

2020 Vision: Debating the Future of the UK's Access to Digital Infrastructure

Background

In December 2010, Jeremy Hunt announced the publication of "Britain's Superfast Broadband Future", an £830 million project designed to give Britain the best broadband network in Europe by 2015. The delivery of this programme was vested with Broadband Delivery UK (BDUK).

It is not the purpose of this short document to analyse the current progress of BDUK's programme (which is still being delivered), nor to comment on the 2015 objectives.

However, we are now more than a year on from its publication, and there is a general sense of unease (from the contributors to this paper) that the form and structure the UK's broadband infrastructure to support this 2015 vision is sub-optimal. This has been forcefully expressed by participants in research undertaken by INCA, leading to the report 'Financing UK NGA'.

Our basic premise is that the future vision of exactly **how** we deliver the provision of Europe's best Internet access networks has been based on a set of short-term assumptions and conditions that have been inherited from old-world thinking. Furthermore, we do not believe that the current plans are going to give the UK the best digital infrastructure in Europe by 2020 - a date that is far more interesting than the current 2015 that have been set to coincide with this Parliament.

Current Gaps in Policy Thinking

We believe there are a number of key issues that make the current policy sub-optimal for encouraging competition and investment and they need to be addressed in the next Communications Bill. They are made up of four key gaps in policy as follows:

1. The Allocation of Local Franchises and Investment Attractiveness Gap
2. Local Internet Exchanges and the Service Provider Innovation Gap
3. The New Topology of the Internet and the "Middle Mile" Backhaul Gap
4. The Passive Infrastructure Access Definition Gap

Whilst the current picture has become complicated by political expediency, historic industry structures, complex European regulation and legacy self-interest, it is surely right that we engage in an open debate on the future options. This can help to create a new set of ideas for regulatory and policy frameworks that will accelerate the implementation of a world-class digital infrastructure for the UK as well as give companies in the sector new opportunities for future economic growth.

Scope and Objectives

The main objective of this paper is to propose a simple framework for alternative scenarios on the future of competitive Internet access for the UK between now and 2020.

Furthermore, we propose a series of informed, open public debates between businesses, government, the telecoms industry during 2012 to investigate alternative scenarios for the overall structure of the industry as well as recommend how it should be shaped to optimise investment, competition and consumer choice. This can then be fed into the up-coming Communications Bill.

Structuring the Debate - How do we Close the Four Gaps?

We believe there are four policy gaps that need to be debated to create a rigorous policy framework for the next wave of investment. Each one is connected to the others, but each one also requires different treatment:

1. The Allocation of Local Franchises and Investment Attractiveness Gap.

The allocation of franchises by radio frequency band or geographic footprint is the traditional way to encourage investment in new telecoms networks. The current franchise model for the allocation of the government's £830m broadband upgrade grant has defaulted to a geographic break-down of the 44 English counties and the respective Parliaments / Assemblies in Scotland, Wales and Northern Ireland. It is now likely that the overall investment into the industry will be less than £5bn in the period 2012-2015 and that most of the final "tails" of the access networks will remain on copper technology.

With the rise of 4G mobile access technologies, the success of smartphones and the innovations around WiFi and Whitespace access technologies, we need to encourage new, **more localised franchise models** (such as the recent allocation to O2 in Westminster or the trials of Whitespace technology in Cambridge and Bute) which will attract new investment in alternative business models and access technologies.

We also need to consider Internet connectivity that can be tuned for specific applications and customer segments, not just speed of service. This part of the debate needs to include both the fixed-line and the mobile aspects of access as well as simple licensing of spectrum and shared backhaul infrastructure (see point 3. below).

Yet another top-down, national franchise framework will not be able to cope with the coming complexities and investment demands of the converging fixed-mobile networks. A new set of more localised franchise models will be needed to attract the innovation and to attract the next wave of investment that will be needed to close the investment gap. **The question is, how should we design and allocate licences for these franchise models?**

More information on investment options that can attract new investment to encourage these franchise models can be found in the recent INCA paper “Financing UK NGA”.

2. Emerging Local Internet Exchanges and the Service Provider Innovation Gap

With a new set of more localised franchise models, the industry can start to evolve from the structures and topologies of the traditional telephone exchange and telephone cabinets into new local Internet exchanges. Today there are about the same number of telephone exchanges in the country as there were in 1930s.¹ The topology of the Internet requires fewer exchanges but more (and different) types of distribution points. This trend is already underway as applications move to the “cloud”, local Internet exchanges start to appear in the major cities (not just London) and many and various access technologies have evolved. This trend is likely to continue as service providers adapt and evolve to service specialist local needs and market segments.

No direct government investment will be required to start-up these exchanges - but a sensible local city or town plan that encourages the siting of one or more local Internet exchanges - as well as local authorities becoming an “anchor-tenant” for these exchanges can certainly accelerate the development. Ethernet exchanges are an obvious type of exchange. However, by 2020 we foresee the need for various types of exchanges to handle dark fibre trading, lambda (wavelength) switching and equipment sharing/leasing such as is envisaged by the current evolution of the PSN framework. These complex asset sharing arrangements will require a completely new way of thinking, managing (and taxing) and we need to engage in a full and proper debate about how to encourage and attract these new exchanges as well as the systems that will need to support them so that we can create the new types of Internet Service Providers and new types of products required for the 21st century. This will enable us to move away from the highly consolidated, rather stagnant Internet Service Provider market that we have today.

One of the main interventions that the regulator, Ofcom, could play to encourage his new world is to reduce the cost of connection to BT Openreach’s Equivalence Management Platform (EMP) for local network service providers. We believe this would encourage innovation in the service provision market and evolve Openreach into an organisation that is much closer to the European definition of open-ness than the one that Openreach currently practices.

INCA is supporting the development of alternative Open Access platforms that will connect many networks to many services providers (as opposed to one network to many service providers). INCA is also designing Quality Marque for local access

¹ In 1938 there were 3104 manual telephone exchanges and 2559 automatic, Source: <http://www.britishtelephones.com/histuk.htm>

projects to ensure standardised technical and operational delivery giving confidence to investors, service providers and customers alike.²

3. The New Topology of the Internet and the “Middle Mile” Backhaul Gap

Whilst all good, sustainable architectures evolve over time, there comes a time when a radical re-design becomes more cost-effective than a continuation of older models.

The new topology of internet access is very different from the old topology of copper telephone lines. The evolution of the internet to-date has required a massive investment in fibre-optic systems in the “core” networks and this investment is now moving into the so-called middle-mile as the fibre is rolled-out closer and closer to users.

The assumption that the upgrade to the national infrastructure for internet access should be pivoted around BT’s street cabinets has become a given in the short-term investment plans that are currently being implemented. This is very convenient for BT - because it can subsidise “core” fibre build to wherever it wants on its own network. However, it gives BT an unfair advantage over any other service provider who wants to deploy so-called “backhaul” to its own cabinets or Internet distribution points.

Effectively this is a retreat from the original arrangements that were implemented when BT Openreach was created as a passive infrastructure provider, operating on an “open and equivalent basis”. With FTTC, Openreach now operates both passive and active infrastructure to the detriment of competition in the access layer. Arguably the principles of equivalence that led to local loop unbundling (and greater competition), have been severely weakened in the current regime, leading inevitably to calls for structural separation.

With intelligent design in the deployment of the local internet exchanges, service providers should be able to deploy different “middle mile” backhaul networks across a number of technologies. But this will require open access backhaul networks which can drive this next layer of innovation. And the current UK structures at best discourage and at worst prohibit this type of arrangement.

4. The Passive Infrastructure Access Definition Gap

The final part of the jigsaw is the whole debate over how shared access to “passive” infrastructure should be regulated and granted. The current regulatory restrictions that have been placed on service providers that want to buy the Passive Infrastructure Access (PIA) product from BT Openreach makes the product a shadow of the ambition that was originally envisioned at the start of this Parliament by Jeremy Hunt and Ed Vaizey in late 2010.

² <http://www.inca.coop/projects/quality-marque>

There are strong arguments that access to BT's (and other operators') infrastructure needs to evolve to become truly open so that current restrictions on use are lifted and service providers can innovate in the way they provide wholesale, business-to-business and consumer services over the same physical infrastructure. Without this redefinition of PIA, the opportunities for the UK to innovate in sharing passive infrastructure such as ducts, poles and dark fibre remains limited and the opportunity for the UK to innovate in this important area is reduced. Whilst we might come under increasing pressure from European regulation to evolve to a more open access infrastructure, the real question is how we can accelerate the change in this take-up of PIA whilst allowing BT to retain enough money to invest in the maintenance and upgrade of the infrastructure that it is leasing.

Next Steps

We propose a set of policy debates on this issue during 2012 - jointly sponsored by the Broadband Stakeholder Group, the BCS/CMA, INCA, EURIM and involving other associations like ISPA, the FCS and organisations like the RSA that can broaden the debate. The debate needs to involve Government, to influence policy and propose a new set of structures and commercial exchanges for the industry to adopt.

About INCA

The members of the Independent Networks Cooperative Association (INCA) are supporting, planning, building and operating sustainable, independent and interconnected networks that advance the economic and social development of the communities they serve and permit the provision of applications and services through open competition, innovation and diversity. They are working together to create cohesive interconnected next generation networks.

INCA's role is to:

- Promote the development and adoption of common technical & business standards amongst local projects
- Underpin the development of next generation networks by developing joint purchasing and marketing approaches
- Act as a unified voice for local projects to government and industry
- Promote the sector and explain why next generation broadband is important
- Support the development of next generation broadband projects by sharing expertise and information
- Work with other agencies to promote and support local project opportunities
- Encourage partnerships with public, private and community sector organisations to facilitate investment and faster roll out of next generation



broadband infrastructure, particularly in under-served areas – the ‘Final Third’ of the country.

INCA's members and subscribers include over 380 organisations in the private, public and community sectors including:

- Fujitsu Telecom, Cable & Wireless Worldwide, Alcatel-Lucent, Geo UK Ltd, City Fibre Holdings, UK Broadband;
- Public sector organisations like Manchester Digital Development Agency, Digital Birmingham, Gateshead G-Ti, NYnet;
- Nearly 100 community broadband projects including Alston Cybermoor, Angus Broadband, CPEND Broadband and many others.

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