

International Standards for HCI and Usability

Standards

- Standards set out what are widely accepted as good principles, practices, or guidelines in a given area
 - Processes for production
 - Requirements products and services
- Standards for HCI and usability are developed by the International Organisation for Standardisation (ISO) and the International Electrotechnical Commission (IEC)

What are International Standards?

- What is the International Organisation for Standardisation (ISO)?
 - Network of standard institutes of 159 countries
 - Non-governmental organisation, (private/public sector)
 - Develops a consensus on solutions that meet both the requirements of business and the broader need of society
 - Technical committees (Experts from industry, Representatives from government agencies, etc.)

International Standards

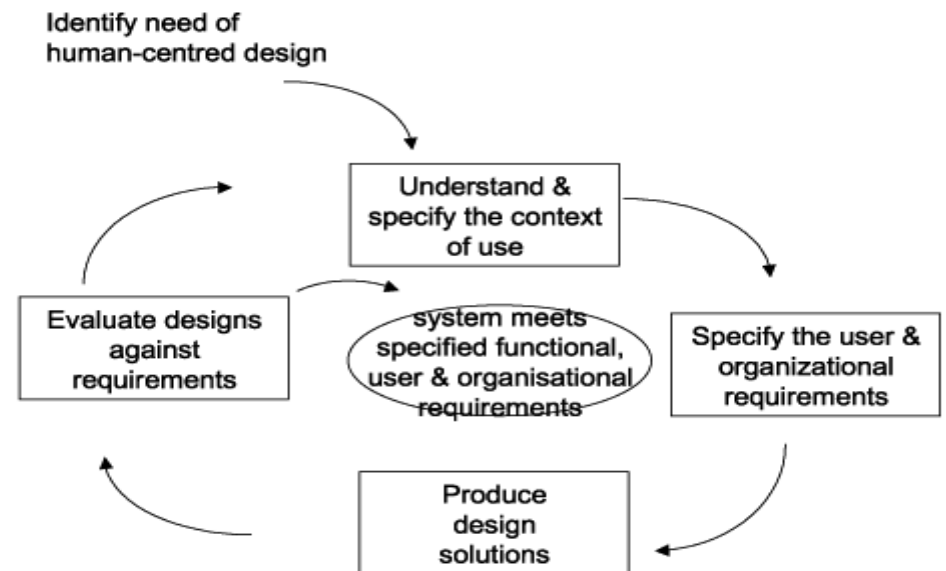
- Why standards matter
 - Ensure desirable characteristics of products and services
 - Quality
 - Environmental friendliness
 - Safety
 - Reliability
 - Efficiency
 - Usability
- When products, systems, machinery and devices work well and safely, it is often because they meet standards

International Standards for HCI

- Most standards developed by the ISO
- Standards relating to HCI are concerned with
 - The use of the product
 - The user interface and interaction
 - The process used to develop the product
 - The capability of an organisation to apply user centred design
- Few mandatory requirements are set but instead guidelines are given
- Some user interface standards contain precise specification

Development Process Standards

- **ISO 13407 (1999) Human-centred design processes for interactive systems**
 - Guidance on human centred design activities throughout the development life cycle
 - Tool for those managing design processes and provides guidance on sources of information and relevant standards



Development Process Standards

- **ISO/TR 16982:2002:** Provides information on human-centred usability methods which can be used for design and evaluation. It details the advantages, disadvantages and other factors relevant to using each usability method
 - It explains the implications of the stage of the life cycle and the individual project characteristics for the selection of usability methods and provides examples of usability methods in context.

Standards dealing with product usage characteristics

- ISO 9241-11 (1998) Guidance on Usability
 - Guidance is given on how to describe the context of use of the product and required measures of usability
 - Explanation of how the usability of a product can be specified and evaluated as part of a quality system
 - This standard defines usability as
 - *'The extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use'*

Standards Dealing with product interface attributes

- Deal with the characteristics of the product
 - Must be interpreted and applied based on the context of use of the particular product
 - Provides requirements and recommendations relating to the attributes of hardware, software and environment that contribute to usability, and the ergonomic principle underlying them
 - Constantly evolving
 - Multiple parts of ISO 9241

ISO 9241

- **ISO 9241-1 (1997) General Introduction**
- **ISO 9241-2 (1993) Guidance on task requirements** - Deals with the design of tasks and jobs involving work with visual display terminals.
- **ISO 9241-4 (1998) Keyboard requirements** - Specifies the ergonomics design characteristics of an alphanumeric keyboard which may be used comfortably, safely and efficiently to perform office tasks.
- **ISO 9241-5 (1998) Workstation layout and postural requirements** - Specifies the ergonomics requirements for a Visual Display Terminal workplace which will allow the user to adopt a comfortable and efficient posture.

ISO 9241

- **ISO 9241-6 (1999) Environmental requirements-** Specifies the requirements for the working environment which will provide the user with comfortable, safe and productive working conditions.
- **ISO 9241-9 (2000) Requirements for non-keyboard input devices**
- **ISO 9241-12 (1998) Presentation of information -** Specific recommendations for presenting and representing information on visual displays
- **ISO 9241-13 (1998) User guidance -** Recommendations for the design and evaluation of user guidance attributes of software user interfaces including Prompts, Feedback, Status, On-line Help and Error Management.

ISO 9241

- **ISO 9241-14 (1997) Menu dialogues** - Recommendations for the ergonomic design of menus used in user-computer dialogues.
- **ISO 9241-15 (1998) Command language dialogues** - Provides recommendations for the ergonomic design of command languages used in user-computer dialogues.
- **ISO 9241-16 (1999) Direct manipulation dialogues** - Recommendations for the ergonomic design of direct manipulation dialogues, and includes the manipulation of objects, and the design of metaphors, objects and attributes.
- **ISO 9241-17 (1998) Form-filling dialogues** - Provides recommendations for the ergonomic design of form filling dialogues.

ISO 9241 (New additions)

- **ISO 9241-20 (2008) Accessibility guidelines for information/communication technology (ICT) equipment and services**
 - General recommendations to improve the accessibility of ICT equipment
 - "ICT equipment" includes mobile devices, computers and software.
- **ISO 9241-110 (2006) Dialogue principles**
 - **Suitability for the task**
 - **Self Descriptiveness** (Visibility of system status)
 - **Conformity with user expectations** (Mapping, Match between system and real world)
 - **Suitability for learning** (Consistency and Standards, Recognition rather than recall)
 - **Controllability** (User Control and Freedom)
 - **Error tolerance** (Error prevention, Help users recognise, diagnose and recover from errors)
 - **Suitability for individualisation** (Flexibility and efficiency of use)

ISO 9241 (New additions)

- **ISO 9241-151 (2008) Guidance on World Wide Web user interfaces**
 - Design principles for designing usable web sites. The standard covers five areas:
 - High-level design decisions and design strategy/ Content design/ Navigation and search/ Content presentation/ General design aspects
- **ISO 9241-171 (2008) Guidance on software accessibility**
 - Guidance on how to design accessible software. The scope is extremely broad.

Other relevant standards

- ISO 6385 Ergonomic principles in the design of work systems
- ISO TS 16071 Guidance on Accessibility of Human-Computer Interfaces
- ISO 11064 Ergonomic Design of Control Centres (*)
- ISO 13406 Flat Panel Display Ergonomic Requirements (*)
- ISO 14915 Multimedia User Interface Design - Software Ergonomic Requirements (*)
- ISO/IEC 10741-1 Dialogue interaction - Cursor control for text editing
- ISO/IEC 11581 Icon symbols and functions
- ISO/IEC 15910 Software user documentation process
- ISO/IEC 25062:2006 Common industry format for Reporting Usability Results

Where to get international standards?

- ISO standards have to be purchased
 - ISO directly
 - National standards body
 - UL library (British standards institute)

Standards for HCI & Usability

- The use of the product (effectiveness, efficiency and satisfaction in a particular context of use)
 - ISO 9241-11
- The user interface and interaction
 - ISO 9241-1, ISO 9241-2, ISO 9241-4, etc.
 - ISO 9241-110
- The process used to develop the product
 - ISO 13407