Convergence of Broadcasting and Broadband Internet - A benefit for people with disabilities (and for us all)

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(Barrier-free) Access for All

The need for accessibility services

- **Some political Background (UNO, EP, ITU)**
- **IBB (Integrated Broadcast-Broadband) systems – an ideal means for access services to all**
- **Cooperation is necessary between broadcasters and CE manufacturers**

My message: **Connected TV is a marvellous new possibility for Audiovisual Media Accessibility.**

Whatever access system we offer, it will be of benefit to us all (sign language may be the only exception).

In 2020: 50 % > 50 years old

The need for access services

- About 15% of the World‘s population (about a Billion people) suffer from more or less severe disabilities that hamper the access to telecommunication services
- Ca. 16 % of the adult Europeans have health problems that make the consumption of broadcast programmes difficult or impossible
- With age, an increasing number of people have hearing and/or viewing problems as well as reductions in mobility that make the control of apparatuses difficult, e. g. operating the TV remote control
- Hardly none of our fellow citizens beyond the age of 80 has an adequate sense of hearing. International organisation have been acting for many years in order to make available technical means that alleviate or enable, for people with disabilities, for the elderly but also for minorities, the access to TV services.

Politically relevant provisions (1)

2006: UN Convention on the Rights of Persons with Disabilities *

- **Article 9: Accessibility to information, communication and other services, including electronic services and emergency services**
- **Article 21: … Access to Information: Encouraging the mass media, including providers of information through the Internet, to make their services accessible to persons with disabilities;**

  - Recognizing and promoting the use of Sign Languages

*** in Germany ratified on 24.02.2009**

http://www.un.org/disabilities/

Politically relevant provisions (2)

EU, National, EC

- **2008: Declaration of EU Parliament: Subtitling of all Public Service Television Programmes in the EU**
- **National laws:**
  - **2010: 21st Century Communication and Video Accessibility Act (USA)**
  - **2010: Equality Act (UK), etc.**
- **Audiovisual Media Services Directive (2010/13/EU of 10.03.2010)**
  (follows "TV without frontiers") **ref. http://ec.europa.eu/avpolicy/reg/avms/index_en.htm**
  - **Art. 46: Access to audiovisual media:**

    „The right of persons with a disability and of the elderly to participate and be integrated in the social and cultural life of the Union is inextricably linked to the provision of accessible audiovisual media services. The means to achieve accessibility should include, but need not be limited to, sign language, subtitling, audio-description and easily understandable menu navigation."

ITU Resolutions

- **Resolution 70 (Johannesburg, 2008) of the World Telecommunication Standardization Assembly**
- **Resolution 58 (Hyderabad, 2010) of the World Telecommunication Development Conference**
- **Resolution 175 of the ITU Plenipotentiary Conference (Guadalajara, 2010)* instructs all three ITU Sectors "to take into account the needs of persons with disabilities in the work of the ITU"**

*Res. 175: „Telecommunication/information and communication technology accessibility for persons with disabilities, including age-related disabilities"

Decision of ARD (German Television) from September 2011

- **For people with hearing disabilities:**
  - **In national TV channels, subtitles for all new programme items until end of 2013**
  - **Increasing amount of subtitling in the regional programmes provided by ARD members**
- **For people with viewing limitations:**
  - **Audio description for all fictional formats and all nature films in the national TV programme**
- **The ZDF (Second German PBS network) followed suit**
  - **Significant increase in barrier-free TV programme items**

→ **Very positive reaction by the associations representing people with disabilities**

Going Digital Helps Accessibility in Television

- **Analog TV allowed already for various kinds of access services to TV**
  - For the elderly
  - For people with special needs
- **Digital TV provides more opportunities**
  - Improved presentation
  - Adaptation to individual preferences
  - **Hybrid delivery: IBB (Integrated Broadcast-Broadband) systems like *HbbTV* (ETSI) or *HybridCast* (ARIB) or *GINGA NCL* (Brazil)**

ITU work on Audiovisual Accessibility

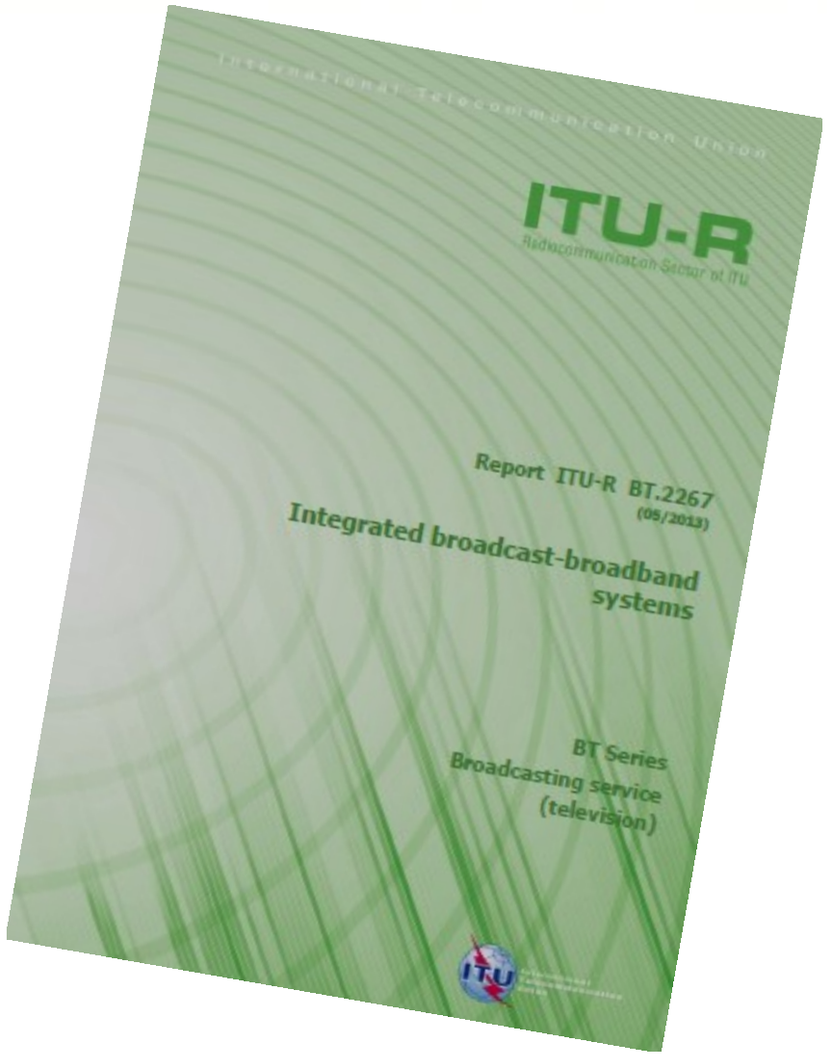
- **Focus Group AVA (Audiovisual Media Accessibilty)**
  - Run until 2013
  - Open to all stakeholders
  - Huge amount of documentation available under http://ww w.itu.int/en/ITU-T/focusgroups/ava/Pages/default.aspx
- **IRG-AVA - Intersector Rapporteur Group Audio-visual Media Accessibility**
  - Joint undertaking by ITU-T and ITU-R (start in Feb. 2014)
  - Making use, inter alia, of the knowledge gained by FG AVA
  - Limited to ITU members - aim is the development of Reports and Recs, ref. http://www.itu.int/en/irg/ava/Pages/default.aspx

ITU is working on standardising IBB

For a description of the HbbTV, the HybridCast and the GINGA NCL Systems see Report ITU-R BT.2267-2

Free download via the ITU website

http://www.itu.int/pub/R-REP-BT/en



HbbTV® (Hybrid Broadcast Broadband TV) – An Open ETSI Standard

- **The HbbTV consortium together with a large group of supporters jointly developed the HbbTV specification to create a global standard for hybrid entertainment services**
- **Current version: ETSI TS 102 796 v1.2.1 (November 2012)**
  First ETSI standard (version 1.0) in June 2010
- **Work ongoing on version 2.0 (with support of the EU project HBB-NEXT)**
- **All references under www.hbbtv.org**

HBB NEXT
NEXT GENERATION HYBRID MEDIA
http://www.hbb-next.eu/

- **The HbbTV specification does not depend on a particular broadcast link nor on a particular IP link. It may be applicable with either or connection, but gains most momentum in a connected environment to broadcast and broadband**

Outlook HbbTV 2.0

- Currently in specification definition phase
- Move to HTML 5 plus update to other current web technologies
- Interfaces for second screen (smartphone, tablet)
- **Synchronising streams delivered by broadcast and broadband**
- Advanced graphics
- Adaptive streaming – more features
- Downloadable fonts
- Push VOD via broadcast (incl. protected content)

HBB NEXT
NEXT GENERATION HYBRID MEDIA
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HbbTV is simple to provide and simple to use

- **Signalled in the DVB**
  - **If signalled in the DVB stream, the “RED BUTTON” function is available**
  - **Click on it and the start page appears that provides access to all services offered by the broadcaster or by a group of collaborating broadcasters**
  - **HbbTV can also be applied in connection with DVB Radio services**
- **HbbTV fulfills all broadcasters’ requirements**
  - **Open, standardised, functionally flexible due to JavaScript engine, cross-linking options TV - Web, minimum dependency from device portals / maximum control over usage of own TV signal, potential for value apps, …**
- **HbbTV allows very easy content generation**
  - **High synergy with current web technology (HTML-based, CE-browser)**

HbbTV characteristics (2)

Static and dynamic linking of broadcast and Internet content

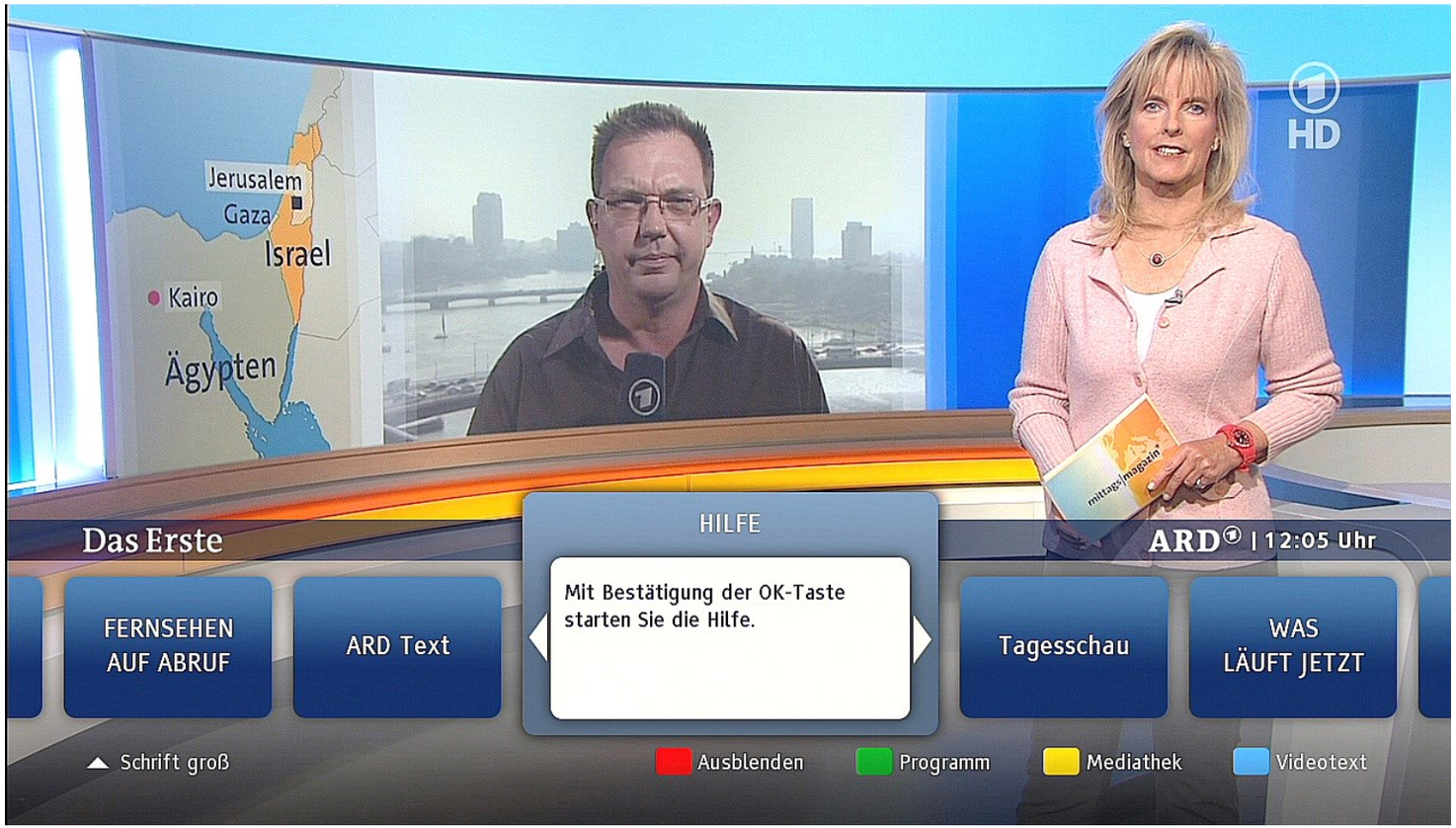
Example for Instantiation → „Red Button“

- Seamlessly tying linear and non-linear (online) services together
- Maintain full control of brand and consumer awareness

The RED BUTTON function

When selecting a TV programme, the „RED BUTTON“ signals possible access to HbbTV services

Launcher application at the first national programme



After pushing the RED BUTTON on the remote control the START PAGE appears

Application of Electronic Programme Guide

Selecting the EGP gives directly access to catch-up TV (if emission has already passed)

Application of Extended Text Service

Selecting ARD Text provides access to an enhanced type of Videotext

Using HbbTV for barrier-free TV

Adapting the Text Services

in size

in colour

Using HbbTV for barrier-free TV

Subtitles on Command

Demo at IFA-12&13 – could be applied in practice
(synchronization technically solved but still to be implemented in the specification)

Selection of personally adjustable subtitles

Menu to select size, appearance and position of subtitles

Using HbbTV for barrier-free TV

Sign language on Command

Demo at IFA-12 and 13

Could be applied in practice (synchronization still to be implemented in the specification)

- Signer video streamed via the Internet and superimposed with the broadcast TV signal
- Requires synchronization of both services (HbbTV 2.0 in development)
- Requires second video player in the TV set (the alternative is a composed video stream via HbbTV)

NOTE: Signer image can be adjusted in size and position on the screen

News via broadcast – signer via Internet

Video Clip Demo

- Subtitles: Appearance, size, position are selectable
- Signer: Position and size are selectable

- [Future extension:
  - Audio description: Language is selectable
  - Clean Audio: Language as well as amount of background sound is selectable]

Watch this and more videos at:

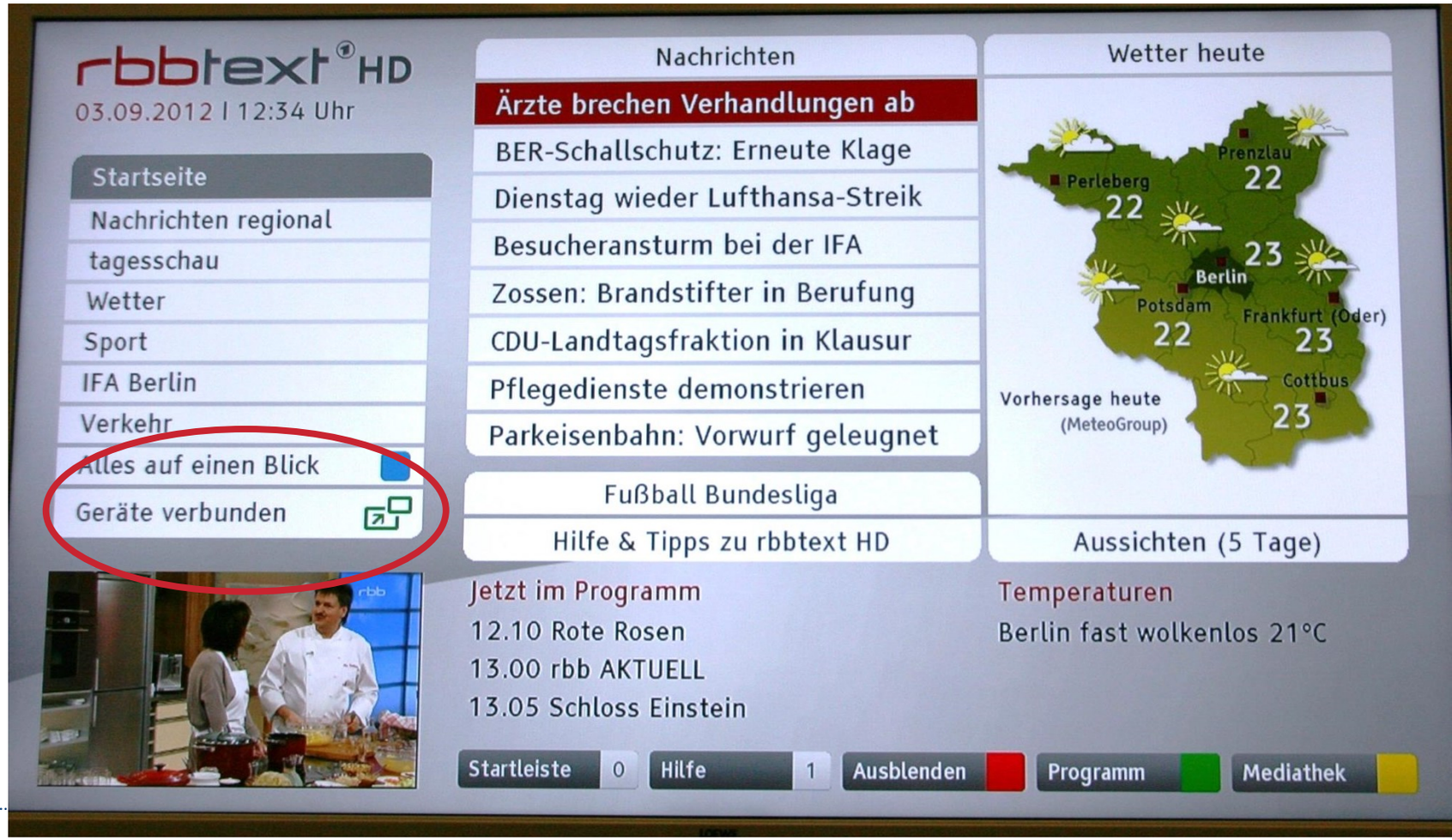
http://www.youtube.com/user/hbbnext

http://www.youtube.com/watch?v=cQi6ZytFcyE

Use of HbbTV in combination with a 2nd Screen

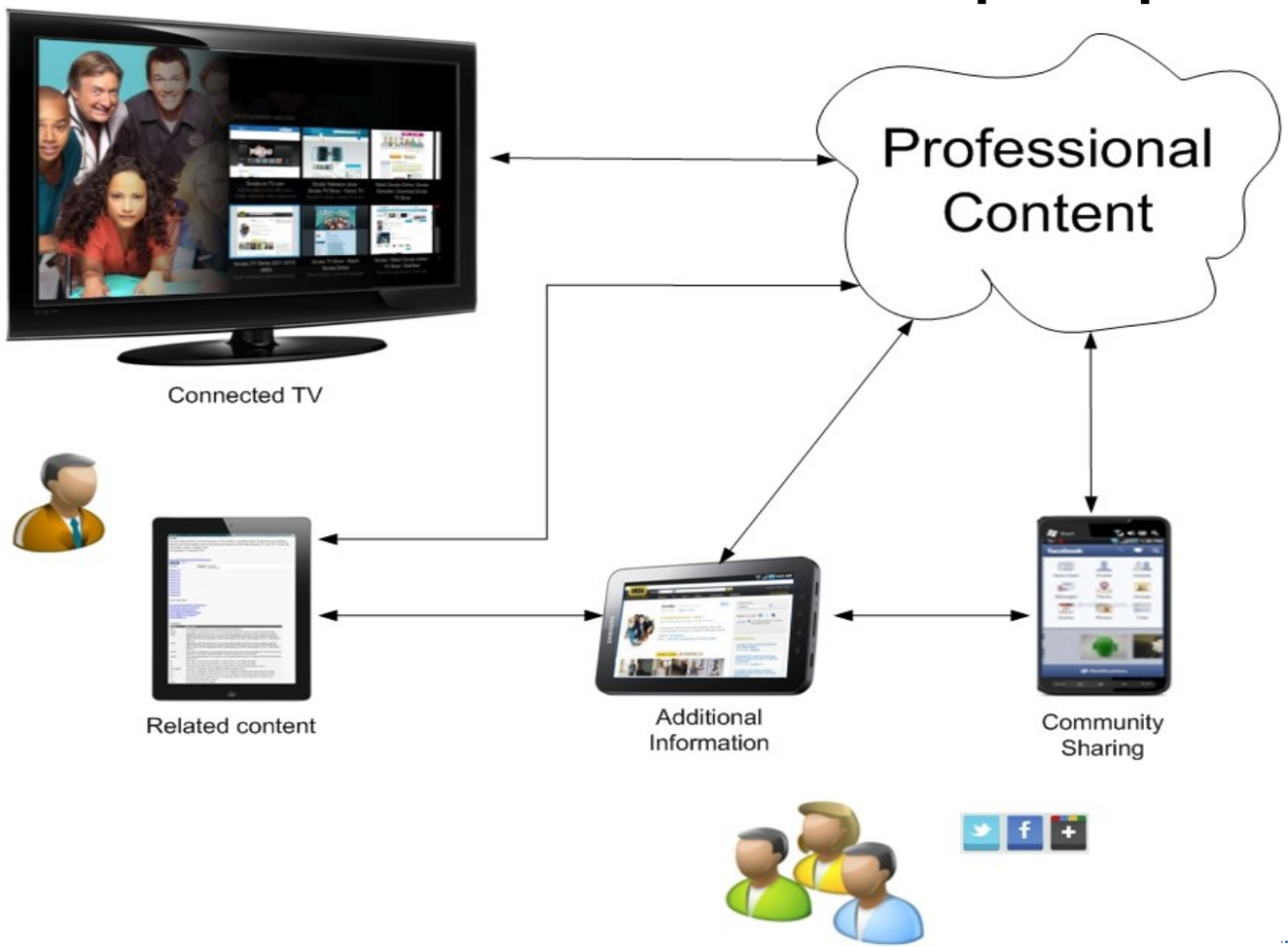
The demo at IFA-12 and IFA-13 (Int'l Radio Fair Berlin)

Signalling of 2nd Screen support



Use of HbbTV in combination with a 2nd Screen

The principle



Any display device that allows connection to Internet can be used

Soource: HBB-NEXT

IRT development: Generic 2nd Screen framework

Generic 2nd Screen framework

- allows generic device coupling of TV and 2nd screen
- one time coupling can be used by many services
- provides communication path between TV application and 2nd Screen
- easy to use for all kinds of applications
- developed within EU funded project

FI-CONTENT

SEVENTH FRAMEWORK PROGRAMME

SEVENTH FRAMEWORK PROJECT
EUROPEAN UNION

Future media **I**nternet for large scale CONT**ent** **experim**ENT**aion**

http://www.fi-ppp.eu/about-us/projects/fi-content/

IRT development: Generic 2nd Screen framework

IFA 2012 demo in cooperation with rbb

the rbbtext application starts on the TV screen

IRT development: Generic 2nd Screen framework

IFA 2012 demo in cooperation with rbb

no device coupled yet – the coupling overlay shows up

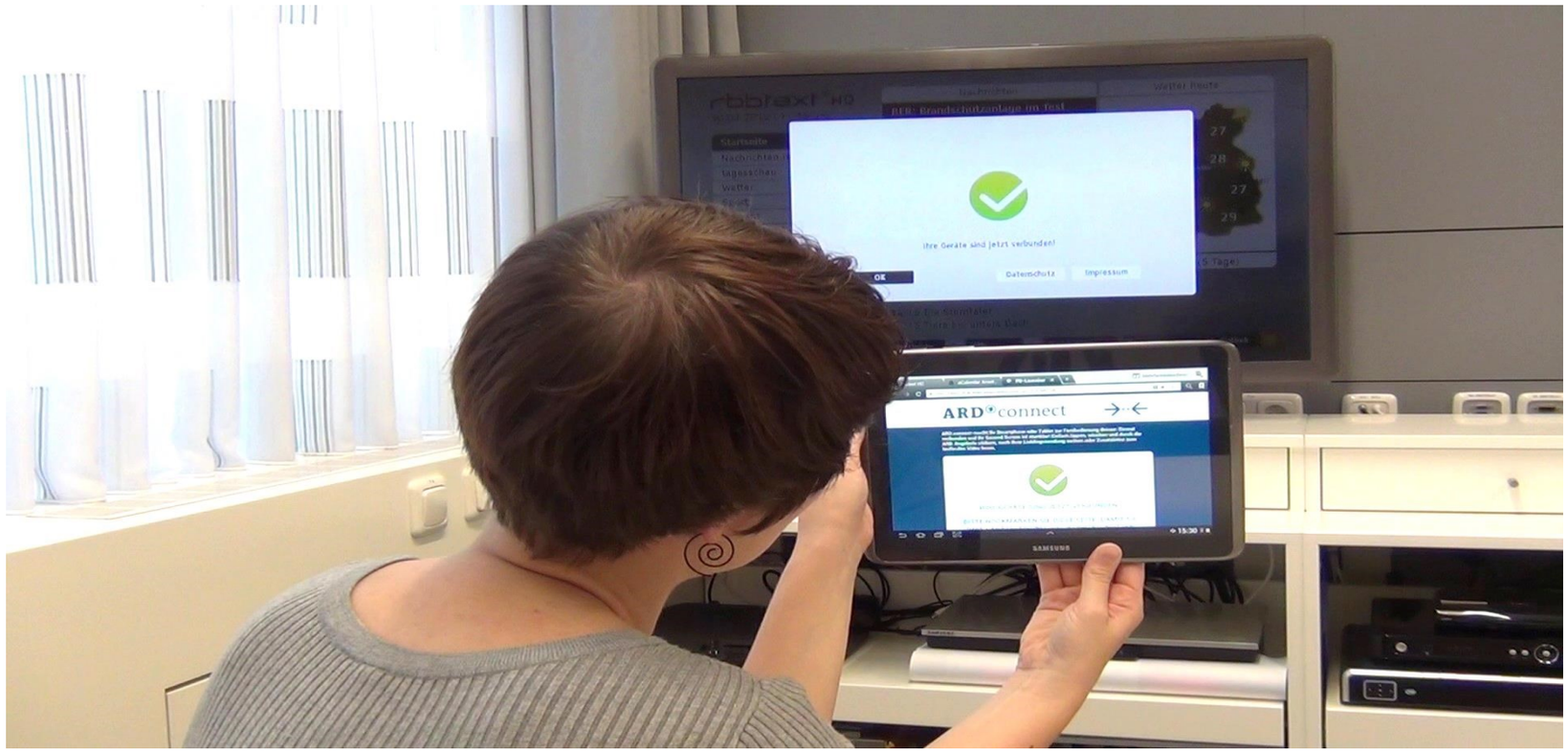
IRT development: Generic 2nd Screen framework

IFA 2012 demo in cooperation with rbb

the QR code is scanned with the tablet PC

IRT development: Generic 2nd Screen framework

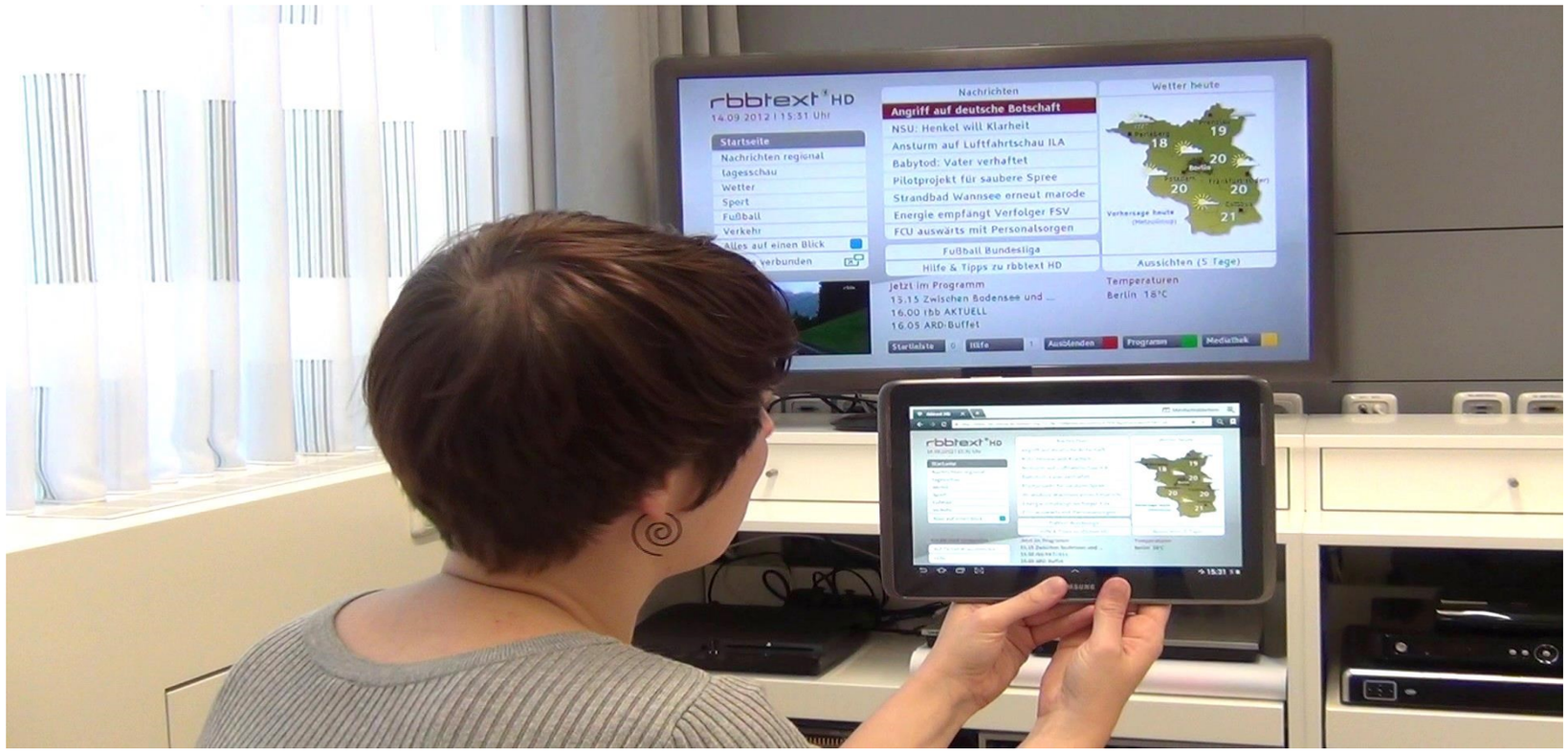
IFA 2012 demo in cooperation with rbb



the device connection is established

IRT development: Generic 2nd Screen framework

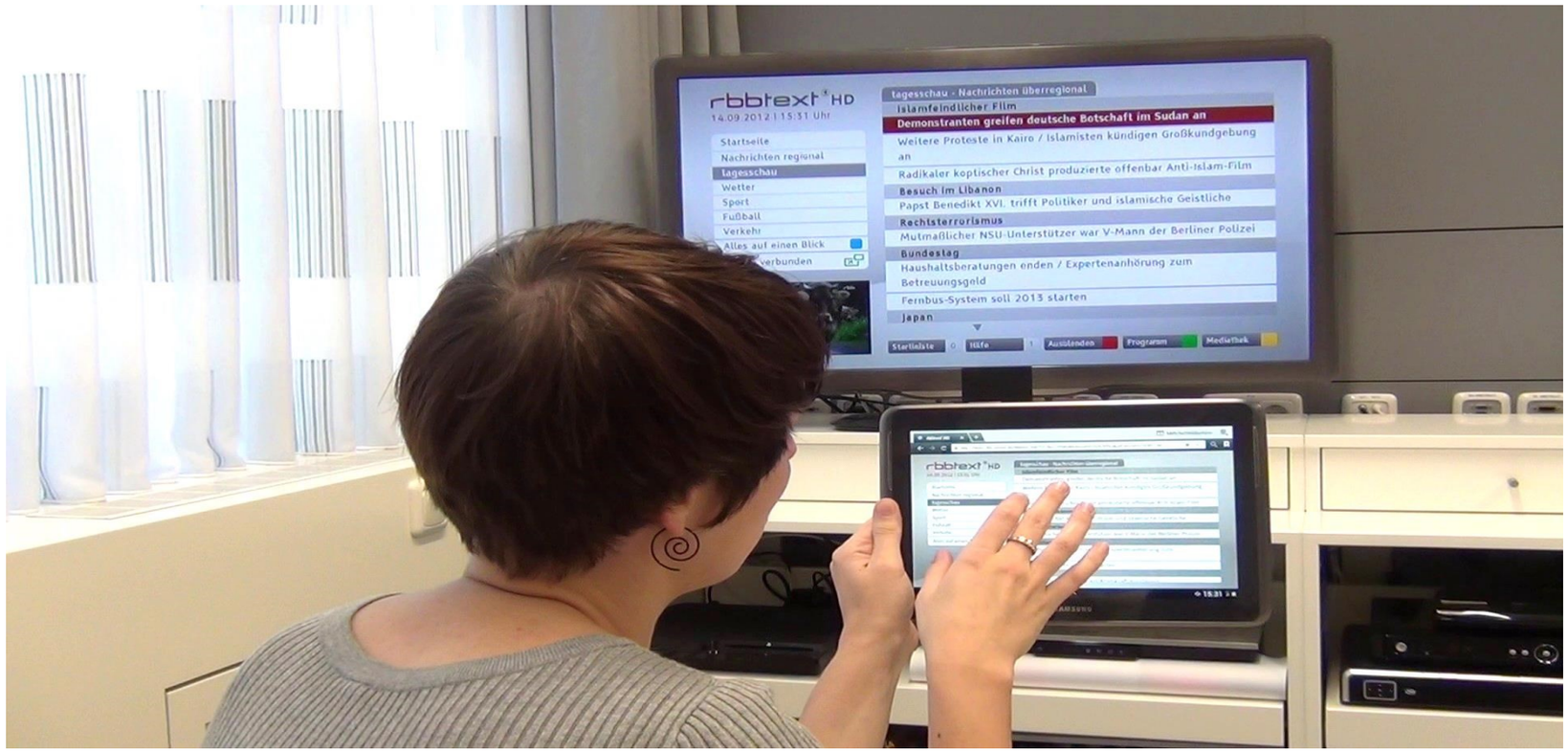
IFA 2012 demo in cooperation with rbb



the TV application can now start any web application on the 2nd screen

IRT development: Generic 2nd Screen framework

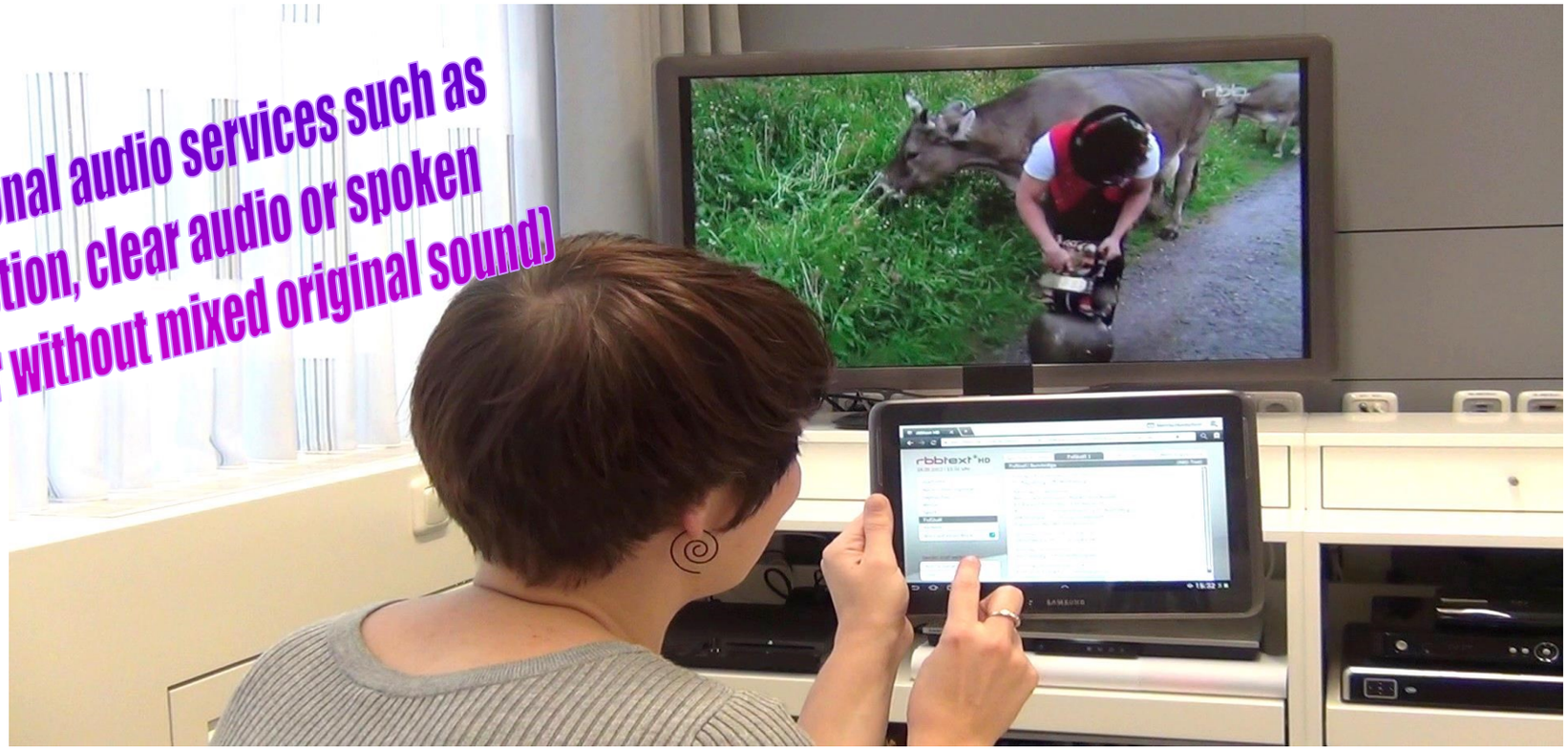
IFA 2012 demo in cooperation with rbb



the TV application can be controlled via the tablet

IRT development: Generic 2nd Screen framework

IFA 2012 demo in cooperation with rbb



via the tablet the TV application can be made invisible

Conclusions (1)

- Whatever access service we offer for the elderly or people with special needs, it will be of benefit to us all (sign language may be the only exception)
- Recognize the enormous potential of Integrated Broadcast-Broadband TV (such as HbbTV) as a marvellous new possibility for Multimedia Accessibility
- There is a need for cost-effective production techniques (semi-automated processes) but, at the same time, there is a need for quality standards for access services

Conclusions (2)

New EC Project has started: "Hbb4All"
http://www.hbb4all.eu/

HBB4all
Connected TV Accessibility

- Make access systems mainstream and make use simple
- Continue cooperation between content providers (e.g. broadcasters) and CE manufacturers - AND CONTRIBUTE TO STANDARD MAKING to support horizontal markets
- Develop according applications for hybrid broadcast-broadband services
- Encourage broadcasters (especially in developing countries) to offer the access services for the elderly and for people with special needs (to the benefit of all users, incl. children, minorities, but really all of us)

Thank you for your attention

http://www.hbb4all.eu

http://www.hbb-next.eu

http://www.fi-ppp.eu/about-us/projects/fi-content/

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