5G Implementation – Challenges

Henri Haxhiraj
Senior Manager Business Development &
Government Relations
Five fields of action for 5G

1. Step up network rollout
2. Make available frequencies based on demand
3. Promote cooperation between telecommunications and user industries
4. Targeted and coordinated research
5. Initiate 5G for towns and cities


5G Initiative of the Federal Government for Germany
- Aims to support the deployment of 5G networks and the development of 5G applications at an early stage
- Germany is aspiring to have 5G connectivity by 2025

5G Action Plan für Europe
- Start launching 5G services in all EU Member States by end 2020 at the latest
- Rapid build-up to ensure uninterrupted 5G coverage in urban areas and along main transport paths by 2025
Main targets

- Transparency regarding the actual coverage
- **1.1 billion euros for 5,000 new mobile masts** through a funding program (establishment of the mobile infrastructure agency)
- Relieve the municipalities in the implementation of the funding program and ensure an effective and cost-effective subsidized deployment
- Identification of infrastructures and properties that the federal government can provide to build cell phone masts
- Together with the federal states and municipalities, determine acceleration potential, e.g. in approval procedures or in building law
Mobile Network Coverage

Source: atene KOM, Coverage simulation through frequency scanner

5G Implementation – Challenges

Challenge

- Graphic overview of every mast and of the detailed mobile network coverage

Approach

Through a frequency scanner:

- Analysis of mobile network coverage through:
  - Representation of a dispersion simulation
  - Integration of measurement data e.g. dampening values from measurement runs
- Inclusion of public properties
  - Developing search radius
- Identification of:
  - Supply gaps (white spots)
  - Location potential for cell towers
## 5G Implementation – Challenges

### Location search

<table>
<thead>
<tr>
<th>Expansion of macro locations</th>
<th>Establishment of new macro locations</th>
<th>Establishment of new small cell locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antenna masts</td>
<td>Very suitable</td>
<td>Not suitable</td>
</tr>
<tr>
<td>Contact line masts</td>
<td>Not suitable</td>
<td>Suitable</td>
</tr>
<tr>
<td>Lighting masts</td>
<td>Not suitable</td>
<td>Very suitable</td>
</tr>
<tr>
<td>Traffing light systems</td>
<td>Not suitable</td>
<td>Not suitable</td>
</tr>
<tr>
<td>Traffic sign carrier for (large) traffic and information signs</td>
<td>Not suitable</td>
<td>Suitable</td>
</tr>
<tr>
<td>Passenger information boards &amp; signs (&quot;U-Bahn&quot;)</td>
<td>Not suitable</td>
<td>Very suitable</td>
</tr>
<tr>
<td>Building roofs, roof edges</td>
<td>Very suitable</td>
<td>Suitable</td>
</tr>
<tr>
<td>Building facades</td>
<td>Suitable</td>
<td>Very suitable</td>
</tr>
</tbody>
</table>

Source: The Federal Ministry of Transport and digital infrastructure, Mitnutzungspotentiale kommunaler Trägerinfrastrukturen für den Ausbau der nächsten Mobilfunkgeneration 5G, 2020

### Challenge
- Find appropriate public infrastructure for 5G deployment

### Approach

**Identify potential carrier infrastructure**
- An inventory must first be made for the intended new use

**Upgrade existing macro locations**
- Legal framework conditions are to be created to enable the use of existing macro locations for 5G

**Establish new macro locations**
- When setting up new macro locations, new paths should be explored and new possible locations identified

**Build small cells**
- For small cells, which look more like WLAN access points than cell phone masts, the first step was to identify street lights, communal information signs and low-height mountings on or inside buildings
Approval procedures and construction planning & building law

**Challenge**

- Various permits must be obtained before putting the mast into service, with which the specifications from various laws related to the project are ensured.

- Currently, with regard to mobile base stations high-rise buildings along highways must be kept at a distance of 40m in the case of a federal highway and 30m in the case of a federal road.

**Approach**

- Identification of acceleration & simplification potentials and adapting current legislation.

Source: Digital Summit of the Federal Government, 2019
5G Implementation – Challenges

5G application for municipal decision-makers

**Challenge**

- Strategic planning for supporting 5G deployment due to the lack of specialist staff and financial resources

**Approach**

- Development of a 5G app to support the mobile network deployment and development of a timetable:
  - Identify stakeholders
  - Find funding
  - Plan communication with citizens' initiatives
  - Communicate information about health risks and electromagnetic compatibility

Source: atene KOM, overview of the 5G app
atene KOM GmbH
Agency for Communication, Organisation and Management
Invalidenstraße 91
10115 Berlin
Tel. +49 (0)30 22183-0
Fax +49 (0)30 22183-1199
www.atenekom.eu

Henri Haxhiraj
Senior Manager Business Development & Government Relations

Telephone: +49 151 55890927
E-Mail: h.haxhiraj@atenekom.eu