

ISO/IEC JTC 1 "Information technology"

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SC35 Business Plan 2025

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Description

This document is circulated for review and consideration at the November 2025 JTC 1 Plenary.

ISO/IEC JTC 1 SC35 User Interfaces business plans

November 2025 V1

1. Executive Summary

SC35 writes standards with the goal of enabling the accessibility of systems¹ with user interfaces, or content carried for systems that do provide user interfaces, accessible to diverse users in diverse contexts.

SC35 scope is very broad and encompasses a variety of subjects, which is reflected in the SCs Working Groups.

SC35 covers all kinds of user interaction with services and devices, including:

- particular interaction modes and techniques including but not limited to voice, gesture, gaze, reading, typing, clicking, braille and many others²
- the variety of users' expectations such as cognitive, cultural and physical.

The market addressed is composed of all the groups, companies, customers, associations involved in the design or use of user interfaces, some of which are dedicated to particular groups of end users.

Hence, SC35 goal is to cover all aspects of user interfaces by taking into account the diversity of users. These goals are reflected in the seven active Working Groups, which are dedicated to follows a work program based on a rationale to meet the challenges of diversity.

Critical items (see [Factors affecting completion and adoption of the work program](#) below):

- **Membership extension:** as the subjects covered by SC35 encompass a large range of subjects, the number of P-members and participating experts could be extended. SC35 have launched actions to promote membership, mostly through open workshops. Meeting venues: as a consequence, meeting venues may be difficult to find. SC35 July 25 meeting had to be held online.
- **OSD adoption:** SC35 have obtained a grace period before fully moving to OSD for training purposes and needs to take efforts to adopt OSD.

¹ "System" is an umbrella term to cover a multitude of concepts. Usage of the words: system, service, product, interface and device overlap in meaning and are sometimes used interchangeably but there are subtle differences and they are used in different ways by different communities. Here we use the word "system" for most of them. It denotes an external view not including entirely-internal components.

² The terms and precise definitions for these vary across cultures and as technological solutions develop and change. A precise list of terms is not feasible here.

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2. Environment

Whilst needs in a population don't change (biology changes only on evolutionary timescales), technological solutions do. As technology advances new solutions to challenges become possible, and as they do so new standards work is needed to take advantage of the maximum commonality and interoperability of solutions and make systems as accessible as possible. New interfaces become possible – for example voice-controlled systems such as smart speakers with in-built artificial intelligence are becoming popular right now. But in all of this there is great complexity and diversity.

Over time, as ICT has developed, there has not been a broad knowledge of accessibility in our societies. People having specific needs for ways they can interact with systems have often been considered fairly late in the process of system design, if considered at all. There is not, for example, a wide knowledge of what some call *disability* and there has been a reluctance to design systems to meet all potential needs of all people. A further challenge is that there is not a wide experience of extreme needs in society as many people don't often encounter persons having those needs. System design has often been aimed at a conceptual average of needs. But just as we all need differently sized clothing and clothing selected from one or several sizes at purchase may not fit perfectly, the so-called *average* person does not exist and so solutions to challenges based on *the average person* may not be optimal for anyone. This is changing too, as societies realize the enormous advantages of designing systems accessible to all people and we become better at delivering solutions that cater for the needs of more diverse people.

3. Achievements and benefits

SC35 has produced 92 standards, and has 28 standards under development.

SC35 does not cover technical implementation requirements, while occasionally considering architectures.

Broadly speaking, SC35s endeavors belong to 3 major areas:

- Standards relating to Accessibility
- Standards relating to various Input modes,
- Industry related standards.

These three areas are more than often mingled in several standards.

In the former area (**accessibility**), one can find projects related to:

- Visual presentation of audio information in sign languages
- Augmentative and Adaptative Communication (AAC)
- Accessibility of personal computer hardware
- Progressive interfaces for universal design
- making written Otext easy to read and understand

In the second area (**Input modes**), one can find standards related to:

- Graphical user interfaces
- User interfaces for mobile and wearable devices
- Affective computing user interfaces
- Gesture-based interfaces across devices and methods

- Voice commands
- Avatars
- Taxonomy of cultural and linguistic adaptability user requirements

In the **Industry** related area, one can find projects related to:

- Multimodal Customer Systems
- Accessibility of kiosks
- Use cases of serviced offices

Sustainable development goals

The standards developed within SC35 contribute to

- *Good Health and Well-being*, by promoting accessibility to all people
- *Quality Education*, especially standard related to AAC
- *Reduced inequalities*, by blurring accessibility differences between users
- *Partnership for the goals*, through the evaluation standards in various domains, which enhances cooperations among partners

4. Participation and cooperation/collaboration

	Current	(Previous)
Number of P-members	19	18
Number of O-members	19	20
Number of participating Members	9	8
Members who attended 2 latest meetings	8	
Number of experts attending	43	42

Liaisons

Liaisons with ISO and IEC subcommittees

- 8 liaisons from ISO/TCs or SCs to SC35:

IEC/SyC AAL	Active Assisted Living	IEC
IEC/TC 100	Audio, video and multimedia systems and equipment	IEC
ISO/IEC JTC 1/SC 2	Coded character sets	ISO/IEC
ISO/TC 159	Ergonomics	ISO
ISO/TC 159/SC 4	Ergonomics of human-system interaction	ISO
ISO/TC 299	Robotics	ISO
IEC/TC 3/SC 3	Graphical symbols for use on equipment	IEC
ISO/TC 124	Wearable electronic devices and technologies	IEC
ISO/IEC JTC 1/SC 42	Artificial intelligence	ISO/IEC

- 20 liaisons from SC35 to other ISO/IEC TCs or SCs:

IEC/SyC AAL	Active Assisted Living	IEC
IEC/TC 3	Documentation, graphical symbols and representations of technical information	IEC
IEC/TC 124	Wearable electronic devices and technologies	IEC
ISO/IEC JTC 1	Information technology	ISO/IEC
ISO/IEC JTC 1/SC 2	Coded character sets	ISO/IEC
ISO/IEC JTC 1/SC 22	Programming languages, their environments and system software interfaces	ISO/IEC
ISO/IEC JTC 1/SC 34	Document description and processing languages	ISO/IEC
ISO/IEC JTC 1/SC 36	Information technology for learning, education and training	ISO/IEC
ISO/IEC JTC 1/SC 37	Biometrics	ISO/IEC
ISO/IEC JTC 1/SC 41	Internet of things and digital twin	ISO/IEC
ISO/IEC JTC 1/SC 42	Artificial intelligence	ISO/IEC

ISO/IEC JTC 1/SC 43	Brain-computer interfaces	ISO/IEC
ISO/TC 22	Road vehicles	ISO
ISO/TC 37/SC 2	Terminology workflow and language coding	ISO
ISO/TC 37/SC 4	Language resource management	ISO
ISO/TC 37/SC 5	Translation, interpreting and related technology	ISO
ISO/TC 159	Ergonomics	ISO
ISO/TC 159/SC 1	General ergonomics principles	ISO
ISO/TC 159/SC 4	Ergonomics of human-system interaction	ISO
ISO/TC 173	Assistive products	ISO
ISO/TC 299	Robotics	ISO

- Liaisons with external entities

ITU	International Telecommunication Union	A
ETSI	European Telecommunications Standards Institute	A
SBS	Small Business Standards	A
W3C	World Wide Web Consortium	C

- Cooperative projects with other ISO or IEC committees

SC35 cooperates with ISO/TC 159/SC 4/WG 5 on 9241-171:2024(E) “Ergonomics of human-system interaction — — Part 171: Software Accessibility”

5. Objectives and strategies to achieve them

Describe the objectives of the subcommittee - looking to the future and considering future directions. Those objectives may relate to specific projects or groups of projects.

SC35 bears the following objectives:

- pursuit actions in all three areas covered by SC35, namely Accessibility, Input modes and Industry related projects.
- enhance stake holders' commitment.

WG1 focuses on Accessibility. It has launched and works on several programs, namely:

- Keyboard layouts for text and office systems
- Virtual keyboards user interfaces

WG2 focuses on input methods and Accessibility. It has launched and works on several programs, namely:

- User system interfaces and symbols
- User interface icons
- User interface guidelines on avatars
- Gesture-based interfaces across devices and methods
- Icon symbols and functions

WG5 focuses on Cultural Accessibility. It has launched and works on several programs, namely:

- User interfaces for automatic simultaneous interpretation systems
- Multimodal interaction for customer service systems
- Requirements and recommendations for making written text easy to read and understand

WG6 focuses in Accessibility. It has launched and works on several programs, namely:

- User Interface Accessibility
- User Interface Component Accessibility
- Interoperability with assistive technology (AT)

WG9 focuses on Cultural Accessibility. It has launched and works on several programs, namely:

- ISO/TC 159/SC4/WG5 on 9241-171:2024(E) "Ergonomics of human-system interaction -- -- Part 171: Software Accessibility
- ISO/IEC 13066-1, Information technology — Interoperability with assistive technology (AT) — Part 1: Requirements and recommendations for interoperability
- ISO 9241-11:2018, Ergonomics of human-system interaction — Part 11: Usability: Definitions and concepts

WG10 focuses on Input/Output modes, and especially emotions. It has launched and works on the following programs:

- Affective computing user interface (AUI)
- Evaluation framework for the trustworthiness of affective computing user interface

6. Factors affecting completion and adoption of the work program

Critical items

Membership extension

While the subjects covered by SC35 encompass a large range of subjects, the number of P-members and participating experts could be extended. SC35 have launched actions to promote membership, mostly through open workshops.

As mentioned, the ratio between the number of active projects and the number of participating members is high, and some projects might be delayed if some key experts are not available.

To balance this, most (27 out of 29) of the projects are led by at least 2 project editors.

In addition, so called NORM-UI Workshops aim at promoting the outcome of SC35 to experts within and without the realm of ISO or IEC.

SC35 members have organized 3 Workshops in Germany, France and Korea with a large audience. We intend to follow up by contacting the experts who attended such workshops. Such workshops have been promoted with the fruitful help of JTC1/AG1 and of COPOLCO.

In addition, some SC35 projects have been presented in conferences:

- **Assistive Technology Industry Association conference** in Orlando, FL, USA (<https://www.atia.org/conference/>)
- **Les Rencontres de la Handitech**, Paris, France (<https://www.lahanditech.fr/les-rencontres-de-la-handitech/>)

Adoption of OSD

SC35 has been granted upon request a 1 year grace period before adoption of OSD. The justifications for this choice are as follows:

- According to the ISO explanation, OSD is expected to be accessible and welcoming to everyone. However, since we currently have no experience with OSD, there is some apprehension about how to resolve issues that may arise during the process of drafting documents and sharing opinions. Therefore, it is necessary to have a training period using virtual projects, allowing our SC to test and gain experience with OSD. As our SC has not yet been trained to develop standards using OSD, we request a grace period of about one year and propose implementing OSD starting in 2026.
- OSD does not currently allow to work off line, which is a must for experts who frequently travel.
- Some projects are in partnership with ITU-T who does not have access to OSD.
- Some experts have disabilities that prevent them from using the OSD platform.

SC35 is taking actions towards the adoption of OSD:

- Communicate on OSD training sessions organised by ISO
- Use OSD for some new projects

In addition, we plan to organize a training session during the next SC35 hybrid meeting if necessary. Such training could not be organised during the Summer SC35 session as it was online only.

7. Structure, current projects, and publications

Structure of SC35

SC35 has currently seven active Working Groups.

WG 1 Keyboards, methods and devices related to input and its feedback

WG1 is devoted to interfaces and interactions on keyboards and to other input devices and methods. WG1 continues to extend its activities towards virtual keyboards (e.g. on-screen keyboard, projected keyboard, etc.). WG1 has completed a very important work on "a universal interface for choosing a natural language", proposing a new universal symbol that represents the universal natural language selector in IT applications (ISO/IEC 23836:2020). Work on on-screen keyboards with direct touch interface continue as planned with an important contribution on a general framework for virtual keyboards user interfaces (general requirements and recommendations for all forms of virtual keyboards including audio keyboards, on-screen or projected keyboards).

Revision of ISO/IEC 9995 keyboard standards series has also begun to cater for new national keyboard standard needs, alongside with the development of new parts to complement and ease multi-language keyboard use worldwide.

WG 2 Graphical user interfaces for mobile devices

The group is currently working on one project, ISO/IEC 11581-7. This document is important as it gives requirements on the icons that are suitable for setting up interaction modes in all kinds of devices. The JTC1/SC35 WG2 is still considering animated emoji as a possible project.

WG 4 User interfaces for mobile devices

The important WG4 project is on the design and specification of a general framework for user interface guidelines on menu navigation (ISO/IEC 17549-1), with multiple parts and which is now at the DIS ballot level. The other parts of this project focus on navigation with multiple direction devices (1 and 4-directions).

WG 5 Cultural and linguistic adaptability

WG5 group focuses directly on establishing recommended practices and requirements for Cultural and Linguistic Adaptability and User Interfaces on information and communication technology products.

It includes standardization of language application interfaces such as interpretation (ISO/IEC 23773 series of standards on simultaneous interpretation systems), speech (ISO/IEC 24661 Full duplex speech interaction user interfaces) and translation (ISO/IEC 20382 series of standards on Face to face speech translation) systems and voice commands.

It also provides guidance on language used on user interfaces (ISO/IEC 23859 series of standards on easy to read and easy to understand language).

WG 6 User interface accessibility

A crucial mission of WG6 is to boost awareness on the now-published ISO/IEC 30071-1 "A code of practice for creating accessible ICT products and services" (ISO/IEC 30071-1:2019). We feel that this is an ISO Standard that should be taken into consideration in legislative works as well as in public procurements.

WG6 is making progress on the ISO/IEC 20071 (User interface component accessibility - Accessible user interface for accessibility settings on information devices) that is at the CD ballot. Several parts are undergoing updates and revisions, in cooperation with ITU-T Q26/16 groups.

A new project is initiated on visual presentation of audio information in sign languages to account for this in user interface component accessibility.

As indicated above, preliminary work is being conducted that may lead to additional parts of the 20071 series on:

- Accessibility guidance for immersive environments
- Accessibility guidance on software for playing media content
- The use of sign languages in videos

WG 9 Natural user interfaces and interactions

A natural user interface (NUI) is a user interface that is effectively invisible and remains invisible as the user continuously learns increasingly complex interactions. An NUI relies on a user being able to quickly change from novice to expert, while the most computer interfaces use artificial control devices whose operation must be learned.

Thus, “natural” refers to a goal in the user experience – that the interaction comes naturally, while interacting with the technology, rather than that the interface itself is natural.

This group focuses on NUI and interactions which are based on the following methods:

- Gestures
- Touches
- Facial Expressions
- Any other “Natural” UI and interactions which requires “minimum” efforts of learning

The international standards published by this groups are:

- ISO/IEC 30113-1 “Gesture-based interfaces across devices and methods - Part 1: Framework”
- ISO/IEC 30113-5 “Gesture-based interfaces across devices and methods - Part 5: Gesture Interface Markup Language (GIML)”
- ISO/IEC 30113-11 “Gesture-based interfaces across devices and methods - Part 11: Single-point Gestures for common system actions”
- ISO/IEC 30113-12 “Gesture-based interfaces across devices and methods - Part 12: Multi-point Gestures for common system actions”
- ISO/IEC 30113-60 “Gesture-based interfaces across devices and methods - Part 60: General guidance for screen readers”
- ISO/IEC 30113-61 “Gesture-based interfaces across devices and methods - Part 61: Single-point gestures for screen readers”

WG 10 Affective Computing for user interfaces

Affective computing promises new insights into what people are feeling and can better serve their needs. It provides new challenges that integrate affective phenomena of emotions, moods, feelings, and attitudes in current technologies and offers new opportunities for growth, efficiency and profitability of industries.

Affective phenomena are fundamental and essential to human experience, influencing every aspect of daily life such as perception, cognition, decision-making and behavior.

It is important to establish international standards of affective computing user interfaces that can be used to support affective interaction and improve affective intelligence in ICT.

WG10 on affective computing was established to:

- Serve as a focus of and proponent for the JTC1 SC35 standardization program on affective computing.
- Investigate properties and characteristics of affects used in affective computing user interfaces (to achieve reliability, safety, security, privacy...).
- Study principles, processes, methods and techniques to establish affect communication in ICT systems through transparency, interpretability, controllability, verifiability, etc.
- Investigate needs, requirements, functions and interactions of affective computing user interfaces in different application areas (e.g. health care, autonomous cars, smart home, intelligent education...).
- Identify different affective computing application domains (e.g. social networks, embedded systems, wearable systems...) and their different context of use.
- Assess typical associated threats and risks to affective computing user interfaces and investigate their mitigation techniques and methods.
- Investigate and assess ethics and societal concerns relative to affective communications for ICT systems and applications.

Note:

In 2018, SC35 resolved to disband WG8 User Interfaces for Remote Interactions as there was no more active projects.

In 2020, SC 35 resolved to disband WG7 User Interfaces Object, Actions and Attributes

Current projects

This section lists the active projects for SC35, ordered by Working group, project and part. New projects since last report are marked in bold with (New).

Project	Part	Working Group
Keyboard layouts for text and office systems	Part 7: Graphical symbols used to represent functions	WG 1
Keyboard layouts for text and office systems	Part 1: General principles governing keyboard layouts (New)	WG 1
Keyboard layouts for text and office systems	Part 2: Alphanumeric section	WG 1
Keyboard layouts for text and office systems	Part 3: Latin International keyboard layout	WG 1
Keyboard layouts for text and office systems	Part 4: Numeric section	WG 1
Keyboard layouts for text and office systems	Part 9: Groups and mechanisms for multilingual and multiscript input	WG 1
Keyboard layouts for text and office systems	Part 10: Conventional symbols and methods to represent graphic characters	WG 1
Keyboard layouts for office systems	Part 11: Functionality and labelling of dead keys	WG 1
Virtual keyboards user interfaces	Part 1: General guidelines and requirements	WG 1
Virtual keyboards user interfaces	Part 3: Virtual keyboards interactions	WG 1
User interface guidelines on avatars	Part 2: Icons for setting and representing avatar classes (New)	WG 2
User interface guidelines on avatars	Part 1: General	WG 2
User interfaces	Specification for virtual human (New)	WG 2
User interfaces	Progressive interfaces for universal design (New)	WG 4
User interfaces	Multimodal interaction for customer service systems (New)	WG 5
User interfaces	End-to-end speech to text translation system	WG 5
User interface component accessibility	Part 24: Visual presentation of audio information in sign languages	WG 6
User interface accessibility	Part 4: Applying user accessibility needs	WG 6

User interface component accessibility	Part 31: Accessibility of kiosks	WG 6
User interface component accessibility	Part 40: Augmentative and alternative communication (AAC)	WG 6
User interface component accessibility	Part 41: Design and use of pictograms, photos, and icons in AAC	WG 6
Gesture-based interfaces across devices and methods	Part 62: Multi-point gestures for screen readers	WG 9
User interfaces	Describing whole-body movement sequences	WG 9
User interfaces	Unifying input actions across devices	WG 9
Affective computing user interface (AUI)	Part 51: Affective interaction design for in-cabin service (New)	WG 10
Affective computing user interface (AUI)	Part 11: Emotion representation	WG 10
Affective computing user interface (AUI)	Part 31: Emotion annotation	WG 10
Information technology	Evaluation framework for the trustworthiness of affective computing user interface	WG 10

The SC 35 has published [92](#) documents to this date.

8. Publications which should be given visibility

29138-1 User Needs for Accessibility

This standard describes around 130 User Needs for Accessibility, with a full description of each including instances of application and examples. The standard enables an approach to making ICT products, services and systems optimally accessible to the people who need to use them in an increasingly complex and varied world. It enables an approach to delivering content and interacting with systems that really works for everyone. It is the model that is needed in the modern cross-cultural diverse world that delivers diverse experiences to diverse users in diverse contexts of use.

30150-1:2022 Information technology — Affective computing user interface (AUI) — Part 1: Model

This project is a general model for AUI design and applications. It is the first ISO standard about affective computing user interface, which helps us to build a harmonious human-computer environment by enabling computing-based systems to recognize, interpret and simulate human affects in common.

ISO/IEC 11581-1 Information technology -- User interfaces and symbols -- Icon symbols and functions — Part 1: General

Actually ISO/IEC 11581 series covers icon related standards, but Part-1 is important as the umbrella standard of this series.

ISO/IEC 17549-1 Information technology -- User interface requirements and recommendations on menu navigation -- Part 1: Framework

This standard is the umbrella standard for menu navigation.

ISO/IEC 9995-1: Information technology — Keyboard layouts for text and office systems — Part 1: General principles governing keyboard layouts.

ISO/IEC 9995 series ensures consistency and compatibility across devices and regions, making it easier for users to switch between different systems and maintain efficiency. More specifically, ISO/IEC 9995-1 deals general principles governing keyboard layouts.

ISO/IEC 30113-1 Information technology — User interface — Gesture-based interfaces across devices and methods Part 1: Framework

The 30113 - gesture-based UI - series defines a framework and guidelines for gesture-based interfaces across devices and methods in supporting interoperability.