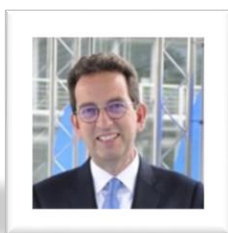


BIOS

TUESDAY 24 NOVEMBER 2020 (10:00am - 17:00pm CET)

WELCOME & KEYNOTE

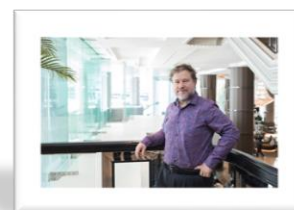
10:00 – 10:15 **Welcome & Introduction**



Antonio Arcidiacono is the EBU's Director of Technology & Innovation. He has extensive experience in conceiving, developing and taking new products and services to market. He is an internationally acclaimed expert in digital television, satellite communications, IP-based multimedia services and mobile telecommunications. With strong knowledge of the European market, he has worked closely with the leading players in the fields of Digital TV and Multimedia Services, and with European institutions at a technical, standardization, regulatory and competition level. Antonio was Director of Innovation, and a Member of the Management Committee, at Eutelsat from 2008 -2018 where he was responsible for launching innovative IP based satellite services. He joined Eutelsat in 1990 and took part in key phases of its development from an international organization to privatization in 2001 and to the IPO in 2005. Before working at Eutelsat, Antonio worked for the European Space Agency and started his career working for Telespazio and Selenia Spazio. He has a Doctorate in

Electronics & Telecommunications Engineering from the University of Pisa.

Peter MacAvock is Head of Delivery, Platforms and Services, EBU Technology and Development and DVB Chairman. At EBU, he heads the team responsible for innovation projects relating to delivery technologies, spectrum management and software platforms. Amongst other things, he is responsible for spectrum matters and high level projects related to Hybrid Radio and Television including HbbTV, DVB, RadioDNS and others. In July 2016, he was elected Chairman of the DVB Project, and retains a role as co-chair of the HbbTV Requirements Group. He is an Irish national living and working in Switzerland.



10:15 – 10:45 **KEYNOTE: Media distribution in an open internet OTT ecosystem**



Rebecca Glinka will cover the reasons behind the success of funk and the impact of a number of choices made in its planning. Funk's success is setting a standard for online-only services offered by public service media organizations thereby putting forward a shining example for how similar services could be launched in other territories.

Rebecca Glinka is Head of Software Development, Distribution and Analytics at funk, a content-network of ARD and ZDF.

SESSION 1: CHALLENGES OF OTT DISTRIBUTION

MODERATED BY PETER MACAVOCK (EBU)

10:45 – 10:50 **How will PSM maintain their prominence?**



Kieran will outline the challenges facing public service media companies in reaching their audiences in the OTT distribution environments of tomorrow, and offer a few potential solutions.

Kieran Clifton heads up Distribution & Business Development for the BBC. The department is responsible for the distribution of the BBC's television and radio services and the syndication of the BBC's online services on behalf of licence fee payers. He is also responsible for the BBC's participation in joint ventures Freeview, YouView, Freesat and Digital UK. Biography Kieran graduated from St Edmund Hall, Oxford with a degree in Philosophy, Politics & Economics, and has an MBA from INSEAD. He joined the BBC as Head of Strategy, Future Media & Technology before becoming Controller, Digital Strategy and then Director, Distribution & Business Development. Before the BBC, he was Head of Strategy at Channel 5. Kieran is a Trustee of Children in Need.

10:50 – 10:55 **Securing sufficient capacity for the entire audience during peak viewing**



Internet publishing will become the main publishing platform of Yle approx. by 2025 the decisive battle on the audience attention will take place in internet The key challenge is to secure the wireless broadband capacity during the peak viewing moments on rural areas.

Janne Holopainen (Yle) Media Regulation Manager at the PSM company of Finland, responsible for media delivery regulation, incl. frequency allocation regulation, since 2012 earlier worked for commercial media and telecoms.

10:55 – 11:00 **Universal coverage after the DVB-T switch-off, a case study from Flanders**



VRT switched off the DVB-T transmission in 2018 as it can reach the Flemish audience without it. The presentation gives an overview of the several platforms and the success in Flanders.

Kevin Moolenschot has 14+ experience in broadcast. He started as an IT infrastructure and broadcast engineer and after several different roles at VRT, he became head of the VRT Media Networks in 2014. Currently, Kevin is responsible for the Technology Strategy and enterprise architecture team

11:00 – 11:05 **ERT's experience on OTT distribution**



Yiannis Vougiouklakis studied Computer engineer at Polytechnic and holds a Master degree at MBA-International focus in Science decision making field.

From November 2015 till May 2020 his role at ERT was Head of Digital Strategy.

From June 2020 he took over a position as a CTO. His job as an engineer is to assist the company in digital transformation by providing solutions that drive down total costs through reuse and infrastructure optimization.

Specifically together with his technical team they are looking for solutions that will automate and homogenize daily processes in all production for all media (TV, Radio, Web).

In terms of OTT technology, ERT has a dominant position in this field, providing for a year's innovative solutions and impressive content. ERT introduced Hybrid technology in Greece and the Balkans area in 2017 and hosted the 8th Symposium on Hybrid Services and Technologies in Athens in 2018.

Today their OTT brand solution "ertflix" has a presence in apps likes iOS, Android AOSOP, App Gallery, Browsers, Samsung Tizen, android Tv, Hybrid TV etc.

Yiannis 's vision is ERT to become a company that leads the market in terms of innovation and technology providing to our customers high level services on how to enjoy our content from every ware with any device without any geographical restrictions.

PANEL DISCUSSION

MODERATED BY PETER MACAVOCK (EBU)

11:05 – 11:45 **Broadcasters' learnings on OTT distribution**

- Kieran Clifton (BBC)
- Janne Holopainen (Yle)
- Kevin Moolenschot (VRT)
- Yiannis Vougiouklakis (ERT)
- Roland Beutler (SWR)

11:45 – 12:00 OTT challenges from EBU's point of view



Distribution of content and services over the Internet by means of OTT models seems to become increasingly attractive for PSM organizations.

However, PSM organizations need to carefully analyze the pros and cons of going OTT as there are many issues which may ruin the game.

Roland Beutler studied Physics at the University of Stuttgart, Germany, and went on to receive a Ph.D. in Mathematical Physics from the Max-Planck-Institute for Metal Physics, also in Stuttgart. Between 1995 and 1996 he worked at the Università degli Studi di Lecce, Italy, under a Fellowship of the European Commission. In 1993 he joined SWR to work in the frequency planning department and is currently responsible for programme distribution strategy.

Dr Beutler has been participating in EBU technical activities for more than 15 years and has chaired several EBU groups dealing with the future of broadcast distribution systems. He was chair of the several of EBU's Strategic Programmes and Project Teams. Currently he acts as chairman for the Strategic Programme on Distribution. This group coordinates the engagement of European broadcasters in 3GPP, the global standardization organization of mobile technology. Roland Beutler is actively participating in different 3GPP groups to support the requirements of broadcasters for 4G and 5G developments. He is also a member of the Steering Group of the 5G Media Action Group.

Roland Beutler is also involved in ITU and CEPT work and has been responsible for several of their working groups, both radio and TV related. He participated in WRC-12, WRC-15 and RRC-06 and was deeply involved in the preparation of the latter conference. Moreover, he has published several articles and four books on frequency and network planning for digital terrestrial broadcasting systems, the digital dividend of broadcasting and the evolution of broadcast content distribution.

PANEL DISCUSSION

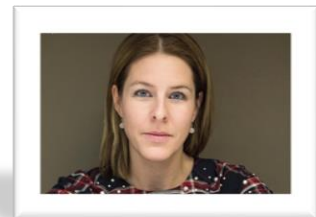
MODERATED BY JAN WIESNER (WDR)



Jan Wiesner studied History and Political Science at Marburg University, University of Virginia, and Tübingen University where he received his Master Degree in 1998. After starting his career with Daimler-Benz he worked as an Assistant to a Member of the German Bundestag as well as to a Member of the European Parliament. He joined the ARD-Liaison Office, Brussels, in 2004 and became Deputy Head of Office in 2009.

12:15 – 13:00 Will the EU platform reform foster access to a diverse media offer?

- **Charlotte Niklasson** (Nordvision) is the Director of European Affairs for the Nordic Public Service Media companies DR, NRK, RUV, YLE, SVT, SR, UR, leading their work in response to EU regulation and policy. Prior to her current job she was the international affairs manager at Swedish television. She has a background from working with security policy for the Swedish Government and was prior to that with UN, overseeing programs for conflict prevention in Central Asia. She holds a M.A from Lund University in Sweden and has studied international relations and security at the University of Zurich.
- **Wouter Gekiere** currently works for the European Broadcasting Union (EBU) as Head of the Brussels office with the lead on key European regulatory and policy matters in the media and audiovisual fields. He has worked for over a decade at the EBU Brussels office on a range of strategic policy dossiers. An experienced public affairs professional, Wouter's career has also encompassed expert policy and legal advisory roles for EU decision makers and academia. He holds master's degrees in Law (1998) and in International Relations (1999) from the University of Leuven and a master's degree in Public and International Law from the University of Melbourne (2004).



MAPPING CHANGES IN MEDIA DISTRIBUTION

- **Chiara Caccinelli** is Co-Chair of the Experts' Working Group on Market and Economic Analysis at the Body of European Regulators for Electronic Communications (BEREC) and Regulatory policy advisor at the French regulator for electronic communication, postal and print media distribution services (ARCEP). Before joining ARCEP and BEREC, Chiara was Deputy to the Director of the Governance and Regulation Programme and the Club of Regulators (2015-2019) in Paris, and simultaneously carrying out academic research on the economic and competition challenges in the digital economy. Previously, she was Programme manager at the Florence School of Regulation (European University Institute, 2011-2015) and Analyst and Consultant in European Affairs (2009-2011). Chiara holds an MSc in Economics of Network Industries and Digital Economy from the University Paris Dauphine – PSL, and an MA in European Affairs.



SESSION 2: BROADCASTING PLATFORMS UNDER WRC-23 PRESSURE

MODERATED BY ELENA PUIGREFAGUT (EBU) & DAVID HEMINGWAY (BBC)

14:00 – 14:15 Update on WRC-23 preparations



David Hemingway is a Senior Distribution Manager at the BBC, specialising in spectrum issues. He has worked in EBU project groups for around 15 years, and now chairs the strategic programme on Spectrum. In recent years, he's worked on projects to explore the use of 5G in broadcasting. He also chairs the ITU Working Party 6A Rapporteur Group preparing for WRC-23 agenda item 1.5.

14:15 – 14:30 Results of ITU survey on broadcast needs in UHF band

In the light of the outcomes of WRC-19 and the CPM 23-1, Working Party 6A sent a questionnaire to Administrations and Sector Members of Region 1 plus Iran in order to collect information on the status of DTTB and on the use and the need of spectrum for DTTB in the UHF band. The analysis of the responses pointed out that a large amount of population still views television received by terrestrial networks; many countries of Region 1 have very high DTTB coverage and many of them are still investing in DTTB. The UHF band is widely used for PMSE and 100 Administrations have expressed a clear view on the need of spectrum for the DTTB in the band 470-960 MHz.



Luisa La Franceschina studied at Università degli Studi di Milano, where she obtained the 5-year Italian Degree in Mathematics.

In 1999 she joined the technical department of RAI Radiotelevisione Italiana, which became Rai Way S.p.A. at the beginning of 2000, working at the Monitoring Center located in Monza (Italy). Throughout her career, she participated in the studies and in the definition of RF signal measurement methodologies. She collaborated in the design and realization of an automatic monitoring radio and television network, and took part in measurement campaigns and laboratory tests. In 2011 she started attending to the Working Party 6A of ITU, where she actively contributed editing and revising ITU documents. Since 2014 she is member of the EBU technical group on network planning (former SMR-BNP group and now EBU/BNE S-SPT group). Currently she belongs to the Planning and Analysis of Networks and Services Department of Rai Way S.p.A.

14:30 – 15:00 Innovating in the UHF band with 5G Broadcast:

- **5G Media2Go – 5G Broadcast Trial in Stuttgart** - Roland Beutler (SWR)

Overview about 5G Media2Go, a project in Stuttgart which investigates media services integration on the infotainment system of cars delivered by 5G technology, including 5G Broadcast. Linear TV, access to ARD/SWR Mediathek and a "Travelguide" application offering geo-referenced recommendations will be implemented. A 5G Broadcast network is set up to evaluate its capability to deliver linear TV services to cars.

- **Testing 5G broadcast in Vienna –**

Mag. Michael Wagenhofer - Since early 2005, the lawyer has been managing director and spokesperson of ORS, which emerged from ORF's field of broadcast engineering. In this role, he is responsible for the transformation of ORS into a market-oriented service company with the business areas of terrestrial and satellite broadcasting as well as the introduction of digital terrestrial television in Austria. In 2013, he initiated the ORS Group's entry into the B2C business with the establishment of the brand simpliTV. Since October 2019 he is a member of the steering group of the 5G Media Action Group based in Geneva (see 5g-mag.com).



15:00 – 15:15 5G Broadcast network and frequency planning



Within the EBU Spectrum Group S - SPT (Spectrum Planning Terrestrial) there ongoing work to evaluate the suitability of the 5G Broadcast standard as described in 3GPP Release 16. The purpose of the work is to provide guidance to Broadcaster in this complex question. The work includes spectrum sharing studies, creation of a coverage simulation platform as well as studies on what may be achieved using existing Broadcast infrastructure. First findings will be presented.

Mats Ek (Progira) holds a M.Sc.EE (Electronic Engineering) from 1987 from the Royal Institute of Technology (KTH) in Stockholm, Sweden. He is currently Technical Director and one of the founders of PROGIRA®, providing consultancy and software for spectrum planning. The ProgiraPlan planning system is now licensed in more than 50 countries. He has been active in the broadcasting industry since 1989 when he joined Teracom, the national broadcast network provider in Sweden. He has been involved in system standardisation of T-DAB and DVB-T/T2 systems, in the design of the OFDM based RF-system. He has been extensively involved in the planning of the DAB, ATSC 3.0 and DVB-T/T2 networks in in many different countries. Mats is active member of EBU technical working groups related to broadcast planning and more recently in the evaluation of the 5G broadcast system.

15:15 – 15:35 Challenges and opportunities for satellite platforms

We'll have a look at the WRC-23 items that could have a significant impact on satellite broadcasting. Now is the time to look at the challenges and opportunities, and set the grounds for discussions that will take place at WRC-23.

Dr Muriel Hooghe works in the Spectrum Management and Development EMEA team at SES and is responsible for spectrum management and ITU-related activities with focus on orbital assignment and spectrum utilisation issues. The team develops and maintains relationships with key regulatory bodies and industry groups to promote and defend the position of SES in regional and international meetings such as the World Radio Conference.

SESSION 3: HANDS ON

MODERATED BY ELENA PUIGREFAGUT (EBU) & DAVID HEMINGWAY (BBC)

16:00 – 16:20 Electromagnetic interference issues



In her Forecast presentation in 2018, Cath explained how it had taken 20 years to produce Europe standards which protected broadcasting services from interference from Power Line Communication (PLC) technology. This is despite millions of pairs of these devices being sold across Europe when PLC was first introduced. What are the current sources of electromagnetic interference and have things got better since 2018? What role can broadcasters play and can we make a difference?

Cath Westcott is Senior Distribution Manager at BBC World Service and joined the BBC as a graduate trainee on the BBC Engineering training scheme in the 1980s. The BBC's global audience is currently an estimated 468 million people per week, and those audiences depend on reliable and interference-free delivery of radio, television and on-line services. Cath has represented the interests of the BBC's international operations in UK, European and international technical regulatory meetings since 2005. She attends meetings at the ITU, and is active primarily in the ITU-R Broadcasting Services Study Group. She has also attended four World Radio Conferences and two Plenipotentiary Conferences on the UK delegation. Cath chairs the EBU's Electromagnetic Interference & Compatibility Project group which is part of the Spectrum Strategic Programme.

16:20 – 16:40 eLSA for PMSE gaining access to local spectrum



Regardless of the content distribution platform, DTT, mobile, web etc. all platforms require the content capture capability that PMSE offers. The spectrum available for PMSE has been significantly reduced in recent years while the demand for access to spectrum for PMSE is steadily growing. As a result, PMSE faces difficulty in serving current user's demands, i.e. finding enough suitable spectrum to access when and where it is needed. Therefore, stakeholders and regulators are looking for new ways to ensure that enough suitable spectrum is retained for PMSE in the longer term. This talk introduces the evolved Licensed Shared Access (eLSA) system as a mean to facilitate time and location specific access to spectrum for PMSE. eLSA leverages the European regulatory framework around LSA and learns from earlier activities that initially focused on the bandwidth expansion business of MNOs overlooking a large stakeholders group, including PMSE, that will be willing to rely on predictable shared spectrum to secure their businesses.

Dr. María D. Pérez Guirao received her degree in telecommunication engineering from the Politechnic University of Valencia, Spain 2002. She received the Dr.-Ing. Degree from the Faculty of Electrical Engineering and Computer Science of the Gottfried Wilhelm Leib University Hannover in December 2008, receiving the honour distinction Summa Cum Laude. From January 2009 to October 2013 : worked as a Post-Doc researcher at the Institute of Communications Technology (IKT), Gottfried Wilhelm Leibniz University Hannover Germany. In 2011 she co-founded a technology-oriented start-up company focusing on cognitive radio systems and coexistence management for professional wireless applications. She led the engineering team of the company till March 2018 when she moved to Sennheiser electronic, one of the leading PMSE equipment manufacturers. She represents Sennheiser in several working groups across standardization and regulatory bodies.

16:40 – 17:00 Sustainability of broadcast distribution vs broadband distribution

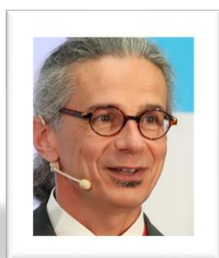


In his presentation, Christian will talk about the changing and increasing focus on sustainability in the broadcast sector and media more widely. He will explore how the sector has risen to the challenge and what might be on the horizon for media organisations concerned about their environmental impacts.

Christian Toennesen is Chair of the Responsible Media Forum and a Senior Partner at Carnstone Partners Ltd. He has a longstanding interest in sustainability in the technology, media and telecoms sector, both in relation to operations and content. He is the founder and product manager of DIMPACT, a partnership bringing together researchers from University of Bristol's Computer Science Department and major media companies to create the world's most advanced carbon calculator for 'downstream' digital content distribution and delivery activities. He is also the architect behind the recently launched Media Climate Pact.

WEDNESDAY 25 NOVEMBER 2020 (10:00Am - 15:00PM CET)

SESSION 4: TECHNOLOGY TRENDS

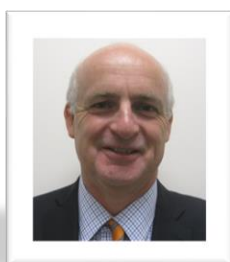


MODERATED BY DARKO RATKAJ (EBU)

At the EBU's Technology & Innovation department Darko is engaged in collaboration amongst EBU Members and with the industry on strategic issues related to the future distribution of content and services. He is involved in R&D projects, standardisation, interdisciplinary technical and regulatory studies, and radio spectrum management. His current focus is on wireless transmission systems, such as terrestrial radio and TV systems and mobile systems such as 4G/LTE and 5G.

& ROLAND BEUTLER (SWR)

10:00 – 10:20 How can DVB-I be the next revolution in IP distribution



Paul Higgs (Huawei)

10:20 – 10:40 Key trends in the 5G standardization process



This talk will give an update on the 5G standardization process in 3GPP, with a particular focus around the latest developments and on-going work relating to media distribution.

Andrew Murphy (BBC) is a Lead Research Engineer at BBC Research & Development who looks after work on 5G for Content Distribution. He chairs the EBU's Mobile Technologies and Standards group.

10:40 – 11:00 What role does the satellite industry want to take in the 5G ecosystem?

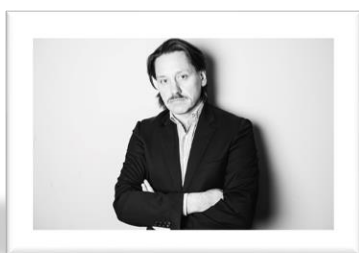


Rhys Morgan leads Intelsat sales activities across all commercial vertical markets in the European region. He has more than 16 years of experience in sales and marketing in the Europe and Africa regions. That experience includes 20 years in the telecommunications industry, with expertise spanning telecom infrastructure, media distribution and enterprise data networks.

Since joining Intelsat in 2002, Mr. Morgan has held a number of sales positions, most recently Director, Media and Broadband Sales for Europe and the Middle East. Prior to that role, his positions included: Interim Managing Director, Africa Sales; Managing Sales Director, Broadcast Services; and Managing Sales Director, Western Europe.

Intelsat S.A. operates the world's first Globalized Network, delivering high-quality, cost-effective video and broadband services anywhere in the world. Intelsat's Globalized Network combines the world's largest satellite backbone with terrestrial infrastructure, managed services and an open, interoperable architecture to enable customers to drive revenue and reach through a new generation of network services. Thousands of organizations serving billions of people worldwide rely on Intelsat to provide ubiquitous broadband connectivity, multi-format video broadcasting, secure satellite communications and seamless mobility services. The end result is an entirely new world, one that allows us to envision the impossible, connect without boundaries and transform the ways in which we live. For more information, visit www.intelsat.com.

11:00 – 11:20 How ARD utilises the prime Smart TV platform HbbTV'



In his presentation, Remo Vogel will show the challenges of the digital transformation for public broadcasting. The active use of the Smart TV technology HbbTV is an outstanding opportunity to actively shape this change in usage of video and audio. The ARD is a pioneer in the use of that hybrid technology. On the basis of use cases, the presentation shows recent developments. Remo Vogel's focus at Rundfunk Berlin Brandenburg is the distribution strategy with a focus on technology development and introduction. As chair of the EBU Group for HbbTV & DVB-I he aims to bundle the European activities and to use the convergences to face the challenges collectively.

Remo Vogel (RBB)

12:00 – 12:20 What does the evolving connected car mean for PSM media distribution



The connected car is coming of age and with that a number of challenges and opportunities arise for PSM media distribution. FM/DAB Radio now shares the dashboard with competing media services and has to restate its prominence by offering appealing user experiences. In a world where PSM organisations, automobile manufacturers, OEMs and third party platforms all contribute to the in car media experience, standards are becoming ever so important.

Walter Huijten is Service Manager Radio in NPO's Technology department. He is responsible for key systems and metadata management in the radio production and distribution chain. Furthermore Walter is involved in the digital distribution of NPO's 13 radio channels and is NPO's forerunner in the promotion and adoption Hybrid Radio standards and solutions. He is a member of the RadioDNS Steering Board and EBU's Connected Car group. Walter is an avid dancer of Argentine Tango.

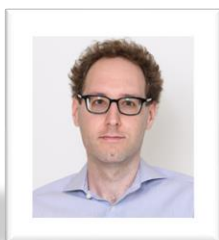
12:20 – 12:40 Low-Latency Streaming: Are We Close to the Goal?



The industry has been busy working on solutions to reduce the delay of live video streams, enabling operators to achieve the same latency for OTT as traditional broadcast using DASH and HLS formats. Both delivery formats are based on CMAF segments. We now have, on the DASH side, a stable set of specifications and an ecosystem ready to support low-latency streaming for live applications and a published LL-HLS spec supported on any iOS14 device. So, is the industry's work complete? Deploying a low-latency service is not just about the streaming format. Monetizing the service is key; therefore, DRM or ad insertion should work properly in this more constrained environment. Delivery at scale is another complex challenge, especially given that every second counts in the delivery workflow. This presentation will examine the remaining issues and limitations that the industry needs to address. It will also discuss the ongoing initiatives to get the necessary elements in place to deploy commercially viable services at scale.

Patrick Gendron is director of innovation at Harmonic for digital television applications. He joined Harmonic with the acquisition of Thomson Video Networks. Patrick recently moved from managing the Harmonic R&D Innovation team to the Marketing Innovation & Evangelism team. He currently serves as Harmonic's representative at DASH IF, DVB TM and Streaming Video Alliance. Previously, Patrick held senior program and engineering management positions in the digital television headend domain at Grass Valley and Nextream, where he was involved with international R&D management activities. He started his career as a research engineer at the Laboratoires Electronique de Rennes (Thomson CSF) where he developed new technologies for professional video transmission over optical fiber (long-haul, single-mode links). As digital technology matured for television applications, he moved to Thomson Broadband Systems in a project management role for a number of first-generation digital TV products, such as satellite modulators and contribution MPEG codecs. Patrick is a graduate of Central Supélec Paris with degrees in computer science and telecommunications.

12:40 – 13:00 Challenges of implementing Digital Rights Management



Jan Devos works in the Technology Strategy and Architecture Team of VRT, the Flemish public service media organization, where he works on bridging the gap between traditional broadcast and digital streaming workflows.

PANEL DISCUSSION

MODERATED BY ROLAND BEUTLER (SWR)

14:00 – 14:45 Do dedicated broadcast networks have a long-term future? Can broadband platforms take over all media distribution from dedicated broadcast networks? Is there a difference between radio and TV distribution?

- **Johannes Springer** is responsible for the 5G Automotive Program at Deutsche Telekom. Johannes studied Engineering, Mechanical and Production Engineering at Berlin Technical University. After his doctorate in 1992 he was in charge at Aachen University of Technology (RWTH) as head of department in the Institute of Ergonomics and Industrial Engineering. In 1998 he joined Deutsche Telekom Group in various management positions. From 2004 to 2010 he worked as CTO/COO for Toll Collect, the GNSS and mobile networks based electronic tolling operator for trucks in Germany. From 2011 to 2016 he was Vice President Technology and Solution Design within the Strategic Business Unit Connected Car in T-Systems. Johannes is active in various organizations, e.g. NGMN (Next Generation Mobile Network) and DGON (German Association of Navigation, Advisory Board). In 5GAA (5G Automotive Association) he works in the Working Groups "Use Cases" and "Business Models", and since 2018, he is the Director General of the 5GAA.
- **Olivier Penin** (TF1) - I am in charge of the broadcast distribution networks of the TF1 Group in France. This notably includes managing our DTT distribution over 3 multiplexes, and contributing to define our mid- to long-term vision of the evolution of broadcast distribution. Prior to TF1, I was a strategy consultant, having worked on several projects covering a broad range of sectors.

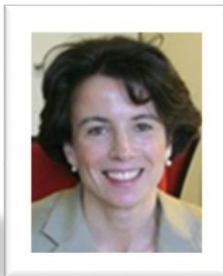


MAPPING CHANGES IN MEDIA DISTRIBUTION

- **Michael Nugent** (ERT) I have worked for the broadcasting industry for over 25 years in engineering and management positions, promoting emerging technologies in content production and delivery. I currently hold the position of Deputy Director of Technology at ERT, the Greek Broadcasting Corporation, managing technical development & planning and coordinating technological growth activities. I am currently a member of the EBU Technical Committee, where technical evolution is pursued collectively for the interest of all EBU members. I hold a Bachelor's degree in Electrical Engineering from Rice University, Texas, USA, and a Master's degree in Business Administration from ALBA, Athens, Greece.
- **Jaume Pujol i Huguet** is the Head of Policy Working Group at BNE and the Head of Regulation at Cellnex Telecom. I'm a Telecommunications Engineer from the ETSETB (UPC, Barcelona) and I have a diploma in Economic and Financial Management from the EAE Business School. As a Cellnex Telecom collaborator (formerly Tradia and Abertis Telecom), I developed several responsibilities in different positions of the company including technical work (design and roll out of broadcast networks including FM, DAB and DTT), marketing, strategy and now regulation. Since 2012, I've been representing Cellnex interests at international level, including working with trade associations, like BNE, and policy and decision makers and international bodies like ITU. I'm a founding member of Televisión Abierta and vice-president of the Clúster Audiovisual de Catalunya.



14:45 – 15:00 **Wrap-up**



Elena Puigrefagut Coarasa, Senior Project Manager at the European Broadcasting Union, coordinates joint technical activities undertaken by EBU Members on frequency planning and spectrum management and regulation and in particular frequency planning studies for terrestrial broadcasting systems. She represents the EBU in a number of international committees as the CEPT, EC and ITU including ITU World Radiocommunications Conferences.

Prior to joining the EBU, Elena worked at Eutelsat, a global satellite operator, as a frequency planning engineer in the Operations Department. During this period, she was responsible for the planning of the satellites that supported the launch of digital TV across Europe in the mid-1990s.

Elena holds a Masters degree in Image and Sound (ENST, Paris) and an M.Sc. in Telecommunications Engineering (Universitat Politècnica de Catalunya, ETSTB Barcelona).
