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## Contribution to the Second Meeting of the Internet Governance Forum

### ITU-T SG 16 Work on Accessibility (Version 2007-05-11)

#### 1 Accessibility and Standardization

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

The entire community can benefit from the 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 range of capabilities as possible. Standards describe how equipment interacts and defines the quality necessary for media to be usable for all. Standards should also describe suitable methods of media delivery for people with disabilities, and are therefore essential for the provision of services accessible for all.

#### 1.1 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 telecommunications equipment and services, developers should consider people with special requirements to ensure that they can gain the same benefits from ICT as the wider population.

Simply, it makes sound business sense for the largest number of people to have access to ICTs. And with the emerging baby boomer market and a generally increased life expectancy, more and more people will find themselves with impaired hearing, sight etc, so it becomes more and more important to take into account accessibility needs.

Taking into account the [Total Conversation](#) concept in the creation of new ICT standards will reduce the cost of having to redesign or add costly amendments later. Worldwide compatibility and interoperability is not only important for mainstream communication, but also in communication for those with accessibility needs. And for this reason accessibility needs should be regarded in the same light from the beginning.

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

The following are examples of emerging technologies and of how they can benefit from telecommunications accessibility considerations:

- "Design for All" principles have been taken into account in [NGN](#) (next generation networks) work at an early stage. The [Accessibility guidelines](#) developed by Study Group 16 are referenced in the NGN Release 1 specifications.
- [IPTV](#) will require captioning for deaf and the hard-of-hearing and live real time voice descriptions for the blind in order to be accessible. It will be important to take into account these needs in future standardization work. Accessibility needs are also important in the [Home Networking](#) standards work taking place in SG 4, 9, 15, 16, 17 and the Joint Co-ordination Activity on Home Networking. And in [Cable TV](#), which is under the responsibility of SG 9, accessibility needs are also important.
- Another emerging technology in which ITU has a hand is [RFID](#) (radio frequency identification). Applications are in the planning stage, but for example a scenario could be envisaged where someone with accessibility needs equipped with an RFID tag approaches a telephone and the RFID reader in that phone recognizes that the person is deaf and makes the necessary adjustments. And for this type of application to work on a universal scale, standards are imperative.

## **1.2 What is Total Conversation?**

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 transmission bi-directionally 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 for 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, real-time text and voice together fulfills the conversation needs much better than only voice.

Total Conversation is an ITU service description in [ITU-T Rec. F.703](#) and covers videophone with real time text. Ideally all videophones should offer "Total Conversation", but in many cases only video and audio are provided. F.703 is useful not only for the disabled but for anyone who can benefit from the textual back-up of for example technical data, language translations, verbal or signed conversations. It has uses for people who are not only deaf or disabled but people who can't communicate in either of the two mediums or do not have the command of the spoken language used. Total Conversation's use is useful to document factual information within videophone calls (e.g. phone numbers and addresses) without searching for pen and paper. An example would be to get a flight booking reference when making a travel arrangement.

## **2 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 effort in 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 the ITU-T international standardization work on accessibility, pioneered in the 1990s with V.18 (an ITU-T Recommendation on a multi-function text telephone).

**2.1 ITU-T SG 16 Achievements on Accessibility** ITU-T SG 16's [Question 26/16](#) work on accessibility is done in close co-operation with many other groups and in many cases focuses on integrating sections on accessibility in Recommendations. A large part of Q.26's work aims at including procedures for the [Total Conversation](#) concept for conversation in Real-time Text,

Video and Voice as an accessible superset of video telephony, text telephony and voice telephony.

The following ITU-T Recommendations are a result of SG 16's work:

- [V.18](#) harmonization of text telephony
- [V.151](#) Procedures for the end-to-end connection of analogue PSTN text telephones over an IP network utilizing text relay
- [T.140](#) the general presentation protocol for text conversation
- [T.134](#) text conversation in the T.120 data conferencing environment
- [H.323](#) Annex G for text conversation in H.323 packet multimedia environment
- [H.324](#) Annex L for text conversation in H.324 circuit switched multimedia communications, which includes 3GPP UMTS
- [H.248.2](#) gateway procedures between Text Telephony in PSTN and real-time text in IP and other networks
- [H Series Supplement 1](#) Requirements on video communication for sign language and lip reading
- [Telecommunication Accessibility Checklist](#) for standards writers
- [F.790](#) Telecommunications accessibility guidelines for older persons and persons with disabilities

The following are Recommendations in which sections on accessibility have been integrated:

- Sections on accessibility were included in NGN R1 Scope [Y.2000SerSup1](#)
- 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
- 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.742](#) for accessible media additions in service description and requirements for distance learning services
- Section in [F.741](#) for accessible media additions in service description and requirements for audiovisual on demand services
- Inclusion in [V.152](#) of text telephony considerations in voice band data gateway procedures

## **2.2 Work in Progress**

ITU-T SG 16's [Question 26](#) works on several fronts, some of them under the direct responsibility of Q.26, others in coordination with other Questions in SG 16, others in coordination with other ITU-T Study Groups and other organizations.

The main ongoing work within Q.26/16 refers to the definition of requirements for real-time text over IP.

The following is ongoing work in other groups with interest and support from Q.26/16:

- [V.151](#) text relay procedures in Q.11/16
- Accessibility in NGN, NGN scope and requirements in ITU-T SG 13
- Review of real time text in [H.323](#) Annex G, in Q.2/16
- Review of text gateway procedures in [H.248.2](#) in Q.3/16
- Accessibility report for developing countries in ITU-D SG 1 [[Question 20/1](#)]
- Real time text in IP multimedia in Cable TV networks in ITU-T SG9
- Accessibility in IPTV in [FG-IPTV](#).
- Usability and human factors in [ITU-T Q.3/2](#)

## **2.3 Telecommunications Accessibility Checklist**

Implementation of accessibility for people with disabilities influences a large number of items in the ITU-T standardization work programme. This Telecommunications Accessibility Checklist for standardization activities intends to ensure that the specified services and features are usable by as many as possible including people with disabilities. This checklist should be applied to every work item before the work commences, during the work and at the completion of the work. The use of the checklist should be complemented by involving accessibility experts and users in the process.

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It is suggested that this checklist be used *early on* as part of the standards development process. This checklist is a living document and will be revised as experience is gained with its use.

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The complete text of the Telecommunications Accessibility Checklist can be gotten from: <http://itu.int/pub/T-TUT-FSTP-2006-TACL>.

## **2.4 Telecommunication Accessibility Guidelines**

ITU-T Question 26/16 developed the ITU-T Recommendation [F.790](#) for telecommunications accessibility guidelines for the elderly and people with disabilities. The original proposal submitted by Japan, November 2004, was progressed and started the approval process in November 2006.

The spectacular growth in information communication technology (ICT), in particular the rapid proliferation of the Internet, means that people are required to use telecommunications equipment and services much more frequently than before. Although the new technology has provided substantial benefits, there is a possibility that older persons and persons with disabilities cannot enjoy these benefits due to a lack of accessibility provided to consume those

telecommunication services. This issue is becoming more serious with the increasing percentage of aging persons worldwide. In response, some nations started to develop their own guidelines for telecommunications accessibility. In today's world, however, telecommunications equipment moves freely across national borders. Thus, in order to enhance telecommunications accessibility, guidelines are indispensable not only domestically but also internationally.

The ITU-T Recommendation on telecommunication accessibility guidelines is intended to provide general guidelines for standardizing, planning, developing, designing and distributing all forms of telecommunications equipment and software and associated telecommunications services, to enhance their accessibility for older persons and persons with permanent or temporary disabilities, ensuring accessibility for people with the widest possible range of abilities.

## **2.5 Workshops and Seminars**

ITU-T Accessibility workshops organized in the past include:

- *Accessibility I: ITU Takes Deaf People's Accessibility Needs Into Account (July 2003)*  
The workshop "Accessibility I: ITU Takes..." highlighted the benefits of standardization for the deaf community as well as for manufacturers and service providers. Speakers included representatives from the manufacturing, service providing and academic communities. This workshop, 14-16 July 2003 Las Vegas Nevada USA, took place within the Telecommunications for the Deaf (TDI) Conference. The [event homepage](#) has the presentations and the [final report](#). A transcription of the session can be read [here](#).
- *Accessibility II: Communication by all means: Accessibility for all in telecommunications enabled by multimedia standards (October 2003)*  
The workshop "Accessibility II: Communication by...", 13-17 October 2003 Geneva, briefed attendees on the status of standardization for accessibility enabled by multimedia communication as well as on societal support and on practical results from the implementation of all-inclusive communications facilities. Speakers included representatives from the standards-making bodies as well as authorities and the user community. Check the [event homepage](#) and the [workshop report](#) for more details.

Q26/16 has contributed to other accessibility events including:

- *FCC summit on Accessibility and IP based services (May 2004)*  
On May 7, 2004, the Federal Communications Commission held a Forum to discuss Voice over Internet Protocol (VoIP). The purpose of the Forum was to gather information concerning advancements, innovations, and regulatory issues related to VoIP services. Accessibility issues has been considered in presentations 2 (Gunnar Hellstrom) and 4 (Paul Jones). Please find the presentations from the summit [here](#).
- *4<sup>th</sup> Conference: Handicap 2006 (June 2006)*  
From 6<sup>th</sup> to 9<sup>th</sup> June, 2006, the [IFRATH](#) (Institut Fédératif de Recherche sur l'Aide Technique pour personnes Handicapées), organized a conference, [Handicap 2006](#), to discuss the technical assistance to people with physical disabilities or age-related functional limitations. Accessibility issues has been considered in the presentation (French language): «[Normalisation des services d'accessibilité conversationnels](#)» by Daniel Battu, Gunnar Hellstrom and Andrea Saks who represented the ITU-T Q.26/16 Accessibility to Multimedia.
- "[Designing Next Generation Networks for all](#)", ITU-T Workshop on "[NGN technology and Standardization](#)" (Las Vegas USA, 19-20 March 2006)
- "[Accessibility in New Emerging Networks and Services](#)", Joint ITU-T Workshop and IMTC Forum 2006 on "[H.323, SIP: is H.325 next?](#)" (San Diego, USA, 9-11 May 2006)
- "[Convenient invocation of relay services](#) at ITU-T SG2 joint meeting of Q1 and Q3", (Geneva, 07 February 2007). For more information on the subject, please refer to the [SG2 infodoc 29](#).
- [ITU-D Seminar](#) on the "Sharing experience on best practices and services for people with disabilities" (Geneva, 17 September 2007)

### 3 Conclusions

ITU-T Question 26 is a focal point in ITU for the development of technologies that aim at overcoming communications limitations users may face when using telecommunications equipment. The work in Question 26/16 has, from its roots, concentrated on technological mechanisms to deal with hearing disabilities.

The early work on PSTN text phones has evolve to support many transport technologies, here including IP and the internet. Along the way, the concept of Total Communication was born. The main premise of this concept is that features that support accessibility needs should be built into systems since their inception, and not retrofit at a later stage; this is fundamental to ensure that costly system upgrades do not need to be fought for after an initial base is deployed.

Next challenges for the group includes continuing to promote the concept of Total Communication into new communications systems and services as they are standardized (such as IPTV and NGN), and to expand to disabilities beyond those of the deaf and hard-of-hearing.

#### Read more on accessibility

- [How ITU is pioneering telecom accessibility for all](#)
- [A Phone of Our Own](#) - Book by H. G. Lang, Gallaudet University Press
- [Accessibility Promotional Flyer](#)

#### Useful Links

- [APT - Accessibility and Usability \(AU\) Expert Group](#)
- [ITU-T SG 2 Question 3/2](#) "Human factors related issues for improvement of the quality of life through international telecommunications" - [Summary of activities](#)
- [ITU-D SG 1](#) Question 20/1 "Access to telecommunication services for people with disabilities"
- [G3ict - the Global Initiative for Inclusive ICTs](#)
- [ISO/IEC JTC1 Special Working Group on Accessibility](#) (SWG-A)
- [Telecommunications for the Deaf and Hard of Hearing](#) (TDI)
- [United Nations Enable initiative](#)