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# HbbTV: REINVENTING THE BROADCAST TV UX

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## Abstract

The HbbTV association is a global initiative aimed at providing an alternative to proprietary technologies and delivering an open platform for broadcasters to deliver on-demand services to the end consumer. Formed in 2009, the association's aim was to define an HTML-based specification to enable broadcasters to associate applications with their content, allowing consumers to access other video content and additional information. It has been widely adopted by broadcasters and manufacturers in Europe and 2014 will see further adoption in other countries around the world. In addition to helping consumers, the introduction of the HbbTV standard is of benefit to both equipment manufacturers and content providers. Standards have historically been set on a country-by-country basis, requiring delivery of specialized hardware or content to each nation. The establishment of a unified European HbbTV standard means content owners and application developers can write once and deploy across many countries.

The founding members of the HbbTV association consists of both television broadcasters and CE companies, which allows for a common goal of creating services that broadcasters wish to offer while meeting the capabilities of today's CE devices. The HbbTV steering group members are: Abertis Telecom, Espial, Digital TV Labs, EBU (European Broadcasting Union), France Televisions, Institut für Rundfunktechnik GmbH, Nagra, Opera, RTL Group, Samsung, SES ASTRA S.A, Sony Corporation, Television Francaise 1 - TF1, and TPVision.

This paper will provide an overview of the advances made by the HbbTV standard to re-invent the broadcast TV viewing experience. It will:

- Consider the business drivers advancing HbbTV;
- Provide a survey of the countries that have and that are planning to use HbbTV;
- Review the types of devices supporting HbbTV;
- Summarize the specification and how it uses broadcast TV and broadband connectivity to deliver new services; and;
- Review the types of services being delivered by HbbTV today.

Through these developments, the paper will illustrate how HbbTV is reinventing the broadcast TV user experience by allowing broadcasters, manufacturers and pay-TV operators to bring a new level of interactivity and enjoyment to the TV experience.

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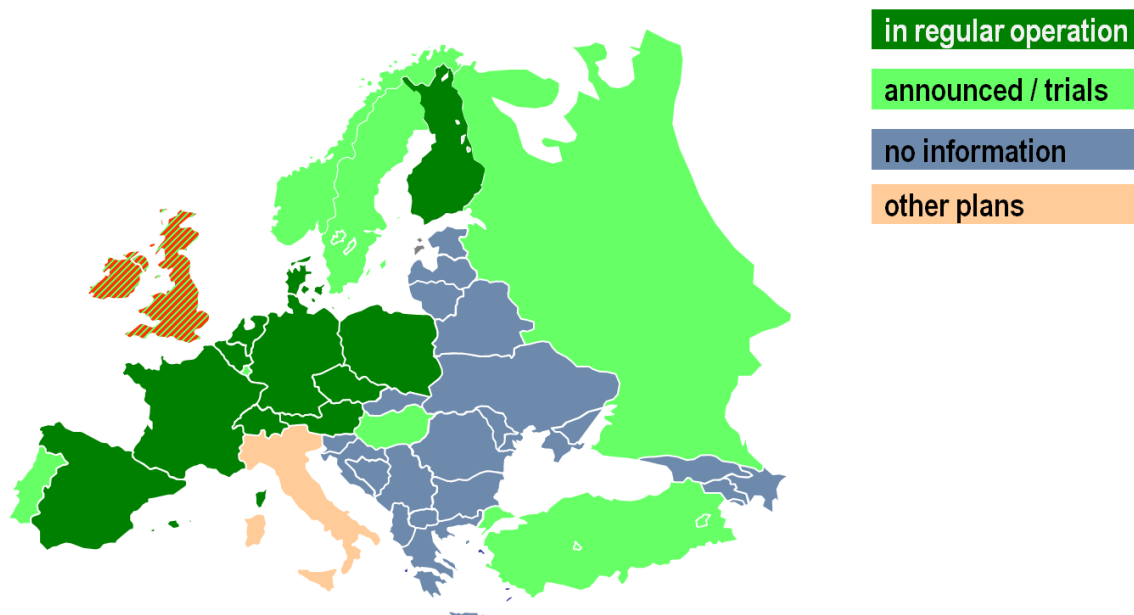
<sup>1</sup> The author is co-chair of the HbbTV Marketing Group but this paper is submitted on behalf of Espial.

## Business Drivers

This section explores the business drivers behind the adoption of HbbTV. There are a wide range of factors supporting the move to HbbTV including the move to digital TV, consumer demand, broadcaster innovation, government policies and regulations, as well as pay-TV operators' business cases. Let's look at each of these in turn.

- Analog Switch Off and Move to Digital
  - requires large countrywide investments
  - is often subsidized by governments or by selected broadcasters
- Consumer Demand
  - More content, both free and paid
  - Better quality (HD) programming
  - New services such as VOD, Interactive TV, Information, games and more
- Broadcaster Innovation
  - Interactive TV to attract consumers and retain their audience
  - New forms of advertising and revenue
  - Open content libraries to national and global audiences to build brand and deliver new revenues
- Government
  - New broadcast licenses
  - e-Government services
  - Education
  - Early warning systems Show leadership in adopting advanced consumer TV services
- Pay-TV Operators
  - Take advanced of open standard to replace legacy middleware cost-effectively
  - Support traditional value-add services for new revenue opportunities
  - Leverage HbbTV receivers (TV and set-top boxes) to deliver new services

## European Broadcast Adoption



HbbTV has established a solid footprint in Europe. The following section provides a status on deployments across the region.

- Germany
  - More than 70 active HbbTV applications
  - Delivering via satellite (Astra), Free-To-Air terrestrial and cable
  - Moving to IPTV with Kabelkiosk package
- France
  - A dozen HbbTV 1.1 services on terrestrial and satellite Fransat
  - MyTF1 VOD is first TNT2.0 service based on HbbTV 1.5 using MPEG-DASH adaptive streaming as well as Marlin and PlayReady DRM
- Spain
  - Recently launched - a dozen HbbTV services are already deployed
  - TDT Hibrida is the Spanish HbbTV 1.5 DTT specification
- Austria
  - ORF is running an HbbTV portal on its satellite service and a roll-out is planned in 2014 on the DVB-T2 pay TV platform.
- Czech Republic
  - Czech public broadcaster Czech Television has developed a range of HbbTV 1.1 services including 7 years of on line TV programs archives.
- Hungary
  - Antenna Hungaria is currently testing their first HbbTV services on Terrestrial
- Poland
  - TVP and Eska TV are operating a full range of HbbTV 1.1 services over DVB-T since over a year with good consumer usage
- The Netherlands
  - Dutch broadcasters NPO and SPS have deployed HbbTV services
  - Main issue is access to the consumer due to limited cable access
  - Must Carry government initiative

- Scandinavia
  - The NorDig standard organization has dropped MHP and selected HbbTV 1.5
  - Public service broadcaster, DR, is running a pilot of its catch-up service on HbbTV with great success.
- Switzerland
  - Radio Télévision Suisse, has launched RTS+ an HbbTV service with SuperText, Catch up and dedicated offerings for people with disabilities
  - Accessible over Cable and Satellite
- Turkey
  - The latest DVB-T2 receiver specification for the imminent launch of DTT services specifies HbbTV.
  - Digiturk is using HbbTV on its Satellite platform with around 1M HbbTV STBs

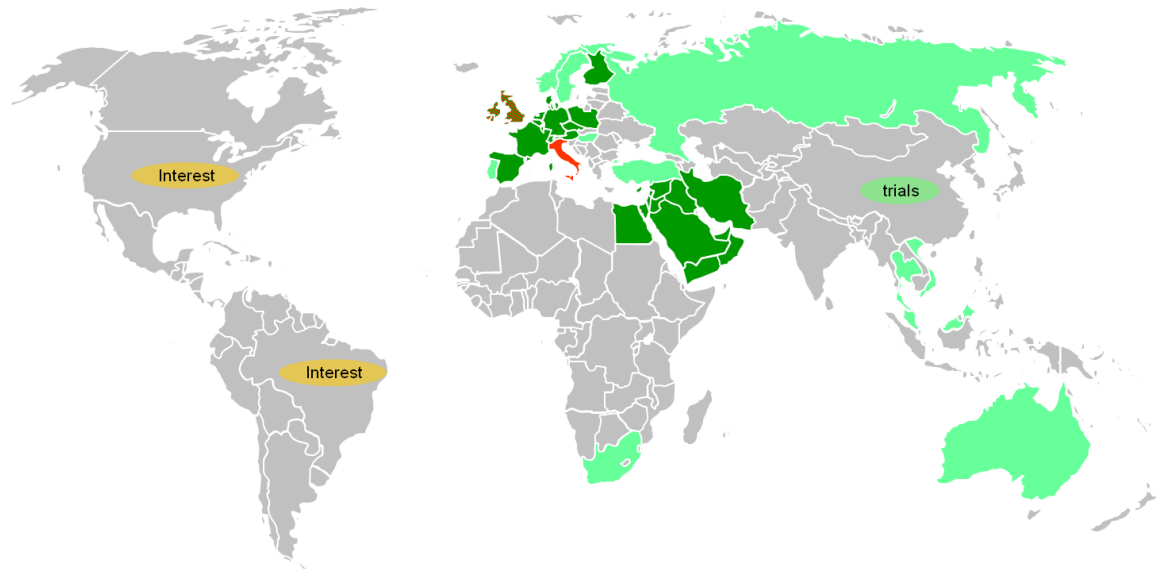
## European Pay-TV Adoption

HbbTV is also being adopted by several pay-TV operator market segments in Europe including:

- Satellite
  - With embedded conditional access system (CAS)
  - HD+ SmartTV
  - Fransat (France)
  - Digiturk (Turkey)
- Cable
  - KabelKiosk – replaces legacy Pay-TV middleware with HbbTV solution
- Telco IPTV
  - France IPTV operators are looking forward to supporting the popular broadcaster HbbTV services



## International Expansion



Internationally, interest in HbbTV is growing steadily in North and South America, Russia and beyond, making it a truly global approach to TV innovation.

- Australia
  - Freeview has announced its move from MHEG5 to HbbTV in 2014 on terrestrial and satellite
- USA
  - ATSC is actively liaising with HbbTV to use the technology as part of ATSC3.0.
- ASEAN
  - Malaysia and Vietnam have adopted HbbTV as part of their DVB-T2 launches
  - Thailand, Singapore and Indonesia are actively considering HbbTV for their terrestrial analog switch off
- Russia
  - Russian Television and Broadcasting Network has announced HbbTV trials on the DVB-T2 in 2013
  - HbbTV is considered by pay TV operators
- Africa
  - South Africa is launching HbbTV
  - The Namibian Broadcasting Corporation has announced a roll-out of DVB-T2 HbbTV service

## HbbTV Devices

### Smart TVs

- Manufacturers
  - All major global TV manufacturers are shipping with HbbTV support
  - Many smaller manufacturers are also shipping with HbbTV support
  - Support may be enabled on a per-country basis
- Germany:
  - 3.4M HbbTV TV sold in 2012
  - 90% of the Connected TVs are HbbTV
- France:
  - HbbTV TVs represent 55% of all TV references
  - Starting at 350€ retail price

### Set-Top Box

- Manufacturers
  - A wide range of STB manufacturers are shipping models with HbbTV support
- Available for satellite market in Europe with embedded CAS
- Available for DVB-T2 Analog Switch Off in emerging markets
- Limited extra cost between HD receivers and HD with HbbTV

### Silicon

- Manufacturers
  - Broadcom, ST Microelectronics

## HbbTV Specification Overview

- The main uses of the broadcast connection are the following:
  - Transmission of standard TV, radio and data services.
  - Signaling of broadcast-related applications.
  - Transport of broadcast-related applications and associated data.
  - Synchronization of applications and TV/radio/data services.
- The main uses of the broadband connection are the following:
  - Carriage of On Demand content (VOD, catch-up TV).
- Transport of broadcast-related and broadcast-independent applications and associated data (teletext, portal-based applications).
- Exchange of information between applications and application servers.
  - Discovery of broadcast-independent applications.
- HbbTV 1.0 Features
  - Playback of broadcast and IP-streamed media.
  - Download media to persistent local storage.
  - Access to channel list and now/next EPG data.
  - Broadcast-related and broadcast-independent applications.
- HbbTV 1.5 Features
  - EIT-Schedule access
  - MPEG DASH
  - DRM APIs (No specific DRM solution mandated by HbbTV, but one may be mandated for specific markets by trademark license holders).
  - Deployments
    - Deploying in France on Terrestrial and Satellite.
    - Deploying in Spain on TDT Hibrida.
    - All 2014 HbbTV deployments will be based on HbbTV 1.5.
    - HbbTV association working on 1.5 test suite for interoperability purposes.
- HbbTV 2.0 Proposed Features (specification likely to be finalized Q2 2014)
  - Improved support for HTML5.
  - Companion screen app launching and synchronization.
  - Push VOD support.
  - Improved support for ad insertion.
  - Improved synchronization between media and applications.
  - Support for HEVC video.
  - Improved support for MPEG DASH.

## HbbTV Services

A wide variety of HbbTV services and applications have been deployed including:

- Video On Demand
  - Catch up
  - Start Over
- Information services
  - News, weather, sports
  - eGovernment
  - Guide, EPG
- Enhanced TV
- Games
- Education
- Advertising
- T-Shopping
- TV portal
- Companion screen



## Network Operator HbbTV services

Making Network operator's HbbTV services coexist with the Broadcast HbbTV services

- Kabelkiosk, Fransat example





## Conclusion

As HbbTV enters its fifth year, momentum and enthusiasm for the initiative is growing exponentially. With Europe's switch from analog to digital and increased consumer viewing expectations, HbbTV provides an exceptional viewing experience that connects the desires of broadcasters, manufacturers and pay-TV operators. HbbTV offers a variety of services and features, including Video on Demand and customizable information services, and has already been adopted by a number of European nations. As features and services continue to push the boundaries of TV innovation, interest internationally will continue to grow and HbbTV will soon become a global standard.