EBU
OPERATING EUROVISION AND EURORADIO

ON 5G IN THE MEDIA SECTOR

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Europan Broadcasting Union

WorldDAB General Assembly
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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 and reach more than 1 billion people.

The EBU's headquarters are in Geneva, Switzerland.

Corporate web site: www.ebu.ch

Technical web site: tech.ebu.ch

EBU MEMBERSHIP

117 Members in 56 countries + 34 associates worldwide

PERMANENT SERVICES

Content exchange, coproductions, legal support, policy, market & audience research, technology & innovation, sports rights, news exchange, music exchange, training, representation, ...

EUROVISION SERVICES

Worldwide contribution network, production support, content hub, services management, streaming services, ...

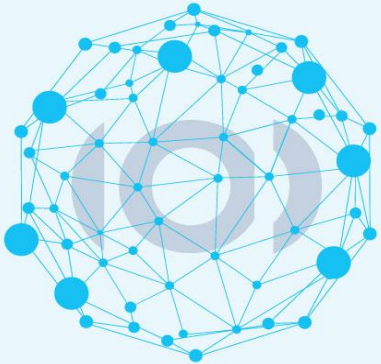
EUROVISION SONG CONTEST

World's biggest live music event

- 40+ countries; ~200M viewers

THE EBU COMMUNITY IN NUMBERS

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



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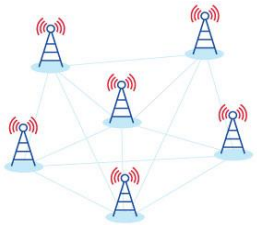


117 MEMBER ORGANIZATIONS

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

162 LANGUAGES

TO A POTENTIAL AUDIENCE OF

1.05 BILLION PEOPLE

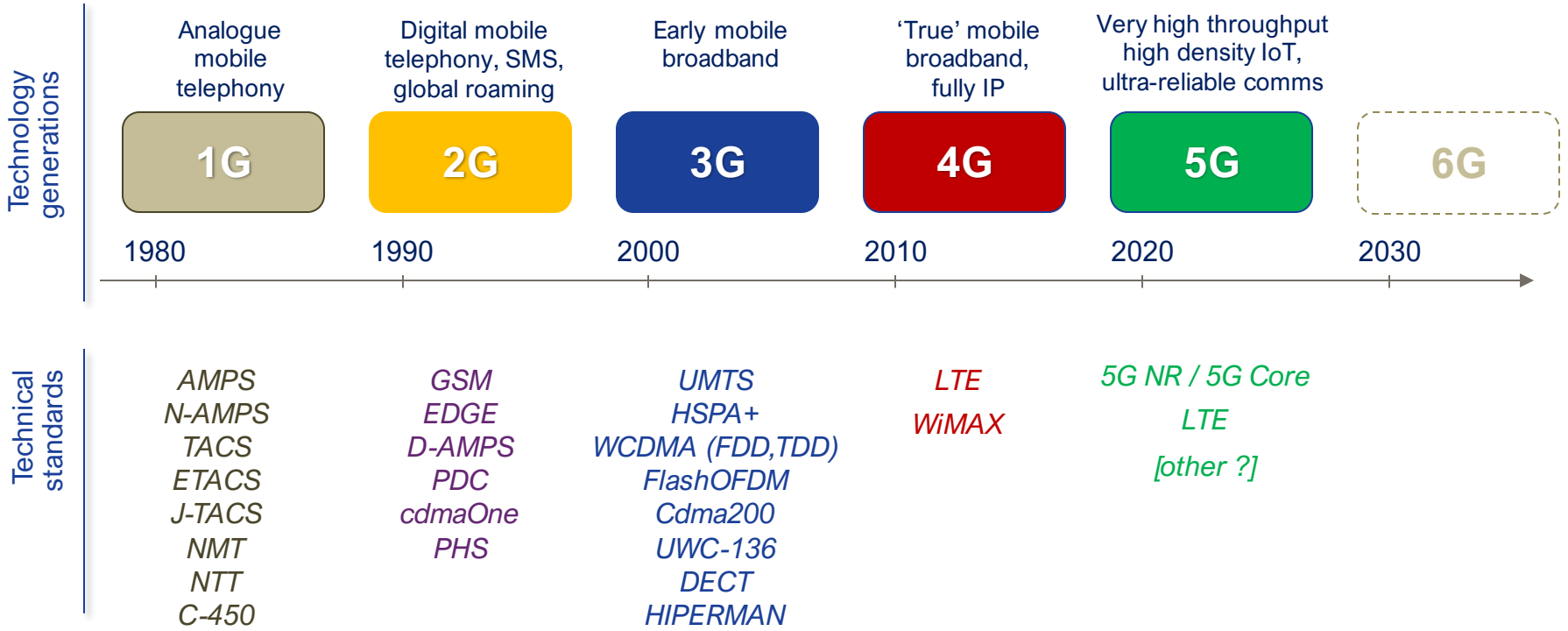
EBU
OPERATING EUROVISION AND EURORADIO

Learn more about the EBU:
www.ebu.ch/about

EBU Media Intelligence Service 2018
Source: EBU based on Members' data

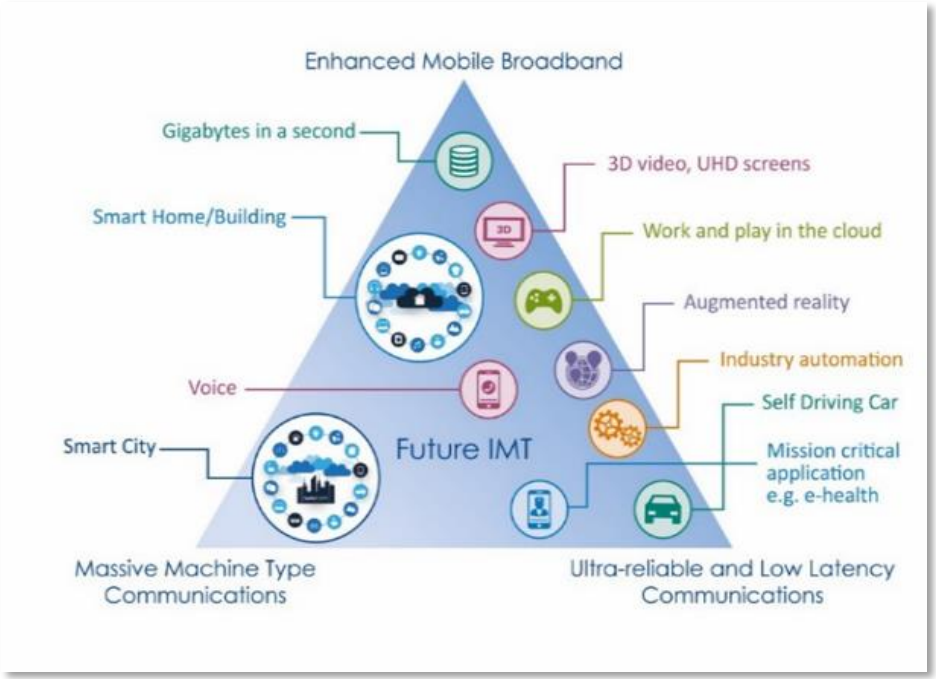

ABOUT 5G

MOBILE TECHNOLOGY GENERATIONS AND STANDARDS



WHAT DO WE KNOW ABOUT 5G?

'The fifth generation of mobile communications'



Source: Recommendation ITU-R 2083-0
'IMT Vision – Framework and overall objectives of the future development of IMT for 2020 and beyond'

INSIGHT

- 5G is a communications technology
- 5G aims to serve many different sectors.
  It could be beneficial to media organisations.
- Current deployments are focused on mobile broadband 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.

WHAT DO WE KNOW ABOUT 5G?

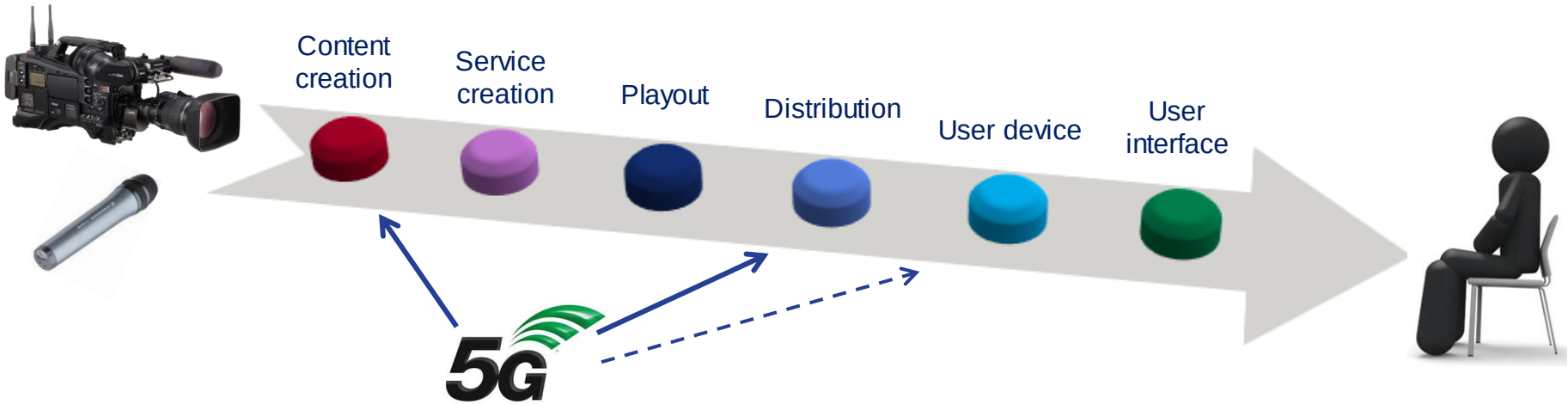
Parameter	Target value	
Peak data rate	uplink: downlink:	10 Gbit/s 20 Gbit/s
User experience data rate	uplink: downlink:	50 Mbit/s 100 Mbit/s
User plane latency	for eMBB: for URLLC:	4 ms 1 ms
Control plane latency		20 ms
Connection density		1 000 000 devices per km^2
Area traffic capacity	downlink:	10 $Mbit/s/m^2$
Reliability		$1\text{-}10^{-5}$
Mobility		up to 500 km/h

Source: ITU-R Report M.2410-0 (11/2017)
'Minimum requirements related to technical performance for IMT-2020 radio interface(s)'

INSIGHT

- The indicated values are theoretical targets for the system performance
  - to guide research and standardisation
  - for technology evaluation by the ITU-R
- In practice 5G networks won't be able to achieve all of these targets at the same time and everywhere.
- Currently, there are no defined targets for 5G network performance (e.g. coverage, capacity, throughput, latency, reliability).

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

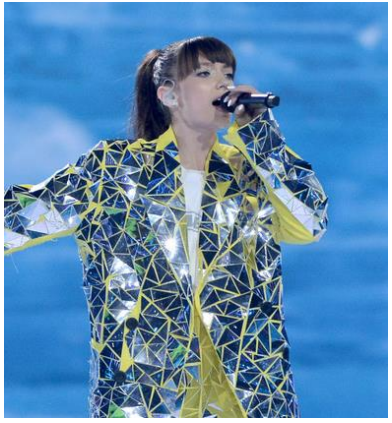


INSIGHT

- 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



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'
- Non-live production (drama, documentary)
- Media file transfer
- …

EBU TECHNICAL REPORT 056

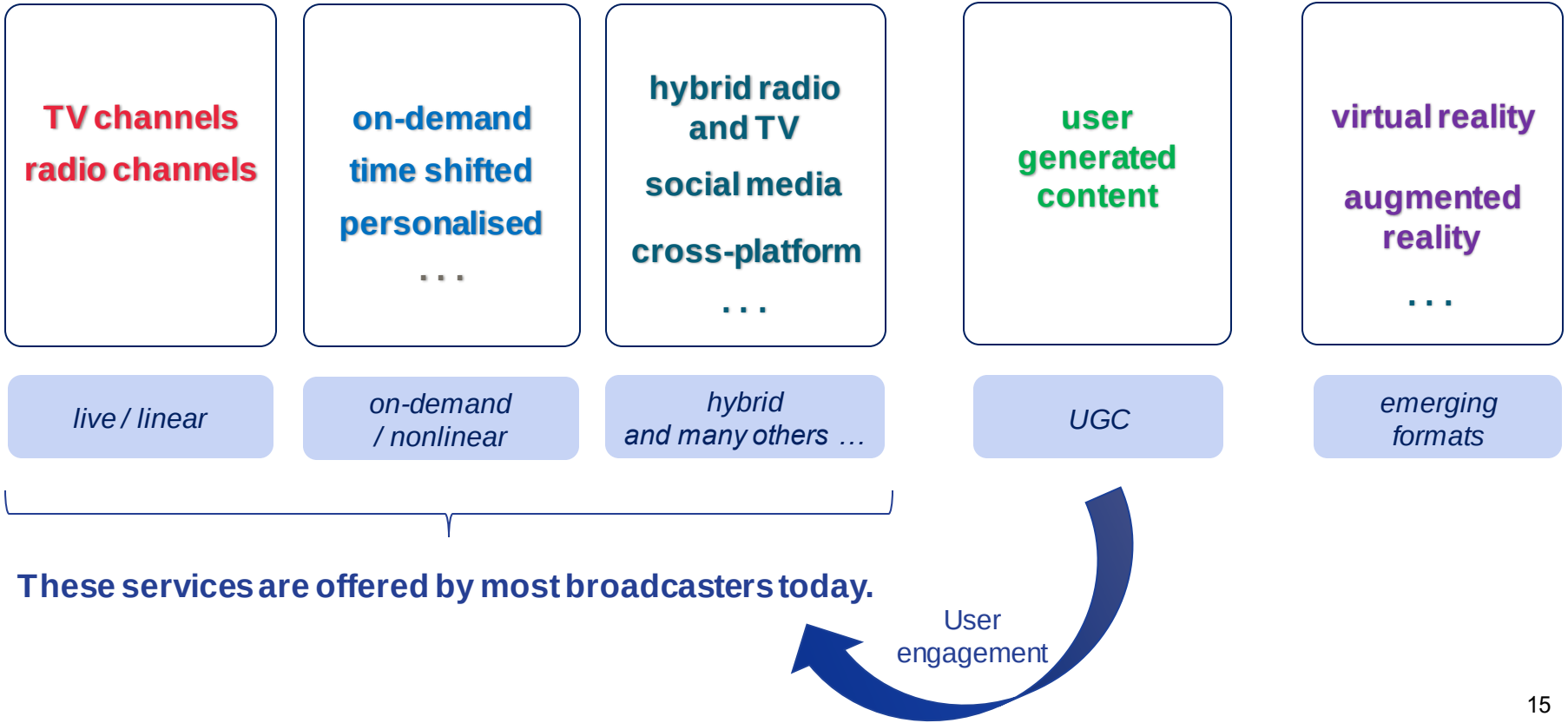
Available for download from
https://tech.ebu.ch/publications/tr056

LEARNINGS, SO FAR, ABOUT 5G FOR CONTENT PRODUCTION

- 5G is a promising technology that could fit in the IP-based production workflows.
- If left to the telcos, 5G will not be able to meet the complex production requirements.
  - The media community needs to stay engaged to influence the standards and the regulation
- Public networks are not well-suited for the demanding production use cases
  - They might be adequate for some newsgathering, radio contribution, single source video use cases
- Non-public (private) 5G networks will be needed in addition for public networks
  - These networks require new business models, a stable regulatory environment, access to spectrum
  - Similarities between content production and other sectors (industrial automation, medical, …)
- 5G-based solutions will coexist with conventional wireless production tools (PMSE) for many years
  - This also means that radio spectrum for PMSE needs to be preserved in the long term

5G FOR THE CONTENT DISTRIBUTION

WHAT SERVICE?



TO WHAT DEVICE?

WHERE IS THE USER?

THE DISTRIBUTION CHALLENGE

The challenge: *Deliver the full range of content and services to all users - 'any time, any where, on any device' - in a technically and commercially viable way.*

INSIGHT

No single technology or platform can serve all use cases.

- broadcasters use multiple distribution means
  - terrestrial, satellite, cable, IPTV, OTT (over fixed and mobile networks)
- which extends their reach but also increases complexity and distribution costs.

Can 5G help?

WHAT ROLE COULD 5G PLAY IN CONTENT DISTRIBUTION?

Technically, 5G has the potential to bring many benefits

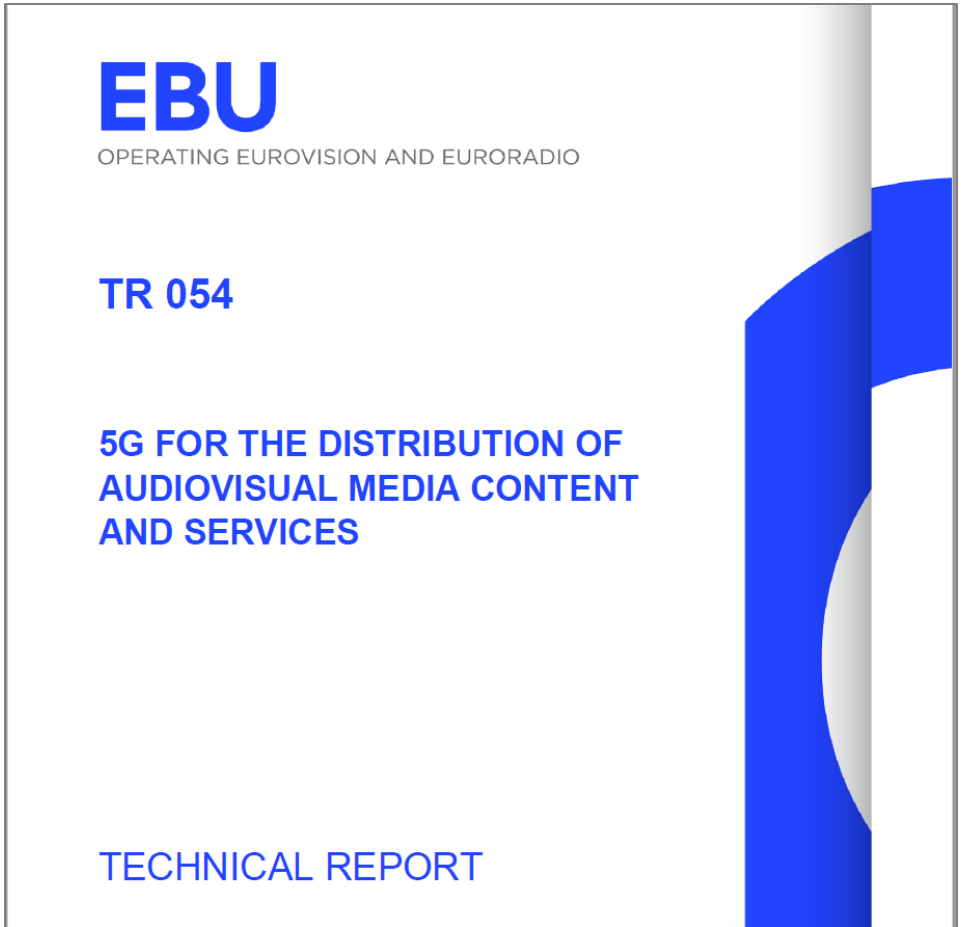
- Enable new services
- Extend the reach
- Reduce the complexity
- Increase the flexibility
- Reduce the distribution costs

INSIGHT

Many technical, operational, commercial and regulatory issues need to be addressed for these benefits to be realised:

- coverage and capacity of 5G networks
- equipment availability and user adoption
- regulatory framework
- suitable business models, compliant with media regulation
- affordability for the broadcasters and the users
- . . .

EBU TECHNICAL REPORT 054



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CONCLUSIONS

CONCLUSIONS

- 5G may provide opportunities to the audiovisual media sector.
  - These opportunities can only be realised under the right conditions (technical, commercial,…)
- 5G could play a role in content production and in the distribution.
- 5G will need to meet broadcasters' service requirements
  - The 'mainstream 5G' is centred on telcos' business models; of limited value to media companies
  - There is a possibility to influence the technical and regulatory developments
  - Stakeholders in the media sector need to continue to engage with the telecom industry, the regulators and policy makers.
- For best-effort audio streaming the user experience on 5G will be similar to 4G.
  - 4G networks already have large coverage and sufficient capacity.
  - Technically, 5G can provide guaranteed QoS, provided that viable business models are found.
- 5G will be a complement to the existing technologies in the media sector.
  - 5G will coexist with the conventional broadcast networks and PMSE for a long time
  - Spectrum for terrestrial and satellite broadcast networks, and PMSE needs to be retained
- These are still early days.
  - 5G networks and services will be rolled out in the coming decade and beyond


Thank you
for your attention!
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