

“To make public service media indispensable.” This is the core mission of the EBU and is the basis of its current strategic plan. For the EBU Technology & Development Department this translates into guiding technology choices for Members, sharing best practices, leading the harmonization of standards, and driving innovation and integration. We want to ensure that public service media operate within the optimal technical frameworks.

These pages provide an overview of the activities undertaken by EBU TECHNICAL since the Technical Assembly 2011. Our work is overseen by the Technical Committee and involves participation from many EBU Members, sister organizations, and industry representatives.

Making a difference for EBU Members – during the last 12 months...

...Integration moved up the agenda.

The launch of a new interdisciplinary Strategic Programme on Integrated Media Production Strategies will help Members to complete the transition to more integrated workflows in producing content for multiple platforms and channels. The work goes beyond technology and includes organisational change.



...Hybrid TV and second-screen took off.

With the popularity of Connected TVs, Members have needed to move equally fast to ensure they are present on this important new platform. The HbbTV specifications, whose development was fostered by the EBU, are now driving live Hybrid TV services in many countries. The EBU added further momentum by

making “white label” applications available to help the launch of services.

...DASH became a standard.

Every day Members face the challenge of distributing large libraries of audio and video to an audience that uses a multitude of different devices. We are supporting the development of MPEG-DASH as an open, efficient and interoperable adaptive streaming system. Through European Projects we are investigating the means of using CDNs for contribution and distribution.

...TV got even more immersive.

The transition to HDTV, the introduction of 3DTV formats and, later, the prospect of UHD TV, all bring challenges. The publication of EBU Recommendations on HDTV cameras and 3DTV production formats were the result of important work. Research on “4K” formats and Higher Frame Rates for UHD TV continues.

...FIMS came to life.

FIMS is set of specifications that will ultimately be at the heart of fully IP-based broadcasters. Working with the Advanced Media Workflow Association (AMWA), we have driven forward this initiative designed to build a vendor-neutral common framework that will enable equipment from different manufacturers to be connected together.

...Radio embraced Hybrid possibilities.

The growth of the RadioHack community is evidence of EBU Members exploring the possibilities opened up by the RadioDNS specifications. A set of open tools and a production platform developed by the EBU has allowed broadcasters to experiment with Hybrid services that make the most of both broadcast and broadband channels.

...the Loudness Revolution gathered pace.

Many countries and organizations have committed to implementing the EBU’s Loudness Recommendation R 128. Loudness normalization is now – or will soon be – a reality for TV services in for France, Germany, Austria, Switzerland and the Netherlands, as well as for Norway’s DAB radio services. More than 50 vendors now support R 128 in their products.



...the Spectrum and Broadcast debate continued.

Intense preparations for this year’s WRC-12 conference ensured that the EBU’s voice was heard, particularly in recognizing the cumulative interference from mobiles on broadcasts. A detailed EBU action plan to prepare for WRC-15 is being prepared to develop the case for sustainable terrestrial television broadcasting. The EBU was a founding member of the new FOBTV (Future of Broadcast Television) initiative along with 12 other organizations.

...EBUCore brought Metadata to the mainstream.

The move to file-based workflows and the multiplicity of content platforms make Metadata crucial. The EBUCore specification is designed to meet the needs of a variety of users. In the last 12 months all or part of it has been adopted by projects such as EUScreen, NoTube and VISION Cloud, and in Singapore by MediaCorp and the UK for the Digital Production Partnership’s file format.

...new Green shoots appeared.

Recognizing the need for broadcasters to play their part in adopting more environmentally sustainable practices, a Green Broadcasting group has been formed and started to investigate where the biggest impact can be made, both in production and distribution.

...EBU excellence was recognized.



A number of EBU TECHNICAL staff members received international awards in the last year, including no fewer than four for David Wood, Deputy Director of Technology and Development. Hans Hoffmann collected an award on behalf of SMPTE at the Technology & Engineering Emmys in January

2012, and Yvonne Thomas received the ARD/ZDF-sponsored prize for ‘Women and Media Technology’ for her diploma thesis on 3DTV.



Lieven Vermaele, EBU Technology & Development Director and Dr Alberto Morello, EBU Technical Committee Chairman

Facts & Figures

- > From May 2011 to May 2012 the tech.ebu.ch website received more than **180,000** visits, representing a 12% increase year on year
- > Currently **6,921** registered users of tech.ebu.ch, of which **2,974** are EBU Members
- > **1,585** new accounts created since May 2011
- > **39** groups working online or face-to-face
- > More than **50** publications since May 2011, including Technical Reports, Recommendations, Technical Review articles, fact sheets and tech-*i* magazine
- > **900** participants attending seminars and workshops since May 2011
- > More than **300** participants in online webinars since May 2011
- > More than **200** videos of presentations at seminars and workshops available to EBU Members online
- > EBU TECHNICAL staff were invited to speak at more than **100** events and conferences
- > We are contributing to and representing the EBU Membership in more than **30** regulatory, industrial and standardization bodies

Seminars, Workshops & Webinars

Our seminars and workshops continue to attract a high level of interest throughout the year and represent a valuable opportunity for Members to connect with each other and with industry. We run five main seminars annually, namely the **Production Technology Seminar**, the **Digital Radio Summit**, **BroadThinking**, the **Network Technology Seminar**, and **Forecast**. All five of these events were successful in the last twelve months, attracting 80 to 120 participants each and generating significant positive feedback.

Aside from the annual seminars, we also run workshops designed to initiate or develop specific areas of activity. Some of the key workshops in the last year included:

- > **WRC-12: What next for DTT?** – to develop an action plan on terrestrial broadcasting
- > **Loudness Distribution** – providing guidance on the implementation of Tech 3344
- > **Media Storage** – preparing the way for a new Project Group on Future Storage Systems
- > **Introducing Hybrid TV** – for EBU Members preparing to launch Hybrid services
- > **Quality Control** – a workshop on best practices for automated QC in production

Online webinars have become a key tool for disseminating information and updates on new technologies. Webinar topics over the last twelve months have included **FIMS**, **Multicast**, **IPv6**, **MPEG-DASH**, **Beyond HD**, **White Space Devices**, and **3D Audio**. Videos of all of our webinars and most of the presentations from our seminars and workshops are available to EBU Members via our website.

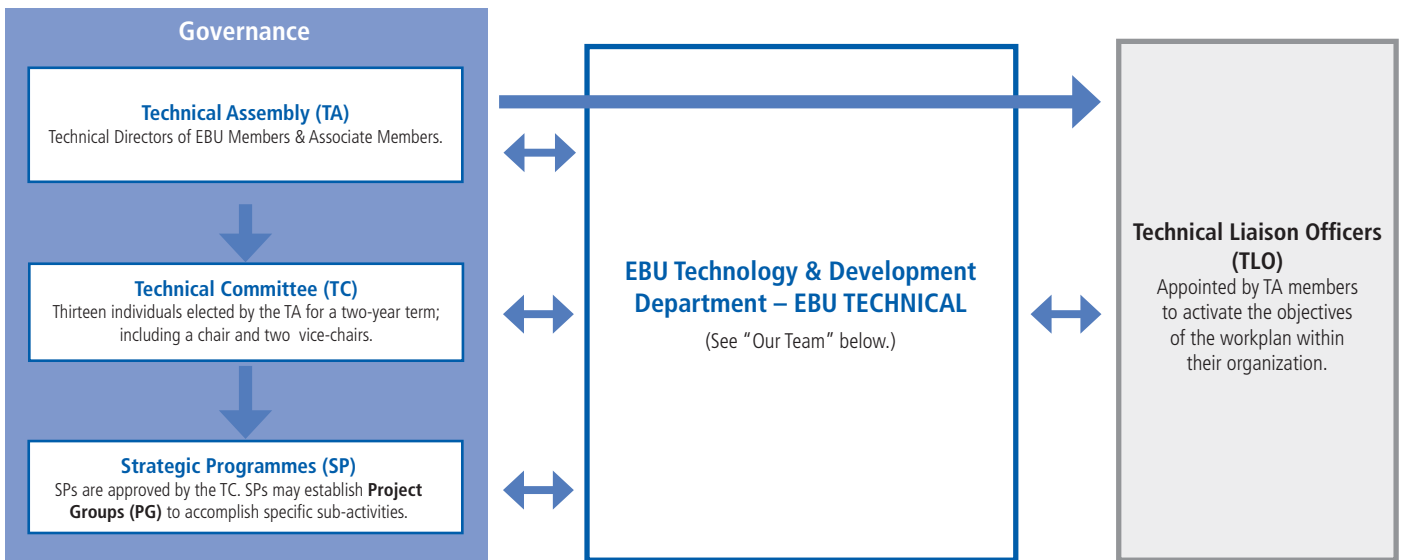
The **IBC convention** in Amsterdam remains a key fixture in the calendar. A busy EBU stand at IBC 2011 included popular demonstrations of FIMS, glassless 3DTV, end-to-end 1080p50 HDTV transmission, Loudness, Hybrid TV and Radio, video codec comparisons and more.



How we work

The most senior EBU body in the technical domain is the Technical Assembly (TA), which consists of the Technical Directors of EBU Members and Associate Members. The TA is responsible for electing the Technical Committee (TC), which sets the priorities and policy, and approves and directs, the EBU's technical activities.

As a means of improving the day to day contact between EBU staff and the Membership, each TA member can nominate a Technical Liaison Officer (TLO), who will act as a single point of contact for their organization in relation to technical matters. (If your organization does not have a TLO, please contact Eoghan O'Sullivan (osullivan@ebu.ch) for more information. The current list is available here: tech.ebu.ch/tlo)



Organizational structure of the technical activities of the EBU

The EBU's technical activities are carried out according to an annual Workplan and implemented via a series of Strategic Programmes (SP). The SPs are approved – along with their respective chairs, vice-chairs and terms of reference – by the TC. The SPs may choose to establish Project Groups (PG) to accomplish specific sub-activities. Such PGs carry out their work according to a clearly defined set of objectives in a relatively short timeframe.

The annual Workplan is developed by EBU TECHNICAL staff and the TC, in consultation with chairs and vice-chairs of SPs and PGs. Input from EBU Members is gathered via the TLOs. The Workplan is approved by the TC and endorsed by the TA.

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To be appointed

Position Pending

Your EBU needs you!

We cannot carry out our workplan without the active participation of EBU Members. Our Strategic Programmes rely on the input of those who deal with the problems on a daily basis. Participating means contributing to discussions via the workspaces and email lists, joining online and face-to-face meetings, collaborating, and assisting with the creation of reports and recommendations.

Please encourage your colleagues to visit our website and join the groups that are relevant to their area of expertise. tech.ebu.ch/groups

Media Fundamentals & Production

Integrated Media Production Strategies

Interdisciplinary programme to assist Members in the planning and implementation of integrated production facilities.

TV Formats & Production Systems

Investigating topics related to technologies for television production.

Project Groups:

- > 3DTV
- > Display
- > Beyond HD
- > LED

Audio & Radio Systems

Aiming to maximise the quality and availability of sound production technology.

Project Groups:

- > Loudness
- > Lip-Sync
- > 3D Audio
- > Broadcast Wave Format

Media Information Management

Examining the models, systems and architectures needed to process media information.

Project Groups:

- > Acquisition Metadata
- > Metadata Models
- > FIMS
- > Automated Metadata Extraction
- > XML Subtitles
- > Metadata Developer Network

Quality Control

Dealing with Quality Control in a file and network based production workflow.

Future Network & Storage Systems

IP network technology and storage, including distributed storage architectures.

Project Groups:

- > Service Level Agreements
- > Video Contribution over IP
- > IP-based Intercom
- > Audio over IP 2
- > Future Storage Systems

Green Broadcasting

Dealing with environmental issues in television and radio production and broadcasting.

Cooperative Terrestrial Networks

Studying the evolution of terrestrial delivery networks, in particular future terrestrial broadcasting and wireless broadband networks.

Project Groups:

- > CTN Mobile

Spectrum Management

Dealing with issues relating to radio frequency spectrum to ensure that the interests and needs of EBU Members are met.

Project Groups:

- > Frequency Planning
- > Electromagnetic Interference
- > Regulatory & Policy
- > Sharing with Digital Broadcasting

Broadband Networks

Examining the use of IP for distribution, including issues related to IPv6, CDN techniques, MPEG-DASH and the introduction of HTML5.

Project Groups:

- > Network Neutrality

TV Platforms & Services

Promoting and supporting the launch of Hybrid TV services among EBU Members, particularly through the HbbTV standard.

Radio Platforms & Services

Investigating future technologies for digital radio and Hybrid Radio.

Project Groups:

- > RadioHack

Media Delivery & Services

Can we help you?

From time to time EBU TECHNICAL receives requests from individual Members for advice and assistance on a specific topic. During the last twelve months, we have been able to provide advice and guidance to Members in Algeria, Ukraine, Iceland, Sweden, Poland and elsewhere.

If your organization requires advice or expertise to develop a technology-related project, please contact us. We can identify the right people to help, whether from among EBU staff or from the wider community. Please direct your queries to Eoghan O'Sullivan (osullivan@ebu.ch).

Keep in touch

The easiest way to keep in touch with our activities is to create a user account on the EBU TECHNICAL website (<http://tech.ebu.ch>) and subscribe to our monthly newsletter, to tech-*i* magazine, and to our events mailing list.

You can also follow us on Twitter: [@ebutechnical](https://twitter.com/ebutechnical).