

5G Huddle 2016
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5G

and

Audiovisual media services

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Technology & Innovation

EBU

OPERATING EUROVISION AND EURORADIO

European Broadcasting Union

Professional association of **public service media**

73 Members in 56 countries (Europe, North Africa, and Middle East)

- 780 TV services provided by EBU Members
- 1040 radio services
- broadcasting in 123 languages
- audience reach: > 1 billion people

34 Associates in Africa, the Americas, and Asia

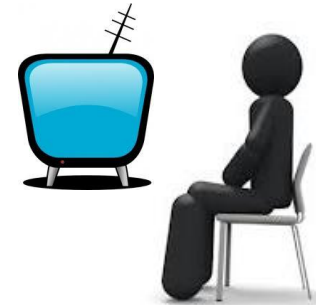
The EBU operates Eurovision and Euroradio.



I will speak about

- Audiovisual media services
- Operational and connectivity requirements in the AV media sector
- Possible role of 5G in the AV sector
- Why technical performance will not be sufficient
- How 5G could create opportunities for the European creative industries

Audiovisual media services



Provision of the curated audiovisual media content to the public

- With a purpose to inform, educate, and entertain
- Editorial responsibility of the service provider
- Subject to regulation (AV content regulation, telecom regulation, law on public service media, copyright law, consumer protection, e-commerce, net neutrality, privacy and data protection, ...)

Examples of AV services:

- radio and TV channels
- video on demand
- podcast

Video content but not *AV services*:

- user generated content
- computer games
- teleconference
- video surveillance

Operational requirements in the AV media sector



Content production

- networked production
- IP and cloud-based
- agile workflows
- content repurposing



Key requirements

- very high throughput
- very high reliability
- time accuracy
- flexibility
- interoperability
- security
- cost - efficiency

Distribution

- any service
- any device
- any time
- any place



Key requirements

- ubiquitous reach
- sustained QoS
- scalability
- flexibility
- interoperability
- security
- cost - efficiency

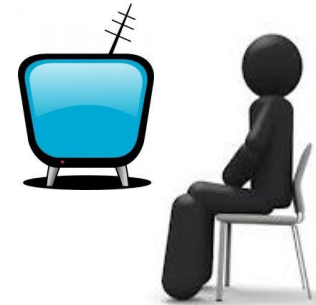
Reception

- choice
- quality
- convenience
- costs



Key requirements

- range of user behaviours
- range of user devices
- mass-audience and many niches
- personalised services
- tools for search and selection
- free-to-air and conditional access
- seamless service following



Connectivity requirements (illustrative examples)

Content production

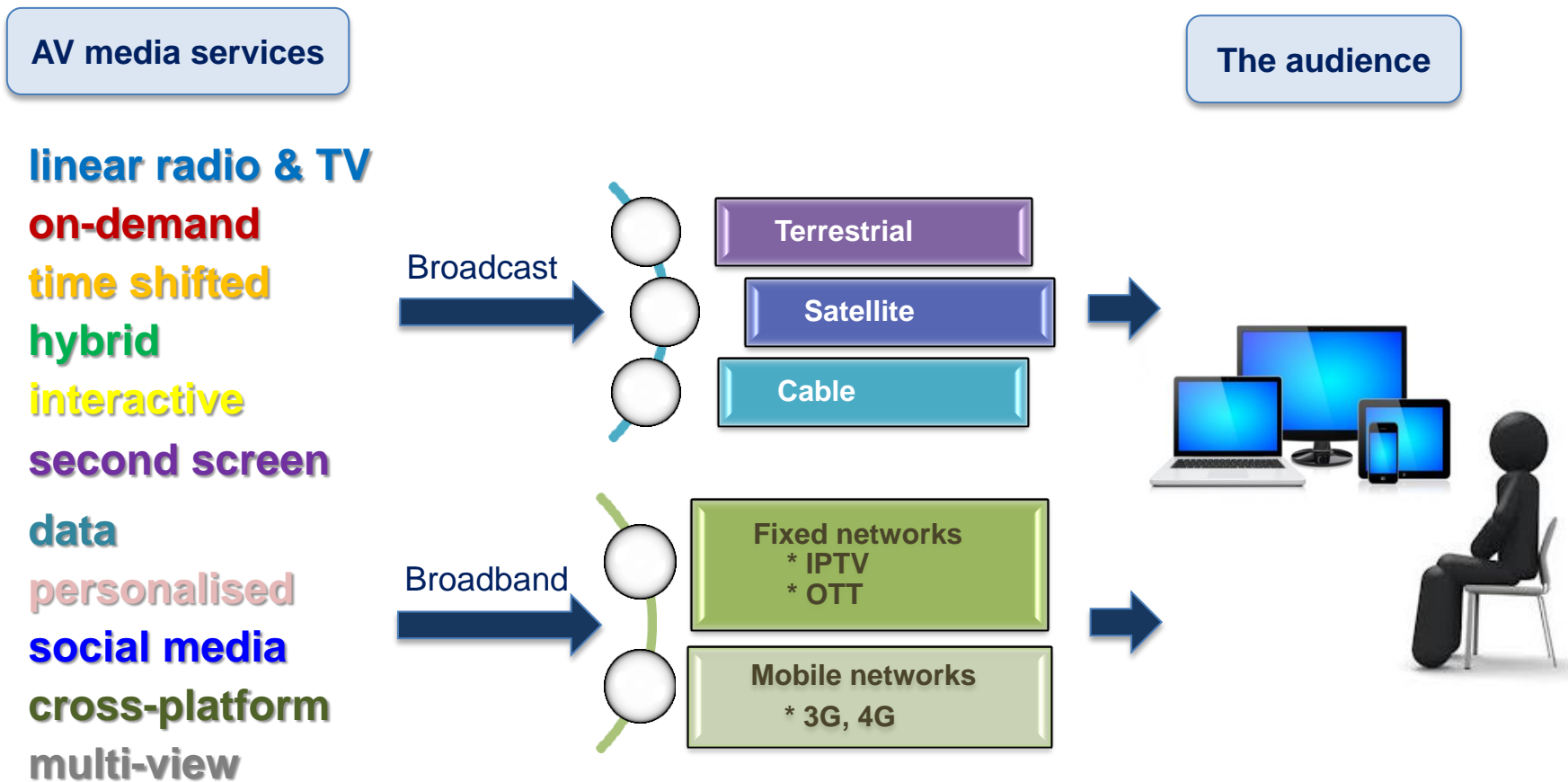
- Throughput - HDTV uncompressed signal 1.5 Gbit/s
- UHDTV (4k) uncompressed signal 6-7 Gbit/s
- Latency - production chain 30-200 ms
- microphone (in live performances) 3-4 ms
- Time synchronisation accuracy - video 10 μ s precision
- audio 1 μ s precision
- Deterministic network behaviour
- Very high reliability

Distribution

- Reach ~100 % of the pop; any device
- Throughput - HDTV : 4-8 Mbit/s
- UHDTV (4k) : 15-30 Mbit/s
- Bit error rate (quasi error free) for linear TV 10^{-11}
- Sustained QoS for all users,
- independent on their number, location, device, or duration of viewing session
- High network reliability 99.8 % of the time

Distribution of AV media services

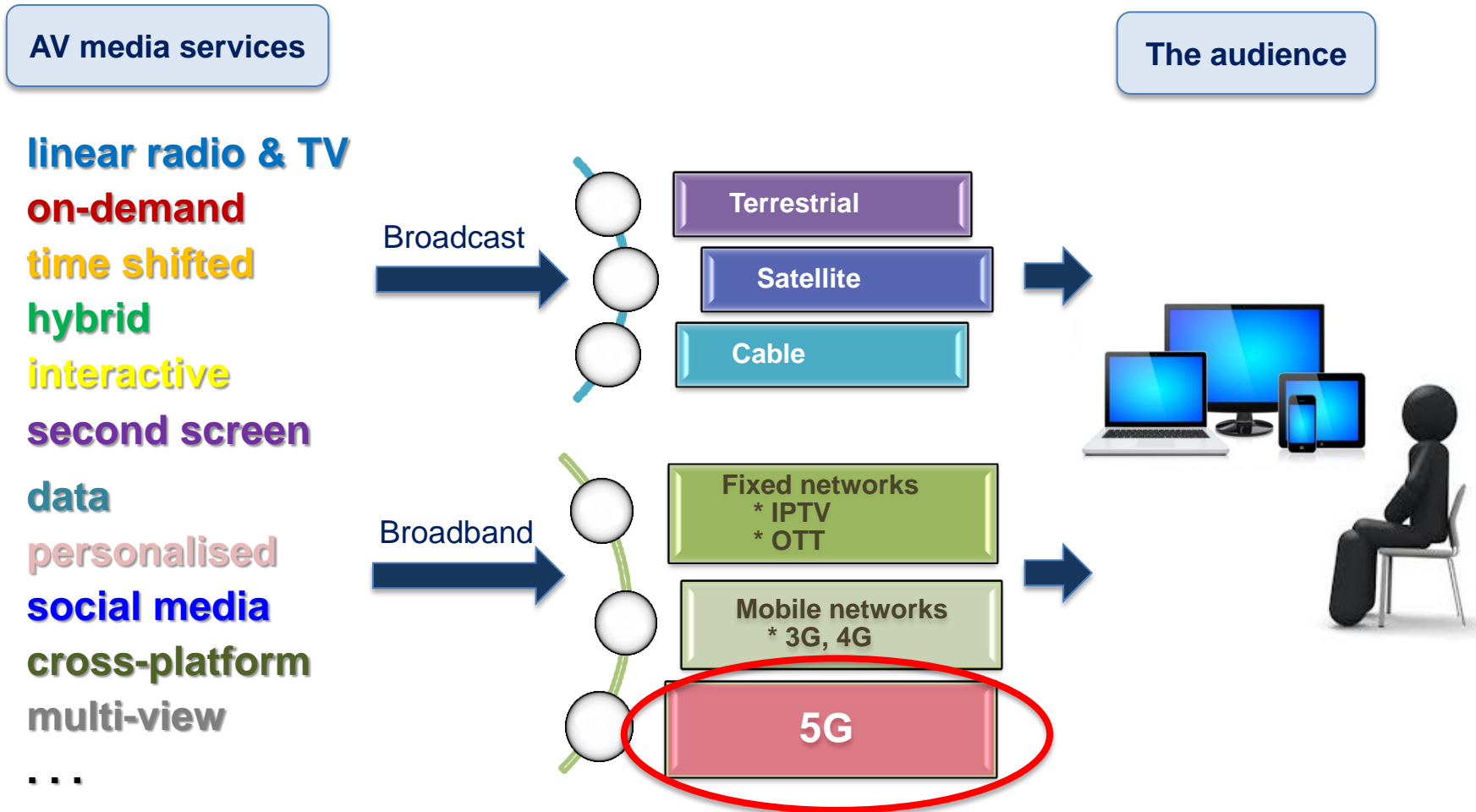
The currently available distribution options



What role will 5G play in distribution of audiovisual media services?

What role will 5G play in distribution of AV media services?

Scenario 1: Additional distribution option



What role will 5G play in distribution of AV media services?

Scenario 2: Unified telecom and IT infrastructure (5G-PPP vision)

AV media services

The audience

linear radio & TV

on-demand

time shifted

hybrid

interactive

second screen

data

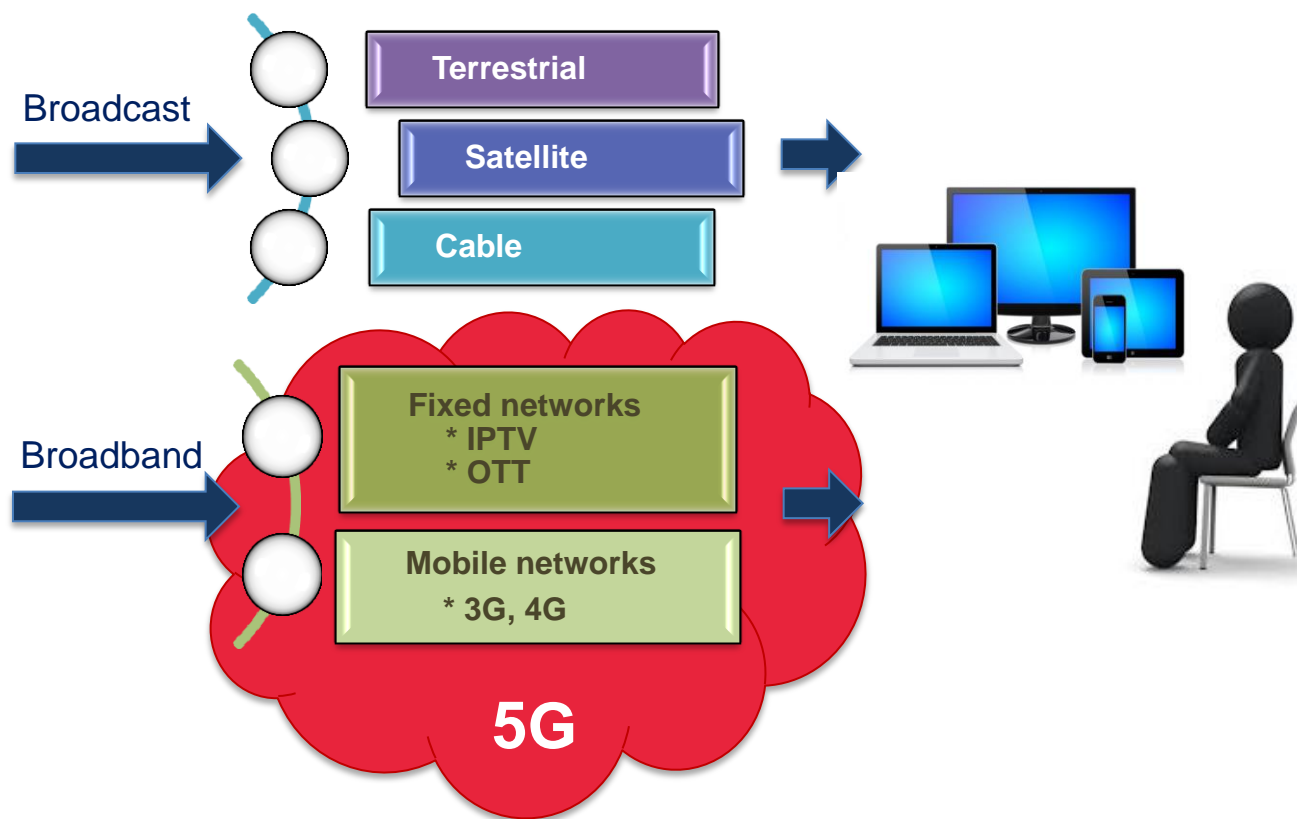
personalised

social media

cross-platform

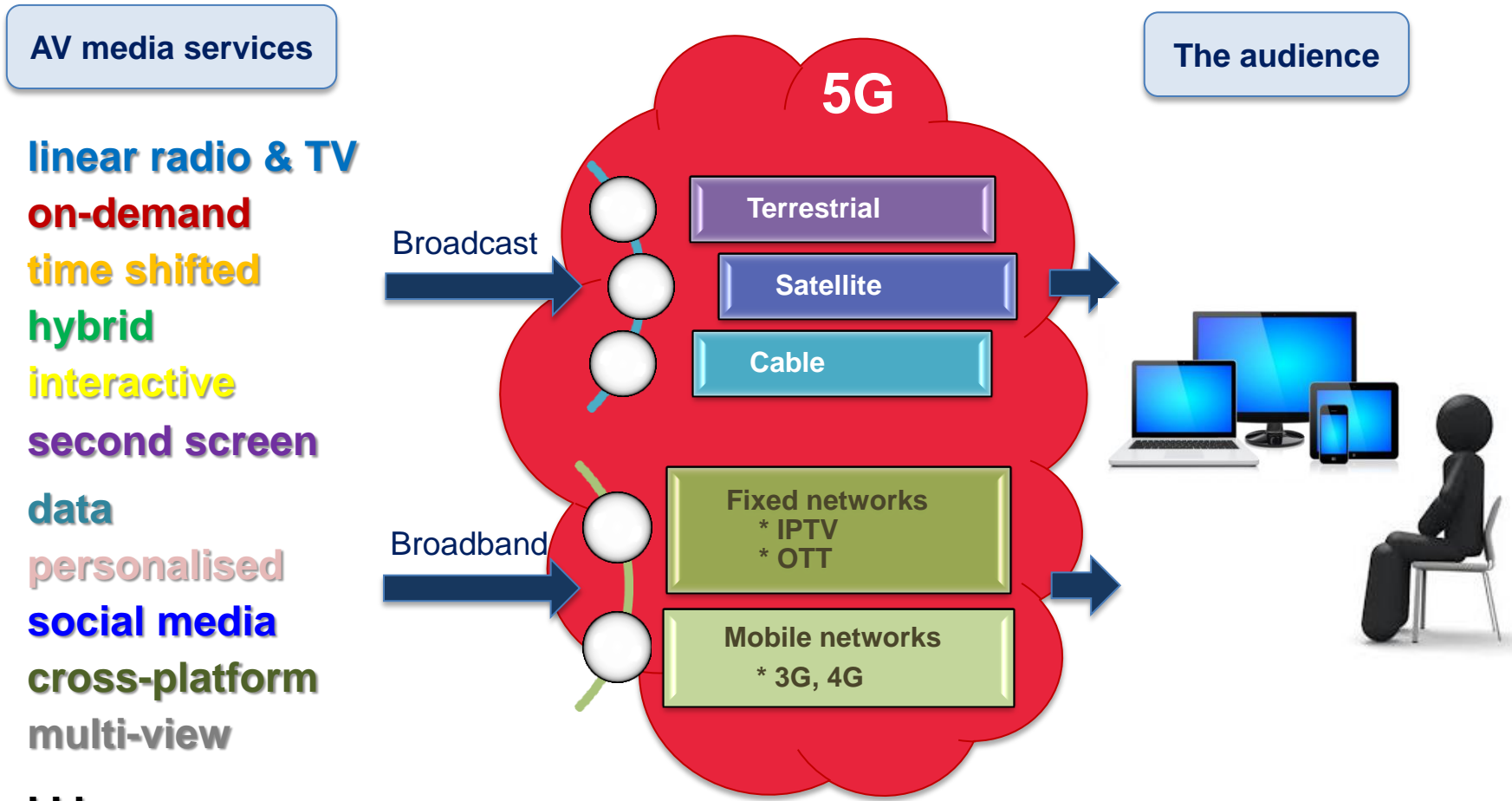
multi-view

...



What role will 5G play in distribution of AV media services?

Scenario 3: Unified distribution infrastructure



What role will 5G play in distribution of AV media services?

Scenario 4: The only infrastructure

AV media services

The audience

linear radio & TV

on-demand

time shifted

hybrid

interactive

second screen

data

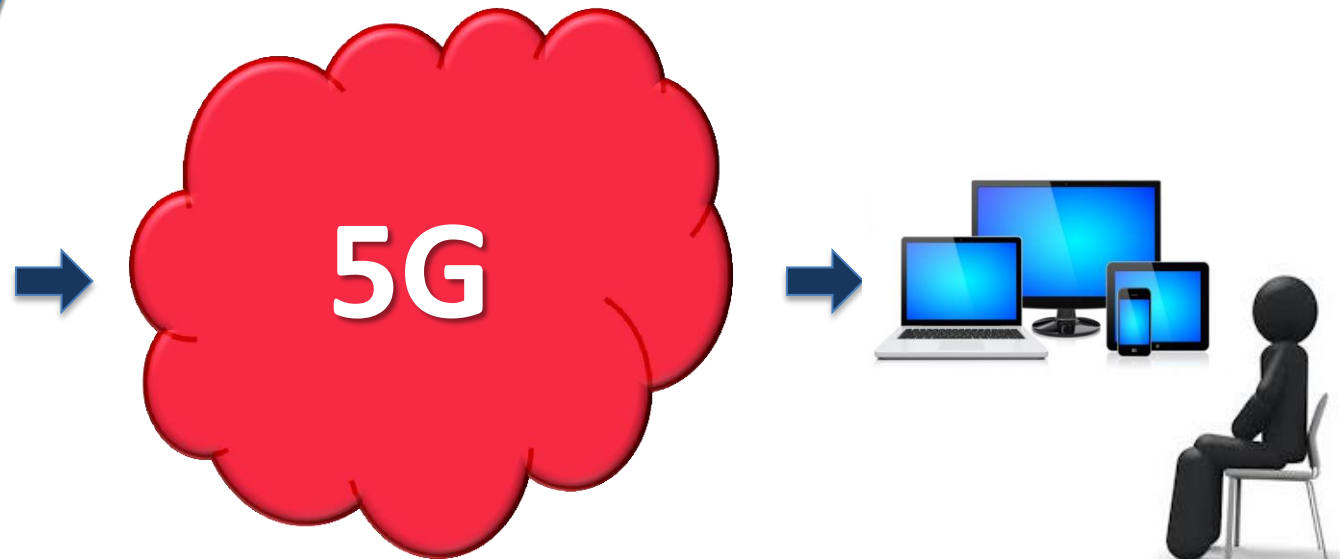
personalised

social media

cross-platform

multi-view

...



Final thoughts

(1)

The role of 5G needs to be considered within the context of the AV media sector

- 5G will coexist with other infrastructure which continues to evolve
- What should be the role of 5G in the context of AV media sector?
 - new distribution technology for AV content and services
 - unified telecom and IT infrastructure (e.g. better broadband)
 - unified AV distribution infrastructure
 - principal infrastructure for the production and the distribution of AV content and services
 - ... ?

Technical performance alone will not be sufficient

- Better quality of experience increases user engagement
- Innovative approaches could bring substantial synergies
 - Integration of 5G and the existing infrastructure both broadband and broadcast
 - Service requirements to guide technical developments
 - *'agree on technology, compete on services'*
- Incentives for stakeholders in the audiovisual value chain need to be aligned
 - Market-related issues will need to be addressed (e.g. gatekeeping)
 - Regulatory issues will need to be addressed
- Cost-efficiency will be the key

Final thoughts

(2)

5G will succeed if it brings new opportunities for the European audiovisual sector and other creative industries

- Sustainable solutions need to be found that will meet future needs of both AV media content providers and their audiences.
- Leverage on European diversity and excellence in both content and technology
- This requires collaboration between creative sectors and telecom industry
- The efforts should be consistent with audiovisual policies (and other policies)
- AV media services could be a driver of 5G adoption
- Virtuous circle between content creation, technology, and business development

Further information: draft White Paper '*Audiovisual media services and 5G*'

<https://tech.ebu.ch/docs/public/5G-White-Paper-on-Audiovisual-media-services.pdf>

Thank you
for listening!

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