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SWEDISH STANDARDS INSTITUTE

Ergonomi vid människa-systeminteraktion – Del 210: Användarcentrerad design för interaktiva system (ISO 9241-210:2010)

Ergonomics of human-system interaction – Part 210: Human-centred design for interactive systems (ISO 9241-210:2010)

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Europastandarden EN ISO 9241-210:2010 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN ISO 9241-210:2010.

Denna standard ersätter SS-EN ISO 13407, utgåva 1.

The European Standard EN ISO 9241-210:2010 has the status of a Swedish Standard. This document contains the official version of EN ISO 9241-210:2010.

This standard supersedes the Swedish Standard SS-EN ISO 13407, edition 1.

Upplysningar om sakinnehållet i standarden lämnas av SIS, Swedish Standards Institute, telefon 08-555 520 00. Standarder kan beställas hos SIS Förlag AB som även lämnar allmänna upplysningar om svensk och utländsk standard.

Information about the content of the standard is available from the Swedish Standards Institute (SIS), telephone +46 8 555 520 00. Standards may be ordered from SIS Förlag AB, who can also provide general information about Swedish and foreign standards.

Denna standard är framtagen av kommittén för Ergonomi vid Människa – Systeminteraktion, SIS/TK 380/AG 2.

Har du synpunkter på innehållet i den här standarden, vill du delta i ett kommande revideringsarbete eller vara med och ta fram andra standarder inom området? Gå in på www.sis.se - där hittar du mer information.

Utdrag ur Förord i ISO 9241-210 / Extract from the Foreword of ISO 9241-210

This first edition of ISO 9241-210 cancels and replaces ISO 13407:1999, of which it constitutes a technical revision. The changes include the following:

- clarifying the role of iteration in the whole design process (not just evaluation);
- emphasizing that human-centred methods can be used throughout the system life cycle;
- explaining design activities;
- clarifying the principles of human-centred design.

ISO 9241 consists of the following parts, under the general title *Ergonomic requirements for office work with visual display terminals (VDTs):*

- *Part 1: General introduction*
- *Part 2: Guidance on task requirements*
- *Part 3: Visual display requirements*
- *Part 4: Keyboard requirements*
- *Part 5: Workstation layout and postural requirements*
- *Part 6: Guidance on the work environment*
- *Part 9: Requirements for non-keyboard input devices*
- *Part 11: Guidance on usability*
- *Part 12: Presentation of information*
- *Part 13: User guidance*
- *Part 14: Menu dialogues*
- *Part 15: Command dialogues*
- *Part 16: Direct manipulation dialogues*
- *Part 17: Form filling dialogues*

ISO 9241 also consists of the following parts, under the general title *Ergonomics of human–system interaction:*

- *Part 20: Accessibility guidelines for information/communication technology (ICT) equipment and services*
- *Part 100: Introduction to standards related to software ergonomics* [Technical Report*]*
- *Part 110: Dialogue principles*
- *Part 151: Guidance on World Wide Web user interfaces*
- *Part 171: Guidance on software accessibility*
- *Part 210: Human-centred design for interactive systems*
- *Part 300: Introduction to electronic visual display requirements*
- *Part 302: Terminology for electronic visual displays*
- *Part 303: Requirements for electronic visual displays*
- *Part 304: User performance test methods for electronic visual displays*
- *Part 305: Optical laboratory test methods for electronic visual displays*
- *Part 306: Field assessment methods for electronic visual displays*
- *Part 307: Analysis and compliance test methods for electronic visual displays*
- *Part 308: Surface-conduction electron-emitter displays (SED)* [Technical Report]
- *Part 309: Organic light-emitting diode (OLED) displays* [Technical Report]
- *Part 400: Principles and requirements for physical input devices*
- *Part 410: Design criteria for physical input devices*
- *Part 420: Selection procedures for physical input devices*
- *Part 910: Framework for tactile and haptic interaction*
- *Part 920: Guidance on tactile and haptic interactions*

The following parts are under preparation:

- *Part 129: Guidance on software individualization*
- *Part 143: Forms-based dialogues*
- *Part 310: Visibility, aesthetics and ergonomics of pixel defects* [Technical Report]

Design guidance for interactive voice response (IVR) applications and evaluation methods for the design of physical input devices are to form the subjects of future parts 154 and 411.

EUROPEAN STANDARD
NORME EUROPÉENNE
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EN ISO 9241-210

October 2010

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Supersedes EN ISO 13407:1999

English Version

Ergonomics of human-system interaction - Part 210: Human-centred design for interactive systems (ISO 9241-210:2010)

Ergonomie de l'interaction homme-système - Partie 210: Conception centrée sur l'opérateur humain pour les systèmes interactifs (ISO 9241-210:2010)

Ergonomie der Mensch-System-Interaktion - Teil 210: Prozess zur Gestaltung gebrauchstauglicher interaktiver Systeme (ISO 9241-210:2010)

This European Standard was approved by CEN on 30 September 2010.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

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Ref. No. EN ISO 9241-210:2010: E

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Foreword

The text of ISO 9241-210:2010 has been prepared by Technical Committee ISO/TC 159 “Ergonomics” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 9241-210:2010 by 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 April 2011, and conflicting national standards shall be withdrawn at the latest by April 2011.

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

This document supersedes EN ISO 13407:1999.

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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of ISO 9241-210:2010 has been approved by CEN as a EN ISO 9241-210:2010 without any modification.

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.

There is a substantial body of human factors/ergonomics and usability knowledge about how human-centred design can be organized and used effectively. This part of ISO 9241 aims to make this information available to help those responsible for managing hardware and software design and re-design processes to identify and plan effective and timely human-centred design activities.

The human-centred approach to design described in this part of ISO 9241 complements existing systems design approaches. It can be incorporated in approaches as diverse as object-oriented, waterfall and rapid application development.

The principles of human-centred design and the related activities have not changed substantially since ISO 13407 was produced and have been validated by ten years of application. This part of ISO 9241 reflects this by making requirements as well as recommendations.

Ergonomics of human–system interaction —

Part 210:
Human-centred design for interactive systems

1 Scope

This part of ISO 9241 provides requirements and recommendations for human-centred design principles and activities throughout the life cycle of computer-based interactive systems. It is intended to be used by those managing design processes, and is concerned with ways in which both hardware and software components of interactive systems can enhance human–system interaction.

NOTE 1 Computer-based interactive systems vary in scale and complexity. Examples include off-the-shelf (shrink-wrap) software products, custom office systems, process control systems, automated banking systems, Web sites and applications, and consumer products such as vending machines, mobile phones and digital television. Throughout this part of ISO 9241, such systems are generally referred to as products, systems or services although, for simplicity, sometimes only one term is used.

This part of ISO 9241 provides an overview of human-centred design activities. It 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.

The information in this part of ISO 9241 is intended for use by those responsible for planning and managing projects that design and develop interactive systems. It therefore addresses technical human factors and ergonomics issues only to the extent necessary to allow such individuals to understand their relevance and importance in the design process as a whole. It also provides a framework for human factors and usability professionals involved in human-centred design. Detailed human factors/ergonomics, usability and accessibility issues are dealt with more fully in a number of standards including other parts of ISO 9241 (see Annex A) and ISO 6385, which sets out the broad principles of ergonomics.

The requirements and recommendations in this part of ISO 9241 can benefit all parties involved in human-centred design and development. Annex B provides a checklist that can be used to support claims of conformance with this part of ISO 9241.

NOTE 2 Annex A and the Bibliography contain information about relevant related standards.

2 Terms and definitions

For this document, the following terms and definitions apply.

2.1
accessibility
⟨interactive systems⟩ usability of a product, service, environment or facility by people with the widest range of capabilities

[ISO 9241-171]

2.2
context of use
users, tasks, equipment (hardware, software and materials), and the physical and social environments in which a product is used

[ISO 9241-11:1998]

2.3
effectiveness
accuracy and completeness with which users achieve specified goals

[ISO 9241-11:1998]

2.4
efficiency
resources expended in relation to the accuracy and completeness with which users achieve goals

[ISO 9241-11:1998]

2.5
ergonomics
study of human factors
scientific discipline concerned with the understanding of interactions among human and other elements of a system, and the profession that applies theory, principles, data and methods to design in order to optimize human well-being and overall system performance

[ISO 6385:2004]

2.6
goal
intended outcome

[ISO 9241-11:1998]

2.7
human-centred design
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 The term “human-centred design” is used rather than “user-centred design” in order to emphasize that this part of ISO 9241 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 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.

2.8
interactive system
combination of hardware, software and/or services that receives input from, and communicates output to, users

NOTE This includes, where appropriate, packaging, branding, user documentation, on-line help, support and training.

2.9
prototype
〈interactive system〉 representation of all or part of an interactive system, that, although limited in some way, can be used for analysis, design and evaluation

NOTE A prototype may be as simple as a sketch or static mock-up or as complicated as a fully functioning interactive system with more or less complete functionality.

2.10
satisfaction
freedom from discomfort and positive attitudes towards the use of the product

[ISO 9241-11:1998]

2.11
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

[ISO/IEC 15288:2008]

2.12
task
activities required to achieve a goal

[ISO 9241-11:1998]

2.13
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 Adapted from ISO 9241-11:1998.

2.14
user
person who interacts with the product

[ISO 9241-11:1998]

2.15
user experience
person's perceptions and responses resulting from the use and/or anticipated use of a product, system or service

NOTE 1 User experience includes all the users' emotions, beliefs, preferences, perceptions, physical and psychological responses, behaviours and accomplishments that occur before, during and after use.

NOTE 2 User experience is a consequence of brand image, presentation, functionality, system performance, interactive behaviour and assistive capabilities of the interactive system, the user's internal and physical state resulting from prior experiences, attitudes, skills and personality, and the context of use.

NOTE 3 Usability, when interpreted from the perspective of the users' personal goals, can include the kind of perceptual and emotional aspects typically associated with user experience. Usability criteria can be used to assess aspects of user experience.

2.16
user interface
all components of an interactive system (software or hardware) that provide information and controls for the user to accomplish specific tasks with the interactive system

[ISO 9241-110:2006]