Ergonomics of human-system interaction - Part 110: Interaction principles (ISO 9241-110:2020)

EESTI STANDARDIKESKUS
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NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 9241-110:2020 sisaldab Euroopa standardi EN ISO 9241-110:2020 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 9241-110:2020 consists of the English text of the European standard EN ISO 9241-110:2020.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 10.06.2020.	Date of Availability of the European standard is 10.06.2020.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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Ergonomie der Mensch-System-Interaktion - Teil 110: Interaktionsprinzipien (ISO 9241-110:2020)

This European Standard was approved by CEN on 23 May 2020.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN ISO 9241-110:2020) has been prepared by Technical Committee ISO/TC 159 "Ergonomics" in collaboration with Technical Committee CEN/TC 122 “Ergonomics” the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2020, and conflicting national standards shall be withdrawn at the latest by December 2020.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 9241-110:2006.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 9241-110:2020 has been approved by CEN as EN ISO 9241-110:2020 without any modification.

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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.

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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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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

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.

This second edition cancels and replaces the first edition (ISO 9241-110:2006), which has been substantially technically revised.

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

— the principle of individualization has been merged into the principle of controllability;

— a new principle on user engagement has been developed;

— existing principles and general design recommendations have been revised.

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

Introduction

This document describes interaction principles (formerly referred to as "dialogue principles") and general design recommendations which are independent of any specific interaction technique and which are applicable in the analysis, design and evaluation of interactive systems.

This document significantly revises and updates the first edition. It incorporates relevant guidance previously contained in ISO 14915-1. The general design recommendations in this document are derived from a combination of ergonomics research and various sources of general and heuristic guidance (including Bastien[16], Dzida[19], Molich[23], Nielsen[24] and Tognazzini[29]).

These interaction principles and general design recommendations can guide the development and evaluation of user interfaces, leading to improved usability.

The priority with which each interaction principle or general design recommendation is applied depends on the purpose of the interactive system, the characteristics of the intended and foreseeable users of the system, the tasks, the environment, the specific interaction technique used and the consequences arising from use. Guidance on identifying relevant aspects of the users, tasks and environment of use is given in ISO 9241-11.

The ultimate beneficiary of this document will be the user of an interactive system. Although it is unlikely that the user will read this document or even know of its existence, its application by the developers of the interactive system will lead to user interfaces which are more usable, accessible, consistent and that enable greater productivity and a more positive user experience, and which avoid harm from use. The benefits for suppliers of interactive systems include increased sales, customer satisfaction and loyalty, decreased costs of providing service.

Applying these interaction principles and the associated general design recommendations also helps prevent users of those products from experiencing usability problems such as:

— additional unnecessary steps not required as part of the task;

— misleading information;

— insufficient and poor information on the user interface;

— unexpected responses of the interactive system (including those leading to harm from use);

— navigational limitations during use; and

— inefficient error recovery.

This document comprises the following:

a) a framework for applying the interaction principles and general design recommendations;

b) the interaction principles;

c) general design recommendations corresponding to the interaction principles.

Ergonomics of human-system interaction —

Part 110: Interaction principles

1 Scope

This document describes principles for interaction between a user and a system that are formulated in general terms (i.e. independent of situations of use, application, environment or technology). This document provides a framework for applying those interaction principles and the general design recommendations for interactive systems.

While this document is applicable to all types of interactive systems, it does not cover the specifics of every application domain (e.g. safety critical systems, collaborative work, artificial intelligence features).

It is intended for the following audiences:

— analysts of requirements (including market requirements, user requirements, and system requirements);

— designers of user interface development tools and style guides to be used by user interface designers and developers;

— designers of user interfaces who will apply the guidance during the design activities (either directly, based on training, or by using tools and style guides which incorporate the guidance);

— developers who will apply the guidance during the development process;

— evaluators who are responsible for ensuring that products meet the general design recommendations contained in this document;

— buyers who will reference this document in contracts during product procurement.

This document focuses on interaction principles related to the design of interactions between user and interactive system. ISO 9241-112 provides further guidance on the presentation of information.

This document does not consider any other aspect of design such as marketing, aesthetics and corporate identity.

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 terminological databases for use in standardization at the following addresses:

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

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