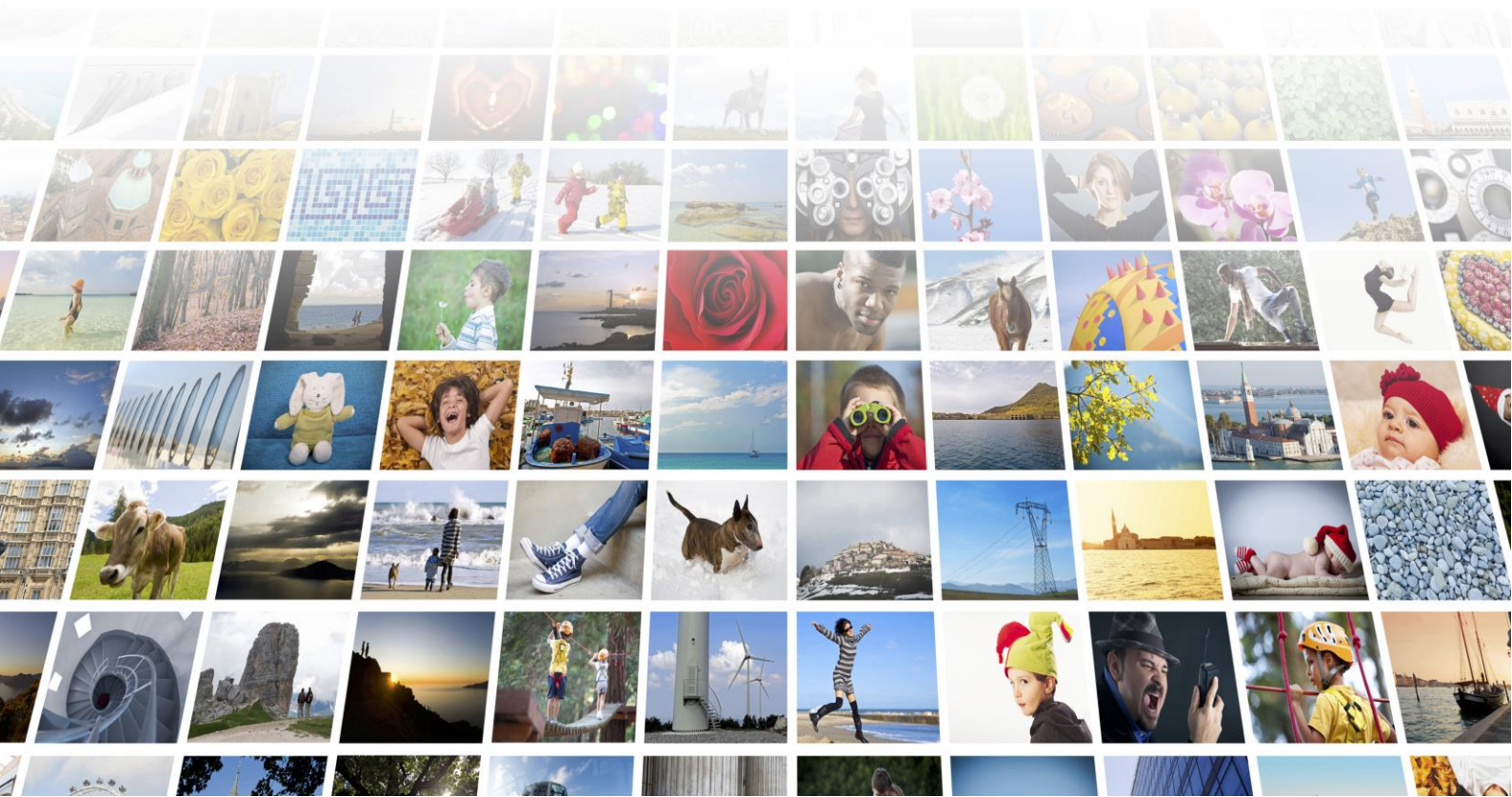




Hybrid TV – Better TV

HbbTV Guide for IBC 2019

RAI Amsterdam



About HbbTV

Hybrid broadcast broadband TV (or “HbbTV”) is a global initiative developing a specification enabling the delivery of advanced and interactive TV and entertainment services to consumers through a combined use of both broadcast and broadband networks. The HbbTV specification developed by industry leaders improves the video experience of consumers on connected TV sets, set-top boxes and multiscreen devices.

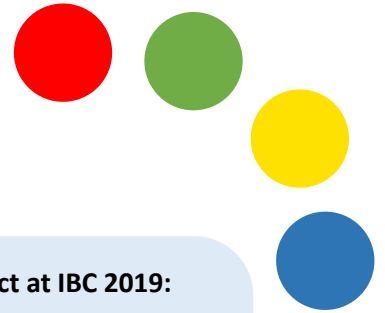
It is a dynamic industry standard which has been adopted more than 30 countries to date (September 2018) due to it being an open and business-neutral technology platform that is flexible and has growing commercial capabilities.

The HbbTV specification uses elements of existing specifications from other standards including OIPF, CEA, DVB, MPEG-DASH and W3C. With the incorporation of activities from the Open IPTV Forum (OIPF) in 2014 and Smart TV Alliance in 2016, HbbTV is able to address service providers and technology suppliers for IPTV services as well as the combined scope of broadcast and over-the-top (OTT) services. More information: www.hbbtv.org.

There are some exciting developments in HbbTV at this year’s IBC; this document provides 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 Members at IBC 2019:



Stand 2.A11

Dolby Laboratories, located in booth 2.A11, will show how Broadcasters can leverage HbbTV and Dolby AC-4 to deliver services that are more immersive and more personalised, targeting existing deployed TVs. The demonstration features an off-the-shelf TV model from Panasonic, offering a fully immersive Dolby Atmos sound experience without the need for any other playback equipment.

Your contact at IBC 2019:

- Jason Power

Request a meeting:

jason.power@dolby.com

Website:

www.dolby.com

www.dolbyac4.com



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 Play and Freeview HD, Freesat, 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 TV 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.

Your contact at IBC 2019:

- Ian Medland

Request a meeting:

pr@dtg.org.uk

Website:

www.dtgtesting.com





Your contact at IBC 2019:

- Yvan Barbotin

Website:

www.enensys.com

Stand 2.B51 and 2.C50

As a specialist in digital video broadcasting for the broadcast and telecom industry, and based in Rennes, Paris, Washington and Johannesburg, the ENENSYS Technologies Group has been offering highly innovative solutions for the actors of the media chain for fifteen years, enabling them to efficiently distribute their content. The Group enjoys a reputation for excellence in optimizing, securing and monetizing video streams for digital terrestrial, satellite and telecom television. The solutions are marketed across four brands - ENENSYS, Expway, TeamCast and TestTree - to more than 400 customers worldwide. The Group generated sales of nearly \$ 15 million in 2018, of which nearly 90% internationally.

Advanced TV Advertising solution AdsReach.tv by ENENSYS and TDF can support Broadcasters with an end-to-end HbbTV technical platform:

- HbbTV headend inserter
- SCTE to HbbTV Stream Events translator
- HbbTV-based data collection and usage measurements (anonymous or pseudonymous)
- Linear targeted display banners
- Linear Dynamic Ads Substitution (DAS). In addition to HbbTV-enabled services, ENENSYS also offers regional advertising for broadcasters (non HbbTV).



Your contact at IBC 2019:

- Yiannis Vougiouklakis

Request a meeting:

ivougiouk@ert.gr

Website:

www.ert.gr

The Hellenic Broadcasting Television (ERT) is the Greek Broadcasting company managing the four largest Greek's free linear TV networks (ERT1, ERT2, ERT3, ERTSports), one satellite network (ERTWorld), twenty-seven radio stations and an extensive portfolio of free and premium TV thematic channels (ERTPlay's) available on Web, and OTT. They offer a broad range of content including original entertainment, TV series, movies, news and sport. Since 2016, ERT is a member of the HbbTV Association and the HbbTV technology to develop and exploit interactive services on TV sets. HbbTV services are available through all ERT channels since Dec 2017.

Today services include “unlimited” FVOD services, ERT Play’s thematic channels and AVOD services offered to our viewers local and worldwide, live streaming and an extensive catch up library. ERT is using HbbTV technology to offer advert enhancement and L-shaped addressable commercial messages alongside all live TV channels. Addressable advert substitution will be commercially available to Greek market during this year.

- ERT has launched the first of its kind HbbTV 360° Video Portal for FIFA World Cup Games in Russia. Main enabler for this offer is the “360° Video Playout” by Fraunhofer FOKUS, a unique and patented solution that enables the playback of 360° videos on nearly any device. For more information please check [here](#).
- ERT continues to offer innovative interactive services for the first time in the Greek market with remarkable content (Innovative and Immersive) through her digital media (Hybrid TV, internet, smart devices such as iOS and Android). The viewers have the opportunity and ability to watch real time the Free tests, the Placement test, and the F1 Race at Racetrack, with the ability of choosing camera of sighting. In particular, they have the opportunity of choosing one out of four cameras as far as sighting is concerned in real time such as:
 1. Onboard Camera: sighting from the inside of the race car
 2. Driver tracker camera: gives the chance of seeing each drivers place at any time during the race
 3. Pit lane Camera: You can become the race manager , with the ability of watching three different spots of the race at the same time
 4. Data channel Camera: Watching the statistics real time

Finally, ERT is proud to host this year the 8th HbbTV Symposium and Awards in Athens on November 21 and 22, 2019.



Stand 5.B45

Eurofins Digital Testing is an active member of the HbbTV Association, chairing Improving Interoperability Task Force, and a major contributor of Tests to the official HbbTV Test Suite.

Our commercial HbbTV Test Harness and Test Suites, Ligada iSuite for HbbTV, are 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

Your contact at IBC 2019:

- Dr. Bob Campbell

Website:

www.eurofins.com

...please continue on next page...

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.

At IBC, we will be showcasing a range of our products and services including the Operator Applications add-on to Ligada for HbbTV, HbbTV application test automation platform TestWizard and Android TV test tool, as well as launching an exciting new product.



FLUENDO is a software company founded in 2004 whose mission is to provide end-to-end multimedia solutions for embedded systems, smart TV's, set-top boxes, thin clients and desktops for different operating systems, including Linux and Android TV. It's trusted by the main thin-client manufacturers (DELL, HP...), proving a full suite of video and audio decoders with support for hardware acceleration, leveraging all the legal aspects around patents and deployed in millions of devices worldwide.

Fluendo started working in 2017 on the HbbTV SDK to ease the development of multimedia applications with a friendly high-level API and support for a wide range of codecs and protocols, covering most of the multimedia stack in the HbbTV 2.0.2 specification. The HbbTV SDK is platform agnostic and can be easily integrated with any kind of HTML5 browser to convert them into a fully HbbTV compliant browser. Their SDK is tested regularly against the Ligada iSuite with more than 700 tests passing across the different functionalities of the HbbTV specification and is updated regularly to adapt to new features such as new audio or video codecs.

Your contacts at IBC 2019:

- Jorge Zapata
- Andoni Morales
- Gregori Martinez

Request a meeting:

contact@fluendo.com

Website:

www.fluendo.com



Stand 8.B80

Playout Side AD Insertion (PSAI) allows to dynamically inserting ads into a linear broadcast TV channel at the broadcaster's playout, whereby the ad decisioning for a specific ad is made based on real-time audience data provided by a linear broadcast TV measurement solution. Thus, it enables programmatic advertising in real-time based

Your contacts at IBC 2019:

- Stefan Pham
- Louay Bassbouss

Website:

www.fokus.fraunhofer.de

on the actual viewership of their program. In addition to traditional viewership profile data, the solution features program affinities and interest groups, allowing advertisers to buy inventory for similar target groups.

The FAMIUM DAI Service is an end-to-end solution for ad-insertion in MPEG-DASH and HLS. It 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 enables viewing of high quality 360° videos and live streams on HbbTV devices. Such video material requires a high bitrate and results in a considerable processing load. The "Field of View Adaptive Streaming" approach addresses these aspects. This solution has already been used successfully in live operation by the Greek public broadcaster ERT and the German public broadcasters WDR and ZDF during several events like the FIFA World Cup 2018, the Biathlon World Cup 2019 and live transmission of the "Fernsehgarten" show (ZDF).



Stand 14.E01

Reimagine the Commercial Break with Google & HbbTV

Google Ad Manager brings the power of digital to the magic of TV. Ensure your audiences get the best of both worlds with relevant and seamless ads across every screen, including HbbTV-based devices.

Real-time playout-side broadcast ad decisioning

At IBC Google will demonstrate for the first time a revolutionary approach to broadcast advertising: Together with our partner Fraunhofer FOKUS, we will go live with the direct integration of Google's ad server and ad decisioning technology into a broadcaster's headend. By using a HbbTV-based audience measurement layer combined with Google Ad Manager, a broadcaster will be enabled to make ad-hoc changes to the ad break of a broadcast signal.

Create a TV-like experience, everywhere.

Use big-screen display ads and Dynamic Ad Insertion for OTT & Linear TV to effortlessly deliver ads across your live, linear, and on-demand video streams without buffering or quality degradation wherever people are watching.

Your contacts at IBC 2019:

- Dr. Oliver Friedrich
- David Uhlmann

Website:

<https://admanager.google.com/home/partner-solutions/broadcast/>

Make ad breaks smarter.

Maximize your revenue with ads that are optimized in real-time for every viewer in each ad break; while maintaining full control and brand safety protections.

Manage all your sales programmatically.

Reach more advertisers and get the true value of your inventory in your own programmatic marketplace. And use Programmatic Guaranteed to simplify your cross-screen reservations business.

Power better experiences with smarter insights.

Personalize ad experiences and effectively measure the impact your advertisers are having on your audiences. It is easier than ever with Google Ad Manager.



Stand 14.C33

A content platform of one of the world's largest television manufacturers Hisense, Vidaa International presents a global opportunity for content and service providers to integrate their solutions in one of the world's most advanced TV platforms. Building on a rich legacy developing and managing the world's most advanced and widely used content platform Juhaokan, which is used by over 42 million customers in China every month, Hisense's global content platform is a step towards an independent, flexible and highly adaptable platform that allows for native or HTML5 applications.

Established in 2014, the Linux based TV operating system has developed into a full content platform, already integrating the largest global and local content players in over 120 markets, where it is available.

Globally, the various versions of the Vidaa platform run on over 30 million Hisense and Toshiba smart TVs. Vidaa International and Hisense will be showcasing its next generation U4 launcher that is due to launch in the beginning of next year and will be presenting opportunities for content partners, game developers and e-commerce platforms that would like to integrate into the Vidaa ecosystem.

Your contact at IBC 2019:

- Guy Edri, EVP BD
- Yaniv Gruenwald, SVP Technical
- Denis Oštir, BD EMEA

Request a meeting:

denis.ostir@hisense.com

Website:

<http://global.hisense.com>

intertrust®

Stand 5.A55

Intertrust provides trusted computing products and services to leading global corporations – from mobile, CE and IoT manufacturers, to service providers, and enterprise software platform companies. These products include the world's leading digital rights management (DRM), software tamper resistance, and technologies to enable private data exchanges for various verticals including energy, entertainment, retail/marketing, automotive, fintech, and IoT.

Founded in 1990, Intertrust is headquartered in Silicon Valley with regional offices in London, Tokyo, Mumbai, Bangalore, Hyderabad, Beijing, Seoul, Riga, and Tallinn. The company has a legacy of invention, and its fundamental contributions in the areas of computer security and digital trust are globally recognized. Intertrust holds hundreds of patents that are key to Internet security, trust, and privacy management components of operating systems, trusted mobile code and networked operating environments, web services, and cloud computing.

Your contact at IBC 2019:

- Jean-Michel Bosch

Website:

www.intertrust.com

irdeto

Stand 1.D51

Irdeto is the world leader in digital platform security, protecting platforms and applications.

With a strong focus on a standardized approach to address the global market's needs, Irdeto will demonstrate a USB CAM based on CI Plus 2.0 and HBBTV technology.

This product gives consumers a consistent experience across TV platforms that is controlled by the pay TV operator, without the need for a set-top box. With a friendly user interface and a convenient USB form factor; this product enables operators to offer an attractive service to consumers anywhere in the world.

Your contact at IBC 2019:

- Heinz Bekker

Request a meeting:

heinz.bekker@irdeto.com

Website:

www.irdeto.com



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 Multiscreen Services including Media Synchronisation with synchronised playback of AV content on the TV screen and mobile devices.

The main applications of this feature are to provide alternative audio versions via IP to users with disabilities or foreign language background.

One of these demos makes use of a service for automated speech recognition and translation provided by the EBU Eurovox Project.

Launching apps on a mobile by an HbbTV application and being able to communicate with them is one of the key features of HbbTV 2 and of high commercial potential. A prototype of IRTs "Universal Launcher" will be shown which considerably improves the user experience and marketability of this feature.

In addition, 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.

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

Your contacts at IBC 2019:

- Klaus Merkel
- Michael Probst

Request a meeting:

presse@irt.de

Website:

www.irt.de



Stand 1.D81 – DVB-I

Located in Italy by hard-core techies, Kineton works in the Media, ICT, and Automotive.

Being at our partner's side or running projects from our own state-of-the-art laboratories, we do it all – planning your goals, strategizing possibilities, taking care of problems with innovative solutions. Kineton is a member of the HbbTV Association and HD Forum Italia. Having regard for the ever-increasing spread of the HbbTV standard, Kineton has invested in a new tool to provide a set of functionalities to their customers: the “KbbTV platform”. It consists of a series of modules designed to simplify the management and the data collection of HbbTV applications. Through the application, all the data audience and all the interactions of the end user are traced and saved in an audience service with a view to understand its behaviour and to make user clusters based on geolocalization or preferences. Thanks to the KbbTV platform, the editorial team can manage magazine, participation and advertising applications.

Kineton has also designed KATE, which is a modular and user-friendly platform, able manage the automation test processes, helping bridge the gap between business and technology by defining acceptance criteria using base terminology, simplifying the communication and collaboration between the different company teams, and allowing to quickly identify the goals to achieve.

We collaborate with DVB-I on HbbTV technology and we are at the DVB stand with an HbbTV demo.

Your contact at IBC 2019:

- Pascquale Marinaro

Request a meeting:

media@kineton.it

Website:

www.kineton.it



Stands 15.MS22, 15.MS23, 15.MS29

Netgem is a pioneer of the connected home, with its first Set-Top Box in 1996, and the co-creation of an independent French fibre operator of services, under the Videofutur brand. Netgem brings users, Consumer Electronic brands and operators of telecommunications a secured and open platform which enables and manages services among a consistent portfolio of certified TV, video, audio & network equipment for the connected & managed home.

Netgem relies on open standards and brings a certified and field-tested solution that includes HbbTV. It also provides a certified FreeView Play solution, deployed in the UK.

Your contact at IBC 2019:

- Joel Reboul

Request a meeting:

sales@netgem.com

Website:

www.netgem.com

**Your contact at IBC 2019:**

- Angelo Pettazzi

Website:

www.mediaset.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 premium TV thematic channels available on DTT, SAT, IPTV and OTT. They offer a broad range of content including original entertainment, TV series, movies, news and sport. RTI has also expanded its operations on radio through its fully controlled subsidiary “Radio Mediaset” that operates the largest national radio stations (more information on www.mediaset.it).

Since 2003, RTI was committed to develop interactive services on multiple screens, i.e. TV sets, PCs and mobile devices. Since 2015, RTI is member of the HbbTV Association and the HbbTV technology is RTI preferred technology to develop and exploit interactive services on TV sets. HbbTV services are available all along RTI channels since 2017: today feature services include “Infinity”, a SVOD service, and “Mediaset Play”, an AVOD service offering viewers the restart feature, live clips and an extensive catch up library.

RTI is using HbbTV technology to offer advert enhancement and L-shaped addressable advert alongside all live TV channels; addressable advert substitution will be commercially available to RTI ad investors by the end of the year.

**Your contact at IBC 2019:**

- Jay Fowdar

Website:

<https://platform.samba.tv>

Samba TV is a San Francisco-based data and analytics company focused on a next-generation television experience that helps viewers discover and engage with relevant content, and enables brands and agencies to address and measure that engagement effectively. Samba’s insights are built on the world’s most comprehensive source of real-time viewership data across broadcast, cable TV, OTT, and digital media. Through software embedded in smart TVs, amplified by set-top boxes and mapped to connected devices, Samba TV amplifies media investment and activates cross-screen campaigns.

Samba TV comes to HbbTV with TV-centric data that offers an ideal fit for advertisers’ needs for targeted television advertising: 1) Profile data created from TV viewership patterns and enriched with corresponding data provided by Samba apps or third parties 2) A massive deployment of Samba-compatible TV sets already in selected countries (the US, western Europe, Australia, etc.) 3) The Samba TV Privacy hub enables full transparency, control, and security of anonymized consumer data through a single

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easy to use opt-in with control application 4) Samba offers value to the consumer with recommendations, popularity ratings, and more natural content discovery.



Stand 14.D02

SERAPHIC Information Technology (Shanghai) Co., Ltd. is a global market leader in co-building the ecosystem of family screens together with all industrial parties. It provides solutions for hybrid TV, OTT, Android, Web UI and Operator Apps, etc. As the emerging IoT trend is redefining our life and reshaping the future, SERAPHIC is dedicated to empowering the living room, enabling brand-new smart life scenes and making every family full of connected fun! Its market footprints cover APAC, Europe, North America, Latin America and Africa, etc.

As an HbbTV Association member, SERAPHIC plays a proactive role in promoting and deploying HbbTV technologies across the globe. It has followed HbbTV development since very stage and delivered market-proven Hybrid TV solutions.

At IBC2019, SERAPHIC will showcase its leading HbbTV products series including HbbTV and OpApp solution, aiming at helping industry partners to reach the most customers. SERAPHIC will speak at the Content Everywhere Hub to share its insights about HbbTV solution on Android platform.

Your contact at IBC 2019:

- Zhun Li

Request a meeting:

marketing@seraphic.corp.com

Website:

www.seraphic-corp.com



Stand 5.B53

SmarDTV Global, as a worldwide leader in delivering secure solutions to the Pay-Tv industry, will showcase a unique portfolio including a wide range of Set-Top-Boxes and Dongles (Broadcast, Hybrid or OTT) from entry-level to full featured 4K UHD devices, in addition to its next CI + 1.4 Conditional Access Module (CAM) generation.

Combined with HbbTV OpApp implementation, the CI Plus CAM, directly plugged into the TV, is able to create a virtual STB experience for end-users while ensuring the highest level of security (ECP, watermarking technology) for content owners.

Your contact at IBC 2019:

- Nadine Favennec

Website:

www.smartv.com

The solution is:

- Cost effective
- Plug and Play
- UHD/4K and HDR compliant
- Hybrid (mixing Broadcast and Broadband)
- Future proof (USB 2.0 interface)
- Horizontal and retail market

Come and see us at IBC2019 booth #5.B53 where we will demonstrate these new CI Plus CAM experiences.

The logo for SMiT Corporation, featuring the letters 'SMiT' in a bold, blue, sans-serif font. The 'S' and 'M' are connected, and the 'i' has a dot. A horizontal blue line is positioned below the text.

Stand 1.B74

SMIT Corporation, a worldwide leading security devices provider for pay TV industry, located in Hall 1 B74, will demonstrate the CAM products with HbbTV technology and introduce CI+ 2.0 USB CAM during IBC. SMIT one-way HbbTV CAM enables end users with enhanced user experience without a STB, which also makes operators have more interactivity with their subscribers and promote personalized programs for their target customers.

Your contact at IBC 2019:

- Cadiz Hong

Website:

www.smit.com.cn



Stand A29

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 in 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.

Recently Sofia Digital has launched application-testing services for Smart TV and HbbTV. The core asset in the testing is Sofia Digital's TV laboratory with 57 television

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sets since 2012, and virtually all Smart TVs / HbbTV receivers from major manufacturers since 2015. The testing service draws from the experience of our NorDig logo-testing regime since 2007 and from our extensive applications development in HbbTV and Smart TV.

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 Content Everywhere stand A29 demonstrating the HbbTV operator application, other delivered HbbTV services, Sofia Backstage® Platform and smart TV applications.



Stand 3.B27

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.



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. For OTT services, our solution uses the Application Discovery over Broadband (ADB) standard to detect applications. 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. We provide our solution pre-integrated with the Chromium browser and for Android TV the ExoPlayer is used.

Your contact at IBC 2019:

- Jacqueline Blaser

Website:

www.swisstxt.ch

Your contact at IBC 2019:

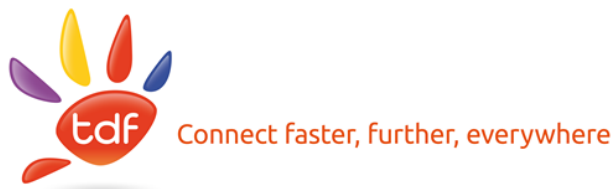
- Michael Schäfer

Request a meeting:

info@tara-systems.de

Website:

www.tara-systems.de

**Your contact at IBC 2019:**

- Vincent David

Website:

www.tdf.fr

Stand 2.B51/2.C50 (ENENSYS)

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 18,200 sites, brings customers in-depth operational expertise, a mix of unique and ground-breaking technology and an exceptionally widespread local presence.

TDF has 2.100 employees and generates close to 671.9 m€ yearly revenues.

Advanced TV Advertising solution AdsReach.tv by ENENSYS and TDF can support Broadcasters with an end-to-end HbbTV technical platform:

- HbbTV headend inserter
- SCTE to HbbTV Stream Events translator
- HbbTV-based data collection and usage measurements (anonymous or pseudonymous)
- Linear targeted display banners
- Linear Dynamic Ads Substitution (DAS). In addition to HbbTV-enabled services, ENENSYS also offers regional advertising for broadcasters (non HbbTV).

TNO innovation for life

TNO is an independent Dutch Research and Technology organisation with more than 3000 employees, across 9 units. Within the unit ICT, the Media networking team is a trusted innovation partner in areas like internet-centric TV delivery, 5G and Media and Social eXtended Reality (XR).

We have a recognised track record in coalition making at a national and international level with broadcasters, telco's and a range of other parties in the media ecosystem.

In HbbTV, TNO has played a leading role in OpApp, App Discovery and innovative HbbTV 2 features. such as media synchronization. TNO is currently involved in different working groups, and supporting the organisation of the HbbTV Symposium in November.

Your contact at IBC 2019:

- Teun van der Veen

Request a meeting:

teun.vanderveen@tno.nl

Website:

www.tno.nl

Although TNO does not have a booth, you may encounter us at different areas in IBC, such as:

- At the HbbTV OpApp session demonstration at the VEWD booth Hall 14 F.02
- In the future zone at the booth of the VRTogether consortium (www.vrtogether.eu)
- Discussing the Next Generation of 360° Entertainment in the conference track
- In the conference proceedings with a paper on 5G and media streaming architecture

Our offer is to support your innovation ambitions in the area of HbbTV and in media networking in general. See you at IBC2019!



Verance® digital watermarking solutions are at the forefront of entertainment innovation and set the industry standard for television, movies and music.

They have been adopted by over 100 leading entertainment and technology companies and deployed in over 300 million consumer products worldwide.

Verance Aspect accelerates growth of advanced interactive television, targeted advertising, and other hybrid services by enabling discovery and synchronization in households that receive broadcast services through legacy infrastructure and equipment through the use of open standards-based watermarking technologies. This allow broadcasters and operators to deliver these advanced services economically at scale in markets where substantial numbers of televisions are positioned behind legacy set-top boxes.

Based on open standards created by ATSC, Aspect™ watermarking passes seamlessly through existing transcoding, re-distribution, and consumer premises equipment, enabling activation of advanced services on downstream televisions. Multiple standards-development organizations are currently working to align their hybrid television standards with ATSC watermarking in an effort to achieve a common global framework.

Your contact at IBC 2019:

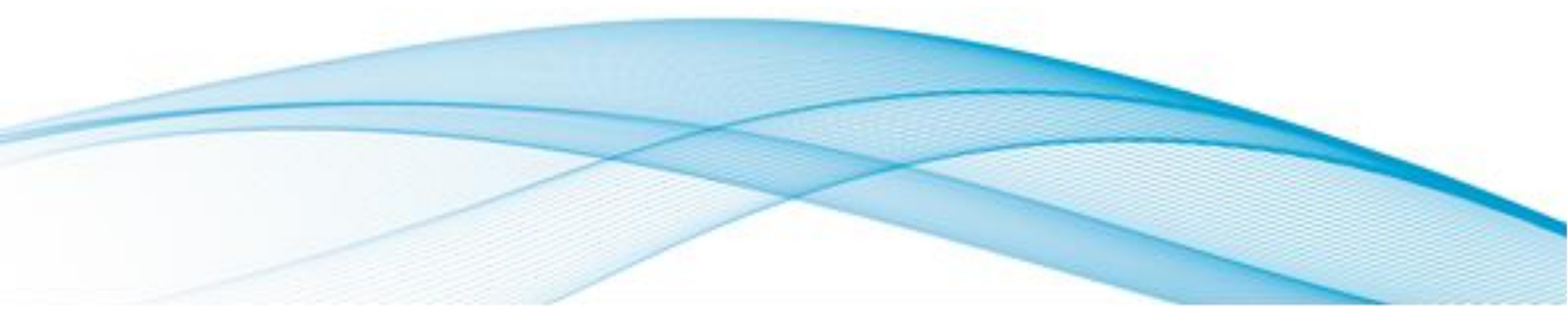
- Jason Patton

Request a meeting:

marketing@verance.com

Website:

www.verance.com





Stand 14.F02

Vewd is a long-standing member of the HbbTV Association and continuously helps to evolve standards around Hybrid TV delivery.

As the world's leading provider of OTT and Hybrid TV solutions, Vewd is a key enabler of OTT delivery with over 18 years' experience deploying highly specialized technical expertise and cementing deep working relationships across the entire value chain.

Vewd's products:

- are deployed on over 350 million connected devices worldwide;
- work across all major TV operating systems (Android TV, Linux, RDK);
- are pre-integrated on all major silicon vendors (including MTK, Realtek, Novatek and more); and
- supports most Hybrid TV technology standards including HbbTV.

Built on Vewd Core, the world's most widely deployed HTML5 engine for TVs & STBs, Vewd's Hybrid TV Solutions ensure reliable high-performance experiences for viewers by delivering modern interactivity; and address the pain points of OEMs, Operators, and Broadcasters like reducing time-to-market, mitigating certification risks, and seamless integration to support the most advanced HbbTV use cases.

Please join us for an OpApp Demo and Happy Hour on 16th September, 2019 at 17:00 hrs at our stand 14.F2!

Your contact at IBC 2019:

- Thomas Ford

[Request a meeting](#)

Register for the Happy

Hour:

marketing@vewd.com

Website:

www.vewd.com

**HbbTV OpApp Demo &
Happy Hour, 16th Sep, 17:00**



Yotta Media Labs

Your contact at IBC 2019:

- Raj Patel

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With a bespoke offering including consultancy, application development and online platform services, Yotta Media Labs provide innovative solutions for Operators running services on TV's and set-top boxes. The London based team is well versed in the HbbTV standards through delivery of invaluable solutions.

Our clients are some of the biggest brands worldwide. Earlier in the year Yotta Media Labs collaborated with Samsung and Panasonic to integrate HD+ directly into TV sets in Germany meaning viewers benefit from not needing additional hardware such as a set-top box, CI+ module or a smartcard to receive the subscription platform and providing instant restart of live linear content.

Tivù has also partnered with Yotta Media Labs to develop an HbbTV Operator Application that supports all of the features expected of a vertical network operator's application for the Italian Free-To-Air satellite and terrestrial market.



HbbTV Partners at IBC 2019:



Stand 14.G04

Our mission is to become the leading innovator and trusted partner in delivering agile, effective and industry-leading video entertainment experiences.

Flexible and future-proof, our award-winning technology framework and portfolio of products and services power the digital experiences of leading entertainment brands around the world, including NPO, HBO, iflix, Fox Sports, Globo and Sinclair Broadcasting Services.

Headquartered in Amsterdam, with offices in Los Angeles, New York, Brno and Madrid, 24i embodies the Dutch spirit. We love to work hard, innovate and explore. 24i is a wholly owned subsidiary of Amino Technologies PLC.

We create and deploy TV apps for every screen including HbbTV devices. Our HbbTV TV portal includes rich EPG, Archive, Live TV and TV Games running from our HbbTV Playout KIT. With HbbTV, our expertise also runs through monitoring of TV Channels, UX designing of TV portals, and application development for low-performing devices and monetization.



Stand 14.A08

Better Software Group provides solutions for broadcasters, telecommunication, streaming companies, contents owners and custom software development services. The Better™ is TV app platform that minimizes effort and optimizes time to market TV services, introduce new features and update user experience across wide range of connected TV devices.

Your contacts at IBC 2019:

- Vanessa Vigar
- Rehor Vykoupil

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- Malgorzata Samsel

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Built from reusable, TV-specific components, lays foundation for scalable, reliable and maintainable multiscreen apps. Besides conventional features like Linear TV playback, VoD catalogue, EPG, Start-Over, Catchup-TV, supports extensions to deliver new and unique ones that end-users appreciate. Cross-platform, modular design, small footprint altogether ensure that apps are shipped in half the time and make it unnecessary to write them from the scratch.

Multiscreen apps developed and offered by Better Software Group include: Android TV custom launchers, HbbTV apps and HbbTV operator-type apps, STB middleware, Apple TV, iOS, Android, Web, Smart TV (Tizen, LG OS), Chromecast apps and more. They are based on leading technologies such as React, React Native, Android Java, Kotlin, iOS Swift and Flutter.

Better Software Group has successfully completed several dozens of projects with 12+ million end users for TV & VOD providers, OTT vendors and other media companies such as TV 2 Norge, Canal Digital, Telenor, NC+, Orange, TVP, THEO Technologies, eCreation Media, Ipla, and Nokia.

Castoola⁺

Stand 1.A74 (ThinkAnalytics)

For decades, television has been synonymous with entertainment and advertising. Then the Internet came and digitalization took the world by storm. For a split second it seemed as though the box was losing momentum, but it didn't. Instead, digitalization also found its way to television, opening the door to new interactive contents and targeted advertising.

This is where we enter the picture. Castoola is a team of experts specialized in targeted TV advertising. Utilizing the widely accepted HbbTV standard, we bring Addressable TV to IPTV, OTT and DVB-S/T/C in order to provide a new generation of TV advertising solutions. This allows advertisers to segment viewers based on various demographic, geographic, frequential and timeframe factors and deliver personalized ads on top of linear TV.

But it's not just advertisers and agencies who can reap the benefits of Addressable TV. Broadcasters and TV operators can make use of the technology to improve the UX and unlock an entirely new revenue stream. Using programmatic advertising, such automated ad delivery enables higher conversion rates, increases brand awareness and aids in optimizing the entire campaign execution process to achieve a greater ROI.

Your contacts at IBC 2019:

- Matej Puhan

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Stand 2.B39

DOTSCREEN is a leading HbbTV application developer that has been working for most of the major European HbbTV Pay TV operators, namely Freesat in the UK, Freenet in Germany and Fransat in France. Our other HbbTV customers include TF1 & France Télévisions in France, Mediaset in Spain, SVT in Sweden, ERT in Greece and France24 worldwide.

At IBC (booth Hall 2 B39), we will demo the latest version of Amazin' TV, our HbbTV OpApp User Interface that is also available on other devices (smart TV, smartphones, tablets, game consoles...).

With headquarters in France and offices in Europe & US, DOTSCREEN is a leading specialized multi-screen application & UI agency. The company has completed hundreds of video applications for smart TV (HBBTV, Tizen, Orsay, Web OS, Netcast...), OTT boxes (Roku, Apple TV, Android TV), set-top boxes, game consoles (Xbox, PlayStation), smartphones and tablets.

Our customers include large and medium-sized pay TV operators (Vodafone, Orange, Telefonica, Freenet, Freesat, Andorra Telecom, Net+...) and TV/VOD companies (Disney, HBO, Fox, Turner, ESPN, Beinsports, TF1, CBS, Mediaset, France Télévisions...).

Your contact at IBC 2019:

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Stand 1.B71

The DVB Project collaborates regularly with the HbbTV Association and IBC2019 is no exception! Our headline activity in Amsterdam this year is the world's first showcase of DVB-I services, with 12 DVB members – several of whom are also HbbTV members – working together to deliver an early implementation of key elements of the DVB-I ecosystem.

The DVB-I initiative is creating specifications to enable broadcast and internet delivered linear television services using HTTP based access and streaming mechanisms. Visitors to the stand will be able to see the DVB-I Service List, for which a specification is expected later this year.

Your contact at IBC 2019:

- Dr. Peter Siebert

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Content will be delivered over both broadcast and IP, with the latter providing an opportunity to demonstrate of both DVB-DASH – including the recently approved low latency mode – and the forthcoming Multicast ABR solution. One of the DVB-I clients for the demonstration is based on HbbTV.



Stand 14.B03

Icareus provides Cloud solutions for TV and video services and trusted broadcast head-end products for better TV Experience.

Icareus is one of the pioneers in working with HbbTV since 2010. Our extensive experience in providing TV and online video solutions to broadcasters and operators for almost two decades ensures high quality and understanding of business requirements. Icareus solutions are enjoyed by millions of consumers via our broadcaster and operator customers in over 60 countries, like SES, CBS, Channel4, Mediaset, Freesat, České Radiokomunikace, Arabsat, ATV, Cyfrowy Polsat, France24, Emitel, Digita, EvoTV, RAI Italy, Radio Television Brunei, ERT, UBC Uganda, UNE, Wao!, PCCW, VTV and Dialog Television.

We innovate and value out-of-the-box thinking to deliver robustness, cost-savings and to give competitive edge to our customers

At IBC2019 Icareus is showcasing its complete HbbTV product portfolio targeted at broadcasters and operators:

- Icareus Addressable TV Ad-tech platform
- Icareus Audience Measurement solution
- Icareus Suite Online Video and TV cloud
- Icareus Playout broadcast platform
- Icareus HbbTV apps and services

Meet our team at booth #14.B03 and join the hybrid (r)evolution of TV

Your contacts at IBC 2019:

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- Toni Leiponen
- Chema Marcos

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Stand 8.F15

IRIB Research and development develops innovative new products and technologies in broadcast/broadband industry that will shape tomorrow.

Core research themes at IRIB R&D include deep learning and AI based services, intelligent OTT services, Internet of Things, hybrid broadcast- broadband television (HbbTV), cloud-enabled networking, and IP-based content production.

IRIB R&D projects often involve collaboration with public or private entities, including universities, government laboratories, technology start-ups and incubators, research institutes and partner companies.

HbbTV was trialed by IRIB R&D in Tehran and IRIB R&D is responsible for the development of interactive applications for TV programs. IRIB R&D held different meetings with media stakeholders about HbbTV profile and its receiver requirements in Iran; it published HbbTV profile and minimum requirements of connected receivers in Iran with cooperation of receiver manufactures.

In addition, our test center helps receiver manufacturers to test DVB and HbbTV features of their products. Our educational role in IRIB is to hold different HbbTV learning courses for receiver manufacturers, IRIB engineers and IRIB University. We also developed a playout kit for testing HbbTV applications on various receivers.

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- Hossein Alavi

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Stand 1.C81

NAGRA will be demonstrating TVkey Cloud which brings pay-tv services directly to Internet-connected Smart TVs without the need for any external device. With TV manufacturers making their platforms ever more performant, it is now possible to move all the content security technology required to secure premium services into the TV chipsets and TV set software stacks – all while managing headend security from the cloud.

Your contact at IBC 2019:

- Tim Pearson

Website:

<https://dtv.nagra.com>

This is already available today through TVkey, a TV ecosystem specification developed by NAGRA and Samsung that allows operators to bring a complete set-top-box experience to a Smart TV and which is open for adoption by other TV vendors and industry providers.

TVkey Cloud leverages HbbTV OpApp capabilities to bring operator branded user interface and experience on Smart TVs allowing full customization of key applications like EPG, channel list and banner, and enabling value added services like Video on Demand, Catch Up, Start Over and more. TVkey Cloud includes the activation of the service and the installation of operator UI/UEX during the setup of the Smart TVs.

Once customized the Smart TV provides launch points through the TV user interface and on the remote control to directly access the operator branded applications. TVkey Cloud is open to a wide ecosystem of industry players, including conditional access vendors and TV manufacturers, and complies with MovieLabs requirements for Enhanced Content Protection of 4K Ultra HD, HDR, and early release content.



Stand 2.C12

PTS is a leading Broadcast Systems Integrator and Distributor in partnership with world-class Manufacturers. Having more than 18 highly specialized staff, operating primarily in Greece and Cyprus, expanding in the Balkans and exploring Africa and Middle East.

Our Company offers state-of-the-art solutions and in-depth technical expertise focusing on customer's needs. As a team, we can go across the entire value chain with the primary goal to offer value that matters to our clients, to provide high quality after sales service and to achieve long-term success.

PTS, with more than 30 years of experience in implementation of tailor -made solutions, has successfully contributed to the HbbTV application of ERT, the Hellenic Broadcasting Corporation, by providing and supporting OTT Encoders. Our Team can design, install and support encoding for HbbTV apps safely and effectively for Broadcasting Industry.

We are convinced that the hybrid technologies can move Broadcast to its future and we are dedicated to promote the most advanced Hybrid TV solutions being also committed to Premium Quality for our Customers and End-Users.

PTS is a Top Technology Team to Trust!

Your contact at IBC 2019:

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TeraVolt is a digital agency from Germany with headquarters in Hamburg and a branch in Munich. During the past 15 years, TeraVolt has implemented a multitude of projects in the fields of OTT, SmartTV and HbbTV, for platforms (Telekom, Unity, Sky, Quickline), channel groups (ProSiebenSat.1, RTL MG, ARD), channels (Red Bull, Sport1, RTL2, ZDF, arte) and advertisers (Zalando, Volkswagen, Disney, Audi, IKEA, LG...).

TeraVolt has developed the entire HbbTV service for several broadcasters in Germany and, with the HbbTV Suite, has a product that allows broadcasters to create an HbbTV offer for their users quickly and cost-effectively. The HbbTV Suite includes all important modules such as red button framework, start bar, EPG, media library, format accompaniment, live streaming, voting as well as interfaces to tracking, ad servers and the possibility to integrate third-party apps.

Another HbbTV product from TeraVolt is SmartPages, Germany's leading tool for creating addressable TV microsites for customers. SmartPages is used by over 20 broadcasters in Germany and Austria and several hundred microsites for customer campaigns have already been created with the SmartPages solution.

Your contacts at IBC 2019:

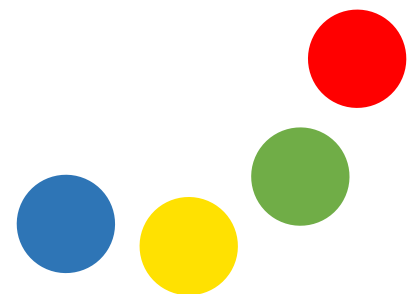
- Oliver Koch

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Key Facts HbbTV

- ✓ HbbTV OpApps Reduce Costs and Accelerate Go-To-Market Deployment
- ✓ Enables Targeted Ads on TVs
- ✓ Improve Viewers' TV Experience with OpApps
- ✓ Enrich Broadcast Services
- ✓ Maximum Reach for Interactive Services
- ✓ Simple Access to Enriched Services
- ✓ Enables Enhanced Digital Switchover

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See you at the
8th HbbTV Symposium & Awards
at the Megaron Conference Center / Athens
on 21st – 22nd November 2019

