

ISO/IEC JTC 1 "Information technology"

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SC 35 Business Plan 2023

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Description

This document is circulated for review and consideration at the November 2023 JTC 1 Plenary.

ISO/IEC JTC 1/SC 35
User interfaces
Business Report to JTC 1

1. Executive summary

The JTC1/SC 35 scope is to integrate the requirements for Accessibility, Cultural and Linguistic Adaptability and User Interfaces (CLAUI) aspects in products so that software and hardware be adapted to local cultural, linguistic, and user needs.

IT Accessibility matters to an important and growing population around the world. Situations such as persons with specific needs, ageing populations, people working in noisy environments, limited use of hands (e.g. while driving or typing), language barriers, etc. All these examples may result in specific, permanent, or temporary user needs that IT User interfaces should address

Equal access to IT devices, digital information and interactions is central not only to secure wider product adoptions, but also to facilitate employment, and support all users with means of socialization, business interactions or citizenship rights. JTC1/SC35 is, since 2014, acting also as the ISO/IEC JTC1 accessibility representative, with the mission to promote the adoption of accessibility concepts with ISO bodies and beyond. Given its mandate, SC35 is strongly contribute to the work of the "Strategic Advisory Group on Accessibility" set up by the TMB (TMB Resolution 99/2018) to review and map "existing and ongoing work on accessibility in ISO, IEC and ITU, developing recommendations on tools to assist the TC community in developing standards that take accessibility into consideration".

All these issues are clearly crucial and of paramount importance given the current epidemic that boost remote access to information, teleworking, and virtual meeting via ICT equipments.

2. Chairman's Remarks

2.1 Market Requirements, Innovation

Information and communication technologies (ICT) are used in every conceivable area of life. There is an increasing need, for instance, to secure access to the Internet by all citizens all around the world and to bring everyone, independently from their culture and language, online. The current epidemic is strongly boosting this process. There is especially a need to develop market-relevant standards enabling the Cultural and linguistic concepts to be implemented in ICT products. Besides, the growth of the elderly population and the growing concern for disabled drive a stream of user's needs and accessibility requirements that can partially be addressed by JTC1/SC 35 standards in the context of its scope.

New projects with a focus on Natural User Interfaces and Interactions continue to be initiated by the JTC1/SC35 members. Projects such as the one regarding simultaneous interpretation, affective computing or easy to read and easy to understand (content) are perfectly in line with this approach. In addition, projects related to interfaces using speech input/output including emotions, gestures, linguistic & cultural features are being debated while study groups are set-up to review and anticipate expectations of industry with respects to new topics such as immersive environments or IoT interfaces.

Members of the group have been also contributing to the AG 17 on accessibility of meetings for participants with specific needs.

2.2 Resources

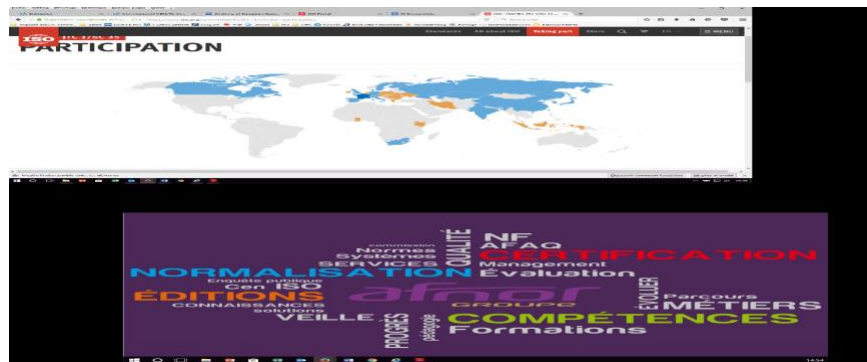
Since the Covid-19 epidemic, few projects suffered some delays due to leaders' personal reasons that could not be anticipated. Switching all meetings from face-to-face ones to virtual/online ones added some delays.

As regularly reported to JTC1 meetings, JTC 1/SC 35 has participants with substantial expertise but to cover future necessary developments, it is important to attract new experts representing the market players and willing to actively contribute to the development of new projects. With only 19 P members and the absence of the USA, we need to better promote our activities and ensure that more countries get involved.

JTC1/SC35 continues to work in close collaboration with ITU-T which regularly issues Liaison statements for a joint benefit.

2.3 Competition and cooperation

The full JTC1/SC35 Membership list can be found at [SC Member Listing](#):



A list of liaisons can be found at [JTC 1/SC 35 Liaisons](#). JTC1/SC35 focuses on interfaces which are very common to many areas (devices, applications/services, Internet of Things, Smart objects/cities, etc.) and it takes considerable care to avoid overlaps and competition with other SCs as well as other organizations. Therefore, JTC1/SC 35 maintains many liaisons with other organizations and committees. As mentioned above, JTC1/SC35 has a very close and productive collaboration with ITU-T.

3. Discussion of SC program of work

A detailed program of work can be found at the SC 35 Committee Website. SC 35 participants continue to progress a wide range of projects, as shown below.

3.1 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.

3.2 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.

3.3 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).

3.4 WG 5 Cultural and linguistic adaptability

This 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).

3.5 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

3.8 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”

3.9 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

4. Visions for the future and Conclusions

Because of the Covid-19 epidemic, SC 35, like other subcommittees, has been meeting remotely. The projects have progressed pretty well but some PWI have been put on hold as they require face to face discussions. The sub committee work is now back on track thanks to the two face to face meetings in Berlin, Germany and Matsue, Japan.

SC 35 is attached to diversity and has implemented succession planning by naming Deputy Convenors who are potential Convenors in future years. This resulted in a younger and more diverse (sexwise) management team as well as stronger collaboration between experts from various continents.

JTC1/SC 35 WG1 team continues its work on new aspect of keyboards in particular virtual keyboards (on-screen/direct-touch, projected, etc.) considering requirements of many languages and cultures. A general framework is being designed to make specifications of such keyboard easier. We continue our work, through WG2, on new perspectives for interfaces and system outputs, strongly considering the accessibility issues, for example for icon representations (i.e. representing "something" by icons) and ensuring that such information can be turned into "ear"cons, "tact"cons and considering animated emojis. JTC1/SC 35 WG4 continues its work on interfaces for navigation on mobile and other devices, offering multiple directions. Cultural and Linguistic adaptation are essential requirements for accessibility and new projects such as "easy to read/easy to understand", simultaneous interpretation, speech input/output interfaces, are making substantial progress and bringing in new perspectives. The "User interface accessibility" group (WG6) continues to develop standards in three main areas (which might be added to in the future as additional opportunities are identified): User accessibility needs (in the ISO/IEC 29138 series), Development of user interface accessibility (in the ISO/IEC 30071 series) and User interface component accessibility (in the ISO/IEC 20071 series). New initiatives on immersive environments or IoT interfaces will be launched soon. WG6 has listed a set of projects for revision. JTC1/SC35 WG9 has initiated an important project on evaluating usability of Natural User Interfaces that will cover many interfaces and modalities.

As already indicated and considering the importance of the affective computing in the user interfaces for ICT services and products, SC35 has now a working group on "Affective Computing" that is working on a number of issues like an affect model to be used within our work.

Additionally, we continue to strengthen our liaisons with other relevant organizations, e.g. with joint activities conducted with ITU.

5. ISO/IEC JTC1/SC35 Standards under development

ISO/IEC PWI 20071-24	Information technology - User interface component accessibility — Part 24: Visual presentation of audio information in sign languages	WG 6
ISO/IEC DIS 22121-2	Information technology — Virtual keyboards user interfaces — Part 2: On-screen keyboards with direct touch interface	WG 1
ISO/IEC DIS 17549-3	Information technology — User interface requirements and recommendations on menu navigation — Part 3: Navigation with 1-direction devices	WG 4
ISO/IEC DIS 24661	Information technology — User interfaces — Full duplex speech interaction	WG 5
ISO/IEC DIS 23859-1	Information technology — User interfaces — Part 1: Guidance on making written text easy to read and easy to understand	WG 5
ISO/IEC AWI 7818	Information technology --User interfaces — Framework for voice user interfaces for personal mobility services	WG 9
ISO/IEC DTR 30150-2	Information technology — Affective computing user interface (AUI) — Part 2: Affective characteristics	WG 10
ISO/IEC PWI 30150-11	Information technology-Affective computing user interface (AUI) — Part 11: Emotion representation	SC 35
ISO/IEC PWI 30150-31	Information technology — Affective computing user interface (AUI) — Part 31: Emotion annotation	WG 10
ISO/IEC PWI 30113-62	Information technology –Gesture-based interfaces across devices and methods — Part 62: Multi-point gestures for screen readers	SC 35
ISO/IEC DIS 23773-1	Information technology — User interfaces for automatic simultaneous interpretation system — Part 1: General	WG 5
ISO/IEC DIS 23773-2	Information technology — User interfaces for automatic simultaneous interpretation system — Part 2: Requirements and functional description	WG 5

ISO/IEC CD 23773-3	User interface — Automatic Simultaneous Interpretation System — Part 3: System architecture	WG 5
ISO/IEC AWI 22121-1	Information technology — Virtual Keyboards User interfaces — Part 1: Part 1: Framework	WG 1
ISO/IEC AWI 22121-3	Information technology — Virtual keyboards user interfaces — Part 3: Part 3: Virtual keyboards interactions	WG 1
ISO/IEC PWI TS 20071-21	Information technology — User interface component accessibility — Part 21: Guidance on audio descriptions	WG 6
ISO/IEC PWI 20071-23	Information technology — User interface component accessibility — Part 23: Visual presentation of audio information (including captions and subtitles)	WG 6
ISO/IEC PWI TS 20071-25	Information technology — User interface component accessibility — Part 25: Guidance on the audio presentation of text in videos, including captions, subtitles and other on-screen text	WG 6
ISO/IEC PWI TR 18720	Information technology — User interfaces — Use cases of third work places	WG 2
ISO/IEC DIS 11581-7	Information technology — User interface icons — Part 7: Icons for setting interaction modes	WG 2
ISO/IEC PWI 9995-3	Information technology — Keyboard layouts for text and office systems — Part 3: Complementary layouts of the alphanumeric zone of the alphanumeric section	WG 1
ISO/IEC PWI 9995-7	Information technology — Keyboard layouts for text and office systems — Part 7: Symbols used to represent functions	WG 1
ISO/IEC PWI 9995-10	Information technology — Keyboard layouts for text and office systems — Part 10: Conventional symbols and methods to represent graphic characters not uniquely recognizable by their glyph on keyboards and in documentation	WG 1
ISO/IEC PWI 9995-11	Information technology — Keyboard layouts for office systems — Part 11: Functionality of dead keys and repertoires of characters entered by dead keys	SC 35

ISO/IEC CD 4944	Information technology — User interfaces — Evaluating usability of natural user interfaces	WG 9
ISO/IEC PWI 4933	Information Technology — User interfaces — Requirements and recommendations for unified input actions across devices	WG 9

ISO/IEC CD 11581-7 Information technology — User interface icons — Part 7: Icons for setting interaction mode	WG2
ISO/IEC DIS 17549-1 Information technology — User interface guidelines on menu navigation — Part 1: Framework	WG4
ISO/IEC CD 17549-3.2 Information technology — User interface guidelines on menu navigation — Part 3: Navigation with 1- direction devices	WG4
ISO/IEC DIS 20071-5 Information technology — User interface component accessibility — Part 5: Accessible user interface for accessibility settings on information devices	WG6
ISO/IEC DIS 22121-2 Information technology — Virtual keyboards user interfaces — Part 2: On- screen keyboards with direct touch interface	WG1

ISO/IEC AWI 23773-1 User interface — Automatic Simultaneous Interpretation System — Part 1: General	WG5
ISO/IEC AWI 23773-2 User interface — Automatic Simultaneous Interpretation System — Part 2: Requirements and functional description	WG5
ISO/IEC DIS 23859-1 Information technology — User interfaces — Part 1: Guidance on making written text easy to read and easy to understand	WG5
ISO/IEC CD 24661 Information technology — User interfaces — Full duplex speech interaction user interfaces	WG5
ISO/IEC DIS 29138-3 Information technology — User interface accessibility — Part 3: Guidance on user needs mapping	WG6
ISO/IEC DIS 30150-1 Information technology — Affective computing user interface (AUI) — Part 1: Model	WG10