

# RBB approaches to accessibility on connected TV

HBB4ALL Workshop 2015: Smart Accessibility on Connected TV  
18 March 2015

# RUNDFUNK BERLIN-BRANDENBURG

RBB approaches to accessibility on connected TV



## rbb Rundfunk Berlin-Brandenburg

- Public service broadcaster for Berlin and Brandenburg
- Local catchment area: 30,000 KM2 / Population: 6 million
- One TV station, seven radio channels, wide range of multimedia services, online, videotext , mobile apps, interactive TV, social media
- Member of ARD - Europe's largest broadcasting network
- Host ARD Digital Play Out Center (interactive services) and ARDtext (subtitling)



## rbb Innovation Projects Unit

- Interdisciplinary team: project managers, project engineers, assistants
- Develop and test new technology with **rbb**:
  - **Concept → Financing pilot operation → Hand over**
- Accessibility, Second Screen, Usability, HbbTV, Social TV, Cultural Heritage
- Basis: European research and development projects
- 29 European R&D project successfully completed to date
- Currently involved in six projects



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# Subtitles – from analogue to digital

## From analogue to digital subtitles

- Results of PSP project DTV4ALL (2008 - 2011):
  1. Introduction of DVB subtitles and best practice for on-screen display
  2. What users really wanted was to customise subtitles themselves



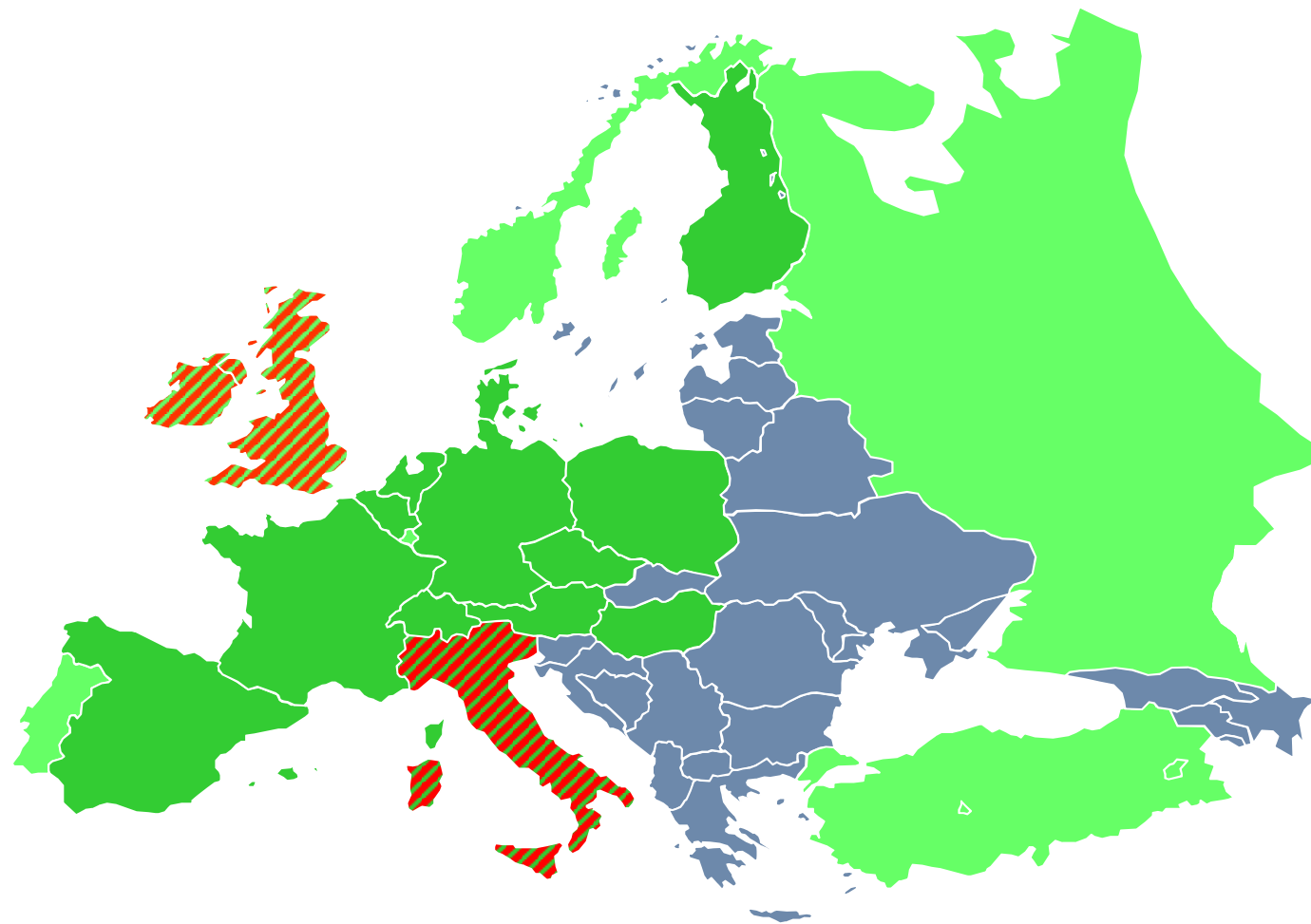




## Hybrid Broadcast Broadband TV (HbbTV)

- HbbTV combines broadcast with IP
- HbbTV is a standard that makes it possible to offer interactive applications on TV → Red button applications
- Open standard
- Supported by most major TV manufacturers in Europe
- HbbTV 2.0 recently released

# HbbTV in Europe



in operation

announced / trials

no information

other systems

## Customised Subtitles using HbbTV

- HBBNEXT: we created an HbbTV application that allowed users customise subtitles
- User Tests in 2012 und 2013.
  - Close cooperation with accessibility associations in Berlin and Brandenburg
- Since IFA 2012 operational tests and distribution gradually increased
  - Initially only one **rbb** news show and only available in Berlin and Brandenburg (via DTT)
- Status: Available for all **rbb** TV programmes with subtitles







## How do you access the HbbTV subtitle application?

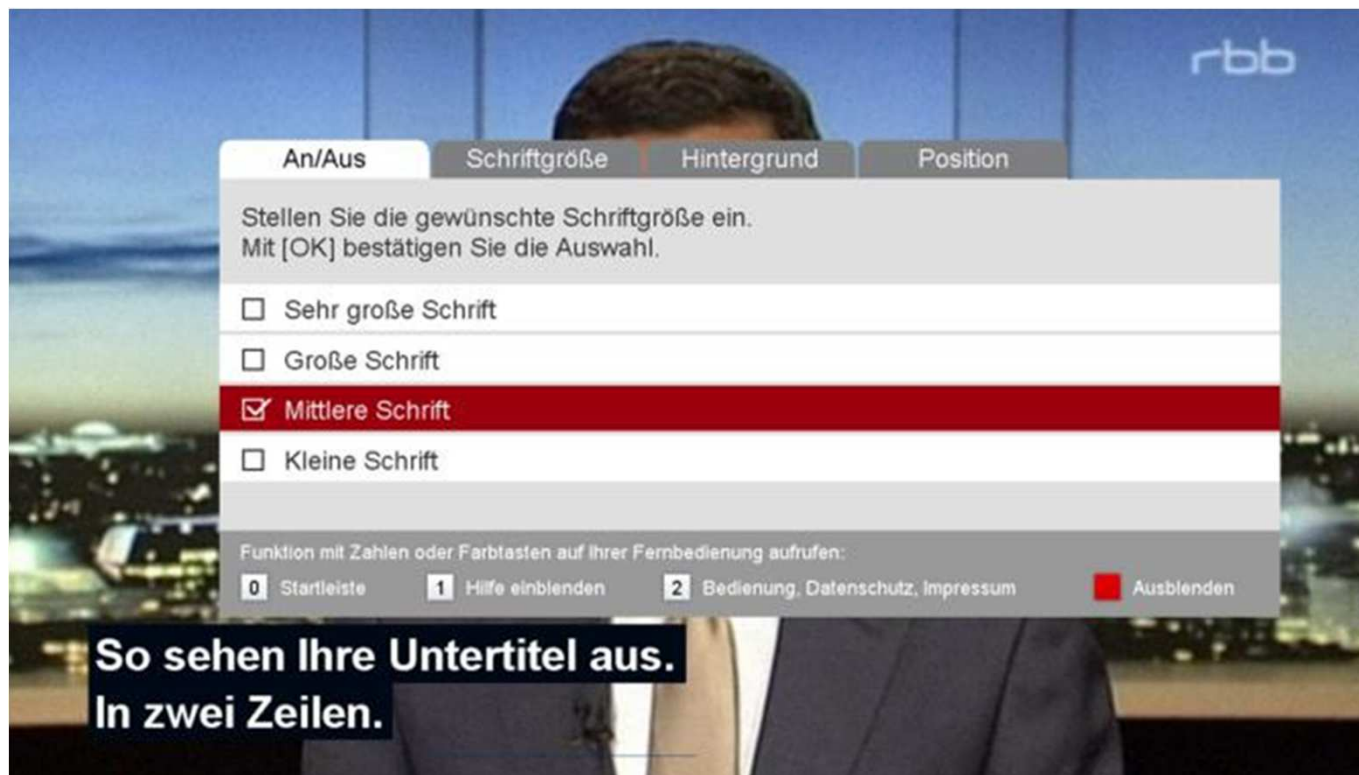
- Red button on TV remote control
- **rbb** launcher bar
- Subtitle application widget



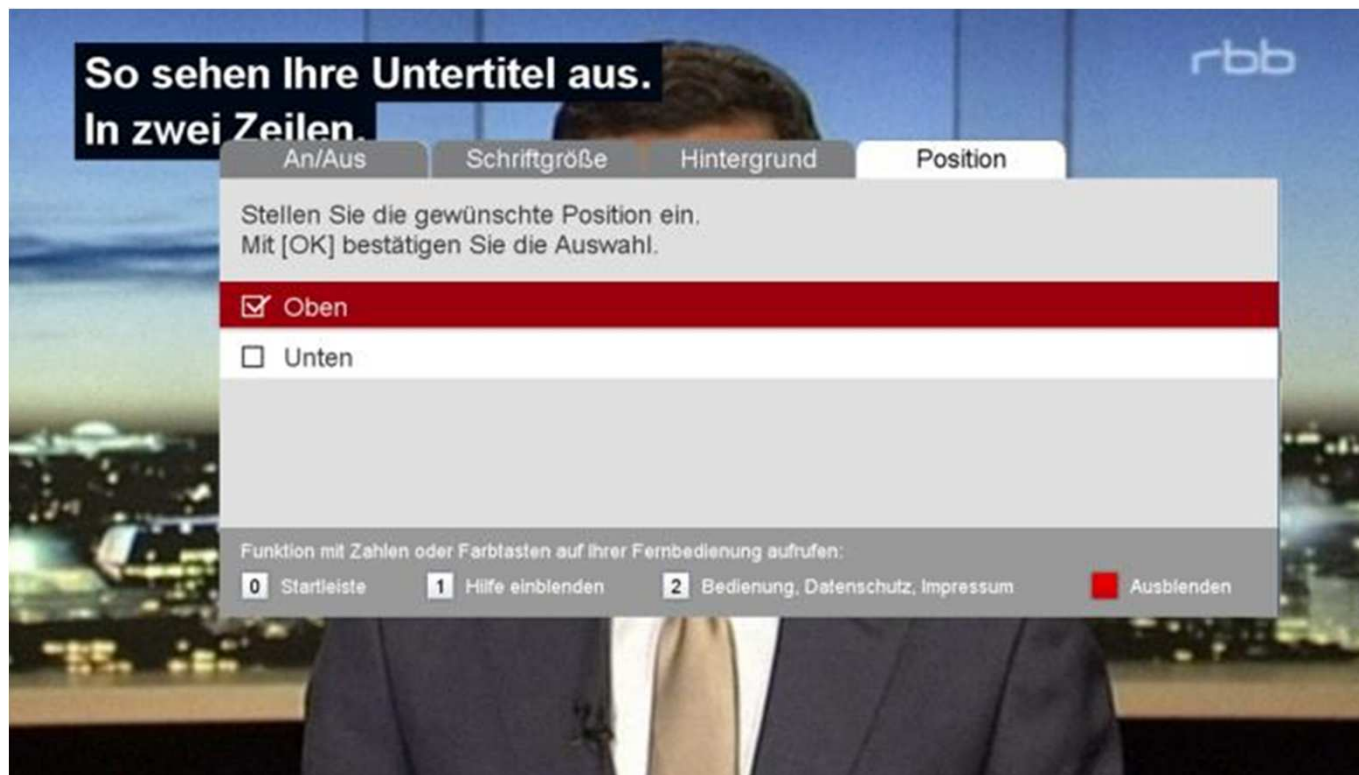
## HbbTV Subtitles: On/Off and context sensitive help (optional)



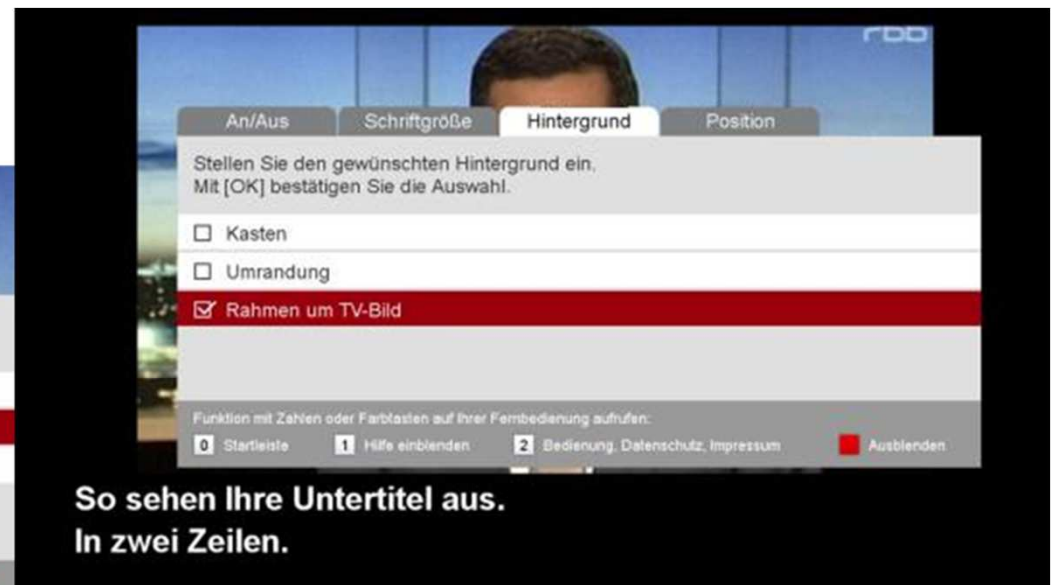
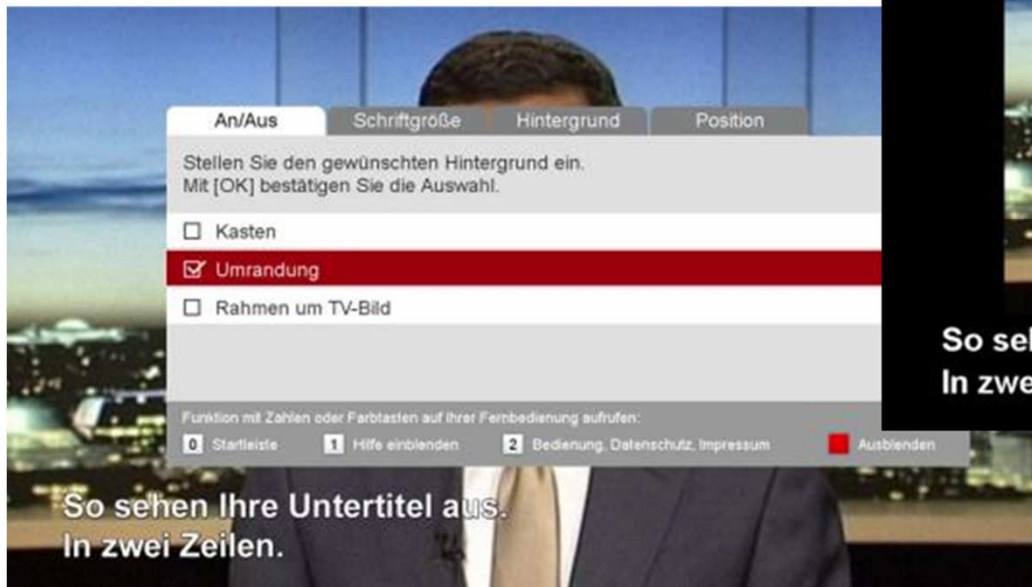
## HbbTV Subtitles: Font Size



## HbbTV Subtitles: Position



## HbbTV Subtitles: Background





## Customised Live HbbTV Subtitles (DVB): Outlook

- The ARD Playout Center with support from the Innovations Projects have prepared a technical concept for use of the HbbTV subtitle application by the ARD
- Currently being assessed
- Plan: Any member of ARD network can use the application to offer customised subtitles

## Customised Subtitles for HbbTV Catch Up TV Services

- In the project HBB4ALL a basic version of the application has been developed and is currently being tested internally
- Uses EBU-TT-Basis-DE subtitle files
- Starting in Summer 2015 larges scale tests using **rbb** catch up TV service
- Plan: ARD-wide roll-out
  - ARD catch up service
  - Other regional broadcasters catch up services (Client applications)
- ARD working group has issued a policy document for subtitles for live streams for online and HbbTV

## “Customised HbbTV-Subtitles for VoD” @ rbb



- VoD-Portals are very popular – difficult to explain why they do not carry subtitles
- Challenge: Synchronisation of ST
- 03/15: HbbTV ST-App for VoD – non-customised
- 07/15: HbbTV ST-App for VoD – customisable
- 08/5 - 01/16: Test. 30 hearing impaired users
- Cooperation between rbb and SWR in ARD

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# Signer „on demand“





## Signer „on demand“: Motivation

- Sign language service on TV are traditionally “open” - everyone sees them
- Via HbbTV we can offer a service for those who need it
- First lab test conducted in 2014
- Pilot planned for 2015 – exact extent of pilot still to be decided.





## Variant 1: All-in-one Solution

- „Pull“ via IP-channel VoD with the signer integrated
- Replacing the TV picture rather than adding content
- Here, main video is pre-mixed with sign language video
- Only one video decoder in terminal required
- Usability concept tested in July 2014



## Variant 1: All-in-one Solution – Usability Test July 2014

- Nine deaf users; 1.5 hrs each; tasks and evaluation
- Service well received - 8 of 9 would recommend it to their friends
- Some minor difficulties: very precise text is needed, icons rather than text where possible
- Preferences:
  - Customisable signing solution
  - Larger rather than smaller signer
  - Signer on right hand side
  - Signer in the foreground with a scaled TV picture



## Variant 2: „Truly hybrid“ solution

- Signer via IP channel
- TV content via broadcast channel / DVB stream
- Both combined on screen
  - Customisation of sign language window possible
  - Requires multi-stream synchronisation and two video decoders in terminal (HbbTV2.0)
  - *But* HbbTV2.0 only recently published and two decoders not mandatory in HbbTV2.0.
- Plan develop showcase (2016)



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# How can we improve audio?

## Clean Audio

- Aims of offer TV programmes with “cleaner” audio for viewers with hearing impairments
- Audio tracks of TV productions are automatically processed to reduce “background” noise, e.g. music, street sounds, etc.
- Process being developed by IRT
- Preliminary tests conducted in 24 July 2014
  - Conducted at RBB
  - 12 testers
- Lab tests 23 March 2015
  - Tests in RBB studio in Berlin – optimal acoustic conditions
  - 24 Tester with varying degrees of hearing impairment
- Larger test planned for Summer 2015.
  - Extent of test depended on outcomes of second lab test



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# Accessibility options in digital Teletext

## ARDText Accessibility Options

- ARDtext HbbTV edition allows user customise size of font, colour and contrast



**ARD<sup>®</sup>Text** Mo, 16.03.2015, 15:26

Option	Status
Startseite	<input type="checkbox"/>
Schriftgröße:	
Normal	<input type="checkbox"/>
Größer	<input checked="" type="checkbox"/>
Standard	<input type="checkbox"/>
Farben und Design:	
Standard	<input type="checkbox"/>
Weiß auf Schwarz	<input type="checkbox"/>
Schwarz auf Weiß	<input checked="" type="checkbox"/>
Weiß auf Blau	<input type="checkbox"/>

Startleiste 0 Ausblenden EPG Mediathek Videotext

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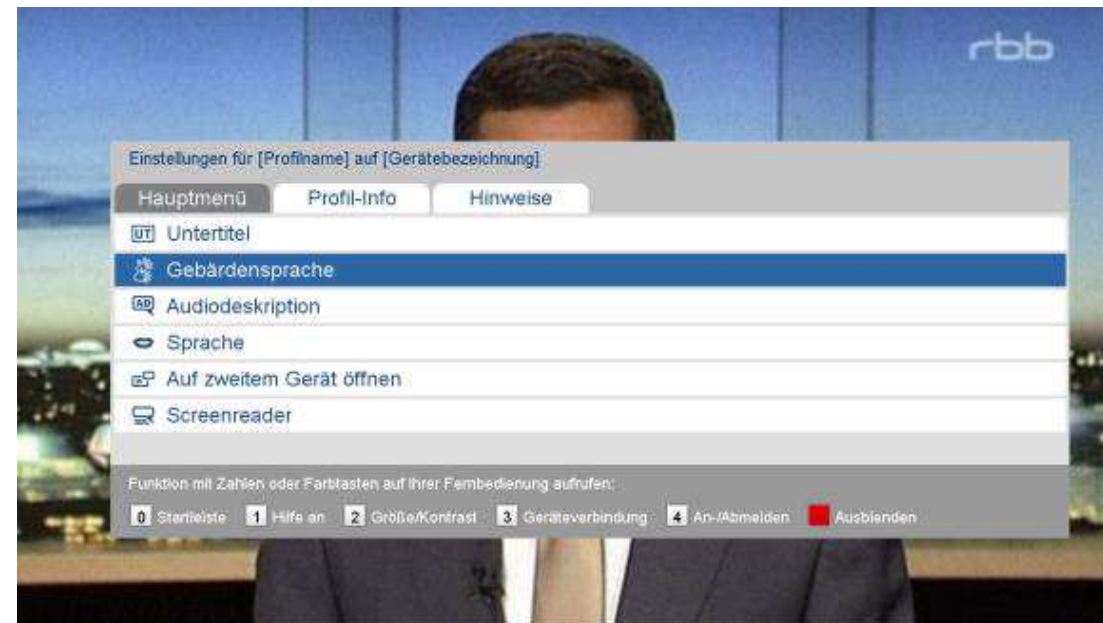
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**What's next for accessibility at rbb?**

## Outlook, Challenges, Solutions

- Increased accessibility for all TV services – on air and on demand
- Automation of production workflows for multiplatform accessibility services
- Test and develop services using HbbTV2.0 features
- One central options function for all HbbTV accessibility services



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**Thank you**

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