Regulatory aspects of 5G

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Contents

- Digitalisation
- Digitalisation Enablers
- Digital Single Market
- Telecom Regulatory Framework Review
- 5G Action Plan
- 700MHz decision
- Key Take-Away
Digitalisation

- Billions of people and devices connected to powerful broadband networks.
- Imagine the opportunities unlocked by the interaction between technological innovation and access to superfast broadband.
- Imagine the fresh opportunities this means for individuals as well as for organisations.
- The positive impacts on society and economy.

<table>
<thead>
<tr>
<th>Use-cases (example)</th>
<th>Approximated EU Market size in €2020Bn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-driving vehicle - Car sharing - Smart parking</td>
<td>8</td>
</tr>
<tr>
<td>Intelligent tolling systems - Remote building management</td>
<td>45</td>
</tr>
<tr>
<td>Virtual product design - Fully automated manufacturing</td>
<td>50</td>
</tr>
<tr>
<td>Lighting control - Media-sharing and control</td>
<td>20</td>
</tr>
<tr>
<td>Vital-signs monitoring - Chronic-disease management</td>
<td>5</td>
</tr>
<tr>
<td>Identity recognition - Environment surveillance</td>
<td>5</td>
</tr>
<tr>
<td>Smart vending - Connected warehouses</td>
<td>15</td>
</tr>
<tr>
<td>Asset controlling - Traffic and passenger management</td>
<td>30</td>
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Overall value of IoT €330BN
The role of Telecom Networks and Services

- Telecom networks will be the backbone of the new digital Union.
- Super-fast and ubiquitous networks access is a pre-requisite to all the innovative applications, products and services described.
- Innovative telecommunications services can bring a strategic and unique contribution to the revolution of ubiquitous communications.
Digitalisation Enablers

5 core technological domains support the vision for digitisation
– cloud computing,
– data analytics,
– IoT,
– cybersecurity and
– 5G

These will help enable the digitisation in many areas such as automotive, energy, health, factories of the future, as well as media and entertainment.
5G – the key enabler for the digitalisation

5G will bring us a leap forward to an in-depth digital transformation of the economy

- **New breed of communication networks**

- versatile network platforms ≠ "one-size-fits-all" networks.

- coherent approach to specialised services

- future services provided by the "vertical" industries are not yet fully identified yet.
Initiatives by industry players - Standards

Standards are crucial for 5G success.

Standards are needed in two respects:

• on 5G network and radio “air interfaces”

• to support the specific needs of industry verticals
ETSI mWT ISG aims to be a worldwide initiative with global reach to facilitate the use of:

- the V-band (57-66GHz)
- the E-band (71-76 & 81-86GHz)
- and higher frequency bands up to 300 GHz
- for large volume applications in the backhaul/fronthaul to support mobile network implementation, WLL and any other service benefitting from high-speed wireless transmission
5G in a Digital Single Market

5G is in a Digital Single Market
- Spectrum: Sufficient spectrum - licensed in time and at reasonable prices
- Aligned roadmaps and deployment priorities across EU Member States

Investments at the center of 5G Policy Framework
- Such investments and collaborations can only thrive if the right regulatory environment is created.
- Improved regulatory certainty
- Local regulation to facilitate the construction of denser networks
Digital Single Market

DSM is one in which the free movement of persons, services and capital is ensured and where the individuals and businesses can seamlessly access and exercise online activities under conditions of fair competition, and a high level of consumer and personal data protection, irrespective of their nationality or place of residence.

The Digital Single Market Strategy (May 2015) consists of:

• Better access for consumers and businesses to online goods and services across Europe
• Creating the right conditions for digital networks and services to flourish
• Maximising the growth potential of our European Digital Economy

Legislative proposals to reform the current telecoms rules
2020 Digital Agenda broadband targets

• Basic broadband for all citizens by 2013:
  target met - satellite broadband is available to raise the coverage to 100% in every Member State.

• Coverage: Next Generation Networks (NGN), 30 Mbps or more for all by 2020;

• Uptake: 50% of households having 100 Mbps subscriptions or higher.
Telecom Regulatory Framework Review

• A survey was open from 11 September to 7 December 2015
• 218 Qs covering:
  – Network access regulation
  – Spectrum management
  – Communication Services
  – Universal service
  – Institutional set-up and governance.
• EC analysed the results of the public consultation – full synopsis report published April 2016
• EC will present their proposals for the Telco Review in September 2016
• Aim: Completely agreed by end of 2017 & Applied before 2020.
Telecom Regulatory Framework Review
Spectrum

• A digital single market based on **effective spectrum management** is more important than ever.

• EC ambition is to enhance the EU spectrum management framework, in order to increase **regulatory predictability** for market players and to ensure that regulators focus on the adequate returns on investment.

• Networks and specific conditions are indeed often local, but capital markets are not.

• **Consistency** of regulatory interventions
Shortcomings of the current framework

- Total spectrum in the WAPECS bands assigned to mobile broadband services at year-end (by Member State, 2007 – 2015, in MHz)

The allocated spectrum for ECS differs quite significantly among the MS

Source: Cullen data, WIK calculations
What should the future framework look like?

• Favour and enhance harmonisation in the assignment conditions of spectrum.
  – Alignment of awarding time tables for additional spectrum for mobile services
  – definition of a longer or undetermined duration of the rights of use;
  – Coverage conditions – country specific
• An objective, transparent and non-discriminatory treatment of existing as well as potential new mobile operators, especially in spectrum awarding procedures
• Avoidance of excessive spectrum fees supporting the industry potential to invest in infrastructure and innovation;
• Promote a more liquid and simplified secondary market for spectrum trading;
• Coordinate policies beyond ECN
5G Action Plan

- Announced in last Mobile World Congress in Barcelona (February 2016)
- EU to achieve global leadership in the deployment of standardised 5G networks.
- Industry contribution
- The Action Plan will:
  - contain proposals towards a common agenda for Europe to deploy 5G networks;
  - set out to overcome possible obstacles, and
  - announce key milestones to demonstrate and showcase 5G technologies.
- Public Consultation on opportunities for a co-ordinated introduction of 5G networks in Europe - runs until 11 July
- Adopted later this year (Sept/Oct).
5G Action Plan - Consultation

1. Overall agenda for the introduction of 5G in the EU
   a - Importance
   b - Time frame
   c - Need for a consistent European approach
   d - Service/technology roadmap
   e - Pre-commercial pilots and showcasing

2. Aspects linked to service introduction and types of new services
   eMBB / mMTC /URLL

3. Enablers
   3.1 Spectrum
   3.2 Standards
   3.3 Investments
   3.4 Regulation

4. Co-ordination, possible instruments, and Public Sector role
Radio Spectrum Policy Group consultation

• Draft opinion on 5G pioneer bands for public consultation

• 3400-3800 MHz band to be the primary band suitable for the introduction of 5G use in Europe even before 2020

• Consultation until end of July
5G frequencies

• For 5G to succeed, it is crucial to enable harmonized licensing of the frequency bands which are not yet broadly used in Europe for mobile
  – 700 MHz, 1400 MHz, 3400-3800MHz should be made available in the Member States by 2020.
• Long-term spectrum strategy on enabling new frequency bands is needed
  – higher-frequency (millimetre) bands
  – lower-frequency bands such as 470-694 MHz and 3800-4200 MHz should be explored.
• Consistency between MS
  – duration of licences,
  – timing of repurposing of the spectrum
  – non excessive - spectrum fees
Harmonization and predictability of spectrum policy across Member States that would encourage investments needed for 5G.
700 MHz proposal for decision

Feb 2016 – European Commission - Proposal for a DECISION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the use of the 470 – 790 MHz frequency band in the Union

The proposal comprises two major elements:
• in the 700 MHz band (694-790MHz): a common schedule for making it effectively available for wireless broadband use under harmonised technical conditions, and related coordination measures in support of this transition;
• in the sub-700 MHz band (470-694MHz): long-term priority for the distribution of audiovisual media services to the general public, along with a flexible approach for spectrum use to cater for different levels of digital terrestrial television (DTT) uptake in Member States.
700 MHz decision debate

• Council general approach 26 May 2016
• European Parliament
  – Committee on Industry, Research and Energy (ITRE) has the lead
  – Committee on Culture & Education – report to ITRE on 6 April 2016
  – 30 May 2016 ITRE Draft Report
  – Deadline for amendments: 30 June 2016
  – Vote ITRE: 13 October 2016
• Trialogue meeting: Commission proposals, Parliament's amendments and the Council's common position are then considered in a so-called "trialogue" meeting with representatives from the three institutions who seek to negotiate an agreement or a compromise.
### 700 MHz decision – main points

<table>
<thead>
<tr>
<th></th>
<th>EC – initial proposal</th>
<th>Council – general approach</th>
<th>European Parliament ITRE</th>
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<tbody>
<tr>
<td><strong>700 MHz band use</strong></td>
<td>By 30 June 2020</td>
<td>By 30 June 2020, + 2 years delay</td>
<td>By 30 June 2020, + 2 years delay</td>
</tr>
<tr>
<td><strong>wireless broadband</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>electronic communications services</strong></td>
<td></td>
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<tr>
<td><strong>Coverage</strong></td>
<td>High quality level of coverage of their population and territory at speeds of at least 30 Mb/s</td>
<td>… opportunity to increase the level and quality of services and coverage of their population and territory through services deployed in the band..</td>
<td>High-quality level of coverage of their population and territory, at the fastest possible broadband speeds, and at least 30 Mb/s</td>
</tr>
<tr>
<td><strong>sub-700 MHz band use</strong></td>
<td>MS shall ensure availability for the terrestrial provision of audiovisual media services</td>
<td>MS shall ensure availability at least until 2030 for the terrestrial provision of broadcasting services</td>
<td>MS shall ensure availability until 2030 for the terrestrial provision of broadcasting services</td>
</tr>
<tr>
<td>If MS authorise the use of spectrum for terrestrial systems capable of providing electronic communications services other than television broadcasting networks</td>
<td>limited to downlink only</td>
<td>deleted</td>
<td>limited to downlink only</td>
</tr>
<tr>
<td><strong>Assessment and Report</strong></td>
<td>By 1 January 2025</td>
<td>deleted</td>
<td>By 1 January 2023 (WRC-15 – no change until 2023 – studies start after WRC-19)</td>
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# 700 MHz decision – ETNO position

<table>
<thead>
<tr>
<th>Main issues</th>
<th>ETNO position</th>
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<tr>
<td>700 MHz band deadline</td>
<td>By 30 June 2020 with no delay allowable</td>
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<td></td>
<td>Optimized cross border issues when reducing the need of transitional measures.</td>
</tr>
<tr>
<td></td>
<td>France and Germany have already licensed the band in 2015, and a delay until 2022 =&gt; a lapse of 7 years.</td>
</tr>
<tr>
<td>Coverage</td>
<td>No dedicated data rate of 30 Mb/should be specified</td>
</tr>
<tr>
<td>sub-700 MHz band use</td>
<td>No specific date should be mentioned</td>
</tr>
<tr>
<td>SDL</td>
<td>- Delete the article mentioning SDL</td>
</tr>
<tr>
<td></td>
<td>- Imposes technical limitation regarding the possible future usage of the sub-700 MHz band for two-way mobile communication. Hinders the development towards a technological optimum to fulfil medium/long-term mobile services’ needs, including 5G.</td>
</tr>
<tr>
<td></td>
<td>- non-harmonized SDL landscape in Europe</td>
</tr>
<tr>
<td>Assessment and Report</td>
<td>By 1 January 2023</td>
</tr>
<tr>
<td></td>
<td>A harmonized EU position on the 470-694 MHz band towards WRC-2023 should be developed.</td>
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Key Take-Away

- 5G is a key enabler for the digitalisation of the European economy.

- 5G Action Plan

- Spectrum Harmonisation

- 700 MHz decision
Thank you!