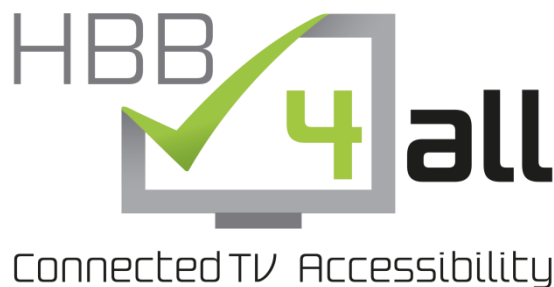


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1. Introduction

The main objective of task 2.2 “Cross-pilot coordination”, is to ensure the coordination and monitoring of activities of the four different pilots (A-D) and enable an efficient inter-pilot communication. Task 2.2 also aims at the identification of common risks and the adoption of common approaches to solve them, when possible.

This document was preceded by “D2.2.1 Cross pilot coordination initial plan”. In this previous deliverable the basis for the monitoring and control processes for an effective coordination of the 4 pilots of the HBBALL project was established.

The present document, “D2.2.2 Cross pilot coordination (I)”, includes an update of the monitoring procedures presented in D2.2.1 but also a summary of the main coordinated actions carried out during the first year of the project.

2. Update on Pilots Progress

In the previous deliverable “D2.2.1 Cross pilot initial plan” the common Work Plan structure was presented for each Pilot. This structure consists in 4 generic tasks conforming the underlying skeleton for each pilot (see Figure 1).

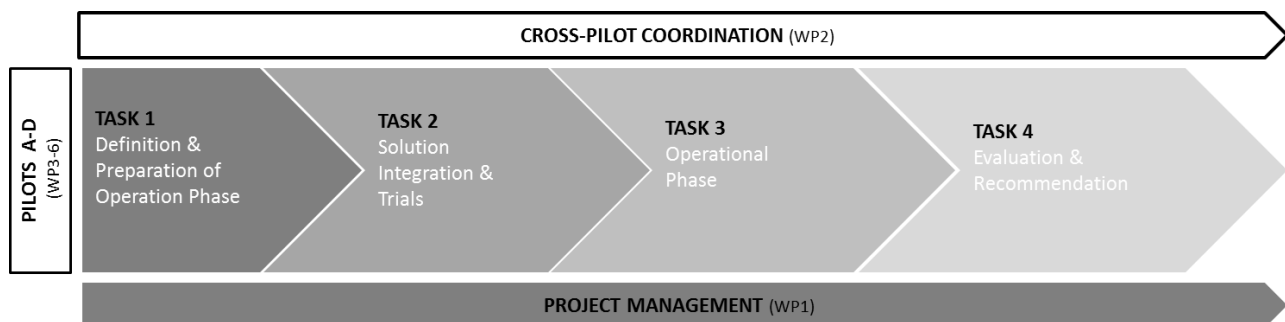


Figure 1. Common Pilot structure.

Both Task 1 and Task 2 started and were active during the first period of the project. The objective of “Task X.1 Pilot Definition and Preparation of Operational Phase” is to make sure that at least one operational pilot service for each work package will be in place at month 20. To this aim each WP has elaborated a strategic plan of activities in terms of which service components will be implemented and integrated for the Operational Phase and how this will be done. Task 2 “Trials and Technical implementation” overlaps Task 1 in time until Month 20 and aims at implementing all the technology and infrastructure required in order to ensure that the Operational phase can start in time. This task is dedicated to test the existing prototype services or parts thereof as well as of completed R&D work taking into consideration recent technological and standardization developments and updates.

During the first period of the project, these generic tasks had been concretized in more specific objective-oriented subtasks. The detailed description of specific activities within each pilot has been provided in the Progress Reports for Pilots A, B, C and D (**deliverables D3.1, D4.1, D5.1 and D6.1**, respectively).

3. Reporting

In this section the coordination activities related to progress reporting are described. The different categories of reports were described in D2.2.1. Concerning contractual reports, 12 deliverables have been submitted during the current period, including the first Periodic Report (D1.1.1). New procedures for interim progress monitoring were also established and lead to the preparation of the first Internal Activity Report in June 2014.

3.1. Deliverables

- **Cross-pilot Deliverables**

WP2 Deliverables have cross-pilot oriented contents. Therefore, they have all required a special coordination effort in order to gather information and establish intra and inter-pilot discussions. WP2 deliverables submitted so far (excluding D2.2.1 and D2.2.2) are:

- *D2.3.1* Common Technical components (I)
- *D2.4.1* Dissemination plan
- *D2.4.2* Dissemination Activities and Advisory Board conclusions M1-M12
- *D2.6.1* Quality metrics for TV access progress

- **Specific Pilot Progress Reports**

A key activity of the project during the current period has been the preparation of the four Progress Reports for Pilots A, B, C and D (**deliverables D3.1, D4.1, D5.1 and D6.1**, respectively). Due to the different nature and activities of each Pilot an important coordination effort was made to ensure that the four reports had a common structure and that the contents were objective-oriented.

- **Periodic Report**

In order to avoid an unnecessary duplicity of contents, the first HBB4ALL Periodic Report was meant as a summary of the contributions of each partner to the active tasks. Its preparation also required a high intra and inter-pilot dialogue that was coordinated by UAB.

3.2. Internal Activity Reports

A new procedure for the Preparation and Quality assurance of Internal Activity Reports has been established (see figure 2 below). The first Internal Activity Report was completed in June 2014 (M7).

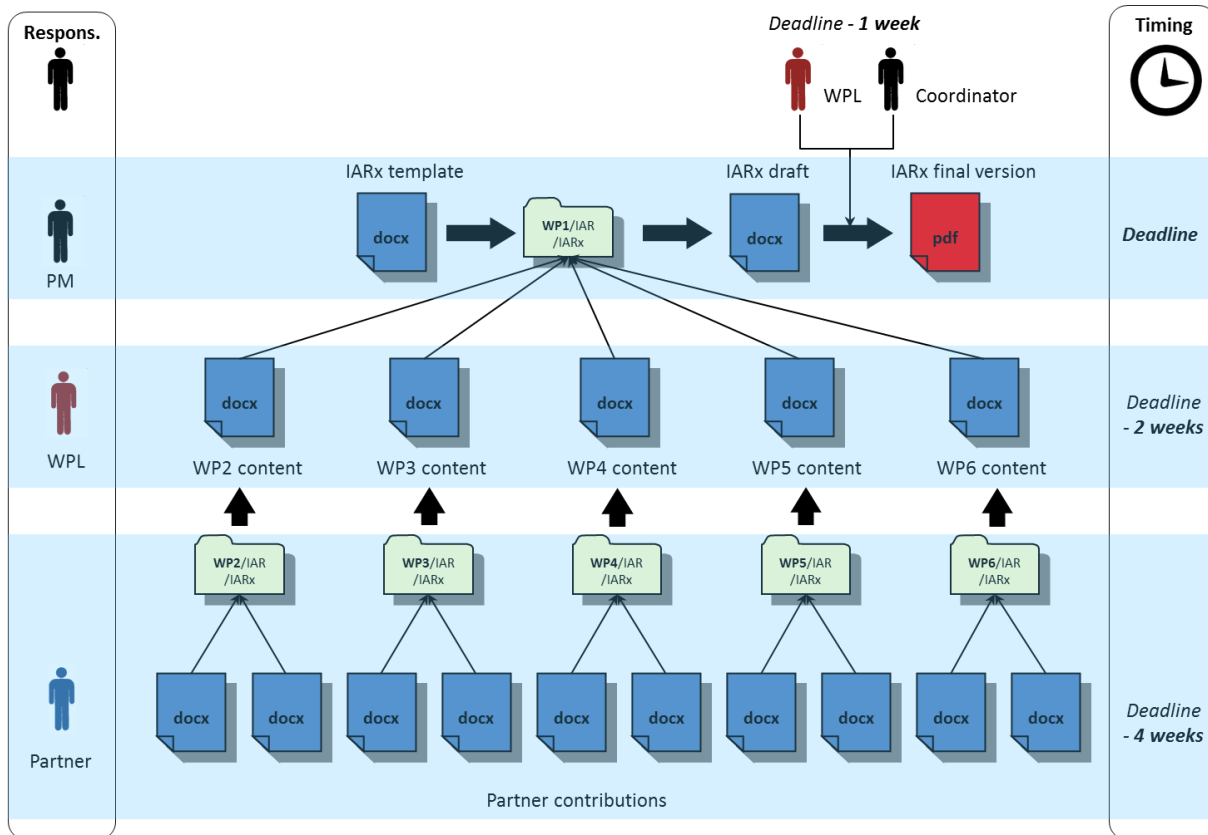


Figure 2. Preparation and Quality assurance procedure for the IAR.

4. Meetings

Meeting are an essential part of the cross-pilot coordination task. Fixed project “presential” and “virtual” (teleconferences) meetings have been organized to guarantee a constant control, monitoring and coordination among the partners and towards the project governance body. Two plenary meetings and at least 1 specific meeting for each Pilot have been organized during Period 1. Monthly teleconferences for cross-pilot and intra-pilot coordination have also been set up. The complete list of meeting for the current period is provided in Tables 1 and 2.

Meeting	Dates	Venue	Participants
HBB4ALL Kick-off Meeting	13-14/01/2014	Barcelona	ALL PARTNERS
UAB Team Kick-off Meeting	03-04/02/2014	Barcelona	UAB and external academic collaborators
WP3 Meeting	22/06/2014	Munich	ALL PARTNERS
1 st Advisory Board Meeting	10/07/2014	Paris	UAB, RBB, IRT, SCREEN, VSX, UPM,

			RTP, HC
WP6 Meeting	11/07/2014	Paris	UAB, UPM, SCREEN, RTP
WP2 Meeting (Task 2.3)	11/07/2014	Paris	UAB, UPM, SCREEN, VSX
WP5 Meeting	08/09/2014	Barcelona	UAB, VSX
HBB4ALL 2 nd Consortium meeting & WP meetings	04-05/11/2014	Berlin	ALL PARTNERS

Table 1. List of the project meetings during period 1.

Cross-pilot	Pilot A	Pilot B
26/03/2014	22/01/2014	06/05/2014
06/05/2014	19/02/2014	19/05/2014
03/06/2014	05/03/2014	17/06/2014
01/07/2014	19/03/2014	21/07/2014
25/07/2014	02/04/2014	09/09/2014
02/09/2014	14/05/2014	15/09/2014
07/10/2014	28/05/2014	14/10/2014
	11/06/2014	19/11/2014
	02/07/2014	Pilot D
	16/07/2014	04/03/2014
	27/08/2014	
	24/09/2014	
	15/10/2014	
	12/11/2014	

Table 2. Dates of the virtual meetings (teleconferences) during period 1.

5. Other Cross-pilot coordination activities

5.1. Common approach to manufacturers about HbbTV 2.0.

Among the coordination activities of the HBB4ALL project during period 1, we should also highlight the preparation of a common document including an overview of the HBB4ALL requirements regarding the support of accessibility services by the upcoming HbbTV 2.0 specification.

This overview has been and will be used to address potential prototype implementations by manufacturers in direct discussions with them and to implement HbbTV2.0 based showcase(s). First discussions with manufacturers and related companies were established during the IBC trade fair 2014 in Amsterdam. Depending on the availability of prototypes, the results of preliminary tests and on the stability of the HbbTV 2.0 features, some of the showcases could be included in existing HbbTV services and thus be available for upcoming HbbTV 2.0 end-user devices.

The document “HBB4ALL: HbbTV2.0 chances” is included in Annex 1 of this deliverable.

5.2. Links with other projects

HBB4ALL has also strengthened its links with other related EU projects. First of all, the project has took advantage of the presence of some members of the consortium as partners or even coordinators of other related projects that were in their final phases (i.e. HBB-NEXT, SAVAS, ...). The conclusions of these projects have been shared with HBB4ALL.

Moreover, HBB4ALL has also been represented in the “Concertation meeting” for research projects on converging media and content organized by DG-CONNECT in Brussels on 25/05/2014. HBB4ALL was in fact included in Content convergence (CC) clusters, which included projects where audio visual contents are delivered using communication channels provided by different technological platforms and where the convergence is technically addressed by specific solution for content synchronization, content linking and content accessibility. Unfortunately the coordinator and the project manager couldn't assist to the meeting due to an air controller strike, but the project was presented and represented by IRT and RBB.



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ANNEX I

Possibilities & chances for innovative applications based on HbbTV 2.0

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Introduction

[HBB4ALL \(Hybrid Broadcast Broadband for All\)](#) is a European project, co-funded by the European Commission under the Competitiveness and Innovation Framework Program (CIP) and by [12 partners](#) from several complementary fields: universities, TV channels/broadcasters, research institutes, and SMEs; all are experts in the field of media accessibility and the multi-device environment. The project started in December 2013 and runs for 36 months.

HBB4ALL addresses media accessibility for all citizens in the connected TV environment. Specifically, the project focuses on the use of HbbTV (Hybrid Broadcast Broadband TV), a European standard increasingly being adopted by European broadcasters for offering interactive TV applications.

HbbTV has the potential to support customised accessibility services for various target groups, by means of its standardised application environment. Future TV sets thus can meet the challenge of making media accessible for all, by means of “off the shelf” end user devices, thus clearly broadening the scope and potential users of accessibility services. To transform the accessibility vision into reality, HBB4ALL targets all relevant stakeholders and all components of the value chain.

HBB4ALL will identify improvements to existing access services and ways of addressing the key technical, organisational and legal obstacles to the sustainable take-up of these services throughout Europe. This document presents the requirements that are relevant to HbbTV and specifically explains which features of the upcoming HbbTV 2.0 specification are crucial for the realisation of future accessibility services.

The three public service broadcasters who cooperate in the project (Rundfunk Berlin-Brandenburg (Germany), Rádio e Televisão de Portugal S.A. (Portugal) and Televisió de Catalunya S.A. (Spain)) all have a high interest in using HbbTV including the upcoming version 2.0 as a basis for future accessibility services. They plan to actively shape a proof of concept showcase with their content in 2015.

HBB4ALL Pilots

The project will test access services in various pilot implementations (from the definition to the operational phase) and gather implicit and explicit user feedback to assess the acceptance and the achievable quality of service in the various delivery scenarios (broadcasting, hybrid, full IP). Four interlinked sub-pilots will be implemented in HBB4ALL:

Pilot-A: Multi-platform Subtitle Services

The Pilot A deals with Multi-Platform Subtitle Services:

- *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.*

Pilot-B: Alternative audio production and distribution

Pilot B deals with the realisation and provision of alternative audio access services for various target groups. The main goals are:

- *To deliver a personalized Clean Audio signal with the regular TV program to enhance the dialog intelligibility of TV audio signals for hearing-impaired people.*
- *To provide Audio Description (containing a description of the action mixed with the dialogue) to support people with vision disabilities.*
- *To provide additional audio streams to TV programs in different languages to support EU citizens / communities living away from home and / or support language learning.*
- *Our vision is to provide such additional audio signals via broadband, in addition to the TV programs on broadcast, on the basis of HbbTV, but also other distribution platforms are targeted.*

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 personalized media terminal with access to traditional broadcast as well as web-based services such as OnDemand Video Services or services for telelearning. The accessibility features of those services will make use of an online service for UI adaptation and personalisation. The main goals of Pilot C:

- *Realisation of a web based User Interface adaptation and personalisation service based on the accessibility framework provided by the European project GUIDE (Gentle user interfaces for elderly people)*
- *Provision of a user testing and profile generation application as part of this service.*
- *Provision of various applications running on PC, mobile as well as HbbTV (1.5 and 2.0) platforms that include the features of the service.*

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 a written language. In many European countries, constitutional and legal provisions assure the availability of sign language on TV. Signing is important not only for mainstream programming and TV programming specifically for the signing communities in Europe and elsewhere but also emergency alerts on TV. The main goals for Pilot D:

- *Realise a prototype version of a complete sign language interpretation production workflow chain, which enables basic (HbbTV 1.0/1.5) and advanced (HbbTV 2.0) customised HbbTV and web-based sign language services.*
- *Hbb/IP TV-based sign language services allowing users to customise size and positioning of sign language interpretation.*

HBB4ALL and HbbTV 2.0

The HBB4ALL consortium strongly supports HbbTV as the main target platform for the HBB4ALL project beside PC based and mobile implementations for some of the targeted services. Within all pilots HbbTV 1.0 or 1.5 based versions of accessibility services are foreseen to be implemented in order to support the already existing and widespread standard. The consortium will also support the upcoming HbbTV 2.0

standard, however at the moment the availability of HbbTV 2.0 devices cannot be guaranteed during the project's lifetime. Therefore the partners will follow a dual strategy: first, HbbTV-based services and applications will be developed in such a way that they are supported by devices that currently are – or in the medium term will be – in the market. Second, to make sure that future accessibility services can make appropriate use of the additional value offered by HbbTV 2.0, the partners gathered terminal requirements based on the trials described in the previous chapters in the following sections. HBB4ALL aims for showcases for IBC 2015 – to show new possibilities with proof of concept showcases.

HBB4ALL would like to encourage manufacturers to provide first prototypes implementing some or all of the version 2.0 features listed in the following for proof-of-concept prototypes in 2015.

Pilot-A: Multi-Platform Subtitle Services

HbbTV 1.0 and 1.5

HbbTV terminals deployed today do not support subtitles for broadband content natively. However, HbbTV terminals provide sufficient information on the playback position for on-demand content to applications so subtitles can be added by rendering them in the application. The advantage of doing this in the application is the flexibility to offer user customized subtitles, e.g. by adjusting the font size. This will be done in the large scale trials of the project. In combination with live content via broadband HbbTV 1.X rendering subtitles is not possible neither via the terminal nor the application. HbbTV 2.0 adds support for EBU-TT-D as a subtitle format (TTML) for broadband content. Within the trials of this pilot this format shall be used in order to minimize later migration efforts to HbbTV 2.0 services.

HbbTV 2.0

The next version of the HbbTV specification removes the lack of subtitle support for broadband services on TV. On demand content can be associated with out-of-band EBU-TT-D documents and content based on MPEG-DASH can have embedded EBU-TT-D subtitles, which enables subtitles also for live streaming via the internet. It is planned to extend the DASH prototype, which is also used by other pilots for live streaming (e.g. Pilot-D), to support segmenting and embedding of EBU-TT-D documents. A proof-of-concept showcase in 2015 shall show an end-to-end system of MPEG-DASH live content with EBU-TT-D subtitles.

Pilot-B: Alternative audio production and distribution

Whereas it is principally possible to add multiple audio streams to a digital TV-service (as part of the DVB service), it is currently not possible to provide additional audio streams via broadband Internet and synchronise them with the TV program.

HbbTV 1.0 and 1.5

As part of the Clean Audio (CA) service it is planned to offer CA signals in various qualities, from which a single one can be selected by an end-user. It is foreseen to realize an MPEG-DASH based prototype for providing a bouquet of CA signals with the TV program as part of a proof of concept implementation.

HbbTV 2.0

For all planned alternative audio services, in case an Internet (IP) based delivery is to be realized, accurate synchronisation of the respective audio channel with the broadcast TV program is crucial. HBB4ALL partners are highly interested in using the Internet as a distribution channel for additional audio services, sidestepping spectrum limitations. A prototype implementing this, based on multistream synchronisation, is planned within the project to show the large opportunities specifically for additional audio access services by means of HbbTV 2.0. The audio access services planned will include also Audio Description and multiple languages in addition to Clean Audio.

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

Within Pilot-C the consortium works on a UI adaptation service to provide personalized accessible UIs on PCs, mobile and HbbTV platforms. The framework will be showcased with a cross-platform online-learning application (MOOC: massive open online course) for PC, mobile and HbbTV platforms, a VoD application provided by SCREEN for HbbTV platforms as well as eventually a legacy HbbTV application provided by PPG.

HbbTV 1.0 and 1.5

The MOOC application as well as the user profile generation application as cross platform applications will be based on HTML5, whereas we will have certain technical restrictions for both applications while targeting the existing HbbTV 1.X platforms. Hence the adaptation of these applications for HbbTV 1.X will have a reduced feature set and not support multiple videos or advanced graphics. To realize the HbbTV version of the MOOC showcase Pilot-C will use the TVAPPBOX framework by PPG. The TVAPPBOX is an application development framework specifically developed for HbbTV and ConnectedTV devices. It fully conforms to the ETSI HbbTV standards v1.0 through v1.5 and is compatible with all major HTML, CE-HTML, HTML5 platforms. It abstracts the application development process from underlying device specific implementations that exist in the market today.

HbbTV 2.0

It is expected that the HbbTV 2.0 version of the MOOC application and the user profile generation application will be similar to their PC versions from a feature point of view. In addition to the HbbTV 1.X adaption the MOOC application may use the multi-stream synchronisation feature, which could be an essential feature for the MOOC application to output two parallel videos via IP at the same time. In the user profile generator application it is planned to include different graphical UI features such as CSS3 animations.

Pilot-D: Sign-language translation service

HbbTV 1.0 and 1.5

Within an HbbTV application a pre-mixed picture-in-picture video stream will be offered, that consists of a main TV video and a sign language video area. The application gets the video input from a video resource like a video server or a web server, where the pre-mixed video is located. A user can launch the signer

application from a generic HbbTV launcher bar, which is standard service offering of German public broadcasters. A prototypical implementation will be ready by August 2015. HBB4ALL is considering using the HbbTV 1.5 MPEG-DASH profile for live streaming to offer the sign language interpreter service on demand via broadband. An implementation based on HbbTV 1.5 has additional advantages over the HbbTV 1.0 streaming with MPEG-TS over a single HTTP connection, such as a much wider CDN support.

HbbTV 2.0

A potential enhancement can be considered by integrating a true hybrid provision of this signing service. That would include the IP-based provision of only the sign language video and the DVB-based transmission of the main TV video. Both videos would have to be synchronised via the multi-stream synchronisation feature of an HbbTV 2.0 terminal. Only this approach would allow offering a customizable HbbTV Signer Application. The user could change size and position of the interpreter area on the TV. Furthermore this approach would minimise bandwidth and hosting space. The described solution, however, would require a) a finalised HbbTV 2.0 specification defining synchronisation of different media streams, b) the timeline-based enhancement of both video streams to be synchronised, c) available HbbTV 2.0 terminals with the multi-stream synchronisation feature and supporting two video decoders. At the current moment, however, it looks highly unlikely that implementations are available for a large scale trial until the start of the pilot phase in August 2015.

Therefore the HBB4ALL consortium decided together that the large scale pilot implementation will focus on the all over IP solution based on HbbTV 1.0 and HbbTV 1.5. Because of the potential of a true hybrid solution the project is highly interested in developing at least a proof of concept showcase based on the HbbTV 2.0 multi-stream synchronisation feature together with the industry.

Technical requirements for specific HBB4ALL Showcases based on HbbTV 2.0 features

The following table summarizes which features are necessary for which showcase. If there are prototypical end devices with the necessary features the responsible partners will try to implement the described showcases for the IBC 2015.

	HbbTV 2.0 Showcase	Differences to HbbTV 1.5	Required HbbTV 2.0 features	Responsible partners
Pilot-A (Subtitles)				
	Subtitles for Live streaming over broadband	Not supported in HbbTV 1.X	<ul style="list-style-type: none"> MPEG-DASH (HbbTV 2.0 version) with EBU-TT-D track 	IRT, VIC
	Subtitles for VoD rendered by the terminal including personalisation features	No need to render subtitles in HbbTV application Improved accuracy for sync with video	<ul style="list-style-type: none"> Out-of-band EBU-TT-D support 	IRT, RBB
	Subtitles for broadcast services delivered via broadband		<ul style="list-style-type: none"> Multi-stream synchronisation Additional synchronisation buffer 	IRT, RBB
Pilot B (Audio)				
	Live streaming of additional audio channels via broadband, to be synchronised with TV program (hybrid solution).	Live showcase not possible with HbbTV 1.5.	<ul style="list-style-type: none"> MPEG-DASH (HbbTV 2.0 version) Multi-stream synchronisation Additional synchronisation buffer 	RBB, IRT, TVC

Pilot C (Smart TV UI)				
	User profile generation application will be based on HTML5	Use of HTML5 as common technology for different terminal platforms.	<ul style="list-style-type: none"> • HTML5/CSS3 based animations and transitions • Multi-stream synchronisation for two streams via IP • Two video decoders 	VSX, PPG
Pilot D (Sign language)				
	<u>True Hybrid delivery</u> IP-based provision of only the sign language video synchronised with the DVB-based transmission of the main TV video	<ul style="list-style-type: none"> • Customizable for User (position/size) • minimise bandwidth and hosting space 	<ul style="list-style-type: none"> • Multi-stream synchronisation • Synchronisation buffer • Two video decoders 	RBB and IRT

Contact Information

If you are interested in getting more information about our project and our plans regarding the realisation of novel HbbTV applications please contact us directly:

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