Accessibility in Emerging Technologies

It is important for new emerging networks and services, for example NGN, to consider accessibility from the very beginning. When planning, developing, designing and distributing telecommunication equipment and services, developers should consider people with special requirements to ensure that they can gain the same benefits from information and communication technologies (ICT) as the wider population.

Simply, it makes sound business sense for the largest number of people to have access to ICT. With the constantly evolving baby boomer market and a general increase in life expectancy, more and more people will find themselves with impaired hearing, sight, etc. It therefore becomes more and more important to recognize accessibility needs now and for the future.

SG 16 works with other ITU-T SGs on accessibility, and its recently created *checklist* will help standards writers take into account accessibility needs in their Recommendations.

Examples of emerging technologies

"Design for All" principles have been recognized in the ***NGN (next-generation networks)*** work at an early stage. Accessibility needs have been outlined by Study Group 16 and referenced in the NGN Release 1 specifications.

IPTV requires captioning for the deaf and hard-of-hearing, along with live real-time voice descriptions for the blind, in order for it to be accessible. It will be important to account for these needs in future standardization work.

Accessibility needs are also important in the ***Home Networking*** standards work taking place in the Joint Coordination Activity on Home Networking and in SGs 4, 9, 15, 16 and 17.

In ***Cable TV,*** under the responsibility of SG 9, accessibility needs are also important.

Another emerging technology in which ITU has a hand is ***Radio-Frequency Identification (RFID).*** While RFID applications are still in the early stages, the following scenario could be envisaged: someone who has accessibility needs and is equipped with an RFID tag approaches a telephone; the RFID reader in that phone recognizes that the person is deaf and makes the necessary adjustments. For this type of application to work on a universal scale, international standards are imperative.

What is Total Conversation?

Total Conversation is an ITU Service description found in *ITU T Rec. F.703* and covers videophony with real-time text.

A *Total Conversation Service* is an audiovisual conversation service providing bidirectional symmetric real-time transfer of motion video, text and voice between users in two or more locations. This real-time text differs from instant messaging systems because it is the bidirectional transmission of one character at a time. This gives the user the feel of real-time communication, just like voice or video systems that transport streaming media over IP. The concept is aimed at providing rich media real-time conversation for all people and for varying situations. This includes, but is not limited to, people that are disabled in some way, e.g. the deaf or hard-of-hearing, blind, etc., but also people who find themselves in a situation where the complementing media – video and real-time text – together with voice fulfil the conversation needs much better than only voice.

Accessibility Guidelines

In order to provide general guidelines for standards makers, ITU T SG 16 developed F.790, a Recommendation on telecommunication accessibility guidelines. It will enhance the planning, developing, designing, and distributing of all forms of telecommunication equipment, software and associated telecommunication services. The aim is to improve accessibility for older persons and persons with permanent or temporary disabilities.

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ITU-T

Accessibility

Communication Opportunities for All

Total Conversation: One Platform for Voice, Video and Text

workshops: www.itu.int/ITU-T/worksem/
e-flash and news: www.itu.int/ITU-T/news/
membership: www.itu/ITU-T/membership/
technology watch: www.itu/int/ITU-T/techwatch

International Telecommunication Union

Accessibility and Standardization

Users of telecommunications and information technology have varied capabilities of handling information and the controls for its presentation. The source of these variations lies in cultural and educational backgrounds as well as in age-related functional limitations, in disabilities, and in other natural causes.

The entire community can benefit from accessibility standardization work, as people can be permanently or temporarily disabled due to physical, environmental (e.g. a phone call in a noisy environment) or cultural (e.g. spoken language diversity) conditions. Moreover, we will all grow old and lose abilities that we take for granted now, thus enlarging the part of the population that would benefit from accessible communication. And in these cases, the concept of *Total Conversation* is especially important because it caters for the non-signing deaf or hard-of-hearing community with the incorporation of real-time text communication.

Standardization makes it possible, on a global scale, to connect equipment and services from different manufacturers. The most important goal of ITU-T's accessibility activities is to make sure that newly developed standards contain the necessary elements to make services and features usable for people with as broad a range of capabilities as possible. Standards describe how equipment interacts, and define the quality necessary for media to be usable for all. Standards also describe suitable methods of media delivery for people with disabilities, and are therefore essential for the provision of services accessible for all.

ITU-T Study Group 16's Role

As the Lead Study Group on Ubiquity and on Multimedia Terminals, Systems and Applications, the ITU-T SG 16 work on accessibility standardization promotes the concept of *Total Conversation* and aims to ensure that all sectors of the global community have equal access to communications and online information. This effort is centered in Question 26/16 "Accessibility to Multimedia Systems and Services", which continues ITU-T's international standardization work on accessibility, pioneered in the 1990s with V.18 (an ITU-T Recommendation on a multifunction text telephone).

The work is carried out in close cooperation with many other groups, and in many cases focuses on integrating sections on accessibility into Recommendations produced outside of SG 16. A large part of Q.26's work aims at having procedures for the *Total Conversation* concept included in the development of video, text and voice telephony services.

Accessibility Checklist

SG 16 has published a Technical Paper with a telecommunication accessibility checklist for the makers of standards to ensure that they are taking into account the needs of those to whom accessibility to ICTs are restricted, the deaf or hard-of-hearing for example. Experts say that such a list will help to ensure that accessibility needs are taken into account at an early stage, rather than having to retrofit existing standards.

ITU-T SG 16 Recommendations on accessibility

- ***V.18*** provides for harmonization of text telephony
- ***T.140*** specifies the general presentation protocol for text conversation
- ***T.134*** details how to use text conversation in the **T.120** data conferencing environment
- ***H.323*** Annex G defines text conversation in **H.323's** packet multimedia environment
- ***H.248.2*** allows bridging text telephony in PSTN and real-time text in IP and other networks
- ***H Series Supplement 1*** gives users the requirements on video communication for sign language and lip-reading
- ***F.790*** provides telecommunication accessibility guidelines for the elderly and persons with disabilities

Recommendations in which sections on accessibility have been integrated

- Definition in ***F.703*** of Total Conversation and Text Telephony services, offering real-time text, video and audio communication
- Definition of the real-time conversational text medium in ***F.700***
- Inclusion in ***H.320*** of real-time text conversation in ISDN multimedia
- Section on transport of real-time text in ISDN multimedia environments in ***H.224***
- Sections on modem negotiation for text telephony in ***V.8***
- Sections in ***V.8 bis*** on modem negotiation for text telephony
- Sections in ***V.250*** on control of **V.18** modems
- Inclusion in ***H.324*** of real-time text conversation in circuit-switched multimedia
- Section in ***H.245*** for handling real-time text connections in **H.324** and **H.323** multimedia environments
- Inclusion in ***T.120*** of real-time text in data conferencing
- Section in ***T.124*** for handling real-time text sessions in the **T.120** environment
- Section in ***G.168*** for testing of echo cancellation in calls with text telephony
- Section in ***F.724*** for accessible media additions in service description and requirements for video telephony services over IP networks
- Section in ***F.733*** for accessible media additions in multimedia conference services over IP
- Section in ***F.741*** for accessible media additions in service description and requirements for audiovisual on-demand services
- Section in ***F.742*** for accessible media additions in service description and requirements for distance-learning services
- Inclusion in ***V.152*** of text telephony considerations in voice band data gateway procedures
- Accessibility provisions in ***Y.2000 – Series Supplement 1*** NGN Release 1 scope
- Specification on coupling hearing aids to telephones in ***P.370***

For further information: **www.itu.int/ITU-T/studygroups/com16/accessibility**