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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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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*.

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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).

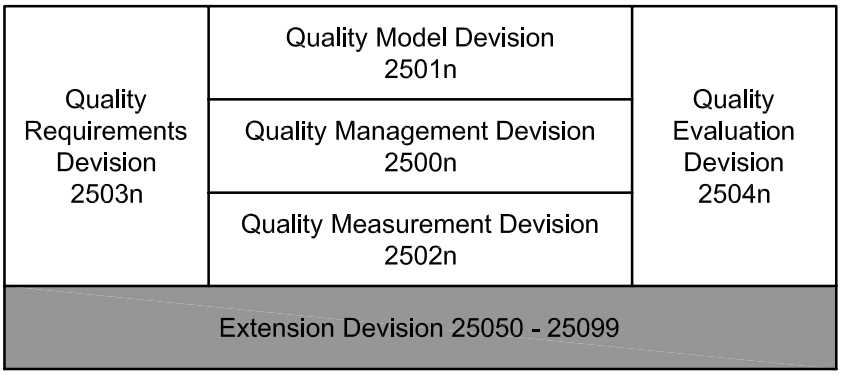

Figure 1 — Organization of SQuaRE series of International Standards

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

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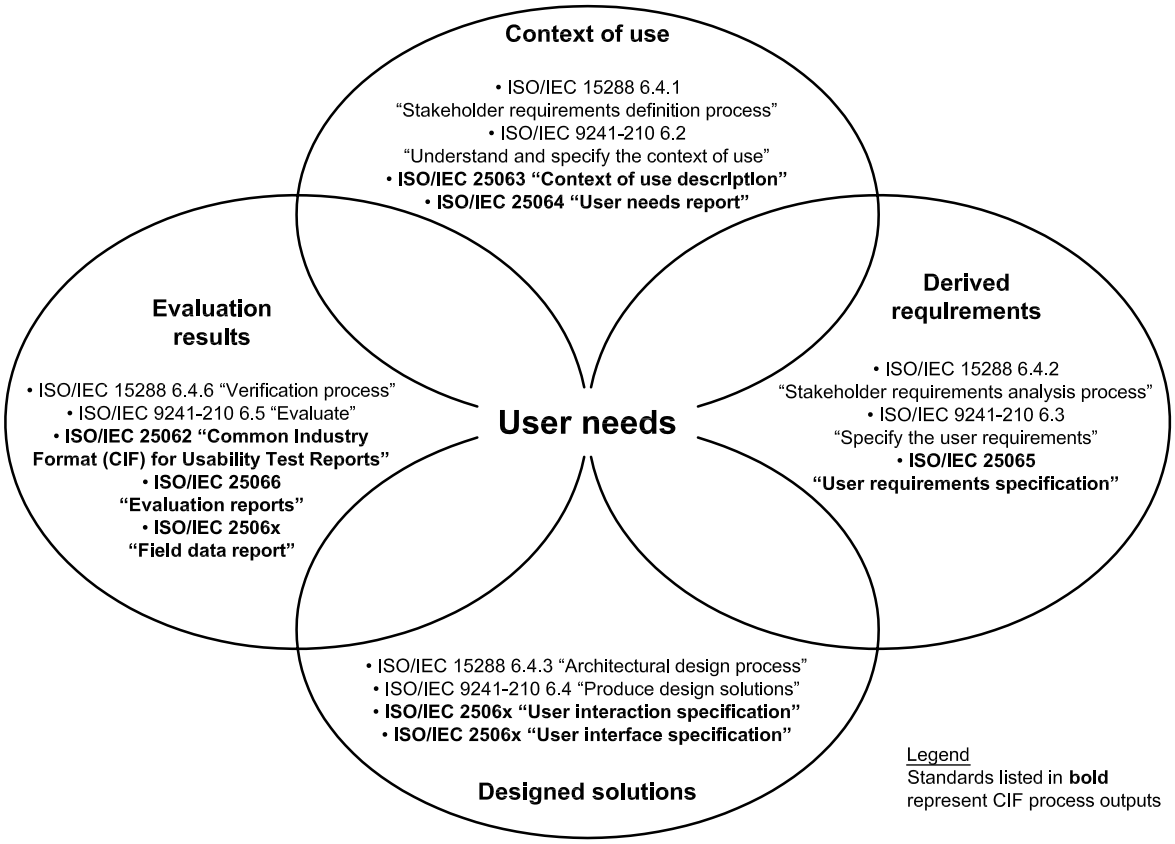

Figure 2 — Relationship of CIF documents to user centred design in ISO 9241-210[4] and system life cycle processes in ISO/IEC 15288[7]

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.

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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.

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