

Creating a supportive environment for 5G in the UK

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5G Realised

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Ofcom priorities for 2019

2019 Priorities for Communications Infrastructure

1. **Better broadband and mobile** – wherever you are: helping to encourage investment and improve broadband and mobile coverage across the country, so everyone benefits from the services they deliver.
2. **Fairness for customers:** ensuring that broadband, phone and TV customers, particularly vulnerable people, are treated fairly.
3. **Encouraging Innovation** as a bridge between Universality and Fairness – increasing role as facilitator and convenor
4. **Supporting consumers and industry** through Brexit: looking after the interests of UK consumers and the communications sector as we exit the EU.
5. **Strong, secure networks:** working with communications companies to help ensure their networks are strong, secure and protected against outages or cyberattacks

Enabling 5G in the UK

Our programme of work for 2019/20

700 MHz

- Provide wide area coverage
- Clearance well under way
- **Award in 2020**



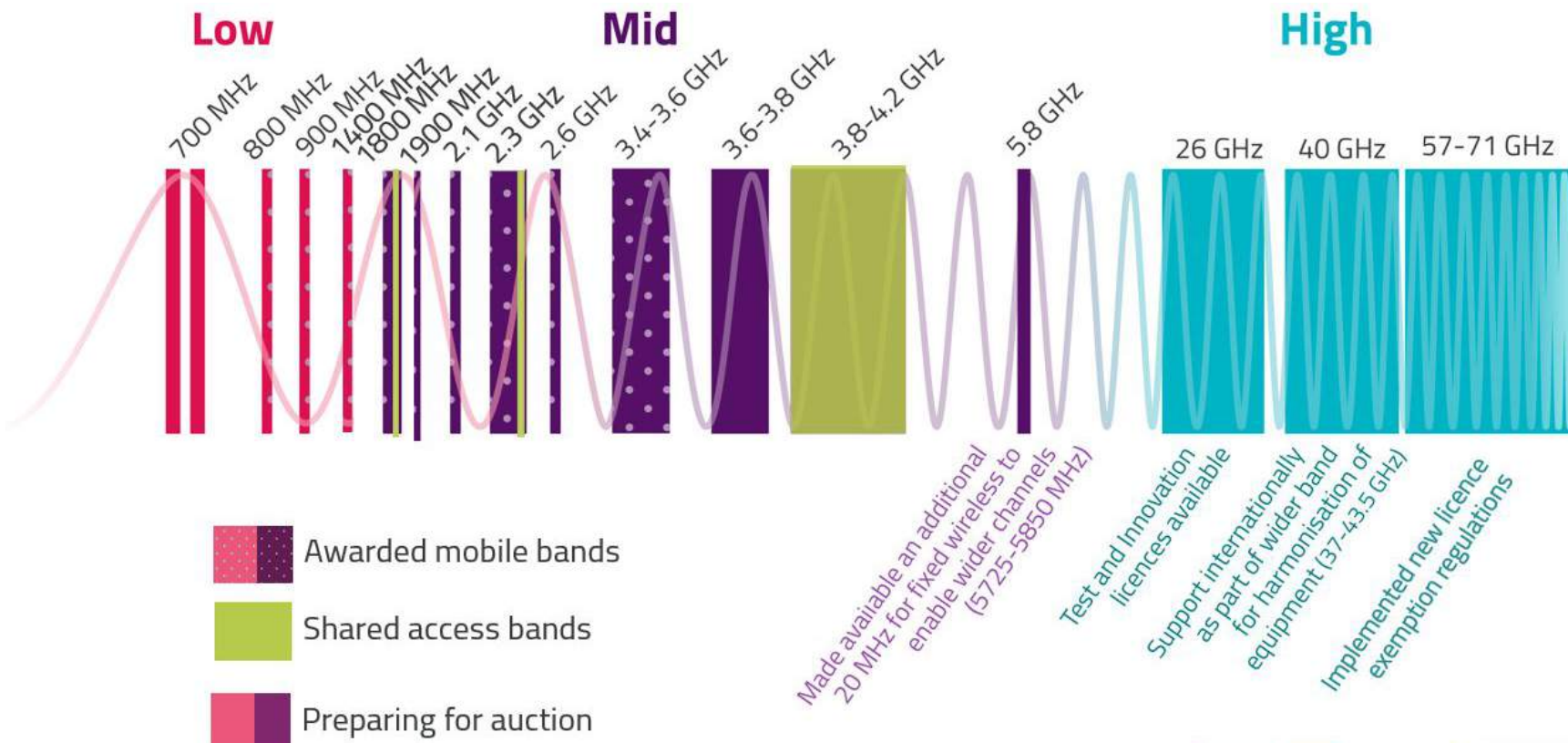
3.4-3.8 GHz – “primary” band for 5G

- Large bandwidth can support higher data rates, provide increased capacity, and enable higher speeds
- **Award 3.6-3.8 GHz in 2020**

3.8-4.2GHz and other bands

- We are exploring the potential for further sharing between existing and new users
- **Consulted in December 2018**

We are making spectrum available to meet increasing and varied demand



Ofcom priorities for supporting UK-wide 5G in 2019

Urban & Suburban areas

- Ensuring spectrum availability
- Universal duct and pole access
- Roundtables to support 5G-compatible Full Fibre architectures
- Barrier-busting & ECC advice
- **Supporting MNO investment**



Industrial / Commercial areas

- Low-cost access to local spectrum
- “Verticals” discussion paper
- Series of industry sector workshops
- Net Neutrality clarifications
- **Encouraging new entrants**



Rural areas

- License coverage obligations
- Facilitating access to unused/shared spectrum
- Technical advice to DCMS Rural 5G trials
- Technical advice to DFT/NRT for Road/Rail coverage
- Community network engagement
- Technical advice to DFT/NRT
- **Supporting Rural communities**

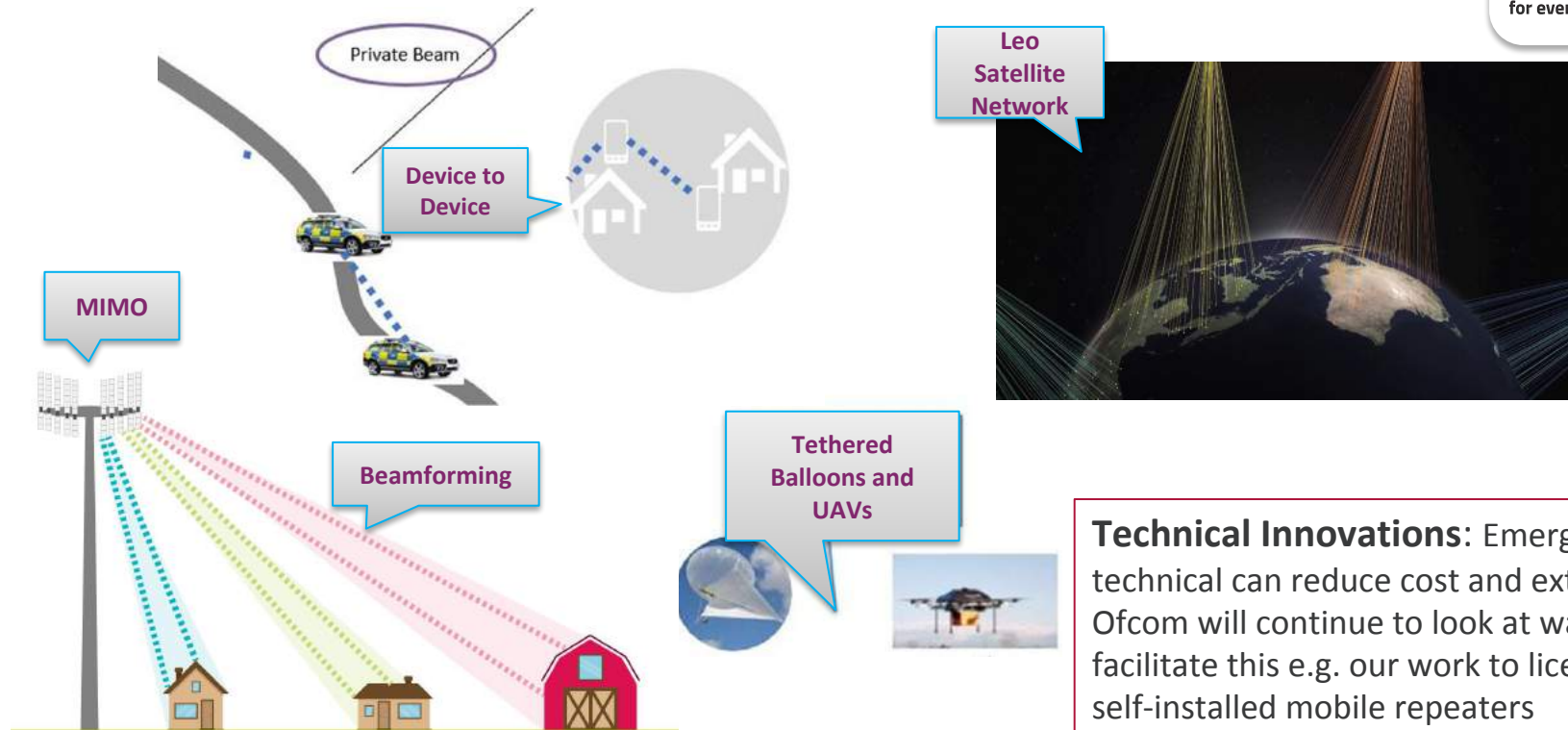
UK-Wide

- TBEST Security & Resilience
- **Ensuring strong, secure networks**



Innovation can connect Universality & Fairness through Collaboration, Courage and Creativity

How innovation can help improve rural coverage



Technical Innovations: Emerging technical can reduce cost and extend reach. Ofcom will continue to look at ways it can facilitate this e.g. our work to license-exempt self-installed mobile repeaters

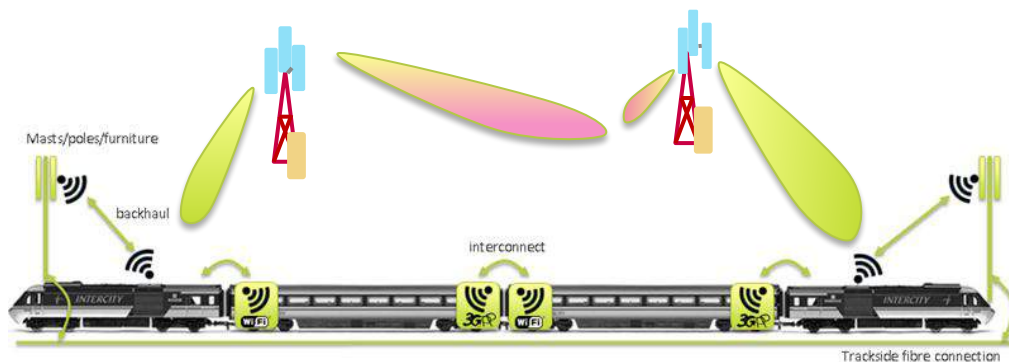
Collaborative Measures: Ofcom's Advice to Government on Options for Improving Mobile Coverage identified other potential levers:

- *Public subsidy to fund further rollout of coverage.*
- *Infrastructure sharing between operators.*
- *Further easing of planning barriers.*

We also considered rural roaming and concluded that the surest way to deliver benefits through such an approach would be collaborative arrangements between operators

A holistic approach to future-proof connectivity along rail and roads

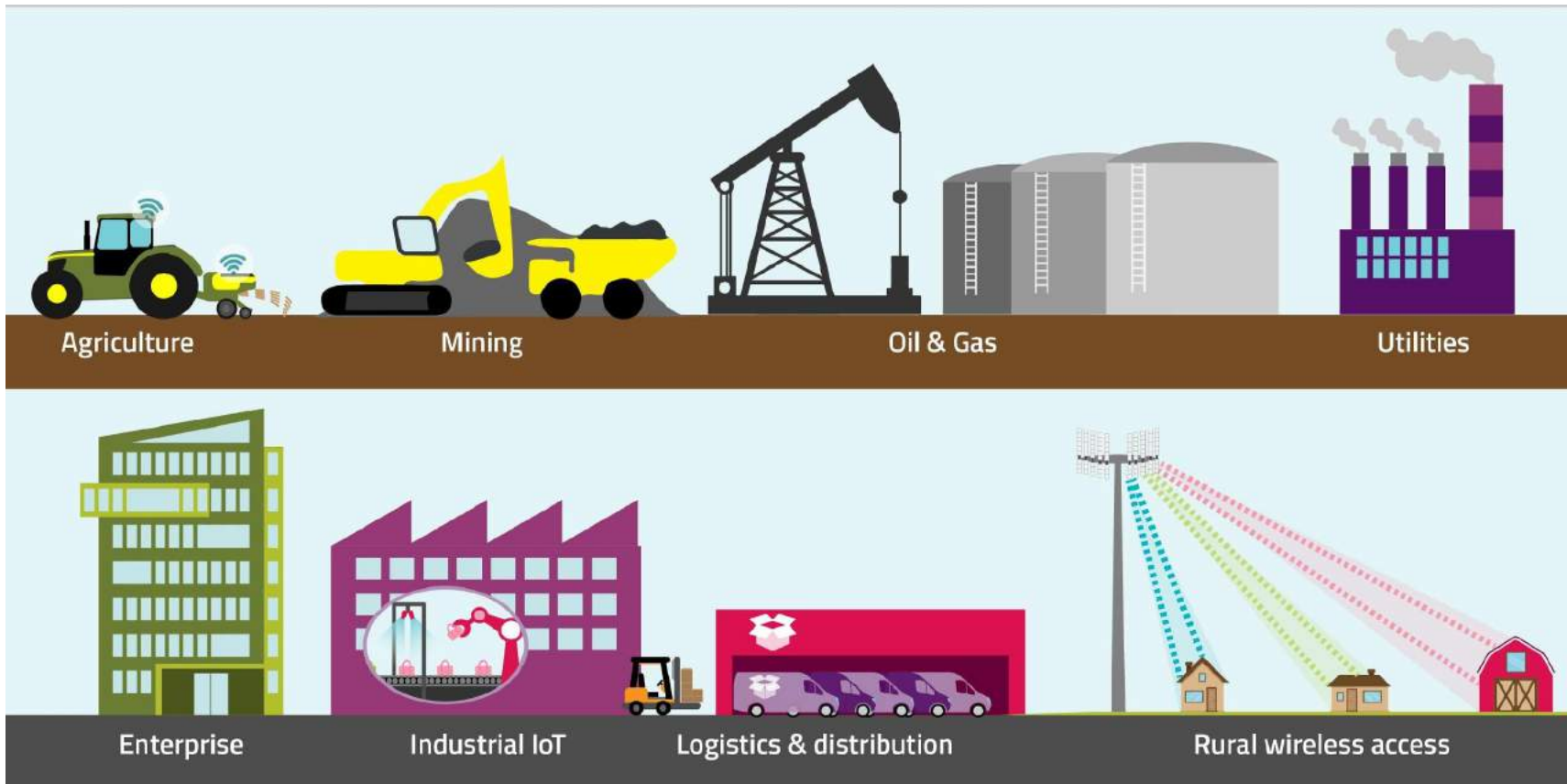
Better understanding of market inhibitors, working alongside Government, developing appropriate regulation



- Synergies
 - Connectivity to roads, rail, remote areas
 - Operational rail, consumer broadband, autonomous cars
- Optimal use of resources
 - Programmable networks and dynamic allocation of resources (bandwidth, power, capacity)
 - Spectrum sharing



These are revolutionary times : possibly leading to an expanding universe of players



Emerging Themes

The 5G framework is driving innovation and change – Key Themes for the future of regulation

- Increasing role for Ofcom as **facilitator and convenor**
- Interaction between **Competition / Innovation / Trust**
- **New service providers** – more Network Operators than vendors?
- Need for a **wider ecosystem** as the universe of connectivity expands
- The era of **converged multi-access** networks including space+terrestrial
- **Edge / Cloud / Hybrid** dynamics
- **Security Frameworks** and Certification
- The power of **platforms** – achieving a balanced marketplace
- The pervasiveness of **algorithms** – how to enable **transparency?**
- What is the **future of MVNOs?**