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Focus Group on Audiovisual
Media Accessibility

Technical Report

**Part 9: Requirements and good practice
for supporting remote participation
in meetings for all**

FOREWORD

The procedures for establishment of focus groups are defined in Recommendation ITU-T A.7. The ITU-T Focus Group on Audiovisual Media Accessibility (FG AVA) was proposed by ITU-T Study Group 16 for creation in-between TSAG meetings and it was established on 22 May 2011. The Focus Group was successfully concluded in October 2013.

Even though focus groups have a parent organization, they are organized independently from the usual operating procedures of ITU, and are financially independent. Texts approved by focus groups (including Technical Reports) do not have the same status as ITU-T Recommendations.

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Summary

This Technical Report was produced by the FG AVA Working Group K "*Access of working procedures*". It outlines the requirements for ensuring that focus group meetings are accessible to remote participants, including those with disabilities and those using assistive technologies. Remote participants are those who are not present at the physical location of the meeting but who are taking part via audiovisual communication, chiefly via Internet but possibly also using traditional telephone conferencing facilities.

Keywords

Access, accessibility, focus group meetings, remote participation.

1 Scope

The requirements and good practice for supporting remote participation in meetings for all do not cover the following aspects of meetings access, although the importance of addressing these is stated in the clause "Other issues to consider for access to focus group activities", not covered in detail:

– Physical meetings attendance.

– Local meetings access.

– Communication and working procedures between meetings.

– Accessibility of public and working documents, other than those required for accessing meetings or used in meetings.

– Choice between open standards and proprietary solutions.

2 Definitions

This Technical Report defines the following terms:

2.1 accessible: Accessible to all users or participants on an equal basis, including persons with disabilities using assistive technologies.

2.2 assistive technology (AT): AT is an umbrella term that includes assistive, adaptive, and rehabilitative devices for persons with disabilities. It also includes the process used in selecting, locating, and using them. AT promotes greater independence by enabling people to perform tasks that they were formerly unable to accomplish, or had great difficulty accomplishing, by providing enhancements to or changed methods of interacting with the technology needed to accomplish such tasks. It provides "indirect access", whereas Universal Design provides "direct access".

2.3 keyboard emulator: Hardware/software input device that emulates the key press outputs of an alphanumeric keyboard, used by individuals who are unable physically to enter text using a keyboard.

2.4 pixilation: The display of a bitmap or a clause of a bitmap at such a large size that individual pixels become visible, making the image 'jagged' and more difficult to decipher.

2.5 platform accessibility features: Accessibility functionality provided as standard on a particular hardware/software platform. For example, screen magnification or 'zoom' functionality provided within an operating system.

2.6 remote participation: Interactive participation in an event or meeting from a separate geographical location, using communication technologies.

2.7 screen magnification software: Software application used by a person with low vision to magnify a portion of the text and/or graphics displayed on a video screen sufficiently enough to enable reading and comprehension.

2.8 screen reader software: Software application used by a person who is blind or otherwise 'print impaired' to identify and interpret what is being displayed on a video display and read it aloud in a synthetic voice.

2.9 sign language: A sign language (also signed language or simply visual signing) is a language which, instead of acoustically conveyed sound patterns, uses manual communication and body language to convey meaning. This can involve simultaneously combining hand shapes, orientation and movement of the hands, arms or body, and facial expressions to fluidly express a speaker's thoughts.

2.10 sign language interpretation: The conversion of audible content (speech and other sounds) into a sign language, or vice versa, to enable persons who are deaf to access audible information and to allow communication between deaf and hearing persons. A video service showing an interpreter who uses hand gestures and facial expression to convey the main audio content and dialogue to sign language and lip readers[1].

3   Abbreviations and acronyms

This Technical Report uses the following abbreviations and acronyms:

AT   Assistive Technology

DVD   Digital Versatile Disk

HTML   HyperText Markup Language

ICT   Information and Communication Technology

PC   Personal Computer

PDF   Portable Document Format

UAAG   User Agent Accessibility Guidelines, published by the Web Accessibility Initiative of the Worldwide Web Consortium

WCAG   Web Content Accessibility Guidelines, published by the Web Accessibility Initiative of the Worldwide Web Consortium.

WG   Working Group

4   Challenges of allowing remote access to FG AVA meetings for all

FG AVA meetings were run at different physical locations in Geneva, Barcelona, New Delhi, Tokyo and Toronto. At each meeting, a significant number of working group (WG) members from all parts of the world has wished to participate remotely. This has usually been due to issues of time, cost or the difficulty of travel preventing them from being able to attend the physical meeting space. Many of these WG members have taken part in the meetings using remote participation tools such as GoToMeeting, telephone conference call facilities and streaming text transcripts.

Remote participants presented a very wide range of abilities and context of use. They have included a number of persons with physical, sensory or cognitive disabilities as well as persons experiencing various technological or environmental constraints. Adopting tools and practices that take account of all these abilities and constraints is challenging but is an absolute requirement if participation in meetings is to be made available on an equal basis to all persons, regardless of their location, disability or financial situation.

4.1   Needs of participants with disabilities and language barriers

FG AVA meeting participants included persons with disabilities such as deafness, visual impairment and motor impairment. Due to the international nature of WG, participants also come from many different countries and have different levels of ability in communicating in and understanding spoken or written English, which has been the language used for all WG business.

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1 NOTE - This service comes in the form of supplementary video content, usually smaller in image size to that of the main video content. Ideally, the user can control the position, size and background properties (solid or transparent and the colour, if solid). It is of sufficient temporal and spatial quality to enable sign reading and lip reading. See also [ITU-T Y.1991].

Disabilities range in severity from total, e.g. being profoundly deaf or completely blind, to mild, e.g. being hard of hearing or partially sighted. The functional effects of these disabilities and the consequences for participation in group meetings vary greatly from one individual to another. For example, some hard of hearing participants are able to follow clear speech with the aid of lip reading, whereas others may require a text transcript or interpretation into sign language.

To provide inputs, some deaf participants may find it easiest to type their contributions as text, whereas others may want to communicate by signing through a sign language interpreter.

Persons with disabilities often use assistive technologies (ATs) to interact with information and communication technology (ICT) hardware and software, including remote participation tools. For example, a blind person may use a screen reader which is a software application that allows them to read digital content and interact with other software applications and tools. A partially sighted person may use a screen magnifier, a software application that allows them to control the size and colours of the displayed text and other objects to suit their visual needs. A person with a severe physical disability may use a keyboard or mouse emulator operated by a single switch, whilst a person with a mild physical disability may use a typing assistance utility. In order to effectively contribute using assistive technologies, it is necessary for the remote participation tools to be interoperable with these ATs.

Participants using AT may sometimes require more time to read and respond, due to the slowness of interaction when using some of these ATs.

4.2 Technological and environmental constraints of remote participation

A two-way communication between the meeting place and the remote participant relies on an array of audiovisual equipment, communication networks and software applications. The terminal equipment used by remote participants may range from high end personal computers (PCs) with large displays and high quality headsets to basic smartphones. Communication networks are particularly prone to variations in performance, temporary glitches or even total failure which can reduce the quality of the communication, introduce delays or render communication temporarily impossible.

Audio quality is likely to be lower for remote participants than for those in the physical meeting room, and many remote participants experience environmental interference, in the form of noise and interruptions. These are far more likely to occur for remote participants than for those who are at the physical meeting place because the remote participant is usually a less controlled environment and one which may not have been designated as a meeting place. For example, someone logging into the meeting from their desk in their office is likely to be subject to the normal noise of an office environment and may still be expected to respond to interruptions from colleagues whilst the meeting is in progress.

4.3 Procedural issues for remote participants and those running the meeting

Remote participants need to be able to understand and correctly follow the steps required to register, set up the required communication channels and use the remote participation tools. They will need clear instructions for this. Remote participants will also need effective procedures and/or assistance for troubleshooting any problems that arise; otherwise, even simple problems may prevent them from participating at all. Setting up the remote participation links and tools can take time so they may need to be able to do this in advance, or at least to test the set-up in advance.

Once in the meeting, the remote participants need to understand how to make contributions and what the protocols are for doing so. These may be very different from those adopted by persons at the physical meeting location. For instance, in the absence of a full body two-way video link, the

remote participants cannot simply raise their hand when they want to speak and be seen by the chairperson. A less formal discussion style in which participants start to speak without having been invited or even interrupt others is often possible in a physical meeting.

However, this is far more difficult for remote participants because they are less able to perceive and use audible or visible cues and body language to judge when it is possible to jump in. The method for communicating with the chairperson and making contributions will vary greatly between different remote participants depending on their abilities or disabilities, what tools they are using and what communication methods are most effective for them.

Due to the specific needs and greater difficulties faced by remote participants, the meeting chairperson, facilitators/administrators and technical support staff therefore have a lot more to do and to think about than in a purely physical meeting. They need to adopt clear, effective, efficient and robust procedures to make sure they are aware of what is happening for remote participants and are able to include them as effectively as those in the meeting room.

5 Current situation regarding remote access to meetings and our vision of remote meetings access in the future

The experience of taking part remotely in FG AVA meetings has been mixed. In many cases, those in remote locations have been able to participate effectively and contribute on the same basis as those in the meeting room. However, there have also been many instances of persons being completely unable to participate or of participation breaking down part way through the meeting.

These problems seem to have been caused mostly by technical issues with communication software and networks but sometimes, for participants with disabilities, by incompatibilities between remote participation software tools and assistive technologies. A lack of experience, planning and preparation has contributed to this. This should not, however, be taken as a criticism of those who have running the WG and its meetings.

The chairperson, administrators and local technical support staff have applied great dedication and effort in supporting remote participants and dealing with the many problems that have arisen for them. It is clear that the effective use of the remote participation methods and tools that have been tried so far would require a significant investment in training, piloting, planning, evaluation, monitoring, administration and technical support for which the resources have not been available.

In the opinion of the authors of this Technical Report, an achievable vision for the next five years is one when the experience of almost all remote participants can be close to that of those present at the meeting, at least in terms of their ability to understand what is presented and contribute on an equal basis.

It seems likely that developments in remote participation software, improved network reliability, increased bandwidth and more experience with using remote participation tools and meeting procedures can lead to a situation where remote participation will be on a similar level of quality and reliability as physical participation, rather than an inferior alternative, used only by persons who are completely unable to travel. Having said this, there will probably always be aspects of physical meetings, particularly the more social, interpersonal or private aspects, for which face-to-face communication and physical colocation are far more effective, or even essential.

Depending on the subject matter, it may not sometimes be possible to effectively communicate or share an experience without being physically together, particularly if it relies on perceiving the forms of physical objects or on audiovisual content that is difficult to capture and transmit through electronic communication networks. However, the basic sharing of information, verbal interaction and co-operative creation that makes up the content of most meetings should be possible to achieve

through high quality, robust and accessible channels that are feasible for organizations such as ITU to adopt for its meetings within the next five years.

The adoption of such methods and tools is not just a matter of the availability of suitable technologies however. The issue of cost is also very important. We have seen that it is often cost that prevents persons from travelling to meetings. If remote participation is used as an alternative, the cost and time saving will be made by the individual who declines to travel, or to the organization to which they belong or which they represent.

However, the cost of putting in place the technology, procedures and supports required for effective remote participation is likely to fall on the organization hosting the meetings. This simple fact acts as a barrier to investment in the adoption of effective remote participation systems. From the perspective of the meeting participants, if they calculate the amount of money and time they are likely to spend going to meetings within the next five years, many of them will conclude that a sizeable investment now is likely to give a significant return on investment within that period. But from the perspective of the meeting host, they may see very little cost saving in having fewer physical participants, set against a large expense in putting the technologies, procedures and personnel in place.

It may be necessary to look again at the funding basis for meetings hosting and participation to develop an approach where an acceptable return can be had by those who are making the investment.

We would encourage ITU to run a serious study into the feasibility, costs and benefits of developing the technologies and procedures required to offer high quality, robust and inclusive remote participation options for all meetings in the future. Both in terms of cost savings and in terms of enabling the participation of the widest range of stakeholders, this seems to make a lot of sense.

6 Guidelines for ensuring accessible remote meetings participation

This clause lists the functional requirements for enabling effective remote participation in meetings for all and provides guidance on how to achieve them. For each functional requirement, it states:

– what the requirement is;

– why this is a requirement;

– who is affected and how;

– what needs to be achieved; and

– how this can be done.

These requirements cover technological capabilities, required configurations and set-ups, behaviour of presenters and participants, meeting management procedures.

6.1 Priority 1 requirements: Essential

6.1.1 Ensure that information and registration processes are accessible to all

All information concerning the meeting and any registration procedures should be accessible to all potential participants, including persons with disabilities and users of assistive technologies.

How can this be achieved?

All web-based content and functionality such as announcement e-mails, online registration forms, online agendas, discussion documents in portable document format (PDF) or other formats should adhere to the Web Content Accessibility Guidelines (WCAG 2.0), level AA.

6.1.2 Provide a live text transcript

Any audio information presented at the meeting, including all spoken presentations and announcements, audio tracks of audiovisual presentations and questions from the audience should be translated in real time into a synchronous text transcript (live captions).

Why this is a requirement

A synchronous text version of audio content is essential for any participant who has difficulty hearing the audio sufficiently to understand it. This can occur for a number of different reasons. For example:

–   One or more participants are deaf or hard of hearing and rely on text to replace or supplement audio.

–   One or more participants are not proficient in understanding spoken English and rely on text to replace or supplement the spoken words.

–   A person who is speaking is unclear or has a distinct regional accent, making them more difficult to understand for a general audience, particularly through a remote audio link.

–   The audio stream is of low quality, suffers intermittent drop-outs or breaks down completely. This might happen for a single participant or for everyone, depending on where the technical problem occurs.

–   A participant is interrupted for a period of time, during which he or she is unable to listen. This is far more common for remote participants than for those physically present at the meeting as they are often in a more uncontrolled environment. Having a text transcript allows them to catch up.

Since any or all of these situations might arise during any meeting, a live text transcript is *always* essential.

What needs to be achieved

The transcript should be synchronized with the audio stream as closely as possible to reduce delay between the spoken audio and the transcript.

If possible, the entire text of the transcript, from the start of the meeting up to the present point, should be available at all times. This allows participants to re-read things they have missed or catch up after an interruption, which often occurs for remote participants.

A transcript that appears like television captions, i.e. only one or two lines at a time, does not allow this. A full transcript also provides a permanent record of the meeting content that can be accessed after the meeting by anyone who missed all or part of it.

How this can be achieved

A professional live text transcription service may be used to produce text. The remote participation tools should include a facility to transmit this text in real time to remote participants.

Background materials giving expected terminology, acronyms, participants' names, etc., should be sent to the transcribers well in advance of the meeting, so they can prepare for what they will have to interpret. At least seven days in advance is recommended, but the timing and the nature of the materials required may be negotiated with the transcribers.

6.1.3 Provide audio streaming from the meeting room

Any audio information presented at the meeting, including all spoken presentations and announcements, audio tracks of audiovisual presentations and questions from the audience should

be made available in real time to remote participants through an audio stream of sufficient quality to ensure that remote participants can understand what is being spoken.

Why this is a requirement

Audio streaming will always be required since the spoken word is always a main (usually *the* main) way through which information is communicated and understood in meetings, and presentations may also include the use of audiovisual materials.

The quality of streaming audio is very important to ensure that remote participants can understand what is being spoken.

Streaming audio can often have variable sound quality, excessive background noise, and frequent drop-outs or even complete breakdown. This effectively closes the meeting to most remote participants.

How this can be achieved

The remote participation tools may include a facility to transmit audio in real time to remote participants. The audio set-up in the meeting room should allow all audio sources to be inputted into this stream. This will include the chair and facilitators' microphones, the presenters' microphones, the audio output from any hardware or software used for presentations or demonstrations, any roving microphones used for members of the audience to ask questions or make contributions and the audio contributions of remote participants.

A meeting administrator or technology support person should continually monitor the quality of all remote audio streams and immediately fix any problems that arise.

Individual remote participants should have a way to report problems immediately to a facilitator or technician who should determine where the cause lies and take remedial action or offer advice as appropriate.

To prevent interference of background noise from remote connections, the chair may remind remote participants to mute their microphones until they want to contribute. Participants might, in some case, fail to do this or be unable to, so the meeting administrator should also have the possibility to mute individual participants until they are to speak.

6.1.4   Provide sign language interpretation where needed

Participants who are deaf and whose first language is a sign language should have a sign language interpreter available to interpret between them and the other participants in real time using their native sign language, in both directions. The interpreter should have access to all spoken information presented at the meeting, including spoken content of audio tracks of audiovisual presentations and questions from the audience. The interpreter should also be able to interpret the participant's signing into speech or text that is made available in real time to all other participants.

Why this is a requirement

Sign language interpretation is essential for participants who are deaf, whose first language is a sign language and who might not be fluent in reading and writing a textual language. The participant requires interpretation in their own language, e.g. in French Sign Language for French speaking participants and Indian Sign Language for Indian speaking participants. In order to make a contribution, the participant requires that their own signing is able to be interpreted into speech or text and made available to all participants.

How this can be achieved

At least a two-way communication channel may be required: one to enable the participant to communicate with the interpreter, and the other to enable the interpreter to communicate with all the other participants. Both these channels should allow a two-way communication. In some cases a third channel may be useful, one that enables the participant to communicate directly in sign language (not through an interpreter) with other deaf participants who use the same language. This provides for a better communication in this scenario.

For a two-way communication between the participant and the interpreter, the interpreter may be located either at the meeting or with the remote participant. These two different scenarios have very different implications.

1. If the interpreter is at the meeting:

    The interpreter's signing should be delivered to the remote participant via streaming video. However, a single interpreter can sign in only one sign language at a time, so if more than one remote participant requires signing and they use different sign languages, the meeting will need to provide more than one interpreter and more than one video stream.

    To make contributions using signing, remote participants will need to be able to stream the video of their own signing to the interpreter at the meeting.

2. If the interpreter is located with the participant:

    In this case, the interpreter and the participant can see each other sign without the need for any video link. Only a two-way audio or text communication between the interpreter and the meeting is required.

    However, each participant will need their own interpreter.

The best solution will depend on how many remote sign language users there are, which languages they use, whether two way video links are available and the costs of the various requirements.

In advance of the meeting, background materials giving expected terminology, acronyms, participants' names, etc., should be sent to the sign language interpreters, so they can prepare for what they will have to interpret. If this is not done, the interpretation might be significantly less accurate and effective. At least seven days in advance is recommended, but the timing and the nature of the materials required may be negotiated with the interpreters.

6.1.5   Provide a way for remote participants to ask to make a contribution

Remote participants should be able to let the chair know when they have a contribution to make and the chair should be able to invite them to make that contribution at the appropriate time.

Why this is a requirement

All participants should have the same opportunity to participate fully in the meeting by making contributions. Participants who are physically at the meeting place can signal their wish to make a contribution by raising their hand or using some other discreet method of communication with the chair or the administrator that does not interrupt the meeting. Remote participants also need to be able to do the same. The chair will then need to be able to invite the remote participant to make their contribution at the appropriate time.

How this can be achieved

Remote participation tools often provide a 'hand raising' function. If they do not, or if this is not accessible to some participants (e.g. blind participants using screen reader software), then an

alternative procedure will be required. For example, the chair could choose an appropriate time to individually invite each remote participant to make a contribution by saying their name.

6.1.6   Allow contribution by voice

Remote participants should have an audio facility that allows them to speak and be heard by all other participants.

Why this is a requirement

All participants should have the same opportunity to participate fully in the meeting by making contributions. In most meetings, most participants, including those who are remote, will prefer to contribute using speech rather than by written text which is usually slower. Participants with physical disabilities or low literacy in the language of the meeting might find it particularly difficult or time consuming to contribute by written text.

How this can be achieved

This may be done by using either a voice chat feature built into a remote participation tool or a separate facility, such as a telephone conference call facility.

6.1.7   Allow contribution by text where needed

Remote participants who are unable to communicate by voice should have a text communication facility that enables them to enter text which can be seen and/or heard by all other participants.

Why this is a requirement

Although voice communication is likely to be the preferred method for most participants, for those who have speech impairments, written text might be the preferred or only way for them to communicate effectively with the other meeting participants.

A text link also provides a valuable backup to the audio link because it is generally more reliable and less likely to experience technical problems.

How this can be achieved

Remote participation tools often include a facility for contributing by text. A secondary text chat facility might also be used for backup in case the connection to the primary tool is interrupted.

6.1.8   Enable communication directly with a facilitator and/or technical support

Individual remote participants should have a facility to report any problems they encounter immediately to a facilitator or technician who is in a position to investigate the cause and take remedial action. This includes technical problems with the remote participation tools as well as problems of presenters being difficult to hear or understand, materials being inaccessible, etc.

Why this is a requirement

Remote meeting participants often experience ongoing or intermittent problems which prevent them from accessing or understanding the meeting content and participating fully. There could be a number of causes for this, often occurring in combination. Low capacity or unreliable telecommunication technologies, lack of expertise and experience with remote meetings, lack of awareness of the problems faced by remote participants and persons with disabilities, poor presentation skills.

Any of these can result in the meeting becoming permanently or intermittently inaccessible to some or all remote participants. When problems occur that are outside of the control of the participant, they will need a way to get them fixed as soon as possible, so they can resume their participation.

How this can be achieved

Remote participation tools often include a chat facility which can be used to report problems as they occur. Some allow a private chat facility where the issue can be addressed to a specific facilitator or technical support service rather than being broadcast to all chat participants. Alternatively, the facilitator and/or technical support personnel may monitor an external chat forum, dedicated messaging service, e-mail address or telephone number.

However, when this is done, it should be set up in such a way that it allows for the communication methods used by all remote participants. This may include voice, text and sign language via video.

6.1.9 Provide information in advance on how to participate remotely

Information about the remote participation options and tools and how to make use of them should be made available to all potential participants in advance of the meeting.

Why this is a requirement

Participants will be unaware of remote participation options unless they are told. Some might find the remote access tools difficult to use and might need help or support. Certain accommodations, such as sign language interpretation, may be available only on request.

How this can be achieved

A '*How to Participate Remotely'* document or web page should be provided in a universally accessible format. It should include at least the following content or direct participants to further accessible documentation that includes this content:

– What tools are required for remote participation and how to download, install and run them.

– How to access the meeting and any access codes that are needed.

– The options available for receiving audio, video and text transmissions and how to access them.

– How to contribute from a remote location, including '*hand raising'* procedures.

– Any options that are available only on request, for example, sign language interpretation, and how to request them.

– What other functions are provided by the remote participation tools.

– Contact details for further information, requests or technical support.

This should be made available in advance via the meeting web page and by any other means that are used to distribute meeting documents. All this information should be available in accessible forms, adhering to the Web Content Accessibility Guidelines (WCAG 2.0), level AA.

6.1.10 Ensure that the remote participation tools are accessible to all

All tools that remote participants are required to use in order to take part in the meeting should be accessible to all potential participants, including persons with disabilities and users of assistive technologies. This covers any tools that remote participants need to use to:

– access the audio stream, video stream, presentation slides, text transcript, etc.;

– contribute via voice, text or other means; or

– communicate with the meeting chair, facilitators, technical support or other participants.

Why this is a requirement

Some remote participation tools present accessibility barriers that make them unusable by persons with disabilities and incompatible with assistive technologies. Among the most common problems are:

– controls that can only be operated using a mouse, making them inaccessible to blind or physically disabled participants who use a keyboard or keyboard emulator;

– visual controls with no text alternatives which are invisible or incomprehensible to blind participants using screen reader software;

– lack of control over the size and colour of on screen text and the dimensions of text windows, making the text difficult to read for persons with low vision and users of screen magnification software;

– non-recognition of platform accessibility features and settings;

– unavailability of user interfaces in the participant's language;

– instructions and training resources in inaccessible formats.

What needs to be achieved

Software applications and web-based tools should adhere to the User Agent Accessibility Guidelines[2]. Content and functionality delivered through these tools should adhere to the Web Content Accessibility Guidelines (WCAG 2.0) at level AA[3].

How this can be achieved

Some remote participation tools have been designed to be highly accessible.

Tools may be assessed for accessibility against the guidelines and tested before being deployed by using them in realistic demonstration meetings attended remotely by participants with disabilities using assistive technologies.

6.1.11 Ensure access to contents of presentations for participants with vision impairments

Audiovisual presentations should be available in formats that are accessible to participants with visual impairments using assistive technologies if their content is essential and is not described by the presenter.

> NOTE-Drops to Priority 3 (Helpful) if the content of the presentation is not essential and is described by the presenter.

Why this is a requirement

Participants with vision impairments might require presentations in a format that can be read with screen reader software, magnified without pixelating or displayed in an alternative colour scheme. Remote participation tools often send presentations as a video stream, making this impossible.

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[2] The currently referenceable version of UAAG is version 1.0 (www.w3.org/TR/UAAG10/).

This will be superseded by version 2.0 which is at the stage of a working draft (www.w3.org/TR/UAAG20/)

[3] http://www.w3.org/TR/WCAG20

How this can be achieved

Some remote participation tools convert presentations in PowerPoint and other common slide show formats to structured hypertext markup language (HTML) which is more accessible to persons with disabilities using assistive technologies.

However, because well-made visual presentations can be more interesting, understandable and impactful for sighted participants, other accessible formats may be provided as an alternative, not as a replacement.

6.1.12   Ensure that meeting documents are accessible to all

Documents that are to be used by participants either in preparation for the meeting or during the meeting should be available in accessible formats through an accessible document store.

What needs to be achieved

Both the documents and the store should adhere to the Web Content Accessibility Guidelines (WCAG 2.0) at level AA.

How this can be achieved

Document authors should be made aware of accessibility authoring guides for the particular format they intend to produce. For example, Adobe provides accessibility tutorials for PDFs[4] and Microsoft provides tutorials for Word[5] and PowerPoint[6]. Good tutorials are also available on third party websites such as WebAIM (e.g. http://webaim.org/techniques/word/).

Authoring tools such as Adobe Acrobat and Microsoft Office contain built-in accessibility checking tools that can be used to assess documents. However, it is also important to have documents assessed by persons with disabilities using assistive technologies.

6.2   Priority 2 requirements: Important

6.2.1   Ensure that speakers can be clearly understood

The speech and audio transmission of all speakers should be clear enough that all remote participants are able to fully understand what is said.

Why this is a requirement

Remote participants might find speakers difficult or impossible to understand if they do not speak clearly, if the audio quality is poor or if there is no video to allow lip reading.

Some speakers, including those asking questions from the floor, speak very unclearly. This is a problem for all meeting participants but is particularly serious for remote participants, transcribers and sign language interpreters.

A particular problem is that persons often announce their names and affiliations quickly and with a distinct regional accent, making them very difficult to understand.

Speakers sometimes do not hold the microphone close enough to their mouths, frequently turn away from the microphone or start to speak before they are given a working microphone.

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[4] http://www.adobe.com/accessibility/

[5] http://office.microsoft.com/en-ie/word-help/creating-accessible-word-documents-HA101999993.aspx

[6] http://office.microsoft.com/en-ie/powerpoint-help/creating-accessible-powerpoint-presentations-HA102013555.aspx

Even if speakers are clear, the ability to lip read is essential for some persons who are hard of hearing and who find it difficult or impossible to understand speech by hearing alone. Lip reading as an aid to understanding is also very helpful for persons who are not hard of hearing if the audio quality is poor or if there is environmental noise.

How this can be achieved

Speakers, including those in the audience, should always be given a working microphone before they start speaking.

The meeting chairperson should encourage all participants to announce their names and affiliations slowly and clearly.

Transcribers and interpreters should be given prior information about the names and affiliations of speakers. It is helpful to use large clear nameplates in front of attendees, positioned so that the transcribers and interpreters can read them.

A live streaming video feed showing the current speaker clearly, close enough to see their face, will facilitate lip reading. This can be used to show members of the audience when they ask questions or make contributions.

6.2.2   Ensure that presenters are aware of the needs of all the audience

Presenters should be made aware that there are persons participating remotely and that some of them might have sensory or other impairments.

Why this is a requirement

If presenters are not aware of the needs of remote participants, including those with disabilities, they might present information unclearly or in ways that are not understandable to some participants.

The audience might include persons who have difficulty hearing or understanding what the presenter is saying, due to any or all of the following reasons:

–   The participant is participating remotely and the audio stream is of low quality.

–   The participant is deaf and relies on a sign language interpreter who might have difficulty interpreting rapid, unclear or jargon-filled speech.

–   The participant is hard of hearing and relies on clear enunciation.

–   The participant is not proficient in understanding the speaker's language and relies on clear enunciation and uncomplicated language.

Participants might have difficulty understanding the audiovisual presentation, due to any or all of the following reasons:

–   The participant is participating remotely and the video presentation is small, of low quality or missing entirely.

–   The participant is blind and relies on verbal descriptions of visual elements.

–   The participant is vision impaired and has difficulty reading small text.

–   The participant is deaf or hard of hearing and relies on subtitles to understand audible aspects.

How this can be done

A "How To" guide on 'Inclusive Presentations' should be provided to all presenters in advance. This should cover both audiovisual presentation design and verbal delivery style. The meeting chair should pay attention to whether presenters are communicating in a way that meets the needs of all participants and should be prepared to interrupt presenters and remind them of the need for this.

6.2.3 Provide a set of remote participation tools that is easy to use

The remote participation tools should be as easy to use as possible, given the required functionality.

Why this is a requirement

A problem of complexity can arise if the tools required for remote participation are not well integrated. The remote participant might have to switch between or simultaneously attend to a number of different outputs, such as audio and video streams, a live text transcript, an audiovisual presentation viewer, other viewers for documents being discussed and various indicators showing who is present, their statuses, etc.

The remote participant might also have to operate a number of different inputs, such as an audio input for making contributions, a hand raising tool, a chat facility for communicating with facilitators and other participants, etc.

This multifunction complexity can make the experience of remote participation very difficult, particularly for users of assistive technologies.

The effort and cognitive load required to operate all of these tools can divert the participant's attention from the content of the meeting. If the tools are particularly difficult to use, the participant might find it impossible to operate some of them and might be unable to follow the meeting or contribute at all.

How this can be achieved

Over complexity is less likely if a single tool is found that provides all the required functionality and accessibility in one well-integrated package. It is important to look for a solution that integrates as many as possible of the essential functions into a single tool but which allows the user to configure what is shown and how it is laid out. However, integration and ease of use should not be achieved by neglecting essential requirements.

Remote participation tools may be tested before being deployed by using them in realistic demonstration meetings.

Participants with disabilities using assistive technologies should be included in any testing. Testing can also provide a useful opportunity for remote participants to become familiar with the tools and deal with any particular difficulties they might have setting them up to work well in their location.

6.2.4 Allow remote participants to control layout and presentation of outputs

Individual remote participants should be able to control the positions and sizes of the various functional elements on their screens.

Why this is a requirement

Individual remote participants can have very diverse display characteristics, sensory abilities and preferences for how they make use of the available screen space. For example, participants who are deaf or hard of hearing might rely very heavily on the text transcript and want that to take up the majority of the viewing area. Participants who are visually impaired might need to increase the size of the transcript text, anything up to 16 times the standard size.

How this can be achieved

The tool should allow individual users to rearrange or at least relatively resize the various functional elements to suit their needs. All text should be resizable, including the text transcript, contents of text chat panes and text used on user interface elements.

6.3 Priority 3 requirements: Helpful

6.3.1 Ensure access to contents of presentations for participants with vision impairments

If possible, audiovisual presentations should be available in formats that are accessible to participants with visual impairments using assistive technologies.

> NOTE-This is raised to Priority 1 (Essential) if the content of the presentation is essential and is not described by the presenter.

Why this is a requirement

Participants with vision impairments might require presentations in a format that can be read with screen reader software, magnified without pixelating or displayed in an alternative colour scheme. Remote participation tools often send presentations as a video stream, making this impossible.

Deaf participants might find it difficult to look at a slide and read the incoming text or signing at the same time.

How this can be achieved

Some remote participation tools convert presentations in PowerPoint and other common slide show formats to structured HTML which is more accessible to persons with disabilities using assistive technologies. However, because well-made visual presentations can be more interesting, understandable and impactful for sighted participants, other accessible formats may be provided as an alternative, not as a replacement.

Deaf participants can be provided with copies of presentations in advance, allowing them to view them prior to the meeting.

6.3.2 Avoid timing discrepancies

If possible, ensure that the timing of the different elements of the presentation-voice, text transcript, video of presenter and audiovisual presentation-are synchronized and that the delivery to remote participants matches the delivery in the meeting room.

Why this is a requirement

Lack of synchronization between different elements of a presentation can hinder understanding. For example, if a video of the presenter speaking is available, participants might make use of lip reading to help them understand the presenter's words when the audio content is poor or if they are deaf or inexpert in the presenter's language. This is only possible if the video is synchronized with the audio.

In the case of a filmed or animated presentation, subtitles will be required for participants who are deaf or hard of hearing. If the subtitles are delayed or advanced by more than a few seconds, they might be very difficult to relate to the visual content.

Any delay in the audio, video or text communication between the meeting room and the remote participants can make it more difficult for remote participants to engage in a real time conversation with persons in the meeting room.

How this can be achieved

If a video camera is used to show the presenter speaking, the audio can be mixed in with the video before distribution, to ensure that they are synchronized. If video and audio use two different communication channels, a delay on one will break the synchronization.

Although a text transcript will always lag behind what is being transcribed, use of the respeaking method of text transcription can reduce this delay to a minimum.

If possible, the computer that is used to display presentations in the meeting room should also be used to display presentations to remote participants. If separate computers are used, timing or other discrepancies can occur.

Whilst many presenters use PowerPoint on a Windows PC, some use different hardware (e.g. a digital versatile disk (DVD) player) and/or software (e.g. Apple Keynote). This can make sharing a computer impossible. In this case, a video camera could be pointed at the screen and this can be streamed to remote participants. It should be noted, however, that this video stream would not be accessible to blind participants.

6.3.3   Allow remote participants to communicate privately with each other

Remote participants should have an audio facility that allows them to speak and be heard by all other participants.

Why this is a requirement

Participants in meetings often need to share information, opinions and observations with other specific participants while the meeting is in progress. This is particularly true when two or more participants form a team or interest group and this direct communication can take place during the progress of the meeting or during breaks.

Making it possible for remote participants to communicate privately with these others creates a feeling closer to a physical meeting, and can be used to solve communication challenges and enhances the overall quality of the meeting.

How this can be achieved

It may be done by using either a private voice chat feature built into remote participation tools or a separate facility.

6.3.4   Ensure that remote participants feel that they are part of the meeting

Take steps to make remote participants feel welcome, visible and valued.

Why this is a requirement

Because they are not physically present with those in the meeting room, remote participants might feel they are viewing a meeting rather than participating in it. This feeling will increase if their presence is not clearly perceptible to other participants, if presenters seem to be unaware of their needs or if they are not explicitly invited to contribute.

How this can be achieved

The presence of remote participants can be acknowledged by the chair at the start of the meeting

Making it possible for remote participants to communicate with others, for instance by using a text chat facility, creates a group feeling and enhances the overall quality of the meeting.

A video feed of the meeting room will allow remote participants to see the chair, the presenters and the other persons in the meeting room, giving a greater sense of being there.

If possible, two-way video links with remote participants will allow them to be seen when they are making a contribution, making them seem more present.

7   Preparation and management

Meeting the above functional requirements involves tools and procedures. To ensure success, it is essential that both the tools and the procedures are prepared and tested well in advance of the meeting and that they are carefully managed during the meeting.

7.1   Budget for accessible remote participation

Budget for remote participation tools should include access services to allow participation.

7.2   Find out about remote participants' needs

The registration form should find out about participants' requirements, such as the need for sign language interpretation.

7.3   Publish information for participants in advance

When the meeting is announced together with a draft agenda, information on how to participate remotely should be published.

7.4   Provide training to meeting chairpersons

Chairpersons should be trained in the use of the remote participation tools to be used for the meeting. If a separate facilitator and/or technical support personnel are used, they should receive a similar training.

Further training is required by the meeting chairperson and/or facilitator to ensure that they monitor remote participation tools, ensure that remote participants know what is taking place in the meeting and allow remote participant chances to contribute.

7.5   Provide instructions to presenters

Guidelines on how to provide accessible presentations should be made available to everybody presenting material at the meeting. For example, link to www.ifla.org/publications/guidelines-created-by-the-world-blind-union-wbu-on-how-to-make-the-use-of-powerpoint-an.

7.6   Run test sessions before the meeting

Participants should be invited to a test session before each meeting to run through the tools and procedures of the meeting. This should cover the whole process, including registration, attendance, and use of the tools and all aspects of participation.

7.7   Start the meeting with clear rules

If possible start the online meeting 5-10 minutes earlier to make sure everybody is familiar with the tool. Descriptions of the room and participants will add to the success of the meeting.

The chairperson should encourage participants to use chat facilities to communicate any problems during the meeting, emphasize that all participants give their name and affiliation when they speak. When needed, add explanations and summarize a presentation.

7.8   Active encouragement to comment

After every presentation ask for comments from online participants. It is an added value if there can be inputs and presentations from the remote participants as well.

7.9 Learn from experience

Make sure that the live text transcript is available to remote participants after the meeting. Encourage feedback and use it to improve the next meeting.

8 Other issues to consider for access to focus group activities

An outline checklist of other issues not covered within the scope of these requirements but which need to be addressed in the wider scope of access to focus group activities:

– Physical meetings attendance.

– Local meetings access.

– Communication and working procedures between meetings.

– Accessibility of public and working documents, other than those required for accessing meetings or used within meetings.

– WG communication and working procedures, including collaborative writing tools.

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