# 1. Functionalities

## 1.1. What is new in HbbTV 2.0?

- HTML5 and associated technologies
  - HbbTV 2.0 uses HTML5 and a set of related contemporary web technologies including many modules from CSS level 3, DOM level 3, WOFF, Canvas 2D, Web Messaging, Web Sockets, Web Workers, Server-Sent Events and Web Storage. This is in contrast to HbbTV 1.0/1.5 which use HTML4, CSS level 2, DOM level 2 and a set of related web technologies of a similar period.

- HEVC video
  - For TVs and STBs that support HEVC, HbbTV 2.0 defines how it can be used via broadband. HEVC can be used both for UHD content and to enable HD content to be delivered using less bandwidth than AVC for the same quality.

- Subtitles for broadband delivered content
  - HbbTV 2.0 adds support for subtitles for broadband content using the EBU profile of W3C TTML.

- Launching a companion screen application
  - An HbbTV 2.0 application on a TV or STB can launch an application on a suitably enabled smartphone or tablet. This potentially allows the consumer to do their interaction more personally rather than on the TV screen.

- Application to application communication
  - HbbTV 2.0 allows an HbbTV application and an application on a smartphone or tablet to communicate with each other using the 'websocket' technology defined by the W3C and IETF. The application on the smartphone or tablet can be one that was launched from the TV or STB or it can be launched by the consumer and then discover the HbbTV 2.0 TV or STB.

- MPEG DASH
  - HbbTV 1.5 includes a simple profile of MPEG DASH which is being used successfully today. HbbTV 2.0 extends this to add extra features using the work completed in July 2014 in the DVB project.

- Advert insertion into VoD content
  - HbbTV 2.0 defines how multiple HTML5 video elements can be used to seamlessly insert adverts at the start, middle and end of VoD content.

- Application and content synchronisation
  - HbbTV 2.0 has better support for applications to synchronise to video than is the case in HbbTV 1.0/1.5. This builds on the "TEMI" timeline recently standardized in MPEG.

- Non-realtime content delivery via broadcast
  - HbbTV 2.0 defines how files containing video, audio and subtitles can be sent via broadcast to TVs and STBs with local storage for playback later by an HbbTV application. This allows the implementation, for example, of Push VOD services.

- Multi-stream synchronisation
  - HbbTV 2.0 defines how streams delivered via broadcast and via broadband can be synchronised. For example, synchronising audio delivered via broadband to broadcast video for watching a video with soundtracks in other languages.

- Decrypting broadband delivered content
  - Historically CI Plus modules have only been used to decrypt broadcast delivered content. Version 1.4 of the DVB CI Plus specification defines a feature called "host player mode" which enables a CI Plus module to be used to decrypt broadband delivered content. HbbTV 2.0 has defined how this feature integrates with HbbTV and MPEG DASH to provide a complete end-to-end system.

- Synchronising applications and content across devices
  - HbbTV 2.0 enables a TV or STB to provide synchronisation information to a smartphone or tablet. This allows an app on the smartphone or tablet to synchronise with the video being presented by the TV or STB. This is based on the new DVB Companion Screen ("CSS") specification.

- Remotely launching an HbbTV application
  - HbbTV 2.0 enables an app on a smartphone or tablet to request an app be launched on the TV or STB. This is based on the "DIAL" technology used by Google and Netflix.

- Exploiting innovative user input devices
  - HbbTV 2.0 enables applications to test for the presence of innovative user input devices (e.g. wands) and adjust their behaviour accordingly.

- Better sharing remote control keys with the TV / STB UI
  - How remote control keys are shared between HbbTV applications and the TV / STB UI has been modified in HbbTV 2.0 to make it harder for badly behaved applications to trap consumers on a TV channel by grabbing more keys than necessary.

- Improved performance accessing broadcast data

- HbbTV 2.0 improves the support for access to data carried in the broadcast (e.g. HTML pages, images, …). The pages, images (etc) of an HbbTV 2.0 application will be cached in order to be available for faster retrieval if the user returns to the application later.

**1.2. Does HbbTV 2.0 address second screens? If so, in what way?**

Yes. HbbTV 2.0 includes 4 different ways to address the second screen:

- App on a second screen can launch an HbbTV app on a TV: this allows user to use their tablet or smartphone to browse for video content and launch an HbbTV application to watch this content on the TV screen. It is using the same DIAL technology as Netflix and Chromecast.
- App on a TV launching an app on a second screen: this allows, for example, a popular show like “the Voice” on TV to launch, through its HbbTV 2.0 service, “the Voice” application on a tablet to provide a more in depth interaction with the show.
- Communication between an app on the second screen and an app on the TV.
- Synchronising app or media on a second screen with media on the TV: this allows consumers to view content back and forth between the first and second screen in a seamless way.

**1.3. What sort of interesting new services can be offered using 2.0 that 1.5 did not support?**

- Better interaction with the second screen as described in question 1.2
- Accessibility services combining broadband-delivered audio with broadcast video. This will allow users to select additional languages or a clean audio track
- Push VOD services (access to broadcast content captured to local storage in the receiver)
- Advanced user experiences based on HTML5
- Seamless viewing of video content across TV, Smartphones, PCs and Tablets
- Innovative companion applications that enhance the TV experience with detailed program info, voting, play to screen and other use cases
- Standardized broadband delivery of Ultra HD content with HEVC
- Improved accessibility of services with better support for subtitles in multiple languages
- Support for new advertising models
- Support for consumers privacy

**1.4. Who is planning to use this new functionality?**

The HbbTV 2.0 set of functionalities has been defined with inputs from many different parties including Broadcasters, Manufacturers and Operators.

Several countrywide organizations have indicated that they will use HbbTV 2.0.

The first large scale deployment of HbbTV 2.0 is expected to be Freeview Play in the UK.

### 1.5. What is the relation between HbbTV 2.0 and the Freeview Play service in the UK?

Freeview Play (the name for the upcoming Freeview connected TV service in the UK) is the next evolution of the UK's most popular TV service and will be central to Freeview's and Digital UK's long term vision for an open hybrid DTT platform.

The Freeview Play platform is being established by development of a technical specification combining Freeview HD and HbbTV 2.0 and a clear device testing and conformance regime, and is due to launch later this year.

For more information about Freeview Play please see :
http://www.digitaluk.co.uk/industry/news/connected_tv_service

## 2. Deployment and availability

### 2.1. Is HbbTV 2.0 backward-compatible with 1.1 and 1.5?

Yes. HbbTV 2.0 has been designed to ensure that existing HbbTV 1.1 and 1.5 applications will work on HbbTV 2.0 receivers.

### 2.2. When will HbbTV 2.0 receivers be available in stores?

First HbbTV 2.0 compliant receivers are expected during 2016.

### 2.3. Can/will 1.1 / 1.5 receivers be upgraded through a SW upgrade?

Yes it is possible to update existing HbbTV 1.1 or 1.5 receivers with HbbTV 2.0 software. However, in practice software upgrades for TV sets are usually limited to fixing bugs and do not add features. On managed STBs this upgrade will be possible provided the STBs have enough memory to upgrade to HbbTV 2.0

### 2.4. Will there be a certification regime for 2.0? If so, how, and when?

The HbbTV Association is also immediately launching its tender process for the supply of an HbbTV 2.0 Test Suite. It is anticipated that the test suite will become available in 2016, enabling the launch of HbbTV 2.0 compliant products and services that year.

### 2.5. Will you publish Profiles for this new specification? Or do all TVs/STBs need to implement the entire new specification?

There will not be any profiles. All TVs/STBs need to implement all applicable parts of the specification. There are some parts of the specification that are only applicable to some TV sets and STBs depending on the capabilities of the set. Some examples include HEVC support, PVR and Push VoD.

## 3. Publication and timing

### 3.1. Will HbbTV 2.0 be published as an ETSI spec like the previous versions were? If so, under what number?

HbbTV will submit HbbTV 2.0 to ETSI. What happens after that depends on the outcome of the ETSI process. We hope it will be published as TS 102 796 V1.3.1.

### 3.2. When can industry start implementing HbbTV 2.0? Do manufacturers need to wait until ETSI publishes the specification?

The industry is implementing HbbTV 2.0 without waiting for ETSI to publish the specification.

## 4. Privacy

### 4.1. Does HbbTV 2.0 change /add anything to protect privacy?

HbbTV 2.0 adds a number of things relating to privacy;

- A requirement for TVs to give the user the ability to state if they do not want to be tracked. (Based on the W3C "Do Not Track" specification)
- TVs must either block 3rd party cookies or allow the user the ability to turn this on
- TVs are recommended to consider blocking tracking web sites with the ability for the user to control this.
- TVs give the user the ability to block cookies (etc).

## 5. General/Background

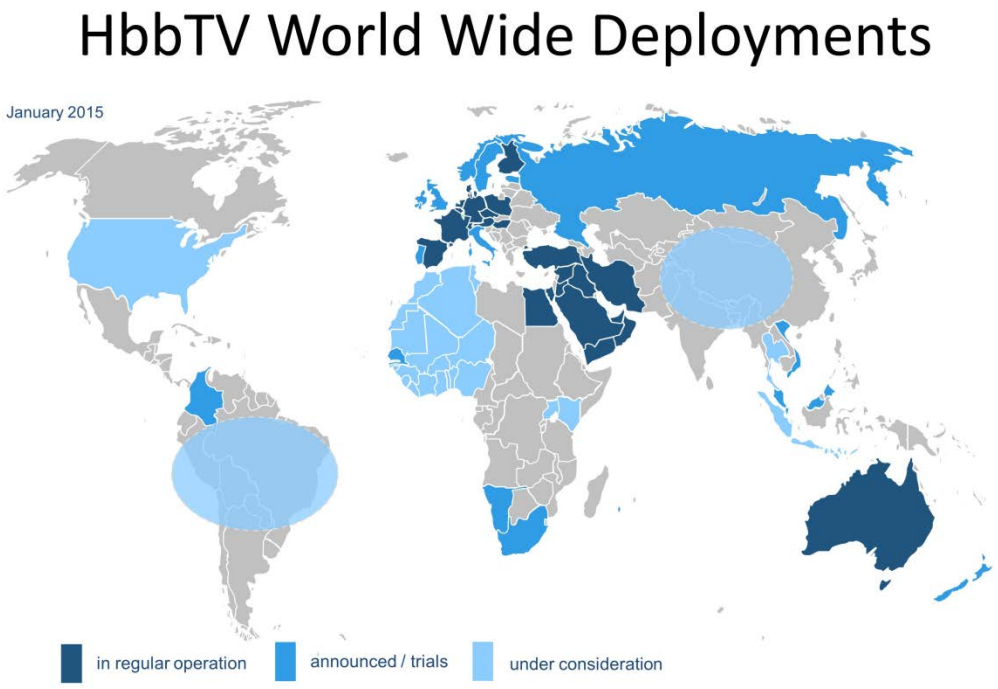
### 5.1. How many HbbTV sets are deployed today?

Over 25 million HbbTV receivers have been deployed today

### 5.2. How many of newly sold TV sets are HbbTV compatible?

In most European countries almost all connected TV sets are HbbTV based

### 5.3. In which countries is HbbTV used?




**5.4. What companies and industries are the main drivers in drafting the HbbTV 2.0 specifications?**

The members of the HbbTV Consortium can be found here: http://hbbtv.org/pages/hbbtv_association/members.php . They all support the goals of HbbTV. The active participants in setting the 2.0 standard are:

- Broadcasters and operators: BBC, Eutelsat, IRT, ITV, SES-Astra
- Manufacturers: LG, Samsung, Sony, TP Vision
- Technology companies: Access, Cisco, Digital TV Group, Digital TV Labs, Dolby, Ericsson, Espial, Fraunhofer FOKUS, HTTV, Nagra, Opera, Quadrille, Qualcomm, Strategy and Technology, Tara Systems, Télécom ParisTech, TNO, Viaccess-Orca