DCMS

Future Telecoms Infrastructure Review: call for evidence

Response by Ordnance Survey

January 2018

About Ordnance Survey

Ordnance Survey collects data for over 500 million features of the British landscape, describing in detail entities from solar farms to signposts in its master map of Great Britain as part of its National Mapping Agency role. This geographic data set maps every mile of our ever-changing landscape from the Atlantic coast of the Outer Hebrides to street-level changes in the centre of the City of London. We provide national and international services to governments and commercial organisations based on our knowledge, skills and understanding of location data and geography. OS is a government-owned limited company, the entire issued share capital of which is held by the Secretary of State for BEIS, who is represented on the OS board by UKGI.

OS is engaging in a variety of collaborations to help identify and define the emerging requirements of new systems, processes and business models to support our Public Task[1]. These collaborations span the following topics:

- National strategies for digital infrastructure and asset management;
- Data exchange for connected and autonomous vehicles;
- Location privacy for connected and autonomous vehicles;
- Infrastructure planning for 5G communications;
- Smart city standards and business models;
- Linking Internet of Things (IoT) data feeds to a consistent mapping framework;
- Internet of Things city-scale demonstrator (spanning mobility, health, environment and culture use cases);
- Infrastructure interdependencies and resilience scenario modelling;
- Data standards and frameworks for sub-surface assets.

The perspective and authority that we bring to these projects is derived from our operation at scale (that is, our continuous maintenance of the geospatial database for the whole of Britain, which includes making 20,000 database updates each day), and from our Public Task in supporting and underpinning all aspects of the UK's public sector.

In late 2016, OS was contracted by DCMS to establish the geospatial data implications of 5G infrastructure planning at frequencies exceeding 6GHz in a consortium with the University of Surrey's 5G Innovation Centre and Met Office. As part of this research project, we developed a prototype 5G infrastructure planning tool, which has been successfully used to assist Bournemouth Borough Council in planning a 5G urban network. We would be delighted to engage with DCMS to explore how we can assist with the 5G pilot programme at a strategic level.

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[1] https://www.ordnancesurvey.co.uk/about/governance/public-task.html

2 What barriers exist to long term investment in the UK telecoms market (beyond work underway by the Local Full Fibre Networks programme to stimulate demand, and by the Barrier Busting Taskforce to reduce build costs)?

- What effect do existing revenue streams have on investment plans?
- What effect do visibility and predictability of returns have on investment plans?
- What is the effect of current infrastructure deployment models?
- What impact do current infrastructure sharing arrangements have on investment?
- What is the impact of the existing relationship between wholesale and retail markets?
- What changes to spectrum licensing and sharing could foster greater innovation and investment in 5G?

5G spectrum licensing

Spectrum licensing has conventionally been targeted at mobile network operators, who have bid for small slices of spectrum which they have exploited on a national basis by delivering services across the UK on a 'push' basis, primarily dictated by demand (and therefore expected revenue) and local installation costs. This model has encouraged operators to prioritise larger towns and cities, while many communities in more remote areas have experienced a dearth of investment in mobile connectivity.

Over recent months we have collaborated with Bournemouth Borough Council, which is developing a vision for an alternative model for high-frequency (26GHz) spectrum licensing. This vision is that the public sector could acquire and actively manage a local spectrum licence in partnership with the private sector, supplemented by a catalogue of assets (such as street furniture and public buildings) suitable for installing small-cell 5G antennae.

This vision has the potential to empower communities to take a much more active role in designing and shaping their future 5G potential, representing a 'pull' approach to service delivery. However, this will require the licensing of high-frequency spectrum to be managed very differently in the future.

Electronic Communications Code

There are a number of well-documented challenges relating to planning constraints on both the location and height of cellular masts, in addition to the high cost of laying fibre in private land. The reformed Electronic Communications Code (ECC) is non-binding, and consequently these challenges remain for all operators trying to extend their networks and for all communities with poor connectivity.

We suggest that either revisions to the ECC need to be considered to facilitate network expansion or that funding be made available to explore technologies that may bypass these obstacles.