10 years of HbbTV: a story of success

From VoD services with countless videos, live streams at sporting events, to individually selectable features for people with disabilities - HbbTV has revolutionized television and added numerous interactive possibilities. IRT has helped design the success story from the very beginning: a chronicle.

Full German Article

Technical architectures for media platforms

Major US platforms for content and social media are under criticism for their handling of user data. IRT is working on technical architectures for an alternative European media platform. Contrary to the usual practice for large platforms, the focus is on decentralizing technical components and prioritizing the use of standards. IRT contributes its proposals to the planning discussions that started in late 2019. In addition to Bayerischer Rundfunk, the European Broadcasting Union (EBU), Technical University of Munich and other European partners are involved in the discussions.

Full German Article

New features of HbbTV 2 enable to offer viewers individual language versions.

Away with the language barriers

On television, language barriers are reduced through translations or subtitles. Using artificial intelligence, audio tracks can now even be converted into foreign languages largely automatically and with much less effort. New features of HbbTV 2, co-developed by IRT, enable to offer viewers individual language versions on their SmartTV sets via Smartphone or headphones. A showcase attracted great interest at the IFA and IBC 2019.

Full German Article

HRADIO – Toolbox for Radio-Apps

Storing radio songs in your own Spotify playlist, skipping back to the beginning of a title in the linear program and then listening to the corresponding podcast: This should soon be possible - with the European HRADIO project. Three radio apps have already been tested: All users were enthusiastic. The final reports on this third and final pilot phase will be published in the first quarter of 2020 at www.hradio.eu.

Full German Article

HRADIO at IBC 2019 – a special delight for eyes and ears.

Television dialogues in perfect sound

With Dialog+, IRT is developing new audio versions for television productions to optimise speech intelligibility for different listener needs. This benefits users with impaired hearing and older viewers. A demonstration setup developed at IRT shows how such content can be made available via HbbTV 2 to viewers.

Full German Article

Simply accessible

As part of its thematic field „Design for All", IRT analyses the existing access barriers, how they arise and how they can be eliminated with the help of real users. Based on this, the Institute develops technical concepts for facilitating access to barrier-free media content for all target groups through visual or auditory interaction (e.g. via button, icon or voice control).

Full German Article

Full television feeling with DVB-I

Livestreaming as comfortable as the good old television program. With DVB-I, a promising standard is now available that can be implemented on all Internet-capable devices - without installing additional apps or software. At the HbbTV Symposium in November 2019 in Athens, IRT presented another DVB-I demo in cooperation with TARA Systems. Various MPEG-DASH live streams from German Television ARD could be combined with corresponding HbbTV applications. In contrast to currently available OTT platforms, DVB-I and the integration of HbbTV now enable the full TV experience via OTT - including the „Red Button", the most frequently used access to the media libraries on TV today.

Full German Article

Economic data traffic by Streaming 2.0

How can the growing data traffic for streaming services be economically managed? IRT has developed a multi-CDN management system to match the requirements of the major broadcasters, which allows existing CDNs and local caching to be integrated into existing workflows. The solution promises to reduce data volumes and make their transport cost effective and stable.

Full German Article

„Better visibility for women in research and technology"

At the IFA 2019 Magdalena Klingler was awarded with the ARD/ZDF Förderpreis „Frauen + Medientechnologie" (Women + Media Technology) for her master thesis „Analysis and Test of Alternative Transportation Methods and New Protocols for Adaptive Streaming". She wrote her final thesis at the Technical University Deggendorf within the study course Media Technology and Production under the supervision of Prof. Gerhard Krump and Martin Schmalohr (IRT). Since the end of 2018 Magdalena Klingler has been working at Bayerischer Rundfunk in Munich for the „Trimmediale Studios und Systeme" department in the „Media Systems" division. A review of her time at IRT.

Full German Article

Magdalena Klingler was winner of the ARD/ZDF award „Women + Media Technology" 2019.

Better video-streaming in trains

Video streaming can be a frustrating experience on trains. The Internet connection of streaming clients, even of those connected to the on-board WiFi, depends on mobile networks. Gaps in those networks lead to playback stalling. In the EU funded project 5G-VICTORI, IRT develops a system that makes video streaming independent of mobile networks. The solution is based on a local media cache on the train. These caches are regularly filled and updated via local 5G data links in train stations providing high data rates. Passengers will experience high-quality on-demand video without any strain on their mobile data budget, even in areas without mobile network coverage.

In the interest of broadcasters

At the 38th World Radiocommunication Conference, the use of the frequency spectrum for radio services worldwide was again negotiated. At the major event in Sharm-El-Sheik, Egypt, IRT represented German interests together with representatives from politics, industry, and science. The results of WRC-19 are very much in the interest of the public broadcasters, especially regarding the opening of the broadcasting sub-700 MHz band for mobile communication. Also, at the upcoming WRC-23, the interests and concerns of the broadcasters will be represented effectively. IRT is already actively involved on the German and international stage in developing a unified German position with the aim to counteract the allocation of the UHF TV spectrum to mobile communication.

Full German Article

Campus networks for production 4.0

5G campus networks enable new possibilities for mobile media production, for example on company grounds or at festivals and sporting events. ARD broadcasting companies such as Bayerischer Rundfunk and Saarländischer Rundfunk have already secured licenses. IRT supports them with wireless communication know-how, IP and studio technology in order to gradually exploit the possibilities of 5G technology.

Full German Article

Pioneering work in the 5G TODAY project

The research project 5G TODAY started operations in May 2019 on the worldwide first large-scale 5G test field. The project partners Bayerischer Rundfunk, IRT, Kathrein Broadcast, Rohde & Schwarz and Telefónica Deutschland tested the TV distribution for a future 5G technology. Their test results are promising.

Full German Article

The German delegation at WRC-19.

5G versus Wi-Fi 6

The new WLAN technology Wi-Fi 6 and 5G promise fast connections and high bandwidth efficiency. IRT is testing the performance and suitability of both systems for use in broadcast applications. Thereby, it examines barriers and limitations of the individual network in theory and practice.
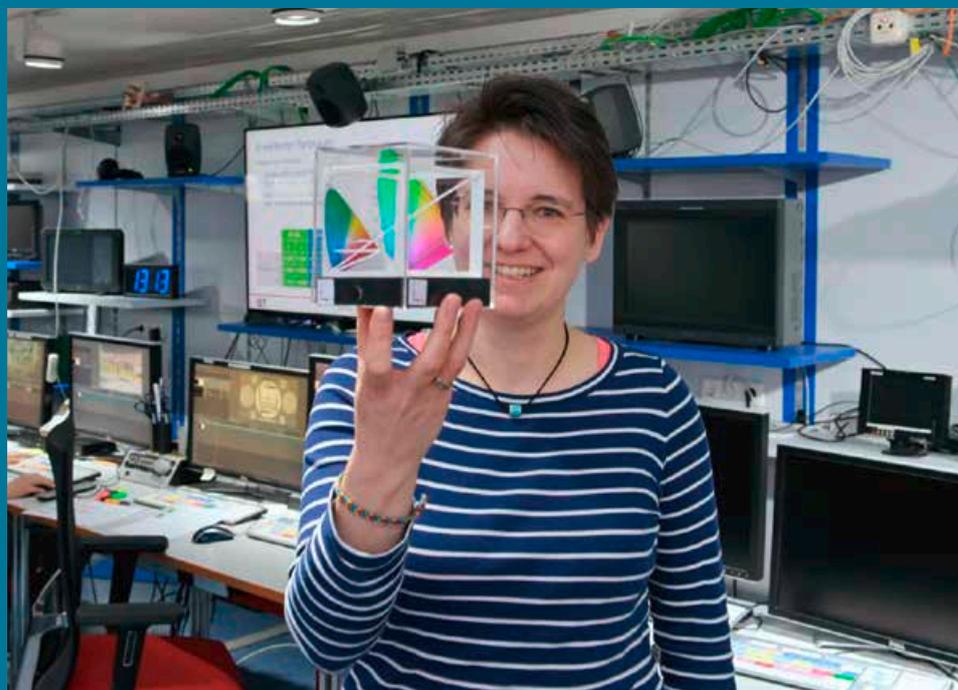
Full German Article

Better streaming due to CDN

Content delivery networks (CDN) distribute the data volume during streaming and reduce delays when many users access the same media content. If different CDNs are used, we speak of Multi-CDN. 5G networks, extended by caching and edge components, would enable CDN and multi-CDN functions directly in wireless networks.

In order to measure the quality of audiovisual streams at the end-user, IRT is enhancing the Argos system as part of the „5G Solutions for European Citizens" project. Based on the measurements, the provider can evaluate the streaming behaviour and control a switch between different CDNs. This is also to be researched for 5G networks.

Further information about the project.
(https://www.5gsolutionsproject.eu/)

Better watching TV with UHD

Viewers benefit from a higher picture quality by using UHD (Ultra High Definition). This depends on four factors: High Resolution (HR), Wide Colour Gamut (WCG), High Dynamic Range (HDR) and High Fame Rate (HFR). In a subjective test, IRT has investigated the effect of the individual parameters on the television experience. The test confirms that UHD does not only mean „more" pixels, but above all „better" pixels. The use of 1080p/50 with HDR and WCG is an appropriate UHD variation from an economic perspective. However, the international market must also be considered especially the exchange and multiple use of content as well as the brand value of a format.

Full German Article

IRT built 3D-models in order to visualize the maximum possible colours for High Dynamic Range (HDR).

H.266 and AV1: Who makes the race?

To fulfil the rising resolution of moving images, a new generation of video compression methods is also on the way. Besides the technical requirements of the individual standards, also technical and economic dependencies influence the market launch. IRT provides an overview

Full German Article

IRT has launched an initiative to support journalists with open-source tools to reduce editorial effort.

UHD production codecs under test

With UHD television many new production codecs are available. The European Broadcasting Union (EBU) has initiated a test of codecs together with the German-speaking public broadcasters to give guidance to their members. 45 of over 200 potential codec variants were evaluated. The tests were led and hosted by IRT.

Full German Article

Colour in three dimensions

IRT has developed a 3D model that visualises the wide colour space in UHD. The model in the form of a crystal also considers the greater brightness of the HDR format. In the future, it should help to test and analyse converters and displays.

Full German Article

Students develop Augmented Reality concepts for television

How can the potential of Augmented Reality for broadcasters be used? 15 students from the Ludwig-Maximilians-University Munich explored this question during an internship at IRT. The result is impressive: The teams presented three practice-based prototypes for the different application areas AR for production, AR storytelling and AR support for 360°

Full German Article

# Strong partner for new challenges

Exclusively and for the global market Eurofins Digital Testing will further develop the IMF and MXF Analyser products of IRT. The aim: to optimise technical quality assurance for production and sales workflows and to reduce costs.

Full German Article

Better conditions for audio tests

With the modification of its 3D audio laboratory, IRT is improving the conditions for 3D sound reproduction, audio tests and comparative measurements. For this purpose, the technology in the laboratory was changed from passive to active loudspeakers as well as the adaptive room was enlarged.

Full German Article
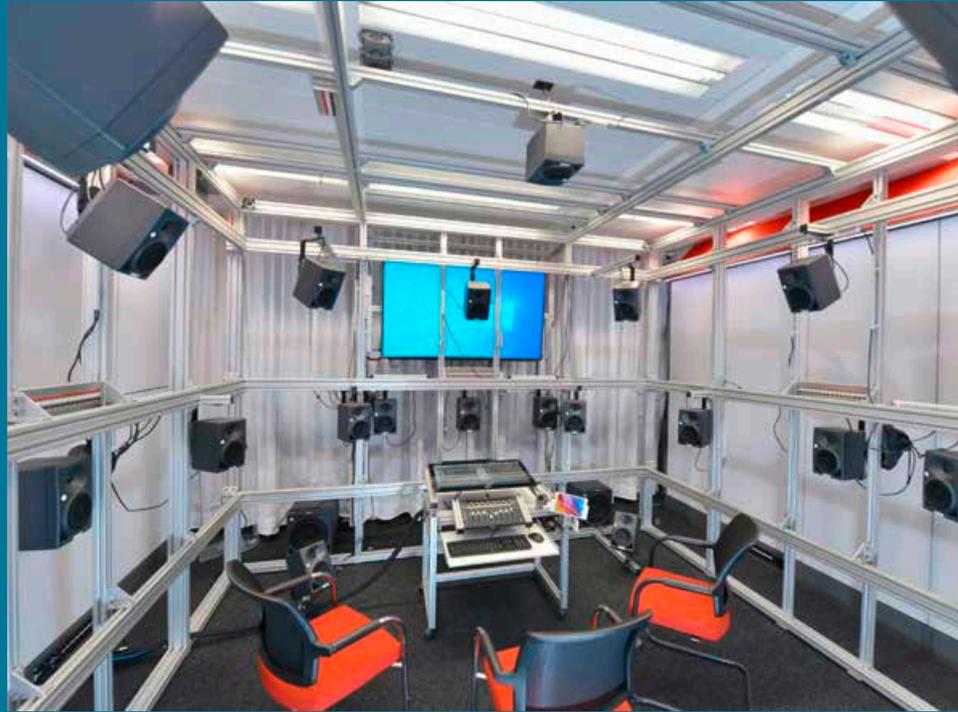
IRT has modified the technology of its 3D audio laboratory.

AI also understands Bavarian

Whether in virtual assistants such as Alexa or in the broadcast environment, automatic speech recognition (ASR) using artificial intelligence exists in many areas. However, when trying to understand dialects, they quickly reach their limits. Together with the Bavarian Broadcasting Corporation and the company ainblick, IRT is researching methods to generate a training corpus that trains ASR models for the Bavarian dialect. Subtitles and audio tracks of regional television programs are the basis for this. The combination of text and associated audio is used to train a neural network by machine.

Investigative journalism with artificial intelligence

Investigative reports require accurate, comprehensive research. „Fake News" and „Deepfakes", in other words manipulated media content, in social media make the filtering of relevant facts increasingly complex.

An initiative launched at IRT is designed to make research for editorial offices easier. Together with BR Data, report München, Bellingcat and several NDR departments, IRT has defined work steps whose effort can be significantly reduced with artificial intelligence. IRT is currently working on an open-source tool that will support journalists in their online research by automatically archiving and validating researched images, texts, audio or video files in the browser.

Live-IP production under test

IP-based (live) production using standard and protocol families, such as SMPTE 2110-x, NMOS, AES67, is more and more common in large installations. In this context, IRT significantly contributes to the identification and elimination of faults within the scope of the international JT-NM tested program. Concurrently, the interest in the Network Device Interface (NDI) developed by NewTek/Vizrt is also rising: a „simple IP implementation" in production, with its own codec.
IRT is preparing an application-focused live IP proof of concept supported by Bayerischer Rundfunk. This will test live IP production and analyse the connection of NDI network segments to an SMPTE 2110
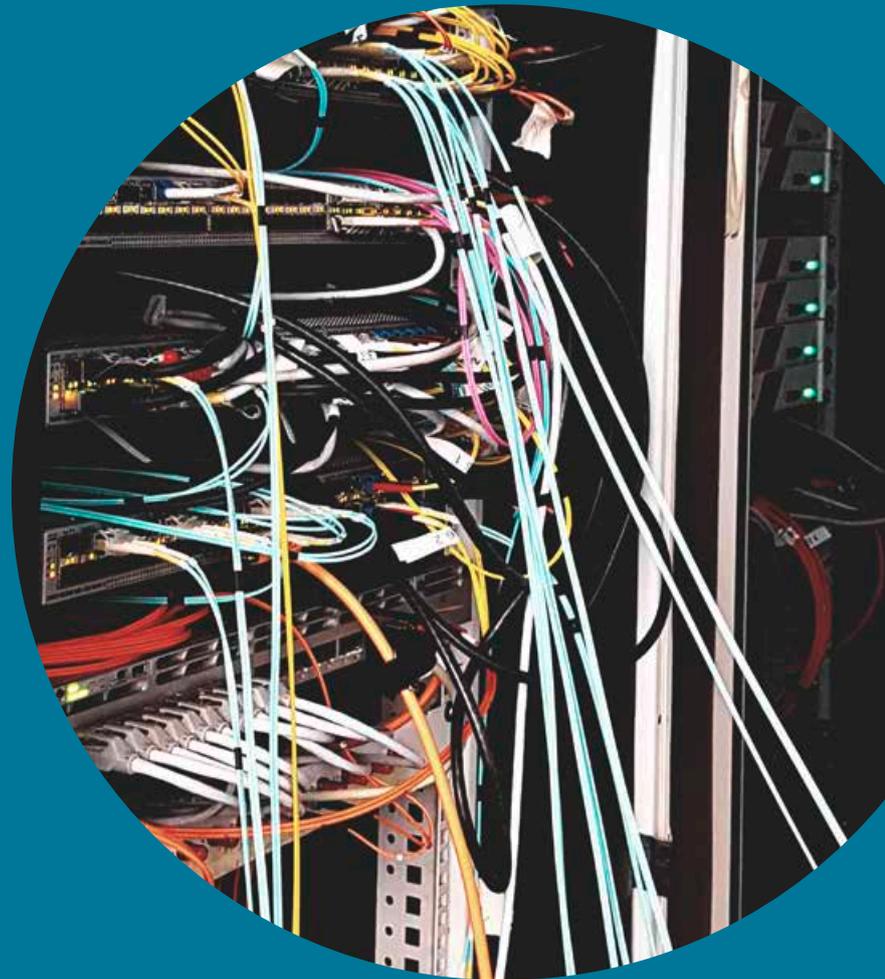
Live IP production –
a look behind the scenes.

More efficient production of live content

The EU research project VIRTUOSA demonstrates how combining 5G with virtualization concepts can make the production of live content across locations more efficient and cost-effective – in three phases: In the first phase, a complete IP-based production environment will be set up at IRT. In phase 2, this environment will be extended by a second, remote IP production studio and in phase 3, mobile production using 5G mobile networks will be added. With this project IRT shows that an IP-based production using SDN control operates in all planned phases and uses and complies with standards.

Robust and secure streaming with new protocols

Robust and secure broadcasting of audio and video signals is crucial for successful IP streaming. Therefore, the new streaming protocols RIST (Reliable Internet Stream Transport) and SRT (Secure Reliable Transport) make an important contribution. Both protocols allow compressed audio and video signals to be broadcasted over public IP networks. The aim in both cases: The content should be technically protected against broadcasting errors and integrity and confidentiality should be ensured. IRT deals with the appropriate use and determines the performance of the protocols and derives recommendations for the relevant area of application.

Full German Article

Award winning system

On January 15, 2020, the Audio Engineering Society (AES) wins the prestigious Emmy Award in the Technical & Engineering category for „Development of Synchronized multi-channel uncompressed audio transport over IP Networks". With this award, the committee honoured the AES67 standard for high-performance audio-over-IP streaming interoperability, in whose development IRT experts were involved. In addition to countless installations worldwide, the ARD radio production network also uses the system. In the future, Video-over-IP (SMPTE ST2110) and thus all new IP installations of ARD, ZDF, ORF and SRG could also implement audio transmission via AES67.

The empowerment of women as an integral part of the corporate culture at IRT.

Using the full potential of metadata

This is the first knowledge graph to map the entire media value creation chain and implements the cross-format networking of all systems involved in media production. Further information (www.irt.de/de/publikationen/jahresberichte/2018)

Better findable contents of public service broadcasters

Netflix and Spotify are increasingly influencing viewing and listening habits when using media over IP distribution channels. To make broadcast content easy to find, they require good descriptive data, known as metadata. To improve their homogenization, the Metadata Task Force of the German TV Platform published a basic set of metadata for linear distribution paths and a list of genres. The technical structure of basic metadata was realized as a sub-model of the BMF metadata model of IRT. In 2020, the basic model will be extended by requirements for IP distribution channels.