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Ergonomics of human-system interaction —

Part 222: Self-assessment of human-centred design approach

Ergonomie de l'interaction homme/système —

Partie 222: Auto-évaluation de l'approche de la conception centrée sur l'opérateur humain

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Foreword

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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 document 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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This document was prepared by Technical Committee ISO/TC 159, *Ergonomics*, Subcommittee SC 4, *Ergonomics of human-system interaction*.

A list of all parts in the ISO 9241 series can be found on the ISO website.

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.

Introduction

Human-centred design is an approach to interactive systems development that aims to make systems usable and useful by focusing on the users, their needs and requirements, and by applying human factors, ergonomics, and usability knowledge and techniques. This approach enhances effectiveness and efficiency, improves human well-being, user satisfaction, accessibility and sustainability; and counteracts possible adverse effects of use on human health, safety and performance.

The purpose of this document is to provide an accessible entry point into the ISO 9241-200 series, specifically for organizations who do not have any experience with adopting and implementing the human-centred design approach. While the description of the human-centred design approach and self-assessment included in this document can stand alone, the descriptions and assessments in other standards are notably more detailed and robust.

This document is characterized by the following:

— It includes a self-assessment that allows an organization to determine what principles are already being followed and where improvement can be made, with respect to best practices of human-centred design.

— It is intended to be accessible by less-mature organizations (with respect to human-centred design), to help them grow into more mature organizations.

— It is in alignment with the rest of the ISO 9241-200 series, so it can act as an entry point to the more detailed and involved parts like ISO 9241-210 and ISO 9241-220.

— It drives organizations, by learning about gaps in their processes and practices, to close those gaps by learning more about best practices, including through other relevant ISO standards for human-centred design like the whole ISO 9241 series.

It includes a self-assessment that allows organizations to understand and assess their level of awareness and practices with respect to the human-centred design approach and best practices for organizations and project teams within that organization. This self-assessment is provided as a set of survey questions as well as assessment matrices. The survey can be used directly (answering the survey questions to perform an assessment) or by surveying a number of members of a project team or organization. The matrices can be used to report and visualize the results of the survey-based assessment, or as rapid assessments in their own right.

Self-assessment matrices that can be used for organizations to assess their level of maturity and support claims of conformance are provided as informative annexes. These matrices are convenient grids of questions and answers designed to simplify collecting survey data.

NOTE 1 Although this document is described as a self-assessment tool, it can also be used as a convenient worksheet (especially Annexes B and C) for evaluator-led assessments. It provides a means for ergonomics, human factors, UX, and usability consultants to assist organizations in gathering insights into their maturity with respect to the HCD processes defined in ISO 9241-220.

NOTE 2 ISO 9241-221 provides a tool for rigorous and defensible process capability assessment (for example, for the purpose of process implementation, certification, preparation of a process improvement campaign, or demonstration of capability within a contract). ISO 9241-221 is intended for use by organizations that want to address and improve their treatment of human-centred design of either their internal systems or the products and services they provide, and the procurement of systems and parts of systems. The processes can be applied by small- and medium-sized enterprises as well as by large organizations. The assessment is normally performed by a third-party process assessment provider according to professional process capability assessment practices.

Ergonomics of human-system interaction —

Part 222:
Self-assessment of human-centred design approach

1 Scope

This document provides a self-assessment of an organization's human-centred design principles, processes, and activities throughout the life cycle of computer-based interactive systems. It also provides an overview of information given in the ISO 9241-200 series of standards. It is intended to be used as an introduction and self-assessment guide to human-centred design (HCD). Its target audience is personnel responsible for and managing design processes, and it is concerned with ways in which both hardware and software components of interactive systems can enhance human–system interaction.

This document does not provide detailed coverage of the methods and techniques required for human-centred design, nor does it address health or safety aspects in detail. Although it addresses the planning and management of human-centred design, it does not address all aspects of project management.

NOTE Detailed human factors, ergonomics, usability and accessibility issues are dealt with more fully in a number of standards including other parts of ISO 9241 and ISO 6385, which sets out the broad principles of ergonomics.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

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 user needs, characteristics and capabilities to achieve identified goals in identified contexts of use

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

[SOURCE: ISO 9241-112:2025, 3.11]

3.2
context of use
combination of users, goals and tasks, resources, and environment

Note 1 to entry: The "environment" in a context of use includes the technical, physical, social, cultural and organizational environments.

[SOURCE: ISO 9241-11:2018, 3.1.15]

3.3
effectiveness
accuracy and completeness with which users achieve specified goals

[SOURCE: ISO 9241-11:2018, 3.1.12]

3.4
efficiency
resources used in relation to the results achieved

Note 1 to entry: Typical resources include time, human effort, costs and materials.

[SOURCE: ISO 9241-11:2018, 3.1.13]

3.5
goal
intended outcome

[SOURCE: ISO 9241-11:2018, 3.1.10]

3.6
human-centred design
HCD
approach to systems design and development that aims to make interactive systems more usable by focusing on the use of the system and 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 document 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 well-being, avoidance of stress, increased accessibility and reduced risk of harm.

[SOURCE: ISO 9241-11:2018, 3.2.6]

3.7
human-centred quality
extent to which requirements for usability, accessibility, user experience and avoidance of harm from use are met

Note 1 to entry: Provision of the necessary technical functionality is a prerequisite for human-centred quality.

Note 2 to entry: Usability, accessibility, user experience and avoidance of harm from use can only be managed by human-centred design to the extent that they can be controlled by designed aspects of the interactive system.

Note 3 to entry: Human-centred quality is a collective term for the intended outcomes of interaction of the user with the system.

[SOURCE: ISO 9241-11:2018, 3.2.1, modified — "by human-centred design" added to Note 2 to entry.]

3.8
human-centred success criteria
set of agreed metrics used to evaluate the success of a product or service improvement or a new product or service

Note 1 to entry: These criteria are established by first defining desired impacts or outcomes, which can be at various levels such as user experience (e.g., reducing time to perform a specific task), transactional (e.g., increasing desired actions; increasing completion rates of desired tasks), or policy (e.g., improving access to functions or services).

Note 2 to entry: Human-centred success criteria are measurable and have a desired target threshold value.

3.9
interactive system
combination of hardware, software, services, and people that users interact with in order to achieve specific goals

Note 1 to entry: This includes, where appropriate, packaging, user documentation, on-line and human help, support and training.

[SOURCE: ISO 9241-11: 2018, 3.1.5]

3.10
satisfaction
extent to which the user's physical, cognitive and emotional responses that result from the use of a system, product or service meet the user's needs and expectations

Note 1 to entry: Satisfaction includes the extent to which the user experience that results from actual use meets the user's needs and expectations.

Note 2 to entry: Anticipated use can influence satisfaction with actual use.

[SOURCE: ISO 9241-11:2018, 3.1.14]

3.11
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 15288:2023, 3.44]

3.12
task
set of activities undertaken in order to achieve a specific goal

Note 1 to entry: These activities can be physical, perceptual, or cognitive.

Note 2 to entry: While goals are independent of the means used to achieve them, tasks describe particular means of achieving goals.

[SOURCE: ISO 9241-11:2018, 3.1.11]

3.13
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

Note 1 to entry: The "specified" users, goals and context of use refer to the particular combination of users, goals and context of use for which usability is being considered.

Note 2 to entry: The word "usability" is also used as a qualifier to refer to the design knowledge, competencies, activities and design attributes that contribute to usability, such as usability expertise, usability professional, usability engineering, usability method, usability evaluation, usability heuristic.

[SOURCE: ISO 9241-11:2018, 3.1.1]

3.14
user
person who interacts with a system, product or service

Note 1 to entry: Users of a system, product or service include people who operate the system, people who make use of the output of the system and people who support the system (including providing maintenance and training).

[SOURCE: ISO 9241-11:2018, 3.1.7]