



Design + Engineering

SUBTITLES AND AUDIO DESCRIPTION

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Active in media accessibility for the BBC for over 6 years.

- Executive Product Manager for Access Services in the BBC
 - Responsible for the engineering strategy for how we make AV media accessible on broadcast and online.
- Co-chair of W3C Timed Text Working Group
- Co-chair of EBU Timed Text Group
- Active participant in a variety of other standards groups

SCOPE OF AV MEDIA ACCESSIBILITY ACCOMMODATIONS

Ways to make audio visual media more accessible:

- **Subtitles/Captions**
 - (text, usually) equivalent of sound available for people who cannot hear it or understand it
- **Audio Description**
 - (audio, usually) equivalent of image available for people who cannot see it
- **Alternate language interpretations**
 - Including sign language, translation subtitles rendered as audio (spoken subtitles)
- **Audio mix adjustments**
 - Audio Intelligibility adjustments change the mix in favour of dialogue or ambient sounds
- **Visual adjustments**
 - Usually made on the display device, e.g. adjusting contrast, colour etc
 - Also HDR/WCG can improve visibility of shadows for example
- **Rate changes and object based media selection**
 - Other adjustments may one day be possible to address cognitive load and other issues

WHO USES “ACCESSIBILITY”?

Accessibility is there to help people experience the content as fully as possible.

It is not only for “the disabled”.

Factors affecting ability to experience:

- The consumer’s innate capabilities – vision, hearing, motion, cognitive etc
- The environment – lighting, ambient sounds etc

For example, people with “normal” hearing who use subtitles when watching television on their tablet on a noisy bus are users of accessibility just as much as Deaf people are.

AV ACCESSIBILITY IN THE BBC

The BBC has provided subtitles for 100% of programmes on its main television services (in line with UK Ofcom regulation) for more than 6 years, and has audio described >20% of programmes for almost 5 years. That accessible content has been available on broadcast and online.

We publish TTML subtitles online:
<http://bbc.github.io/subtitle-guidelines/>

TECHNICAL STANDARDS

My work has focused on subtitles/captions and audio description, with newer work beginning to look at or deploy additional technologies.

The focus in EBU and W3C over the past few years has been on Timed Text, i.e. the technical standards for subtitles and captions, and in the future, audio description, in particular the TTML (Timed Text Markup Language) family.

Subtitle Standards

SUBTITLES

Are you using Teletext for subtitles?

SUBTITLES

What does your audience expect and want?

SUBTITLES

Unicode characters?

High quality fonts?

Precise positioning and colours?

Same experience on broadcast and online?

A solution that works everywhere?

SUBTITLES

A lot of standards work has gone into
making new subtitle formats
that can support today's use cases globally

SUBTITLES

CONVERGENCE

Most recent international standards for platforms and delivery formats that have subtitles and captions have adopted the IMSC profiles of W3C TTML, or the EBU-TT-D subset.

For example:

DVB

HbbTV ATSC

MPEG CMAF

SMPTE

cover IP, broadcast and hybrid delivery.

Implementations, tests and documentation are available on the web, for example:

dash.js imsc-tests MDN

IMSC

“Internet Media Subtitles and Captions”, published by W3C

Version	Date	Key notes
1	2016-04-21	First Recommendation, profiles of TTML1
1.0.1	2018-04-24	Adds optional activeArea and fillLineGap features
1.1	2018-11-08	Profiles of TTML2, includes support for Japanese and other scripts

Every version is backward compatible in the sense that every conformant processor will play a document conforming to an earlier version, e.g. a 1.1 player presents a 1.0.1 document like a 1.0.1 player would do.

<https://www.w3.org/TR/ttml-imsc1.1/>

Audio Description Standards

AUDIO DESCRIPTION

What is Audio Description?

A voice track?

Mixed with the programme audio?

AUDIO DESCRIPTION

What about the script?

AUDIO DESCRIPTION

The W3C TTML2 Recommendation published on 2018-11-08 includes audio mixing and text to speech features. This allows us to begin creating a profile of TTML2 suitable for supporting audio description all the way through the workflow from scripting to mixing.

Today, there is no open standard file format for creating and exchanging audio description!

The W3C Audio Description Community Group was set up to generate an initial draft of that profile.

<https://www.w3.org/community/audio-description/>

This could allow not only the audio but also the text of the audio description to be made available to the player for a more accessible presentation, e.g. using a screen reader.

How does the consumer get to the content?

UX, NAVIGATION, EDITORIAL AND LEGAL/REGULATORY OBLIGATIONS

Some points not to forget:

- Standards do not matter if the content is not created or if editorial guidelines do not require accessible productions. For example:
 - Often burned in translation subtitles are hard to read
 - Advertisers are only beginning to audio describe commercials
- The consumer has to be able to find the content that is accessible to them: the user experience design must be accessible.
- The legal/regulatory environment differs widely across the world as different territories adopt.
- The biggest driver of uptake and usage is *business benefit*.

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THANK YOU!

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