
Ergonomija medsebojnega vpliva človek-sistem - 20. del: Ergonomski pristop k dostopnosti v skupini ISO 9241 (ISO/DIS 9241-20:2021)

Ergonomics of human-system interaction - Part 20: An ergonomic approach to accessibility within the ISO 9241 series (ISO/DIS 9241-20:2021)

Ergonomie der Mensch-System-Interaktion - Teil 20: Ein ergonomischer Ansatz für die Barrierefreiheit innerhalb der ISO 9241-Reihe (ISO/DIS 9241-20:2021)

Ergonomie de l'interaction homme-système - Partie 20 : Approche ergonomique de l'accessibilité dans la série ISO 9241 (ISO/DIS 9241-20:2021)

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ICS:

13.180	Ergonomija	Ergonomics
35.180	Terminalska in druga periferna oprema IT	IT Terminal and other peripheral equipment

oSIST prEN ISO 9241-20:2021

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Ergonomics of human-system interaction —

Part 20:

An ergonomic approach to accessibility within the ISO 9241 series

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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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.

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For an explanation on 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 the following URL: www.iso.org/iso/foreword.html. (standards.iteh.ai)

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This second edition cancels and replaces the first edition (ISO 9241-20:2008), which has been technically revised.

The main changes compared to the previous edition are as follows:

- The guidance in the first version has been replaced by references to many different standards that now contain applicable guidance.

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

Introduction

The ISO 9241 series provides ergonomic guidance that contributes to accessibility of interactive systems to meet the needs of users.

Two parts of ISO 9241 particularly address accessibility: ISO 9241-171 and ISO 9241-971. In addition, a number of additional parts in the ISO 9241 series integrate guidance supporting accessibility.

Accessibility in the design of products, systems, and services is important to ensure that they are usable by the widest possible range of users. Designed solutions that support accessibility result from the understanding and implementation of user requirements, including those user requirements specific to accessibility.

Ergonomic principles and human-centred design activities contained in the ISO 9241 series provide a basis for identifying user accessibility needs and deriving user requirements specific to accessibility.

This document identifies standards within the ISO 9241 series and in other related standards that contain guidance related to accessibility.

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Ergonomics of human-system interaction —

Part 20:

An ergonomic approach to accessibility within the ISO 9241 series

1 Scope

This document provides

- a) an introduction to the importance of accessibility to human-systems interaction
- b) a discussion of the relationship of principles within the ISO 9241 series and accessibility
- c) activities related to the processes in ISO 9241-210 that focus on accessibility;
- d) references to standards relevant to the accessibility of interactive systems.

2 Normative References

There are no normative references.

3 Terms and Definitions

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

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

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

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 9241-112:2017, 3.17]

3.2

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 921-11:2018, 3.1.1]

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3.3

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]

3.4

user accessibility need

user need related to features or attributes that are necessary for a system to be accessible

Note 1 to entry: User accessibility needs vary over time and across contexts of use.

Note 2 to entry: User accessibility needs are transformed into user requirements considering the context of use, user priorities, trade-offs with other system requirements and constraints.

[SOURCE: ISO/IEC 29138-1:2018, 3.10]

4 Accessibility and ergonomics of human-system interaction

Accessibility in the design of products, systems, and services is important to ensure that they are usable by the widest possible range of users.

Design solutions that support accessibility result from understanding and application of specific user requirements, including those user requirements specific to accessibility.

While the ISO 9241 series currently contains two standards specifically focused on accessibility (ISO 9241-171 and ISO 9241-971), all parts of the ISO 9241 series provide ergonomic guidance that can benefit accessible design solutions. Additionally ISO 9241-220 identifies the concept of human-centred quality which includes accessibility as one of its four main components.

Planning for accessibility as an integral part of the human-centred design process (as described in ISO 9241-210 and ISO 9241-220) involves the systematic identification of requirements for accessibility, including accessibility measurements and verification criteria within the context of use. These provide design targets that can form the basis for verification of the resulting design.

5 Ergonomic principles in the ISO 9241 series supporting accessibility

5.1 General

There are many principles contained within the ISO 9241 series that provide important support for accessibility. Violating any of these principles will limit the accessibility of any resulting system, product, or service.

This clause identifies both principles and sources of guidance related to these principles that are found in the ISO 9241 series.

5.2 Principles from *ISO 9241-171 Guidance on software accessibility*

5.2.1 Suitability for the widest range of use

ISO 9241-171:2007 contains the principle of “suitability for the widest range of use” which it describes as: “Suitability for the widest range of use involves designing with the objective of producing solutions that will be useful, acceptable and available to the widest range of users within the intended user

population, taking account of their special abilities, variations in their capabilities, the diversity of their tasks, and their differing environmental, economic and social circumstances.”

NOTE ISO/IEC Guide 71:2014 transformed this principle into a goal it names “Suitability for the widest range of users” which it describes as: “A system is suitable for the widest range of users if it meets the needs of diverse users in diverse contexts.”

ISO 9241-11:2018 defines users in terms of their interaction with a system, product, or service. It recognizes that, “The objective of designing for accessibility is to enable products, systems, services, environments and facilities to be used by people with the widest range of user needs, characteristics and capabilities in diverse contexts of use. Accessibility is included as a component of human-centred quality to emphasize its importance as part of human-centred design.”

While the accessibility guidance in ISO 9241-171 and ISO 9241-971 can support suitability for the widest range of users, there are no parts in the ISO 9241 series that provide guidance on identifying the widest range of users.

5.2.2 Equitable use

ISO 9241-171:2007 contains the principle of “equitable use” which it describes as: “Equitable solutions provide the same means of use for all users: identical whenever possible; equivalent when not. Achieving equitable use will ensure that solutions designed to increase accessibility do not result in such things as loss of privacy, increased risks to personal safety or security, or the stigmatization of individuals.”

NOTE ISO/IEC Guide 71:2014 transformed this principle into a goal it names “Equitable use” which it describes as: “A system provides equitable use if it allows diverse users to accomplish tasks in an identical manner whenever possible or in an equivalent manner when an identical manner is not possible.”

5.2.3 Robustness

ISO 9241-171:2007 contains the principle of “robustness” which it describes as: “Software should be designed to be as robust as possible to allow it to work with current and future assistive technologies. Although it is not feasible to make all software accessible without add-on assistive technologies, these guidelines should help designers develop software that increases accessibility without the use of assistive technologies, and, by providing the necessary interface information, enables assistive software and devices to operate effectively and efficiently when used. The software can promote integration of assistive technologies by providing information that can be read by assistive technologies, and by communicating through standard application-to-application communication protocols.”

NOTE ISO/IEC Guide 71:2014 transformed this principle into a goal it names “compatibility with other systems” which it describes as: “A system provides compatibility if it allows diverse users to use other systems as a means to interact with it to accomplish the task.”

5.3 Principles from ISO 9241-110 Interaction principles

5.3.1 Suitability for the user's tasks

ISO 9241-110:2019 contains the principle of “suitability for the user's tasks” which it describes as: “An interactive system is suitable for the user's tasks when it supports users in the completion of their tasks, i.e. when the operating functions and the user-system interactions are based on the task characteristics (rather than the technology chosen to perform the task).” It also notes that, “A prerequisite for suitability for the user's tasks is that the tasks themselves have been based on user needs.”

NOTE ISO/IEC Guide 71:2014 replaced this principle with a goal that it names “usability” which it describes as: “A system is usable if it supports diverse users in their diverse contexts to accomplish their tasks with effectiveness, efficiency and satisfaction.” ISO 9241 recognizes usability as an outcome of use, rather than as a goal. ISO 9241-11:2018 provides definitions and concepts related to usability.