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Systems and software engineering — Software product Quality Requirements and Evaluation (SQuaRE) — Common Industry Format (CIF) for Usability: User requirements specification

*Ingénierie des systèmes et du logiciel — Exigences et évaluation de
la qualité des systèmes et logiciels (SQuaRE) — Format industriel
commun pour la facilité d'utilisation: Spécification des exigences de
l'utilisateur*



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Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
3.1 Terms related to user requirements.....	2
3.2 Terms related to interactive systems.....	4
3.3 Terms related to the concept of usability.....	5
4 Conformance	6
5 User requirements specification	6
5.1 General.....	6
5.2 Relationship between user requirements specification and stakeholder requirements specification.....	7
5.3 Types of user requirements.....	7
5.3.1 General.....	7
5.3.2 User-system interaction requirements.....	7
5.3.3 Use-related quality requirements.....	7
6 Content elements of a user requirements specification	8
6.1 Overview on the content elements.....	8
6.2 Interactive system for which a set of user requirements are specified.....	8
6.2.1 Identification of interactive system.....	8
6.2.2 Predecessors or previous versions of the interactive system (if applicable).....	8
6.3 Constraints on design.....	8
6.4 Context of use for which the user requirements apply.....	9
6.5 Goals and tasks to be supported.....	9
6.6 User requirements.....	10
6.6.1 Stating user requirements.....	10
6.6.2 Information to be provided with each user requirement.....	12
6.6.3 Structure for presenting the user requirements.....	14
6.7 User interface design guidance to be applied.....	15
Annex A (informative) Example of content elements from a user requirements specification	16
Bibliography	20

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

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

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

Specifying user requirements in a consistent manner will assist those developing and acquiring interactive systems that are usable. The term "user requirements" is used in this document to refer to user-system interaction requirements (that specify the required interaction to achieve intended outcomes) and use-related quality requirements (expressed in terms of effectiveness, efficiency and satisfaction). It describes a set of content elements for user requirements specifications as part of a human-centred approach to design of an interactive system. A common industry format for a user requirements specification is intended to assist human-centred design teams in specifying user requirements for an interactive system.

The Common Industry Format (CIF) for usability is described in ISO/IEC TR 25060 and is part of the SQuaRE series (ISO/IEC 25000–ISO/IEC 2509x) on systems and software product quality requirements and evaluation.

Usability as used in the CIF standards refers to effectiveness, efficiency, and satisfaction as defined in ISO 9241-11, where it is defined as an outcome of use, rather than as a product quality which is an alternate use of the term also provided in ISO/IEC 25010.

CIF standards published or planned for include the following information items:

- usability test reports (see ISO/IEC 25062);
- context of use description (see ISO/IEC 25063);
- user needs report (see ISO/IEC 25064);
- user requirements specification (this document);
- usability evaluation report (see ISO/IEC 25066);

The CIF standards are part of the "Extension Division" of the ISO/IEC 25000 SQuaRE series. [Table 1](#) presents an overview of the structure and the contents of the SQuaRE series.

Table 1 — Organization of the SQuaRE series

SQuaRE architecture and sub-projects		
ISO/IEC 2503x: Quality requirement division	ISO/IEC 2501x: Quality model division	ISO/IEC 2504x: Quality evaluation division
	ISO/IEC 2500x: Quality management division	
	ISO/IEC 2502x: Quality measurement	
ISO/IEC 2505x–ISO/IEC 2509x: SQuaRE extension division		
— ISO/IEC 25051–2505x: Requirements for quality of Ready to Use Software Product (RUSP) division		
— ISO/IEC 2506x: Common Industry Format (CIF) for Usability division		

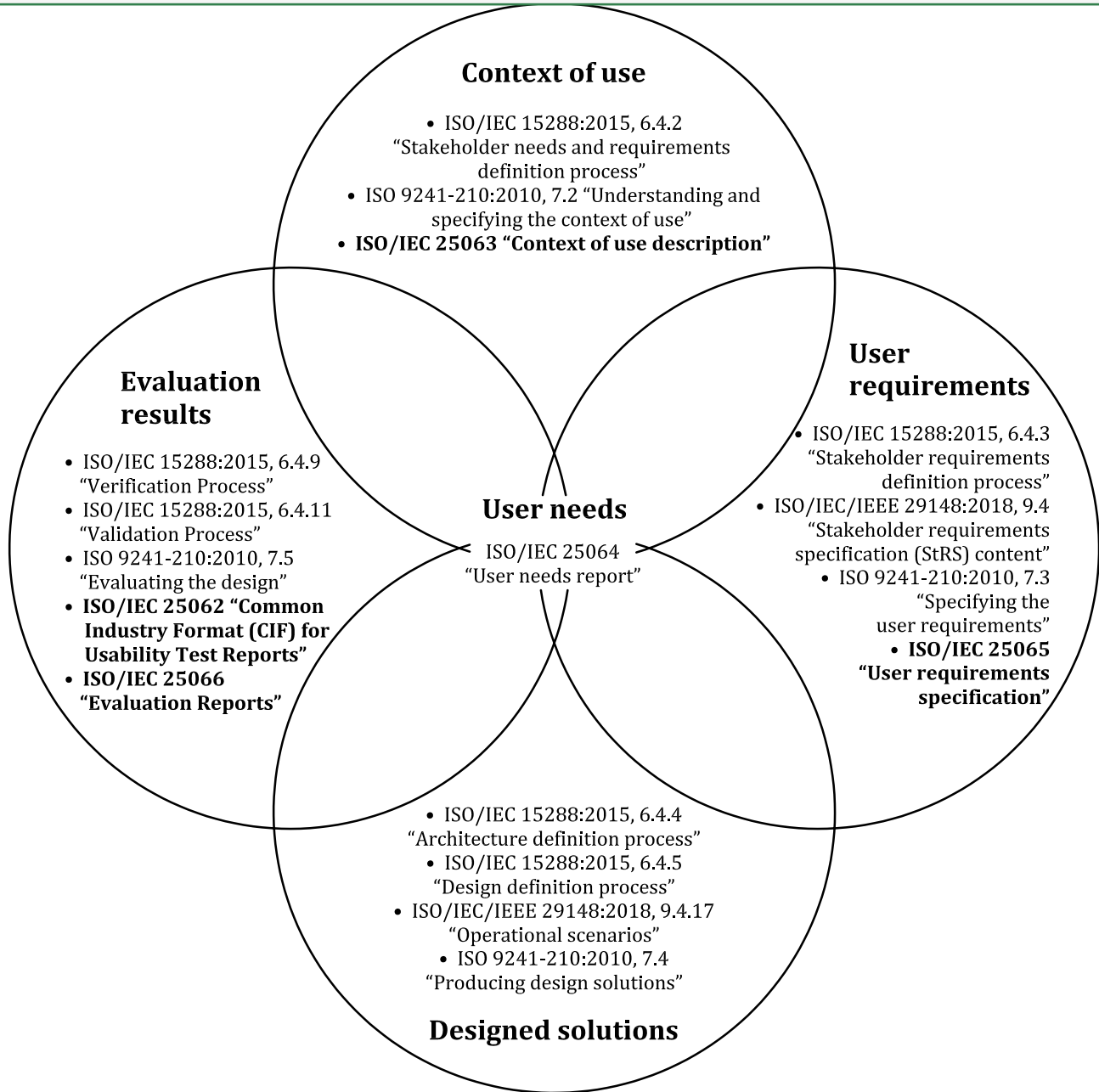


Figure 1 — Relationship of CIF documents to human-centred design in ISO 9241-210 and system lifecycle processes in ISO/IEC/IEEE 15288

Figure 1 illustrates the interdependence of these CIF documents with the outputs of human-centred design activities described in ISO 9241-210 as well as the corresponding system lifecycle processes described in ISO/IEC/IEEE 15288. Standards listed in bold represent CIF process outputs. The figure depicts the outputs of the activities as a set of intersecting circles. The circles overlap to represent that:

- human-centred design aims at satisfying user needs; and
- 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 endpoint, or linear process intended.

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The human-centred design approach of ISO 9241-210 focuses on ensuring that systems are usable. Human-centred design is enabled by the identification and communication of all of the relevant types of information

NOTE ISO 9241-220 broadens the objectives of human-centred design to human-centred quality: usability, accessibility, user experience and avoidance of harm from use. Human-centred quality can be achieved by applying human-centred design throughout the lifecycle.

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). The user needs report is an intermediate deliverable that links the context of use description (ISO/IEC 25063) containing information about the users, their tasks and the organizational and physical environment, to the user requirements. User requirements are, in turn, documented in the user requirements specification (ISO 25065). These information items are developed as part of the stakeholders requirements definition process described in ISO/IEC 15288.

The "designed 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/IEEE 15288 and produces the information items "user interaction specification" and the "user interface specification".

The "evaluation results" 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 developed and can produce various types of evaluation reports. Usability data, such as that described in ISO/IEC 25062, can support the ISO/IEC/IEEE 15288 validation process, which confirms that the system complies with the stakeholders requirements.