15 August 2017

By email: wba.2018@ofcom.org.uk
Caroline Longman
Ofcom
Riverside House
2A Southwark Bridge Road
London SE1 9HA

Dear Ms Longman,

Re: Wholesale Broadband Access Market Review Consultation 2017

Introduction

Paragraphs 3.19-3.20 note that alternative wireless infrastructures are not substitutes for fixed-line broadband:

> *3.19 For fixed-wireless services we provisionally conclude that for most customers fixed wireless is unlikely to be a close substitute for broadband services over copper, fibre or cable for this market review period. However, we note there are innovations that may challenge this assumption in the longer term [including small-cell technology and 5G standards].*
>
> *3.20 For satellite services, we provisionally conclude that they are only a weak substitute for fixed line broadband.*

This characterisation is at odds with the Ofcom's own assessment of the satellite broadband market earlier this year in the wholesale market access review, and we ask that Ofcom correct this when it publishes its statement on the consultation.

We also urge Ofcom to remain as alert to innovations in the satellite market as it is towards other wireless infrastructure, such as the expected terrestrial deployment of 5G. Satellite technologies due for deployment in the next few years will further improve satellite broadband services, and reposition satellite services in the broadband market. This is also in line with the space sector's ambition to grow the UK's share of the global space market to 10% by 2030, creating potential revenues of £40bn p.a. and up to 100,000 jobs.[1] The Government further endorsed this growth ambition in its National Space Policy (2015), and set out high-level proposals to: recognise the strategic importance of space; the need to protect the space operating environment; the ambition to grow UK space capabilities; and to work in international partnerships to deliver key objectives.

Evolution of Satellite Broadband

In Ofcom's assessment of the wholesale local access market, it judges that most satellite services offer services comparable to standard broadband, not superfast broadband. This fails to capture the full range of services available. Satellites already play comparable roles in today's 2G, 3G and 4G/LTE networks, and are well placed to continue playing such roles for 5G networks, as more High Throughput Satellites (HTS) in both geostationary (GEO) and non-geostationary (non-GEO) orbits are deployed, and as smaller, more advanced, and lower-cost ground antennas are developed. Some satellite providers are able to provide up to 40 Mbps today in

[1] Space Innovation and Growth Strategy, 2010; Space Growth Action Plan, 2013

underserved areas of the UK – in the range of superfast broadband speeds. Satellites scheduled for launch over the next few years will provide up to 50 Mbps.

One of the perceived trade-offs between fixed-line connections and satellite is between latency and speed. However, this is a simplistic approach, and does not consider either the type of services demanded by consumers, and the recent advances in satellite technology.

For instance, Intelsat and OneWeb have entered into a strategic partnership to explore how the two can complement each other to deliver low-latency, high-speed and high-capacity service, comparable to fibre. For most consumers, the speeds delivered will support all their broadband needs.

We urge Ofcom to remain as open-minded to these developments as they are to the potential for 5G to offer similar services to customers. Not least because satellites will be indispensable to 5G's ubiquitous, high-capacity nature, as recognised in numerous technical working groups in Europe.

In addition, while most 5G applications (e.g. Internet of Things) will not have low (<1ms) latency requirements, it is projected that a few, still-emerging applications might (e.g. VR and autonomous driving). According to the GSMA, "any service requiring such a low latency will have to be served using content located very close to the customer, possibly at the base of every cell, including the many small cells that are predicted to be fundamental to meeting densification requirements."[2] The multicast, ubiquity of coverage, and instantaneous connectivity provided by satellite services will be crucial in shifting data close to the customer, reducing the load on terrestrial infrastructure, and improving the consumer experience.

Conclusion

Ofcom acts in consumers' best interests when its assessments are forward-looking and, as far as possible, anticipate likely future industry developments. While Ofcom has done this with respect to terrestrial mobile broadband, anticipating developments such as 5G, it does not take sufficient account of trends in the satellite market. UK consumers are best served by regulation that takes a holistic view of broadband provision.

Moreover, Ofcom's market reviews influence policy-making at the national and international level. As we have argued, the current review does not accurately reflect the assessment of satellite services undertaken earlier this year.

Satellites instantaneously cover a wide area with high capacity. This has two main benefits: a) scalability through multicast; and b) instantaneous connectivity:

a) By leveraging, across a wide area, multicast capabilities together with local caching in the cloud as close as possible to the end user, significant "statistical multiplexing benefits" can be gained, leading to a more efficient use of overall bandwidth and more reliable service.

b) Satellites can instantaneously connect any place within their footprint, allowing rapid connection of cities, villages, businesses and homes with a predictable quality of service.

Also, satellite networks are less vulnerable to physical attacks and natural disasters than their terrestrial counterparts – an intrinsic property that makes them the preferred delivery method for highly secure and

[2] *See* GSMA Intelligence, *Analysis: Understanding 5G: Perspectives on future technological advancements in mobile*, at 12-13 (Dec. 2014), https://www.gsmaintelligence.com/research/2014/12/understanding-5g/451/

mission-critical services. These attributes will help satellite to accelerate the commercially viable development of not just broadband services but also 5G anywhere in the world.

We would urge that the next version of this document provides more context to its conclusions, and highlights how innovation is constantly improving the quality of satellite broadband available in the UK.

About Intelsat

Intelsat S.A. (NYSE: I) operates the world's first Globalized Network, delivering high-quality, cost-effective video and broadband services anywhere in the world. Intelsat's Globalized Network combines the world's largest satellite backbone with terrestrial infrastructure, managed services and an open, interoperable architecture to enable customers to drive revenue and reach through a new generation of network services. Thousands of organizations serving billions of people worldwide rely on Intelsat to provide ubiquitous broadband connectivity, multi-format video broadcasting, secure satellite communications and seamless mobility services. The end result is an entirely new world, one that allows us to envision the impossible, connect without boundaries and transform the ways in which we live.