Preliminary findings from the 5G-RECORDS project

Business and regulatory aspects of 5G in content production

5G-MAG Working Group Content Production - Commercial, 24 November 2021

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https://www.5g-records.eu/Deliverables/5G-RECORDS_D2.2_v0.1_web.pdf

5G key technology enableRs for Emerging media COntent pRoDuction services

Deliverable D2.2

Regulatory framework and business models for 5G content production

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5G-Records ecosystem

Two separate, well-established, but different industries:

Media production

- Broadcasters and other content producers
- Broadcast equipment manufacturers
- Specialized (private) network providers

- *Many different use cases*
- *Demanding technical requirements*
- *Uses a range of technologies and dedicated equipment*
- *Experienced in self-provisioning of connectivity solutions*
- *Looking at 5G as a candidate technology to support IP, cloud-based, and remote production workflows*
- *Expect high quality, lower costs, more flexibility*

Telecommunications

- Public network operators
- Telecom equipment manufacturers

- *Focus on high-volume consumer broadband applications*
- *Global standards, economies of scale*
- *Limited experience with tailored solutions for the verticals*
- *Looking to leverage their investments in 5G*

New actors

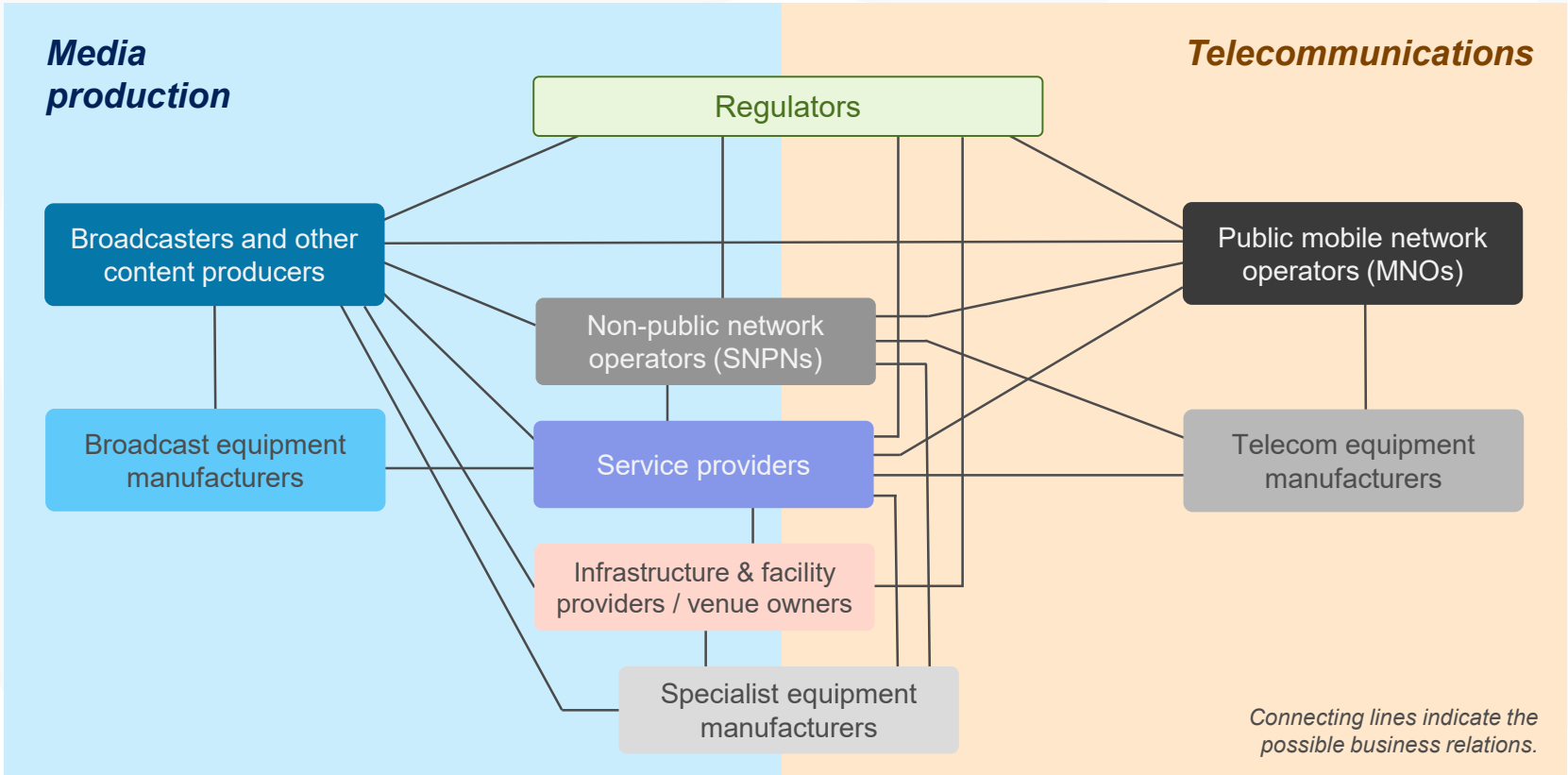
- Specialist equipment / software providers
- Infrastructure & facilities providers / venue owners

Regulators

Insight:

- The 5G-based production ecosystem is complex. The roles can be distributed among actors in different ways.
- Different stakeholders have different business practices, regulatory conditions, objectives, and priorities.

5G-Records ecosystem



Business validation framework

Business validation framework

'The main goal of business validation is to assess whether a certain system design is appropriate for the intended use and whether it meets the business requirements within the given constraints.'

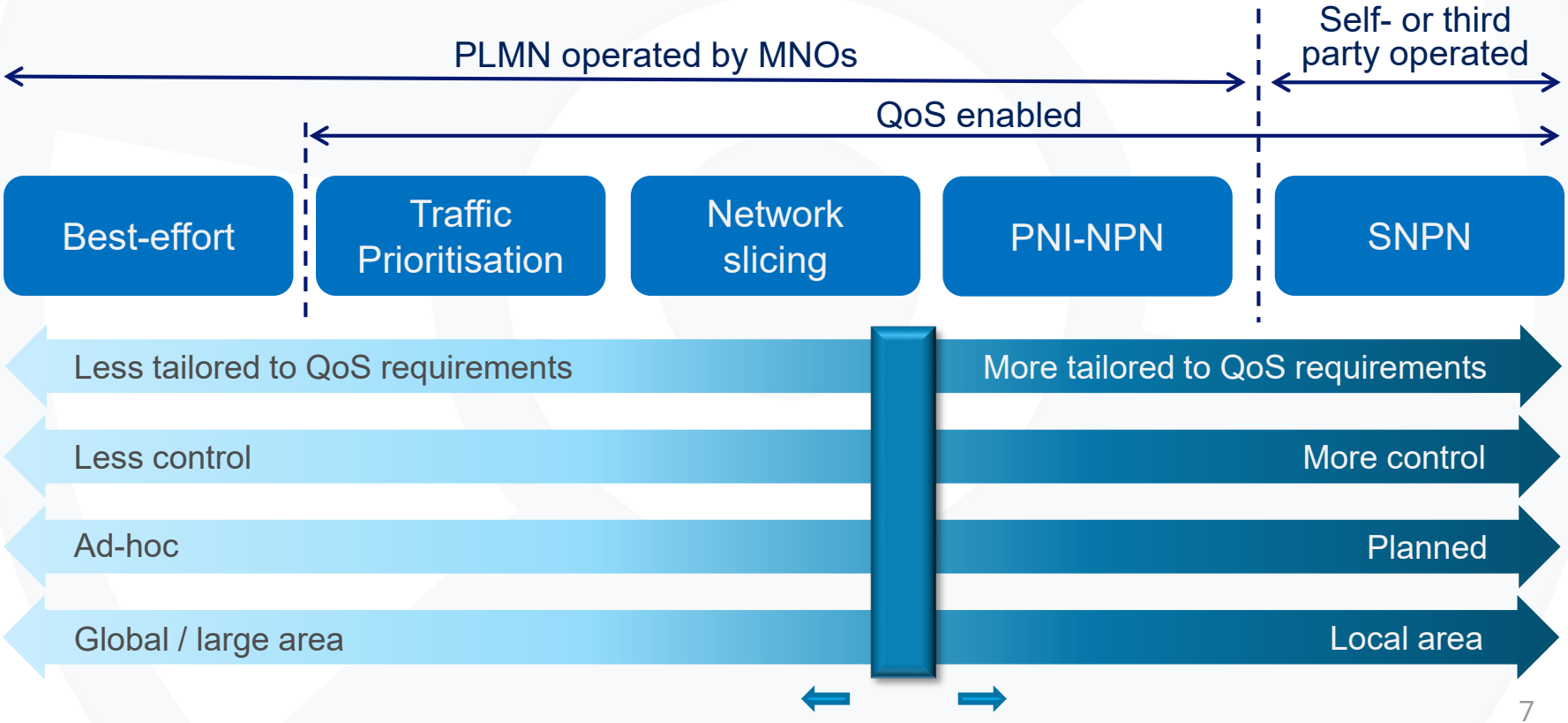
Need to assess different 5G network configurations rather than specific system features or components.

Public networks
- Best effort
- QoS-enabled networks
  - Network slicing

Non-public networks
- PNI-NPNs
- SNPNs

Insight:
- Every production scenario is slightly different and may have different requirements.
- For content producers both PLMNs and NPNs are relevant, depending on a use case.
- Different network configurations are designed and used for different purposes
- No single solution can support all production use cases.

Content producers' perspective on different network configurations

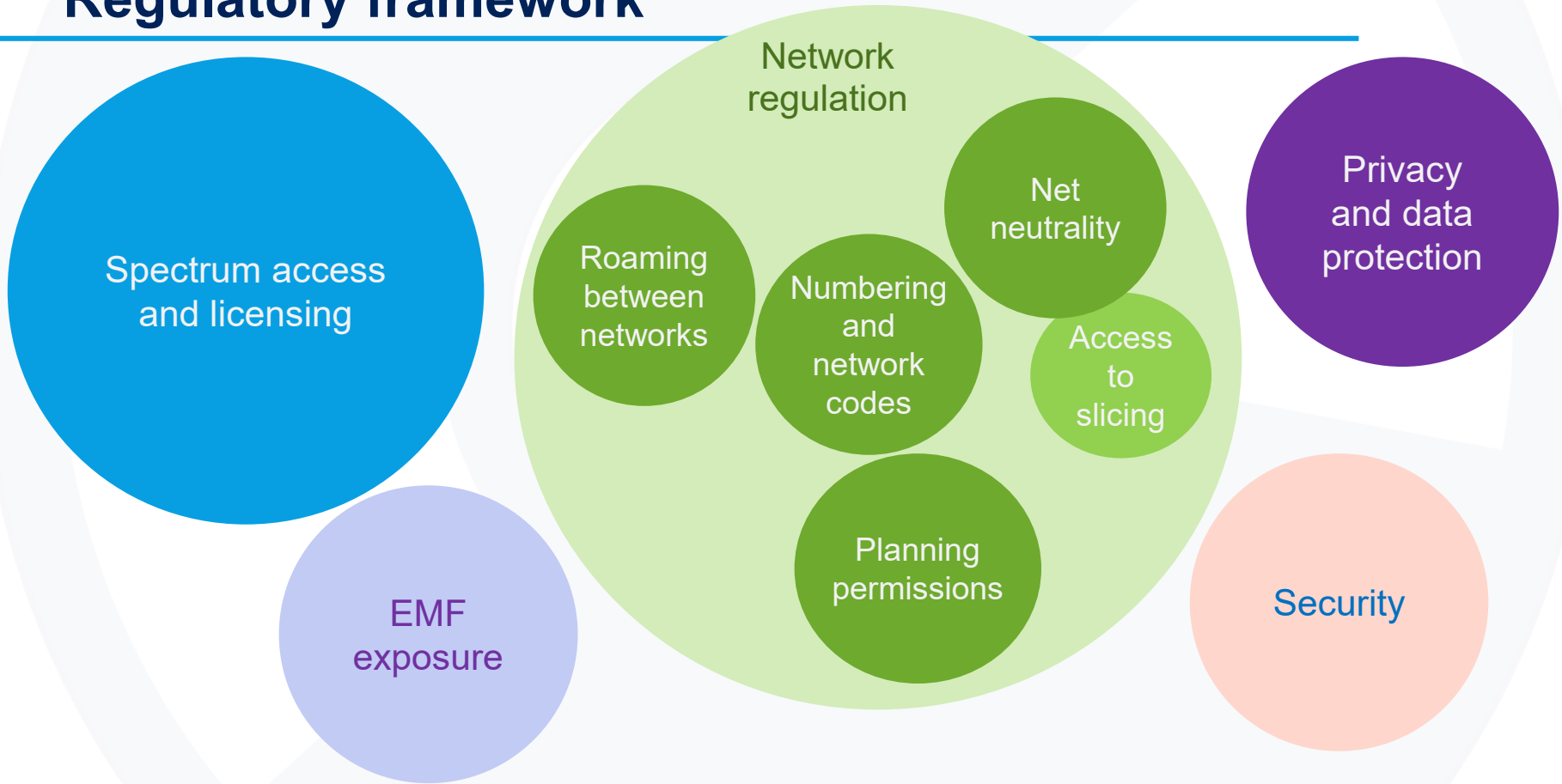


Key findings on business validation framework

1 - As a technology, 5G can be deployed in different ways and may support different production use cases.	➢ There are many different types of productions with different technical and operational requirements.
2 - Both 5G PLMNs and NPNs are important in content production. Different network configurations are designed and used for different purposes	➢ No single solution can support all production use cases.
3 - Interoperability between 5G and other technologies such as cloud and MEC is of the essence.	➢ 5G alone cannot support the entire production workflow.
4 - Some 5G functionalities are already commercially available while others are not (e.g. network slicing).	➢ There is no clear roadmap for the rollout of new functionalities in PLMNs or their commercial availability in the equipment used in SNPNs.
5 - The attractiveness of a particular solution to different actors in the ecosystem depends on their respective priorities and business objectives.	➢ MNOs and telecom equipment vendors may not have incentives to invest in those features that do not support their high-volume consumer broadband businesses.
6 - Business models for 5G-based content production are needed where incentives can be aligned across the ecosystem.	➢ The ecosystem is not yet sufficiently mature and there are no widely adopted business models. The available market data is insufficient for a quantitative business analysis.
7 - Benefits for content producers may come from cost savings and the ability to produce a wider range of content	➢ The scope and size of these benefits will become evident over time as the availability of 5G increases, the network capabilities improve, and business models are developed

Regulatory framework

Regulatory framework



Key findings on spectrum regulation

1 - 5G-Records is focused on spectrum regulation and licensing for SNPNs.
- Spectrum regulation and licensing for PLMNs is well established and outside the scope of the project.

2 - A number of issues need to be considered when allocating a frequency band for SNPNs:
- Physical characteristics of the band and its suitability for a particular application
- Availability of 5G hardware in the band
- Existing constraints in the band (e.g. FDD or TDD arrangements, a pre-defined UL/LDL ratio)
- Availability of the band for PMSE, including for temporary and nomadic NPNs
- Long-term viability of the band for PMSE applications and security of tenure to allow investments in 5G-based production technologies and the development of an ecosystem

3 - There are currently several different regulatory approaches for SNPNs.
A certain degree of harmonisation would be beneficial across wider regions such as CEPT:
- Harmonisation of frequency bands or tuning ranges for 5G-based PMSE applications
- Harmonisation of licensing regimes for SNPNs in different frequency bands and different countries

4 - Novel regulatory approaches such as secondary licensing and dynamic spectrum access would help to ensure access to sufficient spectrum capacity for 5G NPNs
- Regulation needs to encourage future innovation in 5G NPNs
- Spectrum needs to be of sufficient quality and coordinated for local access with other users

Thank you!

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