

HbbTV Services, Solutions & Devices

IBC 2018, RAI Amsterdam





HbbTV Association

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HbbTV Services, Solutions & Devices at IBC 2018





About HbbTV

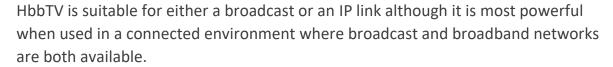
HbbTV (Hybrid Broadcast Broadband TV) is a global initiative which was, and continues to be developed with the aim of enabling richer TV services for consumers and broadcasters thanks to the intelligent collaboration of broadcast and broadband access of connected TVs, set-top boxes and multiscreen devices. It is a dynamic industry standard which has been adopted more than 30 countries to date (September 2018) due to it being an open and business-neutral technology platform that is flexible and has growing commercial capabilities.

The HbbTV Association consists of industry stakeholders from a wide range of leading technology, network and media organisations around the world. They work together, contributing their huge respective knowledge and market experience to develop a specification which will meet market requirements for the delivery of future TV

requirements for the delivery of future TV services.

The HbbTV specification leverages certain elements of existing standards and web technologies including OIPF (Open IPTV Forum), CEA-2014 (CE-HTML), W3C (HTML etc.) and DVB

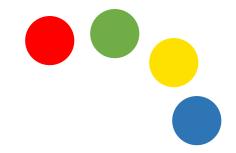




There are some exciting developments in HbbTV at this year's IBC and this document is intended to give you an overview of what to expect from this exciting technology in the coming months. Additionally, the HbbTV Association will be giving demonstrations on the DVB stand.

HbbTV Demo – Stand 1.D81 (DVB Stand)





Stand 5.C53 and Balcony Suite 23

AdScribe, a subsidiary of Zenterio based in London and Dublin will be showcasing their advertising and analytics products at the Zenterio stand this IBC 2018.

AdScribe Engage is an end-to-end advertising platform that gives TV operators and broadcasters the tools to create and operate an interactive advertising & content promotion business. A core part of the platform is the best-in-class application authoring tool that works across most TV platforms, including full HbbTV compliance. Unlike most template-based approaches, our drag-and-drop, browser-based authoring environment gives complete creative freedom while guaranteeing compliance with the target platform standards. This creative freedom is a key requirement for brands and agencies when deploying interactive campaigns. It also ensures that campaigns and apps can be developed, tested and brought to market in the short timeframes common in the advertising industry.

AdScribe Audience is an end-to-end cloud-based Software-as-a-Service tool for TV audience measurement and analysis. Audience collects and processes TV viewing events to make the data available for detailed analysis through an intuitive UI. To meet industry and international regulations the data collection process is fully secure, anonymized, and contains no personally identifiable information.



BBC | Research & Development

Stand 8.F08

BBC Research and Development has been a leading participant in the development of HbbTV 2. The technology has been successfully deployed in the UK on the Freeview Play platform where it has enabled the BBC to deliver richer Red Button and iPlayer on-demand experiences to viewers in the UK.

This year BBC R&D is focusing on a demonstration of Content Substitution. This is where the traditional linear broadcast experience is enriched by blending traditional linear broadcast with personalised IP-delivered content. For example: trailers and programmes can be substituted with choices tailored to the viewer's interest or local area.

We are showing how increasing numbers of devices supporting the HbbTV 2 standard will make this possible for horizontal markets and platforms, such as Freeview Play in the UK. We are also demonstrating approaches that we are investigating that improve the seamlessness of the transition between broadcast and IP.



Stand 14.H06

Castoola recently acquired by Beenius and became a part of a bigger family. Beenius' interactive TV platform offers IPTV, OTT, and DVB-X solutions on Linux and Android STBs and smart devices. With Castoola, Beenius can now offer HbbTV features on supported devices — all from the same system. Furthermore, it is also possible for operators to leapfrog into modern TV offerings on legacy systems, with this feature-proofed TV solution. Beenius and Castoola can now offer the most advanced Interactive TV solutions and E2E systems for all HbbTV and IP-enabled devices.

Castoola can help broadcasters with development of different kind of applications and services, such as TV portals, Video-on-Demand, Rich EPG, Social Media and other TV program supporting information.

HbbTV Advertising

Bringing digital advertising to the linear TV to create new revenue streams for TV media.

Monitoring TV channel

Ratings of channel and learning about the behaviour of audience. They help broadcasters responding to their habits and adopt to them.

HbbTV Catch-up

Offering subscribers a possibility to shift time back and take a look at the missed program. Castoola can help with development and integration of Catch up, Start-over or any other type of time shift functionality.

Monitor your TV network

Cross-channel viewing ratings over TV network with modern approach. HbbTV-based analytics are changing the way of measuring the audience.

Other interactive applications

Video-on-demand, TV portal or T-commerce

What is the future of Castoola platform?

- Ad-serving platform connecting Advertisers & TV stations
- User friendly platform for advertisers
- Cross device retargeting
- Audience segmentation based on the TV program
- Data analytics improving ad efficiency
- Advanced Geo targeting



Stand A.211

Dolby Laboratories, located in booth A.211, will be showcasing HbbTV experiences with live decoding of Dolby AC-4, our next generation audio codec, on a commercially available LG TV. The content will be delivered via DVB T-2 and will feature interactivity, personalization and target advertising applications.



Stand 2.B39

DOTSCREEN is one of the most experienced European HbbTV application developer that has created and released numerous HbbTV apps (portal, live, VOD, replay, EPG, radio, weather, news...) for Freenet TV (Germany), Fransat, TF1 & France Télévision (France), SVT (Sweden), ERT (Greece), France24 (worldwide).

With headquarters in France and offices in Europe & US, DOTSCREEN is a leading multi-screen app & UI specialized agency.

DOTSCREEN has completed hundreds of video applications available for smart TV (Tizen, HBBTV, Orsay, Web OS...), OTT boxes (Roku, Apple TV and Android TV), settop boxes, game consoles (Xbox, PlayStation), smartphones and tablets (iOS, Android), smartwatches, smart speakers and smart fridges. Our customers include prominent pay TV operators (Vodafone, Orange, Freenet TV/Media Broadcast, Telefonica, Tele2, Virgin Media...) and TV/VOD companies (HBO, Fox, Turner, Discovery, ESPN, Beinsports, TF1, CBS News, Mediaset...).

Our apps have been integrated with numerous back-ends & OVPs (Comcast, IBM Cloud Video, Neulion, Kaltura, Arkena, CSGI, Conax, Nagra...).

At IBC, we will showcase our custom, multiscreen UI available on Android TV (Operator Tier), HTML5 & HbbTV.





Stand 1.D81

DVB and HbbTV have worked side-by-side for many years to ensure that watching TV is simply a great user experience, built on the world's leading open technical standards. We are proud to partner with HbbTV for IBC2018.

A key focus of our stand this year is Hybrid Media Delivery, showing a state of the art system that combines DVB-T2 and OTT delivery seamlessly. Linear HD content is delivered over terrestrial broadcast and over broadband using DVB-DASH, within the framework of an HbbTV app. For the end user, the switch between the broadcast and OTT content is seamless, with both appearing within the EPG.

HbbTV apps from IRT will show how the viewing experience can be enhanced both with UHD streaming and with the availability of additional synchronized audio channels, the latter using the DVB-CSS companion screen specification. Further HbbTV apps, including video library and catch-up services as deployed in several markets around the world, are also shown in conjunction with the HbbTV Association and demo partners that include Cellnex Telecom and Sofia Digital.



DTG Testing is the DTG's independent and not-for-profit ISO 17025 accredited test facility and a registered test centre for HbbTV conformance testing. We provide device testing, test material development and training services across the world, including for the UK Freeview HD and Freeview Play, Ghana, New Zealand, and South Africa platforms, as well as DAB testing (including Notified Body reviews for RED conformance). We are actively assisting in the UK 700MHz Clearance Plan. DTG Testing hosts the most complete UK reference receiver collection, The Zoo, for application, service and hardware compatibility testing. DTG Testing is an active member of HbbTV, providing test material and QA services for the HbbTV test suite. Our team of professional test developers and test engineers supply productive and cost efficient test management with the highest levels of service and support. For more information please contact customerservices@dtg.org.uk, or visit dtgtesting.com.



Digital Testing

Stand 5.B45

Eurofins Digital Testing are active members of the HbbTV Testing and certification groups, and are the main contributor to the official HbbTV Test Suite. The commercially available Ligada iSuite for HbbTV is also widely adopted by major operators and manufacturers around the world.

We have served many major HbbTV operators, building test cases for various profiles, DRM test servers and platform specific test suites. We are also very close partners with HbbTV receiver manufacturers and platform providers alike, rolling out successful interoperable HbbTV deployments worldwide.

This IBC we will be showcasing Operator Applications add-on to Ligada, in addition to our 4K HDR test suite, Streaming Video QoE analysis, Automation platform TestWizard, and the latest offering for ATSC 3.0.



Stand 8.B80

The FAMIUM DAI Service is an end-to-end solution for ad-insertion in MPEG-DASH and HLS. Acting as a delivery middleware, it wraps the complexity of the ad-insertion process into easy to integrate tools, which are manageable through the FOKUS Stream Scheduler. The FAMIUM DAI Service has support for ad signalling mechanisms like SCTE35 and ad server standards like VAST, VPAID and VMAP. Our tools can be used to target different platforms, including HTML5 browsers, HbbTV 1.5/2.0 devices and native DASH and HLS player running on e.g. Android, iOS, FireTV or Chromecast.

The Cloud-based 360° Video Playout allows the viewing of high quality 360° videos on devices with constrained capabilities such as HbbTV. Usually the delivery of such video material consumes a large bitrate and results in a considerable processing load to perform the geometrical view projection and rendering. Field of View Adaptive Streaming addresses both aspects and reduces the required bitrates and processing resources by rendering the field of view in the cloud in advance and by streaming only the selected field of view to the client. The solution was used by the Greek public broadcaster ERT for the first HbbTV 360° Video Portal during the FIFA World Cup 2018 in Russia.



Stand 8.B80

Fraunhofer IIS will showcase MPEG-H Audio support in HbbTV including DVB DASH streaming on a set-top box running the Vewd HbbTV browser with MPEG-H Audio support as defined in the latest HbbTV 2.0.2 specification. Vewd is the first browser provider to enable support for MPEG-H Audio in their HbbTV browser SDK which allows broadcasters to explore the advanced features of MPEG-H Audio in their HbbTV applications. Together with Fraunhofer IIS, the Oslo-based company implemented a first HbbTV application enabling MPEG-H interactivity and personalization features. Visitors to the Fraunhofer IBC booth and the Vewd booth 14.F02 can experience user interaction and accessibility features of MPEG-H in Vewd-powered HbbTV browser: they will be able to select between different versions of the content such as "default mix" or "dialog enhancement", as well as choose between various available languages (e.g., English, German, French, Italian, Portuguese). Additionally, for content with accessibility features, the user can select the Audio Description in their preferred language.

Fraunhofer IIS will also present a complete production and transmission chain for the MPEG-H Audio system. The equipment includes MPEG-H monitoring units for real-time monitoring and content authoring, postproduction tools, MPEGH Audio real-time broadcast encoders as well as decoders in professional and consumer receivers. All equipment shown in this real time chain is readily available for broadcasters worldwide. Additionally, end user products will be on display at the Fraunhofer booth as well: MPEG-H-enabled TV sets from Samsung and LG, which have been on the market since the launch of the Korean terrestrial UHD TV service with MPEG-H Audio in March 2017, as well as set-top-boxes from Korean manufacturer Innopia, and from Chinese manufacturers Zhaoxin and Skyworth.

The demonstrations will also showcase the DVB-based setup used by France Télévisions for the first MPEG-H Audio transmission via satellite and DVB-T2 in Europe this year during the French Tennis Open, including the Jünger Audio MMA and Ateme's live UHD broadcast encoder.



Stand 2.C51

In addition to consulting services, GkWare offers a wide range of software components with flexible licensing options. This includes a fresh browser implementation for HbbTV.

The HbbTV demo system for the IBC will show a couple of German apps, catch-up services and MPEG-DASH services - everything inside a fully CI+ and PVR enabled DVB middleware.

The DSM-CC client and a corresponding HbbTV object carousel playout/multiplexing software are also available as independent packages.

intertrust

Stand 5.A55

At IBC 2017, Intertrust launched ExpressPlay CA[™], powerful, cost-effective, cloud-based conditional access (CA) security that is the future of broadcast TV. In January of this year, UK free-to-view satellite platform Freesat announced that they selected ExpressPlay CA[™] to secure their 4K UHD TV content. At IBC 2018, Intertrust will be putting forward a number of announcements regarding this technology including some early adopters and the broad range of next generation set-top boxes, smart TVs, and chipsets who are planning to launch ExpressPlay CA[™] enabled products and services in 2019.

ExpressPlay CA™ is a Conditional Access System (CAS) that includes a preintegrated stack in consumer electronic devices as well as a fully managed CA headend. ExpressPlay CA™ employs the same client-side content protection architecture as that used for DRM protected OTT ecosystems, providing a significantly lower price point for device manufacturers that require DRM and CA functionality. The pre-integrated client-side stack is built on Intertrust's advanced, Marlin-based ExpressPlay DRM and is compliant with Marlin's Enhanced Content Protection framework, which allows operators to provide efficient protection of ultrahigh-definition broadcast streams.

ExpressPlay CA™ uses the ExpressPlay DRM platform to deliver a seamless, secure experience that scales and grows with broadcasters' needs and eliminates the interoperability and reliability issues that have plagued the industry making it the preferred option for operators and device manufacturers.

ExpressPlay CA[™] seamlessly brings together CA and DRM and is therefore ideal for use in hybrid broadcast / broadband content delivery ecosystems. Because of the hybrid nature of ExpressPlay CA[™], use of HbbTV by operators in such ecosystems becomes an obvious choice.



Stand 10.F51

IRT has been one of the main founders of the HbbTV initiative, and since then plays a key role within showcase & service prototyping. IRT hosts interoperability workshops and provides intensive seminars on HbbTV and HbbTV 2 targeting decision makers and software developers.

At IBC, IRT demonstrates the latest HbbTV 2 prototype services expanding broadcast experience by both UHD Streaming and Multiscreen Applications including Media Synchronisation with synchronised playback of AV content on the TV screen and mobile devices. A demo implemented in cooperation with Zattoo and TARA Systems shows the usage of the "HbbTV Application Discovery over Broadband" specification to apply HbbTV in OTT platforms.

Also Targeted Advertising using replacement of broadcast content by targeted IP ad clip is shown at our booth.

Furthermore, we show results of the EU funded research project 2-IMMERSE. The project develops a platform for personalized multiscreen services making use of the HbbTV 2 media synchronisation features. Using an exemplary service with animated on-screen graphics, we demonstrate the potential of the platform.

Last but not least, we demonstrate that HbbTV 2 allows incorporating tangible interfaces into interactive TV experiences on the basis of a board game accompanying a children's quiz show.



Stand 5.B40

iWedia, a leading provider of software components and solutions for TV devices to Pay TV service providers and Consumer Electronics manufacturers, showcases its Teatro TV Browser at IBC 2018. Based on Blink, Teatro TV Browser gives support to HbbTV2 as well as to Freeview Play and to a wide range of TV web sites and portals. Pre-integrated with Teatro CI Host Software (1.4 compliant), it is available for both Linux and Android TV. It comes with a full implementation of the HbbTV plug-ins relying on the target OS which reduces dramatically the integration process. It is proposed either as a stand-alone component or as part of our complete STB software solutions for Linux (Teatro-3.0) and Android TV (Teatro-3.5).

cineton

Kineton is an engineering company that provides services and products, assist clients in the creation and development of their products and solutions in some of the major technological domains, such as Media, ICT and Automotive. It has relationships with some of the major Italian universities, and maintained a meaningful connection to the academic world. Also, it offers an Academy Master Course through which recognizes the most brilliant students and helps them to maximize their potential and grow as professionals.

Kineton is in the centre of the ever-changing media and telco worlds. Our network of laboratories, techie engineers, and up-to-date technology and methodologies keep us at the forefront of these sectors. Our partners are fully supported throughout every step of the product lifecycle, from the requirements analysis through to the architecture analysis, software development, testing, delivery, and maintenance.

The KbbTV platform, by Kineton, consists of a series of products designed to simplify the development and management of the HbbTV applications. The core of KbbTV is a modular framework, a software layer composed of a set of UI widgets, making it faster and easier to develop and manage the structure and life-cycle of an HbbTV application, starting from scratch. KbbTV facilitates the design of the user interface of the application, either by using to a graphic authoring tool, or by choosing from a set of fixed templates from the templates portfolio.

Once the template is created, the platform allows the editorial team to insert contents, using the Platform Content Management System. Through the CMS it is possible to upload the contents into the previously created sections. Thanks to the KbbTV platform, the editorial team can manage magazine, participation and advertising applications. Through the created application, all the data audience and all the interactions of the end user are traced and saved in an intelligent audience service in order to understand its behaviour and to provide targeted advertising and contents. Visit: www.kineton.it



Reti Televisive Italiane (RTI) – part of the Mediaset Group – is the Italian broadcasting company managing the three largest Italy's free TV commercial networks and an extensive portfolio of free and pay TV thematic channels (available linear and nonlinear on DTT, SAT, IPTV and OTT), offering a broad range of content including original entertainment, TV series, movies, news and sport. Over the last two years, RTI has also expanded its operations to the radio segment, and it now operates three of the largest national radio stations (more information on www.mediaset.it).

Since 2003, RTI was committed to experiment and exploit interactive services deploying successful examples of OTT VOD and catch up services available on any device including TV screens like Infinity SVOD Service, Pay TV OTT add on services Premium Play and Premium on Demand and Free AVOD service Mediaset Play. In 2015 RTI became a member of the HbbTV Association and committed itself to migrate and exploit the HbbTV technology fulfilling the Italian broadcasters "Statement of Direction Towards HbbTV 2.0" agreed in 2014.

Today HbbTV is the RTI preferred interactive technology for present and future interactive services. HbbTV services are available on RTI channels since 2017 and are showcased at the tivù booth (Stand 5.A55); the HbbTV service showcase is featuring advert enhancement and L-shaped addressable advert together with "Mediaset Play", a service available alongside all RTI TV channels, offering viewers restart feature, live clipping, an extensive catch up library and direct access to both broadcast and OTT linear channels and to audio video application (i.e. "Infinity" VOD and tivùon!).



Stand 14.E12

SERAPHIC Information Technology (Shanghai) Co., Ltd. is dedicated to providing internet-related software and web-based solutions to all those TV-/Video-related terminal devices including smart TVs, set-top boxes, over-the-top devices, game consoles, etc. Its product offering includes TV Browser for HTML5, HbbTV, Freeview Play, YouTube TV, TV Portal and Open Browser as well as Web UI solution. The market penetration has covered Europe, South America, North America, Asia, Africa and Oceania.

SERAPHIC believes in the future of hybrid technologies and is dedicated to bringing more advanced Hybrid TV solutions for DTV industry. As the largest independent HbbTV 2 solution provider, SERAPHIC will showcase its cross-platform HbbTV solution both on Linux and Android at IBC 2018. SERAPHIC has also been contributing to OpApp namely with specifications and test assertion since very early stage, in order to help operators grow their revenue while deploying their services more broadly at a lower capital expenditure, and will demonstrate SERAPHIC OpApp solution at IBC2018.

Request a meeting with us: marketing@seraphic-corp.com



Stand 14.B35

smartclip Addressable TV facilitates the HbbTV standard to combine the worlds of traditional broadcast TV and digital ad technology. Over 60 broadcasters in 9 countries already use our technology. Advertising clients benefit from the efficient targeting and delivering capabilities of online marketing, while tapping into the reach and brand impact of traditional TV advertising. Real-time audience measurement and enhanced targeting capabilities guarantee control over contact frequency and offers retargeting opportunities. Addressable TV expands the toolbox for existent TV advertisers and enables the market for newcomers. Thus expanding the monetization capabilities of broadcasters by combining the best of TV advertising and digital targeting for offering a wider access to advanced services and reaching to more advertisers and marketers. Broadcasters can offer advertisers access to a vast range of enhanced ad formats, including dynamic video ad replacement, cross devicedelivery and re-targeting capabilities.



Stand 14.E12 (Seraphic) and Stand 1.D81 (DVB)

Sofia Digital brings your content and television services to various smart terminals. We specialize on open standard TV platforms, over-the-top streaming services and Internet technologies. Our typical projects consist of development of new TV services, made available both in broadcast and broadband.

Sofia Backstage® Platform is available for powering smart TV apps, interactive TV services including management of any DVB, EPG and HbbTV services. Sofia Backstage® is also suitable for TV and VOD metadata integration. Our offering includes also application templates, standalone and customized TV applications.

Sofia Digital works in co-operation with the TV industry and manufacturers. As an active member of the HbbTV Association we are able to provide the best possible level of interoperability for HbbTV and MPEG-DASH deployed in global TV markets.

Sofia Digital's HbbTV technology and TV applications are used for example in Finland, Germany, Spain, Hungary, Estonia, Turkey, Malaysia and Singapore.

Sofia Digital is at IBC at DVB stand 1.D81 demonstrating the latest version of the HbbTV Service from Singapore called Toggle Red Button by Mediacorp. At Hall 14 on Seraphic booth E12, Sofia Digital gives a presentation on its HbbTV Operator Application on Saturday, September 15th 2018 starting at 4:00 p.m. More information about Sofia Digital and latest news at www.sofiadigital.com



SWISS TXT designs, develops and operates HbbTV for Swiss national TV: SRF+ (German), RTS+ (French), RSI+ (Italian).

SWISS TXT acts as a centre of multimedia expertise for its parent company SRG (Swiss Broadcasting Corporation), and has been guiding Switzerland on its journey into an increasingly complicated digital future since 1983. SWISS TXT is an established service provider for digital media, HbbTV, video streaming and access services. Find out more at www.swisstxt.ch.



TARA Systems is a technology driven Software Company providing a market proven HbbTV Solution for Android and Linux based systems.

Our Inaris HbbTV Solution provides all software components as an extension to existing DVB/IPTV software deployments to support HbbTV applications. We support HbbTV 1.5 as well as the HbbTV 2 Media Synchronisation and Companion Screen features. Our software is platform- and browser-independent and thus well suited for integration on any kind of TV and STB platform such as Linux or Android TV. For Android TV we provide our solution pre-integrated with the Chromium browser and ExoPlayer. Please feel free to get in contact with us to make an appointment at the exhibition: info@tara-systems.de





Stand 1.B20 (Harmonic)

TDF (Montrouge France). Main operator in France of DVB-T and FM broadcast distribution services, including HbbTV and connected TV services.

For radio and DTT broadcasting, mobile broadband coverage and rolling out optical fiber, TDF, market leader with 13,900 sites, brings customers in-depth operational expertise, a mix of unique and ground-breaking technology and an exceptionally widespread local presence.

TDF Group also includes Arkena, a specialist of play-out and OTT platforms.

TDF has 2.400 employees and generates close to 700 m€ yearly revenues. Visit www.tdf.fr and www.arkena.com.

TDF can support Broadcasters with an end to end HbbTV technical platform, offering for instance:

- HbbTV headend inserter
- start-over, VOD and replay platforms based on HbbTV
- HbbTV-based data collection and usage measurements (anonymous or authenticated)
- Dynamic Advertisement Substitution (DAS), enabling the customization of advertisement when user is watching live broadcast TV (received though DTT on an HbbTV TV set).

In addition to HbbTV-enabled services, TDF also offers regional advertising for broadcasters (non HbbTV, DVB-T). The TDF Dynamic Advertisement Substitution (DAS) solution is demoed on the booth of Harmonic Stand 1.B20.



Stand 5.A55 (Intertrust – Main Booth), Stand 5.B45 (Eurofins), 14.E12 (Seraphic), 1.D15 (Skyworth), 2.C55 (Yotta Media Labs) and 14.F02 (Vewd)

Tivù, is a company jointly owned by Rai, Mediaset, Telecom Italia, Associazione TV Locali and Aeranti Corallo.

Tivù, co-founder in 2014 of the Free TV Alliance, has been founded in 2008 to promote the digital terrestrial television in Italy and to launch and manage tivùsat, the first Italian free-to-air digital satellite platform covering all the Italian territory.

Tivùsat, offering digital TV and radio services, gives free access to more than 100 television and 45 radio channels including 40 HD channels, 3 4K (UHD) channels and a large selection of OTT interactive services.

Tivù has launched in 2016 tivùon, an open horizontal app providing access to free-to-air catch-up content with a backward EPG across the 3 most important Italian broadcasters (Rai, Mediaset and La7), a complete forward EPG with detailed +7 days info and a service program guide with the whole FTA on-demand offer of the Italian TV networks, all together on the screen.

Tivù is going to present its new tivùon HbbTV Operator Application that supports all of the features expected of a vertical network operator's application for the Italian horizontal TV echosystem.

Tivù will also present the companion screen interaction with the tivùon application.

Tivù will also showcase the HbbTV services offered by its stakeholder Mediaset on their Italian channels, featuring advert enhancement and L-shaped addressable advert, the "Mediaset Play" service offering viewers the restart feature, the 7 days programmes catch up, access to audio video application (i.e. "Infinity" VOD and tivùon) and to radio channels.

VESTEL

Stand 1.D30

Vestel are exhibiting at IBC2018, Hall 1, stand D30 to showcase the latest lines of digital satellites, terrestrials, cables, IP and OTT set-top box solutions, Slim TVs, Ultra HD TVs, Smart LED TVs, Smart Cardless TVs, Hotel TVs, Educational displays, Digital signage and Video wall solutions.

Leading the European market in digital products, Vestel have established agreements with the major digital television operators in Europe for the production of digital television and set-top boxes.



Stand 14.F02

Join us at IBC to experience the latest developments in HbbTV – HbbTV 2.0.2, operator apps, high definition audio and more. With nearly 50 million devices shipping each year, Vewd is the global leader in enabling entertainment, connecting consumers everywhere to the content they love. Our suite of products and services simplify complexity and offer solutions that unite the entire value chain, from silicon vendors to consumers. Market leaders like Samsung, Sony, Verizon, TiVo, and many more rely on Vewd products and services. Follow us, as we make OTT extraordinary. Visit www.vewd.com to learn more.



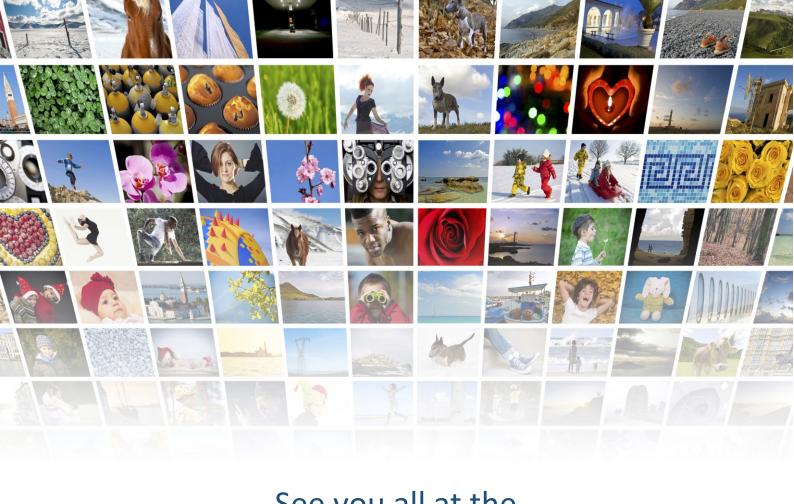
Key Facts HbbTV

- ✓ In operation in more than 35 countries world wide
- ✓ Many more countries have announced trials or consider the introduction of HbbTV
- ✓ More than 300 apps deployed
- ✓ HbbTV is available on more than 44 million devices
- ✓ HbbTV market penetration is growing continuously
- ✓ HbbTV is standardised in ETSI

HbbTV Association

c/o European Broadcasting Union L'Ancienne-Route 17A CH-1218 Le Grand-Saconnex Geneva, Switzerland www.hbbtv.org





See you all at the 7th HbbTV Symposium and Awards

at the ESMT in Berlin on $14^{th} - 15^{th}$ November 2018



