Connected TV Accessibility

The HBB4all Project

From the Accessibility Vision into Market Reality

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Hybrid Broadcast Broadband for All

- Co-funded by the European Commission under the Competitiveness and Innovation Framework Programme (CIP).
- Project running time: 3 years (December 2013 – December 2016).

A user-centered project

- **HBB4All** addresses **media accessibility for *all* citizens** in the **connected TV** environment.
- **HBB4All will deploy 4 large pilots to provide access services based on HbbTV and Internet.**
- HbbTV (Hybrid Broadcast Broadband TV) is a European standard increasingly adopted by European broadcasters.
  - ➔ Considers the production and service side;
  - ➔ Combines Broadcast and Broadband content plus interactive applications;
- One of the challenges for broadcasters in the coming years:
  - ➔ Delivery of multi-platform audiovisual content (anytime, anywhere, any device),
  - ➔ Making this content accessible for all.
- The elderly and people with various disabilities rely on:
  - ➔ Subtitles, audiodescription or sign language.
  - ➔ Customizing accessibility services through options for personal preferences is only one example of future possibilities

Main Objectives

- Advancing future-proof solutions for improved **accessibility to media**
- Introducing **large scale user testing** of such innovative services
- Introducing **expert testing** and **novel workflows** for the production of accessibility services at European broadcasters;
- Identifying the **best practices** for the accessibility services.
- Benchmarking quality of access services from a **user-centric approach** and promoting accessibility as an added value for **education, e-health** and **social inclusion**.

Target groups

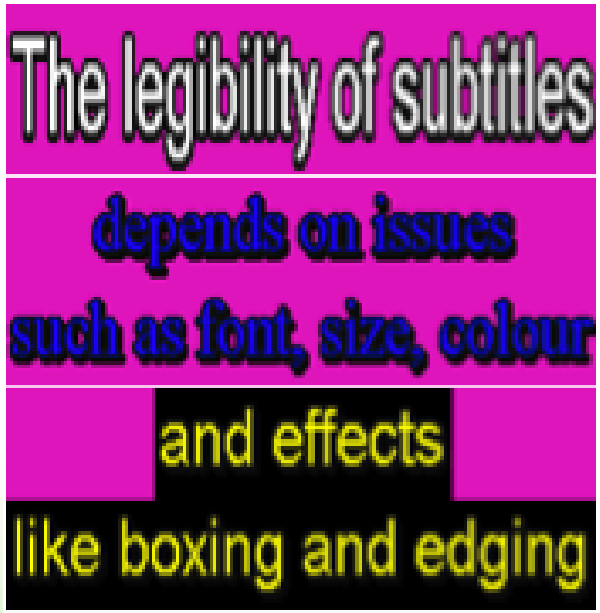
- **HBB4ALL** addresses the needs of all citizens, but especially those users with **sensorial impairments**, the aged, and people with mild cognitive impairments such as dyslexia and aphasia for whom the services hitherto have not been sufficient. In addition it also addresses:
  - **Professionals in education and healthcare** who assist citizens who come to terms with their impairments from the normal process of ageing, after accident or illness (also watching television) – key stakeholders who communicate with such individuals;
  - **Bodies/associations** representing persons with impairments;
  - **Research groups** working on the user experience of access services;
  - Bodies working directly on **standardization** and its implementation at global, regional and national levels: ISO, ITU, ETSI, EBU, DIN, OFCOM, AENOR, NorDig, DTG, etc.
  - **Governments** active in implementing media accessibility policies.

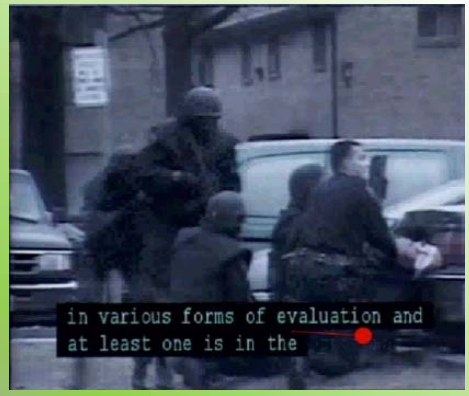
The consortium: 12 European partners

HBB 4 all
Connected TV Accessibility

2 Academic Institutions	UAB Universitat Autònoma de Barcelona; caiac; Universidad Politécnica de Madrid
4 Public Broadcasters	rbb Rundfunk Berlin-Brandenburg; RTP Radiotelevisão Portuguesa; Corporació Catalana de Mitjans Audiovisuals, SA (3 Catalunya Ràdio); SWISS TXT
2 Research Institutes	Institut für Rundfunktechnik IRT; vicomtech IK4 Research Alliance
4 SMEs	Vsonix; People's Playground; Screen Systems; Holken Consultants & Partners

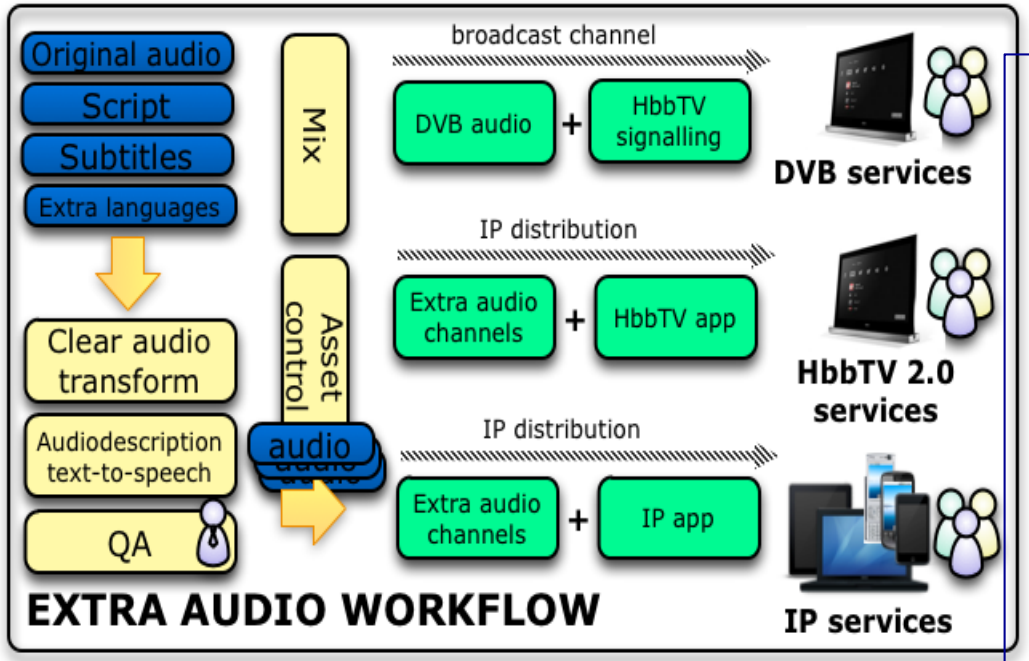
4 interlinked pilots will be implemented





- **Pilot A: Multi-platform subtitle workflow chain**
  - Across Europe, **broadcasters are working to provide subtitles on multiple platforms** for individuals who are deaf and hard-of-hearing, or do not have sufficient language skills to understand the content without textual support either in the original or foreign languages
  - **Main challenge**: **provide subtitles tailored to the specific needs of the end-users** in terms of channels, platforms and consumption requirements;
  - **Production and distribution strategy** for the exchange of subtitles and their automatic re-purposing producing quality and impact-driven access services for multiple platforms.

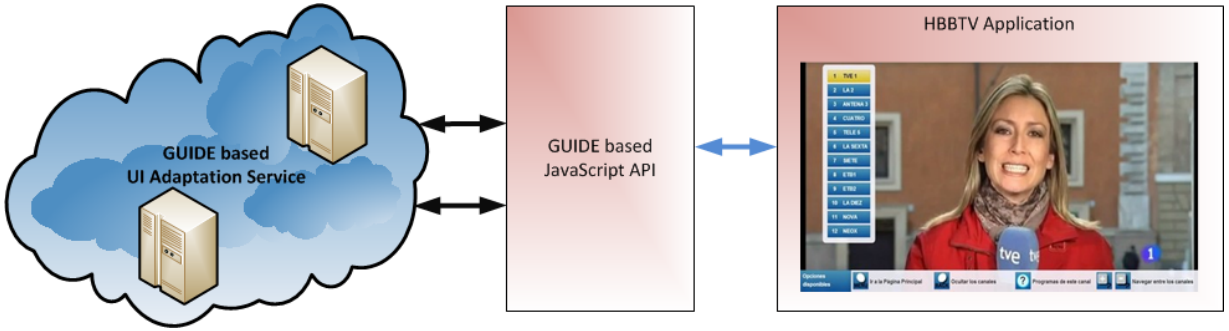
4 interlinked pilots will be implemented



- **Pilot B: Alternative audio production and distribution**
  - Given EU citizen mobility, TV content is not only seen by nationals, but also by large communities living **away from home**.
  - There is also a need to broadcast the **same content in different languages synchronically** but the content is not the same across languages.
  - **Personalized Clean Audio service via IP**
  - **Automatically generated speech synthesis of audio description and spoken subtitles**

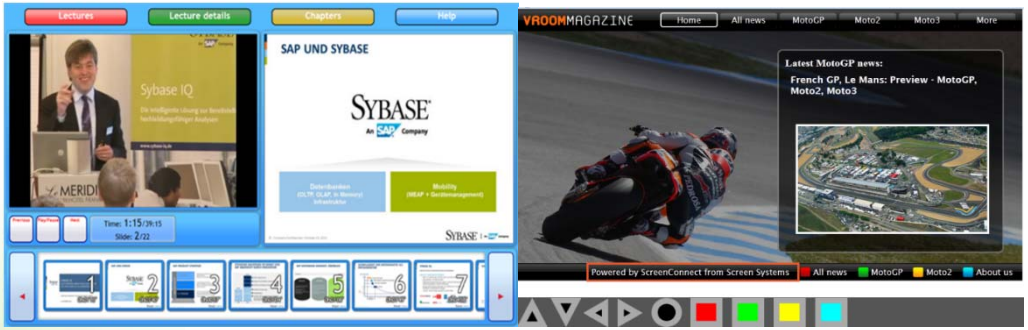
4 interlinked pilots will be implemented

- **Pilot C: Automatic UI adaptation – accessible Smart TV applications**



- During the last years digital TV as a media platform has increasingly turned from a simple receiver and presenter of broadcast signals to an interactive and personalised media terminal with access to traditional broadcast as well as web-based services.
- This pilot will **provide HbbTV services targeting elderly people and including tele-learning and on demand media**.
- The accessibility features of such a service will make use of the **UI adaptation framework that was developed within the European project GUIDE** (Gentle user interfaces for elderly people).

Targeted ConnectedTV services including accessibility features provided by UI adaptation service



4 interlinked pilots will be implemented

Signing in Belgium

Signing in Portugal

- **Pilot D: Sign-language translation service**
  - ➔ Visual signing for audiovisual media makes such content accessible to individuals whose mother tongue is a sign language and not an oral language.
  - ➔ Offering **closed signing** (where the viewer can choose to see or not to see the interpreter) is a good alternative for the service provision.
  - ➔ Two sub-pilots will be deployed
    - ✓ Signing service **based on an HbbTV** application (Germany)
    - ✓ Signing service **for PC** and web content (Portugal)
  - ➔ Personalization is considered: size and position of the interpreter window.

Worldwide relevance

- Through standardization:
  - ➔ HbbTV is an ETSI standard,
  - ➔ It is linked to the DVB-system,
  - ➔ Can potentially be used in conjunction with any digital TV service:
    - ✓ DVB is widely used throughout all continents,
    - ✓ Completion from analogue-to-digital switch-over concerns all countries.
  - ➔ Publicising of standardization bodies such as the ITU and ISO on a world-wide level.
- Impact in close fields such as eHealth and eEducation
  - ➔ The results from the HBB4ALL project will have direct impact here.
- Promotion of the project results to **raise awareness** on:
  - ➔ the **necessity of access** and interaction services,
  - ➔ the **technical solutions** available with interoperability.

Expected outcome: from specific user needs to universal accessibility

- Elaborate pertinent guidelines of **best practices**, metrics, and recommendations. How to provide optimal services for the users.
- Address all relevant stakeholders and components of the value chain **to turn the accessibility vision into reality.**

- **Become a major platform/player**
  - ✓ **in the e-Inclusion economy currently taking place,**
  - ✓ **fostering the future market take-up of accessibility services**
  - ✓ **satisfying the diverse interests of all societal groups.**

European policies

- HBB4All is fully aligned with the Digital Agenda for Europe
  - The Digital Agenda for Europe aims to **reboot Europe's economy** and help Europe's citizens and businesses to **get the most out of digital technologies**.
  - In fact, HBB4All is co-funded by the ICT Policy Support Programme (ICT PSP), an instrument that provided EU funding to support the realisation of the Digital Agenda for Europe, inside CIP (Competitiveness and Innovation Framework Programme).
  - Pillar VII - "ICT-enabled benefits for EU society": Digital technologies have enormous potential to benefit our everyday lives and tackle social challenges. The Digital Agenda focuses on ICTs capability to reduce energy consumption, **support ageing citizens' lives**, **revolutionises health services and deliver better public services**".
  - Large **household penetration of TV and Connected TV in Europe**.

Research challenges

- Revising the concept of access services
  - ➔Accessibility by design, at all levels: production, transmission, IU, consumption
  - ➔Business model behind accessibility VS public service?
- New ways of automatizing access services
  - ➔Speech recognition, machine translation, and speech synthesis
  - ➔Text simplification
  - ➔Visual recognition
  - ➔Photorealistic avatar generation
  - ➔Other technologies?

Research challenges

- Emerging services for new user profiles (beyond the visual and hearing disabilities)
  - ➔ Spoken subtitling (audio-subtitling) and text simplification for reading disabilities in dynamic audiovisual content
  - ➔ Audio description for the people with a cognitive impairment
- Beyond audiovisual content (fiction/news/Art)
  - ➔ Accessible videogames and virtual worlds
  - ➔ Educational content: accessible MOOC> better human learning and teaching
  - ➔ Artistic content: accessible art and heritage> co-creative processes with artists
- Re-using access services
  - ➔ Audio description as an information retrieval tool (automatic image tagging)?

Conclusions

- The technology is evolving,
- Projects such as Hbb4All are pushing beyond the limits
- The accessibility needs are growing and evolving in different domains

BUT

- Many actors have to be involved
- Economic sustainability has to be reached

Thank you very much for your attention!

Merci beacoup de votre attention!

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