



EBU

OPERATING EUROVISION AND EURORADIO

Session 3: SPECTRUM MANAGEMENT AND THE FUTURE OF 5G

Darko Ratkaj
European Broadcasting Union

ITU REGIONAL SYMPOSIUM FOR EUROPE AND CIS
ON SPECTRUM MANAGEMENT AND BROADCASTING
1 - 2 JULY 2020



AGENDA

- 5G PROSPECTS IN THE MEDIA SECTOR
- 5G FOR CONTENT PRODUCTION
- 5G FOR CONTENT DISTRIBUTION
- CONCLUSIONS

EUROPEAN BROADCASTING UNION

The EBU is the world's largest association of public service media

EBU members together provide around 2000 TV & radio channels and online services.

The EBU's headquarters are in Geneva, Switzerland.



EBU MEMBERSHIP

116 Members in 56 countries + 34 associates worldwide



PERMANENT SERVICES

Legal & Policy, Technology & Innovation, Media, ...



EUROVISION SERVICES

Worldwide contribution network, production support, ...



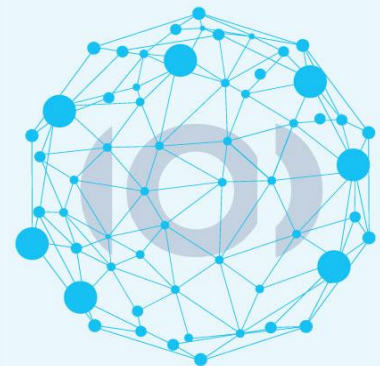
EUROVISION SONG CONTEST

World's biggest live music event (~200M viewers)

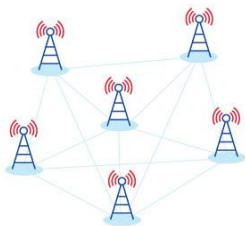


THE EBU COMMUNITY IN NUMBERS

The European Broadcasting Union is the world's leading alliance of Public Service Media



COMPOSED OF



117
MEMBER ORGANIZATIONS

IN **56**
COUNTRIES



OPERATING

467



TV CHANNELS

721



RADIO STATIONS

544



LOCAL WINDOWS



1144

ONLINE SIMULCAST CHANNELS AND STATIONS



240

EXCLUSIVE ONLINE LINEAR SERVICES

PROVIDING CONTENT IN



TO A POTENTIAL AUDIENCE OF

1.05

BILLION PEOPLE



Corporate web site:

www.ebu.ch

Technical web site:

tech.ebu.ch

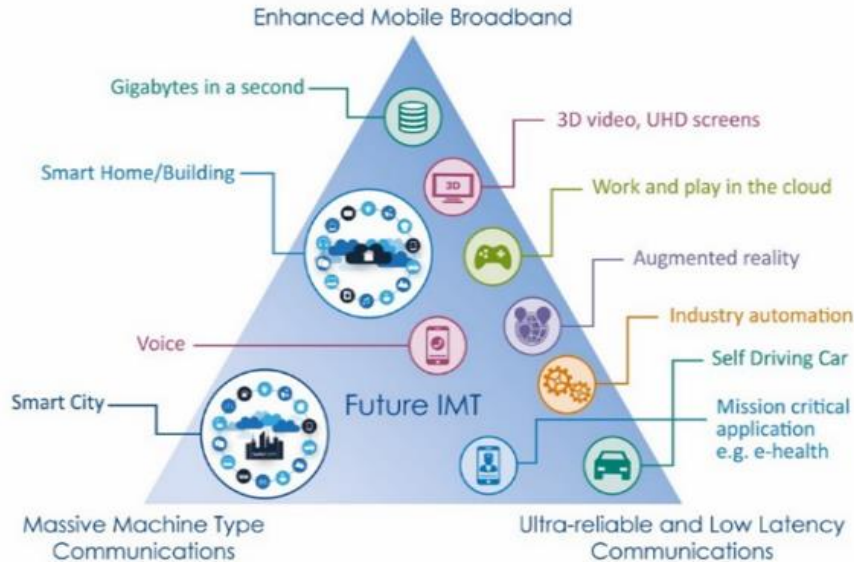




ABOUT 5G
VIEWPOINT OF A MEDIA COMPANY

WHAT DO WE KNOW ABOUT 5G?

'The fifth generation of mobile communications'

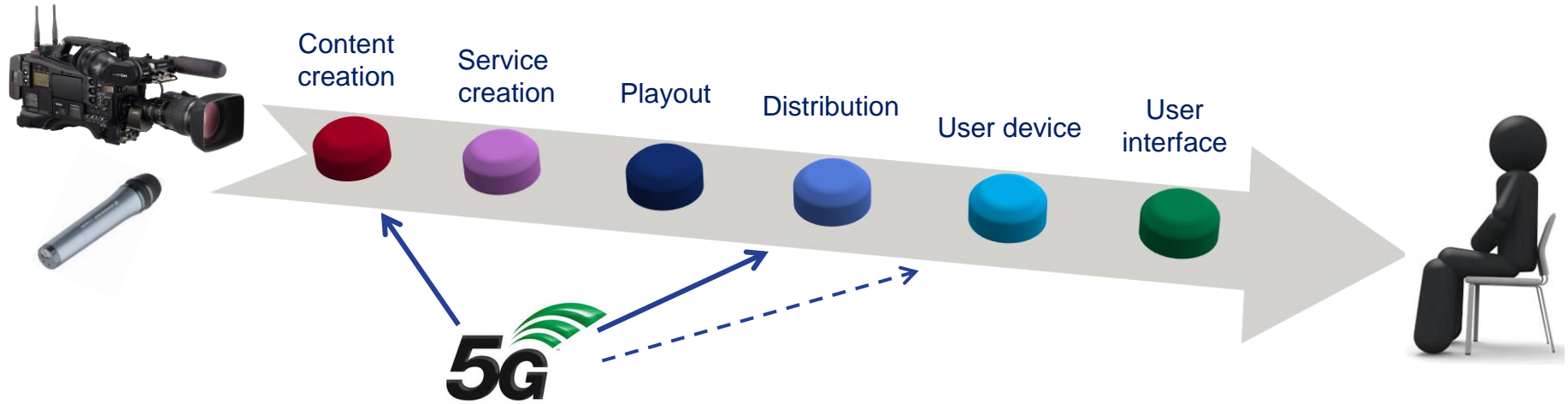


Source: Recommendation ITU-R 2083-0

INSIGHT

- 5G is a communications technology
- 5G aims to serve many different sectors. It could be beneficial to media organisations.
- Current deployments focused eMBB and telco-centric business models.
 - Limited added value to the media sector
- It is necessary to adapt 5G to the needs of the media organisations and their audiences. This goes beyond the technical performance.
- 5G is still being developed. There is an opportunity for the media industry to influence the technological and regulatory solutions for 5G.

WHERE IN THE MEDIA SECTOR 5G COULD PLAY A ROLE?



INSIGHT

- 5G has the potential to be used in content production and distribution, with an impact on user devices.
- Without further development, 5G will not be able to meet all requirements in the media sector.
 - There is an opportunity for media organisations to influence 5G developments.
- Production and distribution requirements are substantially different and must be considered separately.



5G FOR CONTENT PRODUCTION

MANY PRODUCTION USE CASES

- News gathering
- Broadcast of a live event
 - remote live TV production
 - live commentary
- On-site live event
 - wireless microphones for stage performers
 - in-ear monitors
 - service links
 - telemetry and remote control
- 'Wireless studio'
- Audience services in a venue
- Non-live production (drama, documentary)
- Media file transfer
- ...



ABOUT PMSE





ONE UNIT - STEADICAM

- Up to 11 different radios on a single camera
- Spectrum used currently 400 Mhz -> 5 Ghz



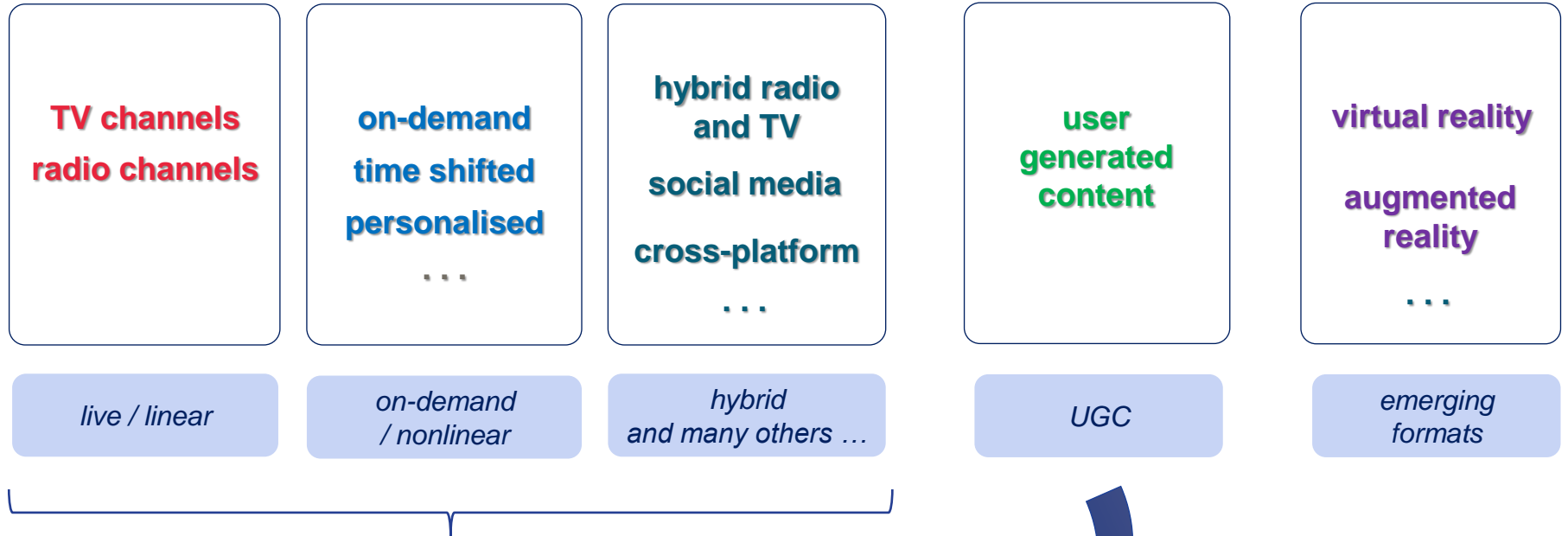
LEARNINGS, SO FAR, ABOUT 5G FOR CONTENT PRODUCTION

- ***5G is a promising technology that is still being developed***
 - If left to the telcos, 5G will not be able to meet the requirements in professional content production
 - The media community is engaged to influence the standards and the regulation
- ***Required 5G functionality to be available in the coming years; timing is uncertain***
- ***Public networks are not well-suited for the demanding production use cases***
- ***Non-public 5G networks will be needed in addition for public networks***
 - Similarities between content production and other sectors (industrial automation, medical, ...)
- ***In 5G, many operational, regulatory, and commercial aspects are yet to be addressed***
- ***Non-public 5G networks need a regulatory framework and access to spectrum***
 - Regulators to lead the way, verticals to be involved
- ***5G-based solutions will coexist with conventional PMSE for many years***
 - PMSE access to spectrum needs to be ensured

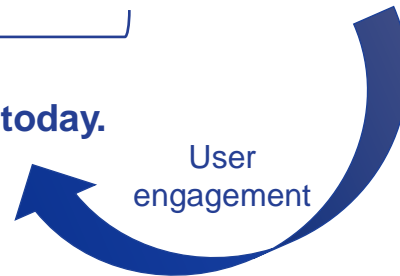


5G FOR CONTENT DISTRIBUTION

MANY KINDS OF AUDIOVISUAL MEDIA



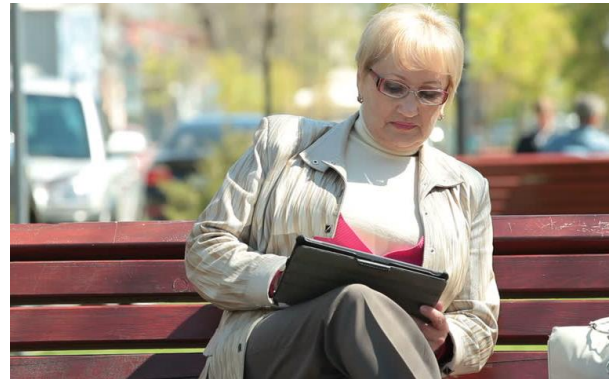
These services are offered by most broadcasters today.



DEVICES, DEVICES, ...



THE USER CONTEXT



CURRENT DISTRIBUTION OPTIONS

AV media services

TV channels
radio channels

on-demand
time shifted
interactive
personalised
multi-view
...

hybrid TV
second sreen
cross-platform
social media
...

user
generated
content

virtual
reality
augmented
reality
...

Distribution infrastructure

Broadcast

Broadband

Terrestrial

Satellite

Cable

Fixed IP networks

- * managed (IPTV)
- * unmanaged (OTT)

Mobile networks (3G,4G)

- * unmanaged (OTT)

The audience



WHAT ROLE 5G COULD PLAY IN CONTENT DISTRIBUTION?

AV media services

TV channels
radio channels

on-demand
time shifted
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personalised
multi-view
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hybrid TV
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Distribution infrastructure

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Fixed IP networks

- * managed (IPTV)
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Mobile networks (3G,4G,5G)

- * unmanaged (OTT)
- * managed (network slicing)

The audience



WHAT ROLE 5G COULD PLAY IN CONTENT DISTRIBUTION?

AV media services

Distribution infrastructure

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KEY REQUIREMENTS IN CONTENT DISTRIBUTION

- **Network performance** that meets the service requirements (capacity, reliability, resilience, security, ...)
- **Large coverage** (country-wide; ~100% population)
- **High user adoption**
- The ability **to reach the whole population in emergency situations**
- Suitable **business models**
 - compliant with sector specific regulation, including public service media
 - affordable for both the broadcasters and the end users
 - ensuring an unconstrained access to the audience and the usage data
 - allowing for different distribution models, both free-to-air as well as subscription-based access
 - sustainable in the long term



INSIGHT

- **Cellular networks alone and conventional MNOs' business models do not meet all these requirements.**
- **No single type of infrastructure can deliver all services to all viewers and listeners**
 - Multiple distribution means are used
 - Increased complexity and costs
- **Conventional terrestrial and satellite broadcast networks will continue to be important for the foreseeable future.**
- **5G could harmonize the way how media content is distributed to the audiences at scale by a combination of different networks types (cellular, terrestrial broadcast, satellite)**



CONCLUSIONS

CONCLUSIONS



1. The biggest value of 5G will come from services and applications it enables.
2. In the audiovisual media sector, 5G needs to be adapted to the service requirements.
The main benefits can come from:
 - non-public 5G networks for content production
 - harmonization of content distribution over different types of networks (cellular, broadcast, satellite, fixed)
3. 5G will not replace the existing technologies in the media sector, which continue to evolve.
 - 5G will coexist with the conventional networks for a long time
 - Spectrum for terrestrial and satellite broadcast networks, and PMSE needs to be retained

Regulatory framework and access to spectrum yet to be established

A photograph of a modern glass building with several satellite dishes mounted on the roof. The building's glass facade reflects the sky and surrounding greenery. The text "Thank you for your attention!" is overlaid in the center in a white, italicized font. In the bottom right corner, the email address "ratkaj@ebu.ch" and the website "tech.ebu.ch" are displayed in white text.

***Thank you
for your attention!***

ratkaj@ebu.ch
tech.ebu.ch

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