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The Knowledge Network

Mary Tait
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Response to the publication of the BERR – Digital Britain Interim Report

Dear Mary,

The Institution of Engineering and Technology (The IET) is one of the world's leading professional bodies for the engineering and technology community. The IET has more than 150,000 members in 127 countries and has offices in Europe, North America and Asia-Pacific. The Institution provides a global knowledge network to facilitate the exchange of knowledge and to promote the positive role of science, engineering and technology in the world.

The evidence and comments in this submission have been compiled on behalf of the IET Trustees from extensive discussions within the IT and Communications Sector Panel Groups. These panels comprise senior members of the IET and influential representatives of both academia and industry. They provide high-level “think-tanks” for opinion formers to work together on neutral territory.

Additional specific Sector panel information can be found at the URL's;

<http://www.theiet.org/publicaffairs/panels/comms/>

<http://www.theiet.org/publicaffairs/panels/it/>

Yours sincerely,

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Report in the attached



This document is the IET's response to the publication of the BERR – Digital Britain Interim Report

The IET is the senior body representing the Engineering profession in the UK, and has a large presence in the wider world with over 150,000 members in 127 countries and offices in Europe, North America and Asia-Pacific. The IET provides a global knowledge network to facilitate the exchange of ideas and promote the positive role of science, engineering and technology in the world.

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1. Introduction

The IET very much welcomes the report and strongly supports its overall aims. We believe that Britain's (and the world's) future is indeed digital and that, notwithstanding the dramatic progress made in the last 30 years, ICT remains a revolution less than half completed. The people of Britain have so far wholeheartedly embraced the converging digital world and it is vital for the future that the government should continue to support them, even (or perhaps especially) in the present difficult times. Indeed we believe that the report could win public support for suggesting much more ambitious targets for the services available to most users in the medium term and that this could bring huge benefits for our ‘content’ industries.

We would recommend that the final draft puts more emphasis on the international nature of the digital broadband revolution, both from a compatibility and competitiveness standpoint and as an opportunity for Britain to excel.

We, and possibly the report’s writers, see these initial reports as the first stages in a continuing process to develop and maintain Britain’s competitive position in a digital converged world; it might be worth making this clear.

2. Key Issues

2.1. Convergent Technologies

The IET is very pleased to see the emphasis in the report on a unified performance-based approach to digital access that encompasses both wireless and wireline/fibre technologies, and believes that the importance and novelty of this has not so far been sufficiently recognised. The IET has already started discussions with other international bodies on convergence and is keen to help develop these in support of digital Britain. We note that the widespread adoption of IP (internet protocol) data standards has enabled the development of convergence.

2.2. Universal Access

The IET strongly supports the stated objective of achieving ‘universal’ broadband access to the developing digital network as soon as possible. We note however that, as is correctly shown in the tables on p56, users can at present be relatively ‘digitally included’ (even to video) with only 1MBit/s access speed, and that this may allow a wider choice of access technologies. Although new services will clearly benefit from higher rates the present balance of advantage, and therefore immediate priority, may lie more with reliable *universal* access at 1MBit/s than with less universal access at 2MBit/s. We also note that many new and important ‘digital inclusion’ services, such as social networking and instant messaging, are not particularly bandwidth-intensive. On the other hand the **uninterrupted reliability** of the base universal service offering at some minimum regulator-verified rate (not necessarily high, but for up-to-network as well as down-to-user performance), may become a much more important issue as digital services become integrated into our lives, for example in healthcare systems that may need high-quality video, health tracking and monitoring and local broadcasting. This is not mentioned in the interim report.

2.3. A vision for a Digital Future

For understandable reasons the draft report focuses very much on the immediate issues. However, in doing so it has perhaps not taken the opportunity to offer a fuller vision of what a future Digital Britain can do for us all. Such a vision will necessarily be incomplete but could help in many ways, including with the vital task of convincing sceptics and those who have so far shunned the digital revolution that it is important to them. We note that many more people could be connected if they were persuaded of the benefits than are presently denied connection by network limitations.

We recommend that this issue be addressed, perhaps using the established **Foresight** mechanism, that will enable the appropriate multi-disciplinary approach encompassing social as well as engineering and business factors to be taken. This should develop a clear vision of the developing digital network and its applications for the next 20 years, reaching beyond any electoral cycle. The GCSA Prof John Beddington has indicated a willingness to help with this, and we recommend that an approach be made (aiming for an announcement alongside the full report publication).

We also feel that the final report could present the case in a clearer and more compelling way, for example the excellent summary of the priorities in chapter 6 might be brought forward.

2.4. Broadband is a two-way street

We note that the interim report does not discuss the issue of service symmetry (that is of rates to and from the local user). We believe that many of the new services that may become most important both economically and socially, such as health support and the creative industries, require relatively high uplink data rates and that the needs here will grow over time at least as fast as the requirements for download rates. We recommend that targets for broadband bi-directional access should be included in future USO and NGA plans. Since there are clearly other performance parameters important in different degrees to specific applications (for example latency, available peak rate and reliability as well as symmetry) we recommend working with Ofcom and international partners to develop **verifiable standards** to help application developers as well as directly helping users.

2.5. Technology for a 21st century NGA system

It would be helpful in the full report to specifically point out that the current (largely digital) near-to-user communications network is a legacy-based mixture of a relatively old (>50 years in many cases) copper wire system originally intended for telephony, a few-decade old copper wire cable TV network and several more recent wireless-based cellular systems. The core network(s) to which each of these connects is already largely fibre, and the last drop to the user will mostly be wireless, leaving the copper in between 'squeezed' from both ends.

One of the most important drivers for change will be the progressive replacement of this **obsolescent copper-wire-based system** with a new system based on a mixture of wireless and fibre. There are many reasons for this, not just capacity and mobility (though these are important); for example in the wet British climate the reliability of copper wire systems is not good and the cost-of-maintenance is correspondingly high. The replacement base technologies are clear and may be expected to last many decades once installed. The progressive removal of copper may take some time but will bring great benefits. Care should be taken that **intermediate technology** solutions (such as FTTC-VDSL) should not be structured (or regulated) in ways that might make a target FTTH-wireless system harder to deploy.

2.6. A portfolio of technology solutions

The IET very much welcomes the user-focused technology-neutral approach adopted in the interim report. But this does not mean that the impact of the range of technology choices available should be overlooked. The priority should be maximising the diversity and choice that technology can allow, since we think that this has the potential to enhance both competition and choice. In particular we think that:-

- The priority for a converged network should be for one using relatively open international standards that will maximize the benefit to UK users and developers. The UK should avoid any development that would make our systems unique and thus limit our export opportunities (for systems or content), or our ability to exploit innovations from overseas.
- Recommendations for future USO and NGA should be configured so as to maximize the range of technologies that might be used to meet them.
- Access systems should be available for parallel use where this does not significantly impair the performance of existing systems. We note that this in particular applies to FTTH access that can carry a near-indefinite number of independent parallel systems (from different operators) on different wavelengths - this is a major technological gain compared with the existing switchable LLU that is noted as a success in the interim report.

- Regulations should be continuously examined to keep them aligned with user needs and to see that they have not become obsolete barriers to beneficial change. An example would be the manner of providing emergency cover on fibre-based access systems that might depend on local power - a converged solution (that is including wireless/mobile) here might be better than an independent one.

2.7. Economic and environmental significance of infrastructure

It is interesting to compare the network infrastructure with others such as that of the rail to compare revenues. The telecoms supplier revenue was approximately £30bn in 2007 according to Ofcom, a significant proportion of the economy. In comparison, rail passenger revenue was approximately £5.6bn (Review of National Rail Trends, Office of Rail Regulation). It is hard not to see the Digital infrastructure as far more significant (this figure includes voice revenue which is reasonable in a converged network. It does not include TV).

Digital infrastructure also has the potential for great environmental benefits, in areas such as personal travel avoidance, transport avoidance for many downloadable products and services and the reduction of paper consumption and transport with its attendant disposal problems. Especially since environmental gains are generally also economic this should be included in the benefits analysis for Digital Britain.

We also note that the proposed stimulus in the US (\$4.7B for broadband alone), even if scaled back to 1/10th for the UK would be some £330M which would help significantly. And if a pan-EU stance were taken at least matching the US numbers might be reasonable. And of course much of the required spend is for construction work.

3. Skills training and what the IET can do

The interim report rightly emphasizes the skills needs of a future digital Britain. We note that this need may even be wider than is currently suggested, and that the converged digital network may itself be an important means of skills development. The IET has instituted a new ICT Tech qualification that could be helpful here, and is also keen to collaborate on the development of digital championing. We note that the IET communications and IT sector panels have already championed convergence and have involved the content industries.

Within many government departments the significance of digital techniques and the corresponding skills development will be huge. We recommend considering whether an even more senior champion than currently suggested would be appropriate for key user departments (such as health, transport and education).

4. Graphical representation of USO and NGA targets

We attach two different graphical representations (of the same data) that combine historic broadband take-up data from Ofcom with various future plans including those of the interim report. We suggest that representing plans and objectives as 'templates' in something like this form can show at a glance plans for both NGA and USO in a way that is both clear and easy to compare with other efforts around the world.

It is clear that a balanced portfolio of offerings should show rising performance at a range of rates

and market penetrations (say at 60% and 80%) as well as USO, ultimately bringing high rates to all who need them but bringing large economic benefits in the meantime. The final report should show a comparison of the suggestions received and plans in other countries. The diagrammatic comparison of these may help discussion.

5. Spectrum

We welcome the recognition of the importance of extra spectrum for mobile uses – which, again according to Ofcom estimates, enables far more economic activity per unit bandwidth than any other spectrum usage, even broadcasting. We suggest that this measure be used to inform future thinking.

6. Investment

The IET welcomes the concern shown in the report that innovators in the creative/content industries should get adequate returns. We note that this must also apply to innovations in the physical infrastructure - and that governments have a role here particularly in increasing the long-term cross-EU confidence currently in short supply.

7. Specific comments on the interim report text

The notes below represent comments on specific items in the report text, as opposed to the substance of the report. Nevertheless the changes suggested would significantly improve the full report.

7.1. (in the Forward)

The list of national strengths given could be considerably extended. It currently stands as:-

It is a sector where we have international strengths:-

- *digital satellite*
- *the development of GSM, the world standard for mobile communications*
- *public safety networks*
- *the success of local loop unbundling, for affordable higher-speed broadband*
- *the development and deployment of universal digital terrestrial television*
- *the pioneering of digital broadcasting in radio*
- *our leading position in global entertainment formats, advertising, marketing services and research*
- *the emergence of internationally-recognised talent in online, and in particular mobile, small screen content development.*

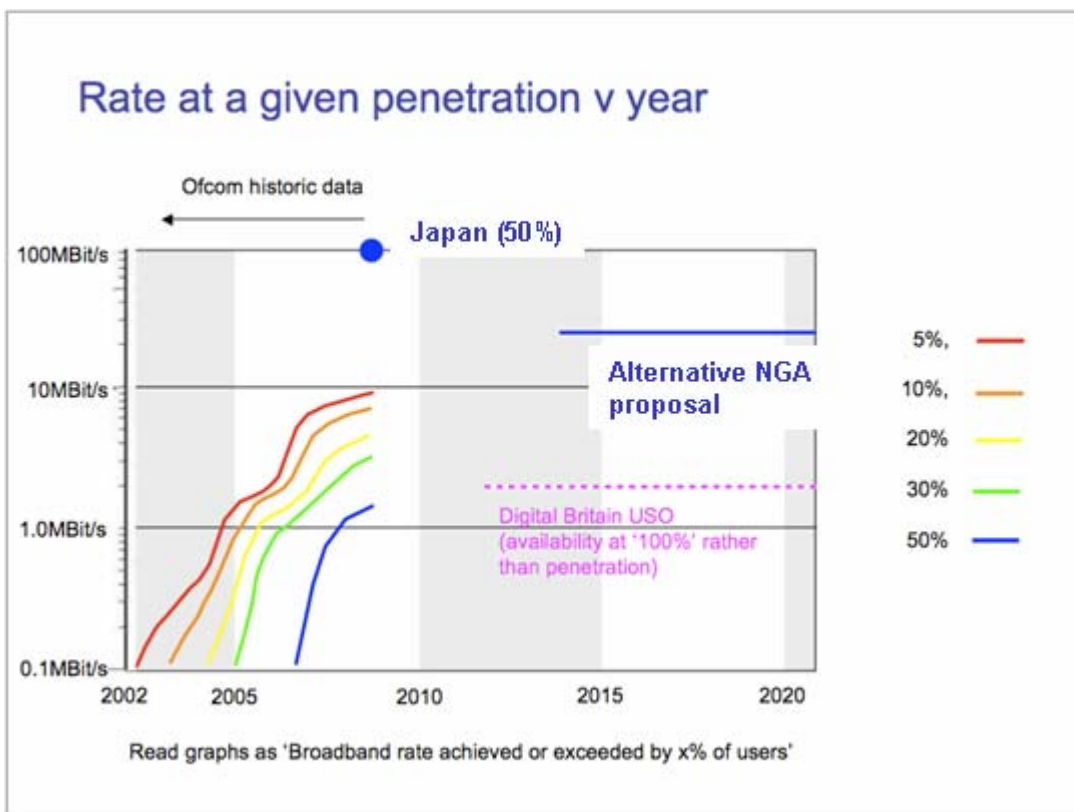
Which is fine so far as it goes but there are clearly other areas. For example, the very strong games industry will expect some representation, and the UK can also justifiably claim to be pioneers in optical fibre development and deployment. Optical communications was not just invented here¹, but also deployed early along with many other possible 'firsts'. The BBC iPlayer also deserves a mention. . It is also unclear that our talent in online is particularly in small screens as the report suggests – what about TV and large-screen video? The UK can also justifiably claim to be innovators in market-based technology-neutral regulation.

¹ The co-inventors were both UK citizens and residents at the time but one is now in HK.

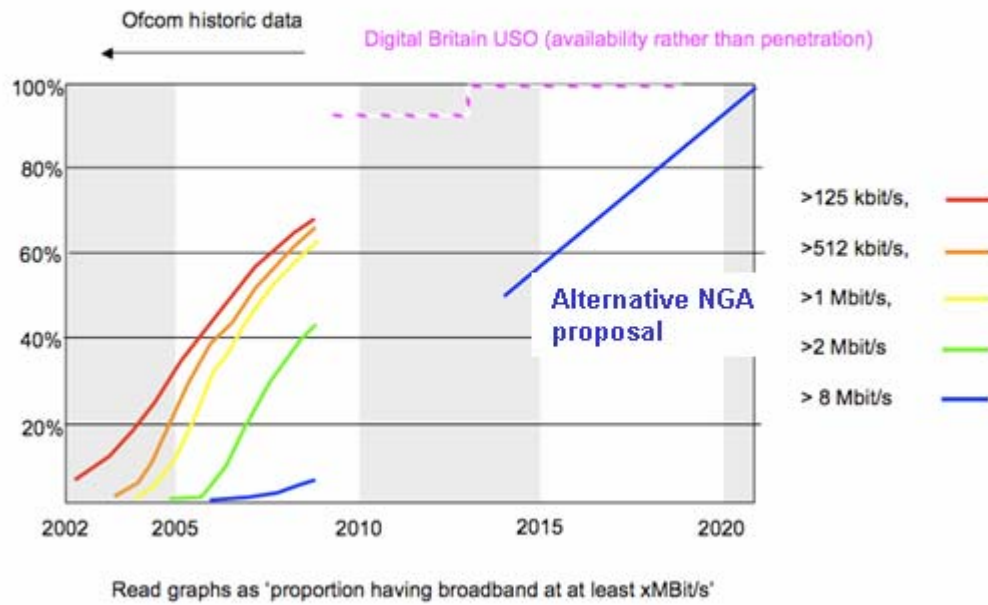
7.2. 'Wired'

Although it is common to refer to all cabled communications as 'wireline' the report uses 'wired'. This is not only less conventional but fails to encompass the obvious fact that most of it is already fibre. In public presentation this is not ideal – the clearest would be to say 'wired and fibred', failing this 'wireline' is much better than 'wired'.

8. Figures



Fractional penetration v year



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