Enabling Environment for 5G

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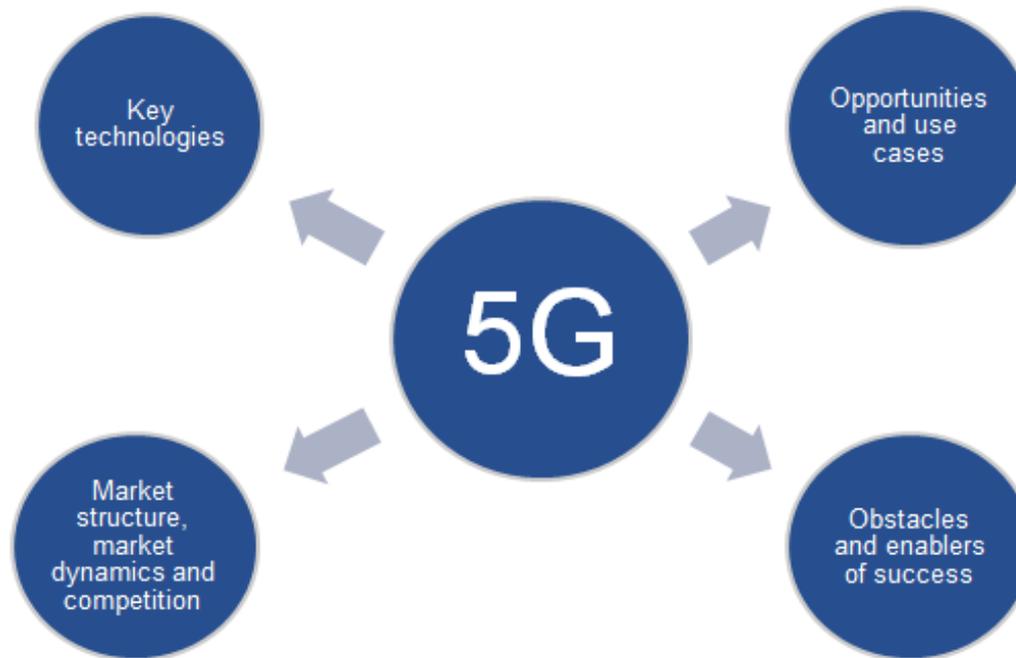
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- Kick off work and 5G Study
- BEREC work programme 2018 and 5G
- Common Position on monitoring mobile coverage
- Report on infrastructure sharing

5G Study

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- Study by DotEcon Ltd and Axon Partners Group on **implications of 5G deployments** and **future business models**.

- In the short and medium term development **rather evolutionary** and not revolutionary (mixed connectivity environment)

- **Enhanced Mobile Broadband** is likely to be the main driver of 5G deployment

- The realisation of 5G use cases will **be a step-by-step process** and many potential uses are currently at very early stages of development

- In the longer run **new services enabled by 5G** (wide variety of **different niche applications** but no killer application and **verticals** with specialist requirements, pricing models are a challenge)

- **Private deployments of 5G** within spaces such as factories or warehouses. Should be procompetitive and help to drive coverage.

- Access to **small cell** sites**, availability of backhaul** and **infrastructure sharing** are important **obstacles** and **enablers**

- Challenges arise from **small cells** (exclusive site access, public owned sites, infrastructure sharing)

- **Access to spectrum** (spectrum for public networks, access to spectrum for private 5G networks indoor, non-traditional entry)

- **Coverage issues** (mixed connectivity environment, coverage obligations in the context of differentiated services)

- **Competitive issues** (non-traditional market entry, complementarity between fixed and mobile, infrastructure sharing and upstream concentration, backhaul, net neutrality)

- **Infrastructure sharing** (cost savings vs competitive issues)

- **Available on BEREC's website**
  - https://berec.europa.eu/eng/document_register/subject_matter/berec/reports/8008-study-on-implications-of-5g-deployment-on-future-business-models

- **Disclaimer:**
  - The content of this report does not reflect the official opinion of BEREC

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BEREC work programme and 5G

Fundamentals for 2018

- BEREC Mean-term strategy: A strong basis for the 2018 WP

- Focus area 2018: Proactively tackling the 5G challenges

- Harmonisation: promoting the single market

- Enhanced engagement with stakeholders

BEREC Mean-Term Strategy 2018-2020

3 overarching objectives

Promoting competition and investment	Empowering and protecting end-users	Promoting the single market

- Responding to connectivity challenges and to new conditions for access to high-capacity networks
- Monitoring potential bottlenecks in the distribution of digital services
- Enabling 5G and promoting innovation in network technologies

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WP

- Fostering a consistent approach of the net neutrality principles
- Exploring new ways to boost consumer empowerment
- BEREC Obligatory Work and Stakeholders Engagement

BEREC FACILITATES A FAST AND SMOOTH DEPLOYMENT OF 5G IN EUROPE

PREPARE
the 5G landscape

5G is based on small cells, meaning more base stations are needed for it to work properly. To help minimise the cost and boost the speed of 5G deployment, BEREC will gather best practices in infrastructure sharing across Europe. It will publish a **Report on Infrastructure Sharing** and adopt a **Common Position**.

SOW
the seeds of 5G in Europe

For 5G deployment, spectrum needs to be assigned. Member States may have different spectrum available and use different ways to assign it. To help each country to pick the most suitable procedure for its market, BEREC will publish a **Report on Spectrum Authorisation and Award Procedures**.

HELP
the crop of 5G grow

Citizens and companies should benefit from reliable 5G services. Coverage obligations can help to ensure the wide availability of 5G, especially in challenge areas like rural regions, indoors or along transportation networks. A **Best Practices Report on Coverage Obligations** by BEREC will help Europe to foster a fertile 5G deployment.

MONITOR
the development of 5G

There are clear benefits to achieving a common understanding of how to monitor mobile coverage. A BEREC **Common Position on Monitoring Mobile Coverage** will facilitate a mutual understanding and foster a consistent approach on how this information can be made available and understandable throughout Europe.

HARVEST
the bountiful 5G crop

With its work, BEREC will help to prepare a fertile landscape for 5G deployment. The next step is for citizens and operators to harvest the 5G crop, maximising the potential that 5G has to offer. Completely new business models, high speed internet everywhere and smart homes are just the beginning.

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Tackling the 5G challenges

BEREC proactively tackles upcoming challenges and supports the consistent deployment of 5G in Europe

A variety of projects addresses 5G hot topics

- Coverage obligations

- Award and authorisation procedures

- Infrastructure sharing

- Net neutrality input to an evaluation

Close cooperation with relevant institutions

Common Position on monitoring mobile coverage

CP 1: Technical specifications for monitoring mobile coverage in Europe
- Criteria for information about mobile coverage:
  – Strength of the signal received
  – Minimum probability of successful service reception
- applying an appropriate threshold to the available mobile signal power

CP2: The use of signal predictions for mobile coverage estimation
- *"NRAs should base their coverage estimation on coverage calculations/predictions whenever it is not economically or technically possible to carry out field measurements of the whole country. "*
- An NRA may elect to:
  – generate coverage prediction and publish information themselves
  – obtain the results of predictions from the operators and publish information themselves
  – use a third party to generate the coverage predictions an publish information

CP3: Ensuring the accuracy of coverage information provided to the public

- *"NRA should verify the reliability of mobile coverage information using, where appropriate, field measurements, noting that for technical and resourcing reasons it may not be possible to make widespread measurements."*

CP4: Availability and presentation of mobile coverage information

- *"NRAs should strive to provide easy-to-access accurate mobile coverage information to the widest possible range of consumers."*

- useful for end-users to be able to compare coverage and services provided by their operators

- Goal: maximise access, especially via website, apps, open data

- **Objective:** get stakeholders' view especially on CP1 and common thresholds

- **Questions**
  - Should BEREC define common thresholds?
  - What thresholds would you consider appropriate?
  - What would be the rationale for such thresholds?

- **Public consultation**: till 19th July

- https://consultations.berec.europa.eu/en/berec

Infrastructure Sharing

- Current regulations and legal framework
  - Public information on sharing opportunities
  - Notification of sharing agreements to NRAs
  - Obligations to share
  - Dispute resolution
  - Public guidance on sharing
- Current sharing arrangements
  - Types of sharing (passive, active, roaming, others)
  - Assessment of sharing agreements (remedies and concerns)
- Benefits of infrastructure sharing arrangements
  - Competition where two networks cannot be deployed
  - Cost reduction (CAPEX and OPEX)
  - Introduction of a new player
  - Acceleration on network deployment
  - Decrease in retail prices

- Challenges of and barriers to infrastructure sharing arrangements
  - Insufficient space on existing masts
  - Landlord pricing
  - Electromagnetic field emissions
  - Coordination effort between sharing partners and extended period for planning and decision-making
  - Technical issues (when different equipment suppliers)
  - Decreased level of competition between sharing partners
  - Technology evolutions more difficult
  - Competition issues (also between partners)
- Future evolution of sharing arrangements and 5G
  - More sharing for 5G deployment (denser network, fibre backhaul)
  - New sharing partners (e.g. municipalities, verticals)
  - Sharing is already possible in most countries
  - Need to ensure that sharing agreements do not impede 5G deployment

BEREC's focus in 2018: 5G

- **Contact for Press and Media**
  - press(at)berec.europa.eu

- **Social networks**
  - Official Twitter account
  - Official LinkedIn corporate page
  - Official YouTube account
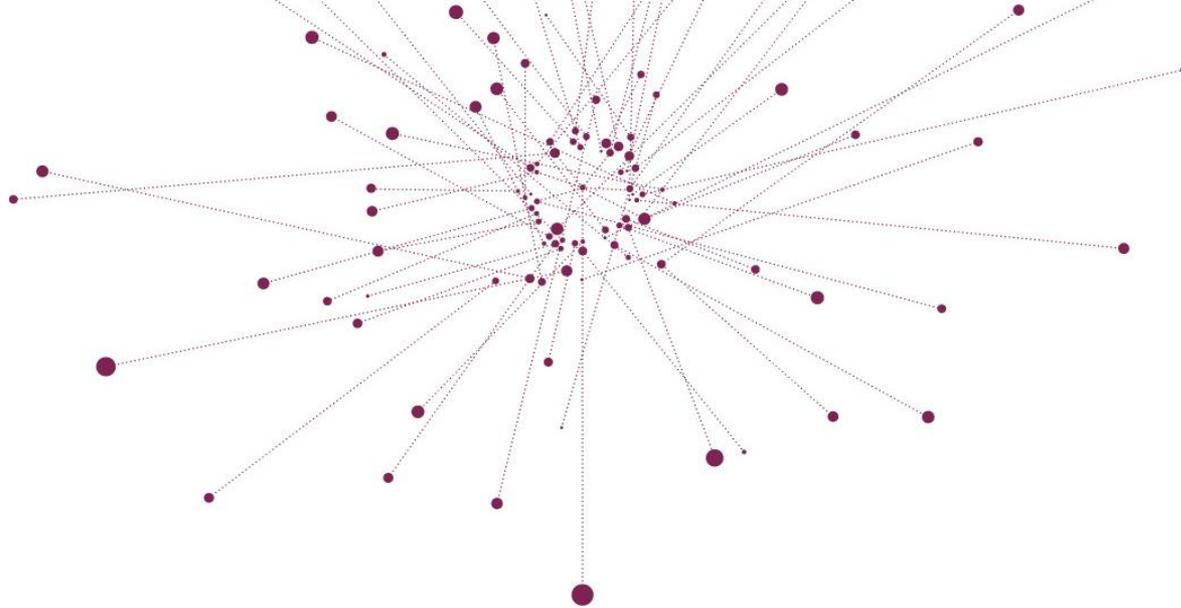
- **Information Sharing Portal**
  - https://isportal.berec.europa.eu/

Thank you!

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