefit).

EXAMPLE 7 Causes: lack of sufficient information on system features and problem solutions available in database; Penalties: loss of business by unhappy customers.

Annex A (informative)

Initial outline of the context of use

An initial outline of the assumed context of use can be based on the assumptions of the project (often derived from the business case). Even for new products with an intended innovation, some aspects of the context of use (such as the potential users) will be known. A high-level description of the context of use can provide a basis for identifying users and undertaking user needs analysis. In turn, the identified user needs (that can be documented in the user needs report, ISO/IEC 25064) provide information that can be used to verify and elaborate the context of use. Such a “high-level” context of use might contain a number of more conceptual statements and assumptions, and might not cover all elements of the context of use.

Even in projects where the existing context of use will change (e.g. for new products, an intended innovation or a change to the current use model) an outline of the assumed context of use is a useful first step.

NOTE Typical formats for documenting high-level context of use descriptions can include lists of user groups including their major attributes (e.g. responsibilities and frequent tasks) and summary illustrations of users groups (persona descriptions).

EXAMPLE [Table A.1](#) shows the type of high-level information that might be provided for one of several user groups.

Table A.1 — Example of a high level description of the context of use

Context of Use Element	Group 1	Group 2	...
System, product or service	Aid to parking		
General title of user group	Car drivers		
Example job titles (if relevant)	Driving for work, domestic and leisure use		
Demographic data (if relevant) (Age, Gender, specific physical attributes)	All those holding a driving license — Male or female — Age over 18		
Goal	— To park a car		
Assumed tasks to be supported and assumed task competence	— Get the car out of the flow of traffic into a place where it can be left		
Assumed organizational / social environment	— No one available to assist		
Assumed physical environment	Weather, road conditions, available parking places		
Assumed equipment used for task completion	Passenger car		

Annex B (informative)

Users of the context of use

Context of use descriptions are intended for the following types of uses and users; listed below in terms of their use situation identified in ISO/IEC/TR 25060.^[19]

- a) High-level statement of the context of use:
 - Business Analysts, Requirements Developers or Usability and Accessibility Specialists specifying user requirements for a product to be developed or identifying requirements for improving an existing product;
 - Product managers estimating required resources for a development based on specified requirements;
 - Marketing Specialists monitoring that market requirements are met in development.
- b) Current context of use:
 - Developers, Requirements Developers or Usability and Accessibility Specialists identifying requirements for improving an existing product.
- c) Intended use of an interactive system:
 - Business Analysts, Requirements Developers or Usability and Accessibility Specialists specifying user requirements for a product to be developed or identifying requirements for improving an existing product;
 - Product managers estimating required resources for a development based on specified requirements;
 - Marketing Specialists monitoring that market requirements are met in development.
- d) Specifying the context of use in which user requirements apply:
 - Business Analysts, Requirements Developers or Usability and Accessibility Specialists specifying user requirements for a product to be developed;
 - Quality Managers conducting comparative evaluations of products based on specified requirements.
- e) Context of use for evaluations:
 - Usability specialists setting up usability evaluations;
 - Usability specialists associated with preparing reports of product usability for product descriptions;
 - Business Analysts deciding on “make or buy” based on specified requirements, or conducting comparative evaluations of products based on specified requirements.
- f) Context of use as part of product description:
 - Business Analysts or Corporate purchasers specifying requirements as the basis for a comparison between potentially suitable products;
 - Suppliers providing evidence that products meet specified requirements;

- Corporate purchasers collecting requirements as the basis for a comparison between potentially suitable products;
- Marketing Specialists providing evidence that products meet specified requirements;
- Retail Shop Owners proposing specific products based on specific customer needs;
- Union Representatives and staff councils assessing evidence whether products meet specified requirements.

Annex C

(informative)

Example of a context of use checklist

[Table C.1](#) is an example of a checklist of issues that could be relevant in a professional working environment. (A different checklist would be needed for other types of context of use, for example, for consumer products.)

Any characteristics that are likely to affect usability need to be described, and that could affect usability could be described. Characteristics that are unlikely to affect usability, or that have already been accounted for in another category, can be ignored.

Table C.1 — Example of a context of use checklist

1.1		User Groups	<p><i>Decide whether the users need to be considered as distinctly different groups.</i></p> <p>Dividing users into groups can incur significantly more work, and therefore <i>should</i> only be carried out where the differences are likely to affect usability.</p>
1.1.1		User types being considered	<p><i>Decide whether different user types need to be identified.</i></p> <p>If the user population contains groups of people who use the system to perform different sets of tasks, or who have considerable differences in ability or experience, then divide them into separate user groups.</p> <p>EXAMPLE Users with disabilities can have different requirements and abilities compared to able-bodied users; accounts clerks who regularly use a system might have different levels of ability and requirements compared with managers who need to access the same system occasionally.</p> <p>When listing user groups, use the formal job title of the user group; for example Systems Analyst, Trainee Programmer, or a description of their most salient features, e.g. expert frequent user, occasional user.</p>
	a)	User groups identified.	<i>List the user groups you have identified.</i>
	b)	User groups to be described	<p><i>List each user group from a) above that needs to be described separately.</i></p> <p>This is the first occasion when filling in the Context of Use form that you will need to consider the <i>Context of use for evaluation</i>. When listing which of the user types identified in a) above are going to be involved in the evaluation, you will need to take several factors into account:</p> <ol style="list-style-type: none"> 1) What is the relative importance of the different user groups? 2) If planning an evaluation, you will need to consider resource constraints. How many users will you have access to? (If you require statistical reliability of measures and metrics, a minimum of 10 of each type is usually recommended). Will the cost of their time and expenses be included in the overall budget? Does the budget cover the time needed to analyse several groups of users?? Will any future evaluations which are to be used for metrics comparison have access to users of the same type? Do you have access to the same type of users for any systems that are being used for comparison with this product? <p>NOTE If you have selected more than one user type, you will need to complete Subsections 1.2 - 1.6, Section 2, and possibly Sections 3, 4 and 5 for each of these types.</p>
1.1.2		Secondary or indirect users who:	

Table C.1 (continued)

	a)	interact with the product	<p>List any individuals who interact with the product, but not for its primary purpose.</p> <p>An example is an engineer who is required to service and maintain the product. In some cases, where you realise that these users do make significant use of the product, it will be appropriate to 'promote' these other users to be one of the identified user types; however, in most cases it will just be necessary to list them as other users.</p>
	b)	are affected by its output	<p>List any individuals who do not interact with the product, but rely upon output produced by the users.</p> <p>This can include individuals who do not interact with the product, but use the results produced to carry out their own tasks. An example is shoppers who use the receipts produced by electronic tills to check their shopping bills without directly interacting with the till.</p>
1.2		Psychological and social characteristics	<p>This subsection asks you to provide some details about the formally and informally acquired skills and knowledge of each of the user types listed for Question 1.1.1.</p> <p>REMINDER If there is more than one user type, then the following sections should be completed separately for each user type you selected in Section 1.1.1.b.</p>
1.2.1		Training and experience in the processes and methods which the product supports	<p><i>How much practical experience does this group of users have in performing, either manually or with any automated system, the tasks that this product supports?</i></p> <p>EXAMPLE For a financial package, how much experience do these users have of the accounting procedures performed using each of the product's main functions? Without experience of accounting procedures, it could be difficult to use some functions. Or for an ATM (cashpoint machine), when a task is withdrawing money from a bank account, if users are experienced in withdrawing money over the counter, but not in using the cashpoint, their experience with the product will be low, but task experience considerably higher.</p>
1.2.2		Experience in:	
	a)	using the product	<i>How much practical experience have users had in using the product for its main functions?</i>
	b)	using other products with similar main functions	<p><i>How much practical experience have these users had in using other products performing similar functions?</i></p> <p>List for each main function.</p>
	c)	using products with the same interface style or operating system	<p><i>For computer-based products only: state how much practical experience users have in using the operating system or environment on which the product is based.</i></p> <p>EXAMPLE For a UNIX®-based product, state experience with other UNIX®-based applications; for a WINDOWS® -based product state experience with other WINDOWS®-based applications.</p>
1.2.3		Training in	<p>This includes formal training as well as less formal methods such as open learning packages, video instruction or training manuals.</p> <p><i>State the amount of training users have received in each of the following areas:</i></p>
	a)	tasks supported by the products main functions	<i>In performing tasks supported by the product's specific functions (as listed for Product Question 1.1.4), manually or with any automated system.</i>
	b)	using the products main functions	<i>In using the product itself to perform the specific functions, as listed in the Product Report.</i>
	c)	using other products with similar main functions	<i>In using other products to perform similar functions.</i>

Table C.1 (continued)

	d)	using products with the same interface style or operating system	<p><i>For computer-based products only: In using the same operating system or environment, or other products based on it.</i></p> <p>EXAMPLE A one day course of instruction in using WINDOWS™.</p>
1.2.4		Qualifications	<p><i>What range and distribution of qualifications might members of this user group typically have?</i></p> <p>Include formal and informal qualifications; e.g. degrees, apprenticeships.</p>
1.2.5		Relevant input skills	<p><i>What input device skills do they possess?</i></p> <p>EXAMPLE Regular user of mouse; touch typing (60 to 90 wpm), fast two finger typing or slow 'hunt and peck; familiarity with a touch screen, etc.</p>
1.2.6		Linguistic ability	<p><i>State any deficiencies users could have in the language in which the product and its documentation have been written.</i></p>
1.2.7		Background knowledge	<p><i>Is there any general background knowledge that is indirectly relevant to the users' performance of tasks with the product?</i></p> <p>Background knowledge is knowledge which is not directly connected to the product, the task, or IT, but which users could have due to membership of a social, cultural, organizational, regional, national or religious group. An example of background knowledge could be that company telephone operators are not on duty after 6.00pm.</p>
1.2.9		Intellectual abilities	
	a)	distinctive abilities	<p><i>Do the users possess any distinctive intellectual abilities?</i></p>
	b)	specific mental disabilities	<p><i>Do the users have any specific relevant mental disabilities?</i></p>
1.2.10		Motivations	<p><i>How positive or negative are the attitudes which the users display?</i></p> <p>(give reasons where helpful):</p> <p>EXAMPLE Highly satisfying work despite low rates of pay, proud of products produced, suspicious that the introduction of IT will lead to loss of jobs, lack of trust with higher management.</p>
	a)	attitude to job and task	
	b)	attitude to the product	
	c)	attitude to information technology	
	d)	employees attitude to the employing organization	
1.3		Physical and sensory characteristics	<p><i>This subsection is concerned with the physical characteristics of the user type.</i></p>
1.3.1	a)	Age range	<p><i>What is the age range of the user type?</i></p> <p>EXAMPLE Age ranges between 16 and 70 years.</p>
	b)	Typical age	<p><i>If appropriate, state the typical age of this user group.</i></p>
1.3.2		Gender	<p><i>What is the male/female distribution of the user type?</i></p> <p>EXAMPLE 10 % male, 90 % female</p>

Table C.1 (continued)

1.3.3		Physical limitations and disabilities	<p><i>Describe any physical limitations or disabilities of the user type.</i></p> <p>This includes general physical limitations - such as reach distances, as well as physical disabilities. Examples of such disabilities are short sightedness, colour blindness, loss of hearing, loss of limbs, reduced psychomotor capabilities</p>
1.4		Social/ organizational environments	<p>This section is concerned with details about the jobs carried out by users, i.e. collections of tasks.</p> <p>If the product is not being used in a work environment, then this subsection will not be relevant. If this is the case, go straight to Subsection 1.6.</p>
1.4.1		Job function	<p><i>What is the purpose of the user's work?</i></p> <p>List the main objectives and responsibilities of the job, as carried out by the user</p>
1.4.2		Job history	
	a)	how long employed	<i>Typically, how long have users been employed by the organization?</i>
	b)	how long in current job	<i>How long have users been doing their current job in this organization?</i>
1.4.3		Hours of work / operation	
	a)	hours of work	<p><i>What hours do users work?</i></p> <p>Provide details about the hours of work of the user, including shift work, irregular hours, home working hours, etc.</p>
	b)	hours using product	<p><i>What hours do users spend using the product?</i></p> <p>Provide details about when the product will be used; for example, the product is used throughout the shift which can either be early, i.e. 0500-1300 hours or late i.e. 1300 to 2200 hours. Workers alternate between weeks on early and late shifts.</p>
1.4.4		Job flexibility	<i>Can users decide how to approach the job, organize their time and carry out tasks?</i>
1.6		Tasks	<p><i>Define the tasks for each user type.</i></p> <p>What constitutes a task is determined by the major functions of the product (i.e. the major productive goals which a user can achieve using the product), as listed for Question 1.4 (Major Functions) in the Product Report.</p> <p>In almost all cases, there will be more than one task. You are asked to list all tasks users carry out with the product, and then to select those you think <i>should</i> be evaluated.</p>
	a)	tasks identified	<i>List all tasks that users perform using the product.</i>

Table C.1 (continued)

	b)	tasks for usability evaluation	<p><i>If defining the context of use for evaluation, list each task from a) that you consider should be carried out in the evaluation.</i></p> <p>As with question 1.1.1.b., you have to make a decision concerning the <i>Context of use for evaluation</i> of the product. When selecting which of the above tasks are going to be included in a usability evaluation, you will need to consider:</p> <ol style="list-style-type: none"> 1) Resource constraints. How long will the tasks take? Will the budget cover the users' and analysts' time? 2) Frequency and criticality of the tasks for the intended users. It will make sense to evaluate tasks that are more critical than others, or that will be performed more frequently. 3) Future evaluations. If it is possible that a future version of the product will be evaluated, and the metrics from this study used as a baseline, will the functions supporting the task be included in the future version? 4) If a comparison of different systems is to be made, do the other systems allow these tasks to be carried out? Only equivalent tasks can be used for any comparative study. <p>It could be that the system under evaluation allows certain functions to be performed that the product being used for comparison does not. If you are interested in these functions, you will have to include tasks that employ them. You could perhaps perform comparative tasks on the other product using the best means available (e.g. pencil and paper - as would have to be the case if a person using the other product wanted to carry out that task). Alternatively, you could ask users to carry out the advanced task and use the measures for comparison with future evaluation results.</p> <p>As with all other tasks, observation of users carrying out these tasks will be useful for providing valuable information about how improvements can be made to these functions of the product.</p> <p>NOTE If you have selected more than one task you will need to complete Section 2 for each of these tasks.</p>
2		Task Characteristics	<p>The features of each task.</p> <p>It is important to avoid describing the task in terms of the products that could be used to carry it out - the answers to this section <i>should</i> be product-independent.</p>
2.1		Task goal	<p><i>What is the main objective of performing the task?</i></p> <p>EXAMPLE To obtain money from bank account as quickly and easily as possible, to type a letter with no mistakes in the minimum amount of time.</p>
2.2		Choice	<p><i>Can users choose whether or not to use the product to achieve their goals?</i></p> <p>EXAMPLE Users can obtain money from the bank using the ATM, but during bank opening hours are also able to withdraw money over the counter.</p>
2.3		Task output	<p><i>What are the outputs from the task?</i></p> <p>State the contents and medium of the output.</p> <p>EXAMPLE A complete letter with no mistakes, printed on paper, folded and sealed in a correctly addressed envelope.</p> <p>[If this questionnaire is being answered for the purpose of a usability evaluation, Questions 2.2 (Task Goal) and 2.4 (Task Output) are essential, and you <i>should</i> spend time completing them. Measures of usability will be made against users' success in completing task goals, which can only be measured by task output.</p>
2.4		Risks	<p><i>Are there any risks if the task is not completed or is completed incorrectly?</i></p> <p>EXAMPLE User could save file and accidentally overwrite another existing file.</p>

Table C.1 (continued)

2.5		Task frequency	<p><i>How frequently is the task normally carried out?</i></p> <p>EXAMPLE Continuously throughout the day, three or four times a day, once a week etc.</p>
2.6		Task duration	<p><i>How long does the task generally take the user?</i></p> <p>EXAMPLE Duration ranges between 20 and 35 min. In 90 % of cases it takes between 25 and 30 min.</p>
2.7		Task flexibility	<p><i>Do users have to follow a pre-defined order when carrying out the task?</i></p> <p>EXAMPLE Users are not obliged to follow a pre-defined order, although they normally will due to force of habit.</p>
2.8		Physical and mental demands	
	a)	Factors which make task demanding	<p><i>Describe any factors that could make the task physically or mentally demanding.</i></p> <p>EXAMPLE Task requires complex split-second decisions to be made.</p>
	b)	How demanding in comparison with others	<p><i>How demanding is this task compared to the other tasks in the evaluation?</i></p> <p>EXAMPLE Setting up a spread sheet will be more mentally demanding than entering data onto the same spread sheet.</p>
2.9		Task dependencies	<p><i>What information or resources are required by the users in order to perform the task?</i></p> <p>EXAMPLE An audiotape of dictation, a supply of paper and envelopes, etc.</p> <p>If there are any potential problems in the dependencies being satisfied, these should be noted here.</p>
2.10		Linked tasks	<p><i>Does the user normally carry out the task as part of a set procedure?</i></p> <p>If so, list the tasks that would normally precede or follow this task.</p> <p>EXAMPLE Bank staff processing a loan request must always carry out a credit check before processing the loan.</p>
2.11		Safety	<p><i>To what extent is this task hazardous to the health or lives of the user or other individuals?</i></p> <p>EXAMPLE Commissioning a gas burner which might explode if set incorrectly</p>
2.12		Criticality of the task output	<p><i>How critical is the output of the task?</i></p> <p>Note here if the task output is critical in terms of safety, security or financial integrity.</p> <p>EXAMPLE Writing software that is to be used to control aircraft in flight, or setting up a spread sheet controlling the flow of large amounts of money.</p>
3		Organizational Environment	<p>The social or organizational environment in which the work is carried out will affect the way a job is done, the way a product is used, and consequently the usability of the product. This section is concerned with the structure, attitudes and culture of the user's organization.</p> <p>If the product is being used by an individual for his or her own purposes, parts of this section will not be relevant and can be ignored.</p> <p>If two or more user types have been identified for separate evaluation, then it could be necessary to fill in this section for each of those types.</p>
3.1		Structure	<p>The nature of working relationships, and the flow of information between individuals in the organization.</p>

Table C.1 (continued)

3.1.1	Group working	<p><i>Does the user do the task alone, or in collaboration with other individuals or groups of individuals?</i></p> <p>If the user collaborates with other individuals, specify their roles and their relationship with the user.</p>
3.1.2	Assistance	<p><i>Can assistance be obtained if the user has a problem?</i></p> <p>Assistance includes the immediate assistance from colleagues in the workplace, as well as assistance via an internal or external telephone 'help line'</p>
3.1.3	Interruptions	<p><i>How frequently is the user generally interrupted while carrying out the task?</i></p> <p>Describe the frequency and nature of the interruptions.</p> <p>EXAMPLE An average of three telephone interruptions per hour.</p>
3.1.4	Management structure	<p><i>Who has direct influence on the user's work in the organization?</i></p> <p>Describe the responsibilities of these individuals, and their relationship with the user.</p> <p>If the product is being used by an individual for his or her own purposes, this question will not be relevant.</p>
3.1.5	Communications structure	<p><i>How does information that is related to the user's task flow between individuals inside and outside the organization?</i></p> <p>Describe the main means of communication between colleagues and/or customers, and the relationships between these individuals.</p> <p>If the product is being used by an individual for his or her own purposes, this question will not be relevant.</p>
3.2	Attitudes and Culture	<p>This subsection explores the enduring aims, objectives, opinions and common practices demonstrated or espoused by the members of the organization within which the product is used.</p> <p>If the product is being used by an individual for his or her own purposes, this section is not relevant.</p>
3.2.1	IT Policy	<p><i>What is the organization's policy on the introduction, acquisition and usage of Information Technology?</i></p> <p>EXAMPLE The organization is committed to computerising all of its procedures over the next 10 years.</p> <p>This question will not be relevant for non - IT products.</p>
3.2.2	Organizational aims	<p><i>What are the roles, objectives and goals of the user's organization?</i></p> <p>These could be addressed in an organization's 'mission statement'.</p>
3.2.3	Industrial relations	<p><i>What is the status of industrial relations within the company?</i></p>
3.3	Worker/User Control	<p><i>This subsection is concerned with the factors that affect productivity and quality. If the product is being used by an individual for his or her own purposes, this subsection might not be relevant.</i></p>
3.3.1	Performance monitoring	<p><i>How is the quality and speed of the user's work monitored and assessed?</i></p> <p>EXAMPLE Operators are continuously monitored for speed by computer link.</p>
3.3.2	Performance feedback	<p><i>How do users receive feedback about the quality and speed of their work?</i></p> <p>EXAMPLE Each week all workers are publicly informed of their productivity; staff have a six-monthly review where their work is discussed with line managers.</p>
3.3.3	Pacing	<p><i>How is the rate at which users carry out work controlled?</i></p> <p>EXAMPLE For banking staff, there is customer queue pressure at busy periods; for factory staff, work is paced by the speed of the conveyor belt.</p>

Table C.1 (continued)

4		Technical Environment	<p>This section is concerned with the technical environment in which the product is used.</p> <p>If two or more user types have been identified for separate evaluation, then it could be necessary to fill in this section for each of those types.</p>
4.1		Hardware	
	a)	required to run the product	<p><i>What hardware is needed to run the product?</i></p> <p>EXAMPLE Examples of hardware are items like the processor, storage devices, input and output devices, networks, gateways, other user equipment.</p>
	b)	likely to be encountered when using the product	<p><i>What hardware is likely to be encountered when using the product?</i></p> <p>List other hardware usually associated with the product and its user interface environment.</p> <p>EXAMPLE When using a personal computer, users will often need to produce output on a printer.</p>
4.2		Software	
	a)	required to run the product (e.g. operating system)	<p><i>What software is needed to run the product?</i></p> <p>This can include the operating system or user interface environment.</p> <p>EXAMPLE WINDOWS™ could be required to run a particular application.</p>
	b)	likely to be encountered when using the product	<p><i>What software is likely to be encountered when using the product?</i></p> <p>List other applications usually associated with the product and its user interface environment.</p>
4.3		Reference materials	<p><i>What reference materials are provided to help the user learn about the technical environment?</i></p> <p>EXAMPLE Manuals on how to operate Windows 3.0 or Apple Macintosh System 7.0.</p> <p>Please note, this does not refer to the instructional materials for the product. These will be listed in the product description.</p>
5		Physical Environment	<p>This section is concerned with the physical environment of the user and product.</p> <p>In many cases a product will be intended for use in a physical environment similar to the standard office working conditions found in Europe (for example, conforming to ISO 9241). In this case, you need put only 'SO' as your answer. Where a feature of the physical environment is non-standard you will need to provide as accurate a description as possible.</p> <p>If two or more user types have been identified for separate evaluation, then it could be necessary to fill in this section for each of those types.</p>
5.1		Environmental Conditions <i>If product is for use in standard European office conditions, then answer "SO"</i>	<p>Identify the physical conditions of the workplace, or the place where the product will be used.</p> <p>If the environment in which the product is used is a Standard Office, enter 'SO' as your answer to 5.1, and go to section 5.2. Otherwise, go on to fill in 5.1.1 and the rest of this subsection.</p>
5.1.1		Atmospheric conditions	<p><i>What are the atmospheric conditions of the workplace?</i></p> <p>If the product is used outdoors then this refers to the weather conditions, otherwise it will refer to the condition of the atmosphere which exists inside buildings such as air quality, speed, humidity etc.</p>

Table C.1 (continued)

5.1.2		Auditory environment	<p><i>What are the auditory conditions of the workplace?</i></p> <p>List all types of noise or sound, in particular sounds which would limit interpersonal communication, cause stress or annoyance to the user, or affect the user's perception of sounds relevant to the task.</p>
5.1.3		Thermal environment	<p><i>What are the thermal conditions of the workplace?</i></p> <p>Describe the temperature of the workplace and the heating and air conditioning facilities.</p>
5.1.4		Visual environment	<p><i>What are the visual conditions of the workplace?</i></p> <p>Describe the strength and locations of light sources including natural light. Describe the degree of control the user would have over light conditions including use of blinds etc.</p>
5.1.5		Environmental instability	<p><i>Is the workplace physically unstable in any way?</i></p> <p><i>E.g. as a result of vibration or any other motion of the workplace.</i></p>
5.2		Workplace Design	Here we are concerned with the location and design of the workplace, the layout of furniture, and the posture user adopted whilst using the product.
5.2.1		Space and furniture	<p><i>What are the size, layout, and furnishings of the workplace?</i></p> <p>Include items such as desks, screens, cabling, printers etc.</p>
5.2.2		User posture	<p><i>What posture does the user generally adopt when using the product?</i></p> <p>EXAMPLE Standing looking down at a display (height 1,5 m).</p>
5.2.3		Location	
	a)	of the product	<p><i>Where is the product located in relation to the workplace?</i></p> <p>How is the product located in relation to the furniture of the workplace and the usual working position of the user?</p>
	b)	of the workplace	<p><i>Where is the workplace located?</i></p> <p>How close is this location to the target area of influence, resources, fellow work colleagues, customers, and the user's home?</p>
5.3		Health & Safety Risks	This section inquires about the conditions of the workplace or surrounding environments that could affect the user's health and safety, and require the use of protective clothing or equipment.
5.3.1		Health hazards	<p><i>Are there any conditions of the workplace, or surrounding environment, which could affect the user's physical well being?</i></p> <p>Include conditions that could affect the user's physical well being in the short term (e.g. by accidents) as well as in the long term (e.g. gradual hearing loss).</p>
5.3.2		Protective clothing and equipment	<p><i>Describe any protective clothing or safety equipment the user is required to wear when in the workplace.</i></p> <p>This includes such things as clothes or equipment that protects the user from the effects of high or low temperatures.</p> <p>EXAMPLE Gloves, steel toe-capped boots, face mask.</p>

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