



BSI Standards Publication

Systems and software engineering - Systems and software product Quality Requirements and Evaluation (SQuaRE) - Common Industry Format (CIF) for usability: General framework for usability-related information

National foreword

This Published Document is the UK implementation of CEN ISO/IEC TR 25060:2017. It is identical to ISO/IEC TR:2010. It supersedes PD ISO/IEC TR 25060:2010, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PH/9, Applied ergonomics.

A list of organizations represented on this committee can be obtained on request to its secretary.

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European foreword

The text of ISO/IEC TR 25060:2010 has been prepared by Technical Committee ISO/IEC JTC 1 “Information technology” of the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) and has been taken over as CEN ISO/IEC TR 25060:2017 by Technical Committee CEN/TC 122 “Ergonomics” the secretariat of which is held by DIN.

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The text of ISO/IEC TR 25060:2010 has been approved by CEN as CEN ISO/IEC TR 25060:2017 without any modification.

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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.

In exceptional circumstances, the joint technical committee may propose the publication of a Technical Report of one of the following types:

- type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;
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ISO/IEC TR 25060, which is a Technical Report of type 3, was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and systems engineering*.

Introduction

The purpose of this Technical Report is to define a framework and consistent terminology for the specification and evaluation of the usability of an interactive system. Specifying and evaluating usability will assist those developing and acquiring interactive systems. It describes a framework that defines a set of information items as part of a human-centred approach to the design of an interactive system. The framework is intended to assist in documenting and communicating usability-related information through the system development life cycle.

The human-centred design approach of ISO 9241-210¹⁾ 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 design approach to be adopted, it is important that all the relevant usability information items are identified and documented. This identification and documentation enables the usability of a system to be designed and tested.

This framework forms the basis for a family of International Standards that will provide a Common Industry Format (CIF) for specific information items to be used as part of a human-centred approach to design of interactive systems. ISO/IEC 25062, which standardizes the types of information that are documented when providing a detailed report of the results of measuring effectiveness, efficiency and satisfaction, is the first specific International Standard in this family.

The CIF for usability family is part of the SQuaRE series of International Standards (ISO/IEC 25000 to ISO/IEC 25099) on software product quality requirements and evaluation. The scope of the CIF family covers systems rather than just software, so is broader than that of the current SQuaRE series. The CIF family of International Standards uses definitions (reproduced in Clause 2) that are consistent with ISO 9241, as this is the terminology that is normally used for this subject matter. In some cases these definitions differ from those in ISO/IEC 25000.

To ensure that these information items can be used within the broadest range of process models and can be used in combination with other information items, the descriptions are given in the format defined in ISO/IEC 15289 and ISO/IEC TR 15504-6.

The information items for documenting usability-related information can be integrated in any process models. For the purpose of establishing process models, ISO/IEC TR 24774 and ISO/IEC 15504-2 specify the format and conformance requirements for process models, respectively. In addition, ISO/IEC 15289 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 and ISO/IEC TR 15504-6 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 9241-210 and ISO/PAS 18152, respectively.

While this Technical Report focuses on information items needed as the basis for design and development of interactive systems, the data contained in the information items can support post-development activities such as (product) conformity assessment as defined in ISO/IEC 17000:2004.

1) Previously ISO 13407.

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1 Scope

This Technical Report describes a potential family of International Standards, named the Common Industry Formats (CIF), that document the specification and evaluation of the usability of interactive systems. It provides a general overview of the CIF framework and contents, definitions, and the relationship of the framework elements. The intended users of the framework are identified, as well as the situations in which the framework may be applied. The assumptions and constraints of the framework are also enumerated.

The framework content includes the following:

- consistent terminology and classification of specification, evaluation and reporting;
- a definition of the type and scope of formats and the high-level structure to be used for documenting required information and the results of evaluation.

This Technical Report is applicable to software and hardware products used for predefined tasks. The information items are 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 Technical Report focuses on documenting those elements needed for design and development of usable systems, rather than prescribing a specific process. It is intended to be used in conjunction with existing International Standards, including ISO 9241, ISO 20282, ISO/IEC 9126 and the SQuaRE series (ISO/IEC 25000 to ISO/IEC 25099).

This Technical Report does not prescribe any kind of method, life cycle or process.

2 Terms and definitions

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

2.1

accessibility

⟨interactive system⟩ usability of a product, service, environment or facility by people with the widest range of capabilities

[ISO 9241-171:2008]

2.2

action

user behaviour that a system accepts as a request for a particular operation

[ISO/IEC TR 11580:2007]

2.3

context of use

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

[ISO 9241-11:1998]

2.4

dialogue

interaction between a user and an interactive system as a sequence of user actions (inputs) and system responses (outputs) in order to achieve a goal

[ISO 9241-110:2006]

2.5

effectiveness

accuracy and completeness with which users achieve specified goals

[ISO 9241-11:1998]

2.6

efficiency

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

[ISO 9241-11:1998]

2.7

goal

intended outcome

[ISO 9241-11:1998]

2.8

information architecture

⟨human-centred⟩ structure of an information space and the semantics for accessing required task objects, system objects and other information

NOTE The appropriate combination of organization, labelling, navigation schemes and retrieval mechanisms within an information space will facilitate task completion and efficient access to content.

2.9

product

part of the equipment (hardware, software and materials) for which usability is to be specified or evaluated

[ISO 9241-11:1998]

2.10

satisfaction

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

[ISO 9241-11:1998]