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Digital Britain: Doing the Broadband Arithmetic

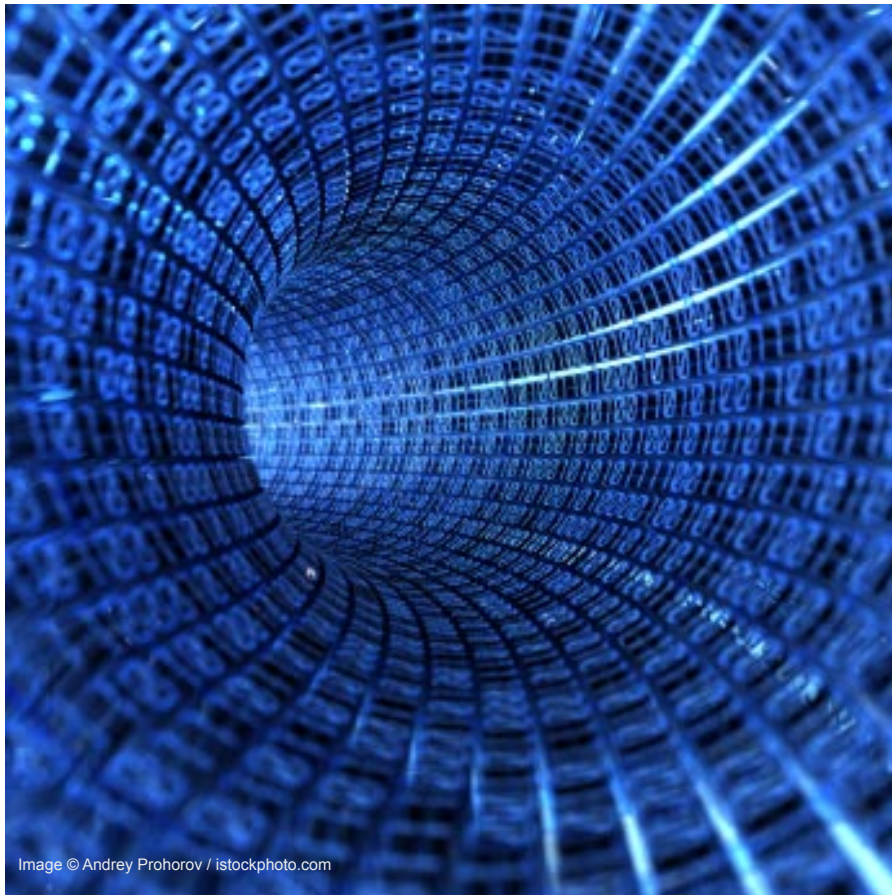


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Synopsis

The final Digital Britain report has received mixed reviews, in part due to speculation that the impending departure from Government of the Report's architect, Stephen Carter, may imply some dissatisfaction on his part with the scope or ambition of the policy proposals. So far as the Report's funding recommendations are concerned, much interest has focused on the proposed redistribution of BBC licence revenues and the imposition of a new levy on landline telephone charges.

These arguments will undoubtedly be developed further as the proposals slowly evolve into legislative form. For the time being, the purpose of this brief analysis is to look at one of the unresolved questions from the Interim Report: has the government really embraced the idea of economic intervention in the broadband sector? If so, how does it reconcile this with past pronouncements that 'the market will deliver'?

This paper therefore looks a little more closely at the broadband funding ideas contained in the Report – both the adequacy of the sums envisaged and how they are to be administered.

The final *Digital Britain* report, published in mid-June, received mixed reviews. This was in part because the architect of the Report, Stephen Carter, also announced that he would be leaving government later this summer – leading to speculation that he was in some ways disappointed with the scope or ambition of the policy proposals. That said, the final version – and the Interim Report before it – are hugely impressive documents, both in the breadth and the rigour of their analysis. They do an excellent job in setting an agenda for reform and development of the UK's communication policies.

So far as the Report's funding recommendations are concerned, the biggest headlines have focused on the perceived hijacking of BBC licence revenues and the imposition of a new levy on landline telephone charges. While both initiatives are controversial, many will see the raid on BBC funds as a predictable riposte to the Corporation's aggressive development of on-line services, perhaps even an early salvo in the net neutrality debate. The landline tax was probably less expected, and may prompt accusations of being unjust in several ways. With fixed telephony traffic slowly capitulating to mobile and IP-based calling, might the new levy simply hasten the demise of the legacy service? Additionally, urban dwellers and businesses may question why they should be obliged to subsidise the broadband ambitions of those lucky enough to breathe the fresh air of the UK's not-spots (though their rural counterparts will doubtless be quick to point to corresponding historical and present iniquities in levels of service provision relative to service charge payments and contributions to the tax basis).

These arguments will undoubtedly be developed further as the proposals slowly evolve into legislative form – bearing in mind that *Digital Britain* is still only a set of recommendations by the current Labour government. For the time being, the purpose of this brief analysis is to look at one of the unresolved questions from the Interim Report: has the government really embraced the idea of economic intervention in the broadband sector? If so, how does it reconcile this with past pronouncements that 'the market will deliver'? The paper therefore looks a little more closely at the broadband funding ideas contained in the report – both the adequacy of the sums envisaged and how they are to be administered.

Horses for Courses

Digital Britain envisages two distinct forms of public sector funding for the UK's broadband development – the levy on landline charges mentioned above plus some £200m which is to be diverted from the Digital Switchover Help Scheme and/or the Strategic Investment Fund. However, while most people would regard 'broadband development' as a generic goal in itself, the government plans to use these two funding sources in very different ways, reflecting its belief that two forms of intervention are needed, i.e.

Some responses to the Interim Digital Britain Report argued that the focus should not be on current generation broadband for everyone, but more rapid progress to next generation for most.... The Government believe that both objectives are valid: the network of today available to everyone, and the network of tomorrow reaching a large proportion of the population. We will therefore take action on two fronts. First, we will ensure delivery of the Universal Service Commitment at 2Mbps, and second we will take action separately to address the issue of next generation broadband availability. (Page 53)

In practice, it is difficult to see how the funding of these two broadband objectives can be ring-fenced – see below - but *Digital Britain* makes it clear that the diverted £200m will be used only as a contribution to the delivery of the USC, while the proceeds of the new landline tax will be used to subsidise private sector development of next generation access in areas that would otherwise be non-viable.

Universality

So how is the £200m to be used? The Report estimates that, taking into account ‘expected network developments’ (unspecified), 11% of BT lines – amounting to 2.75m homes – are currently unable to deliver a 2Mbps service. The reasons for this lack of service are analysed as follows:

	Homes (M)
Problematic home wiring	1.90
Random network effects	0.30
Line length	0.55
TOTAL	2.75

To the uninitiated, the estimated number of homes with problematic wiring looks surprisingly high, particularly as the Report assumes that over 40% of these problems (800k homes) can be resolved through marketing and ‘self help’. (While fitting filtered faceplates on master sockets is not a difficult task, it would be surprising if frustrated broadband customers had not attempted at least some self-help already...). In fact, the whole £200m of USC funding appears to be devoted to resolving the remaining home wiring problems – working out at about £180 per home visit by Openreach. A third of the cases of ‘random network effects’ are assumed to be cured by special investigation – presumably at the expense of Openreach – while the remainder, and some line length issues, rely on alternate delivery by wireless or satellite. (If this is to be subsidised, it would surely put a huge strain on the limited amount of USC funding).

The only other remedy envisaged for the lack of broadband is to upgrade the connection to VDSL by deploying fibre to the cabinet (FTTC). The Report envisages that about 420,000 un-served homes will benefit from this deployment but, again, it is unclear how much this is expected to cost and how the investment is to be funded. As a guide to potential cost, Analysys Mason produced figures last year for the Broadband Stakeholders Group on the cost drivers for fibre-based network upgrades¹. For denser urban areas, their base case estimate of a FTTC/VDSL deployment was as low as £400 per home connected. However, for areas with sparser housing and much greater line lengths – presumably the sort of area being addressed in a USC context – the cost per home was estimated at £1,000 or more. On that basis, we could well be looking at a total investment cost in excess of £400m.

Clearly, the high cost of servicing these more remote homes means that they are highly unlikely to form part of BT's current FTTC plans. It is also plain that there is no real scope to subsidise the investment from the envisaged USC fund. It would appear, therefore, that quite a large part of the levy on landline charges will actually be used to deliver the 2Mbps broadband commitment. And, given that the USC is to be delivered by 2012, the early receipts from the new levy will need to be diverted for that purpose.

There is clearly no disgrace in the fact that providing first-time connectivity (via FTTC) will actually leapfrog these new customers to next generation broadband services. In fact, the government believes that the required network upgrades will benefit over a million other customers who are currently restricted to relatively slow internet connections, i.e.

We estimate that up to 1.5 million households, many of whom currently have little or no broadband availability might be able to access next-generation super-fast broadband as a result of delivery of the Universal Service Commitment. (Page 54)

The sleight of hand, if it can be called that, is to suggest that the cost of the USC is limited to £200m when the total funding required may well be three times that. In fairness, *Digital Britain* cites several other potential funding sources, e.g. 'contribution in kind from private partners' or 'contribution from other public sector organisations in the Nations and Regions'. However, none of these other sources is quantified, and it seems unavoidable that the USC will rely heavily on the proposed landline levy, the 'Next Generation Fund'.

The Network of Tomorrow

The levy of 50p per month on fixed lines is expected to raise £150-175m a year for the new fund, or around £1bn over the seven years to 2017. The primary purpose of the fund is described thus:

The increasingly widespread conclusion from industry and economic analysis is that there is no obvious means whereby the market, unaided, will serve the final third of the population. We therefore propose a Final Third Project to deliver at least 90% coverage of Next Generation broadband for homes and businesses by 2017... (Page 64)

The rationale for the 'final third' calculation is as follows:

- BT has confirmed its £1.5billion programme to deliver FTTC/VDSL to at least 40% of UK households by 2012;
- Virgin Media is already selling high speed broadband via DOCSIS 3.0 technology, and plans to make this available to all cable homes before the end of the year. (This has been optimistically reported as 50% of all UK homes: while there is at least some coverage for cable in approximately 60% of postcode areas, the actual number of premises passed is probably closer to 45%).
- Digital Britain expects BT to respond to Virgin Media's plans: "We can be confident, over time, of BT's investment leading to coverage matching the cable footprint and possibly extending to a certain proportion of the population beyond this" (Page 63).
- At a stretch, therefore, the private sector is assumed to provide next generation broadband coverage to about 50% of the UK. But how does that leave a 'final third' un-served? Well, the rather troubling logic is that the Next Generation Fund will be used to subsidise coverage above the two-thirds level, and that this intervention will, "it is hoped, accelerate the expansion of the boundary of market provision from 50% to the two-thirds coverage level" (Page 64).

Digital Britain recognises that mobile technology could play an important part in the evolution of next generation access but seems to doubt its usefulness in filling coverage gaps in broadband infrastructure. (The economics of density apply to mobile base stations in pretty much the same way as they do to BT exchanges). Given that there is also little prospect of Virgin Media extending its network coverage, the various targets above all relate essentially to how far BT is prepared to deploy new fibre. So it seems that the government's analysis of this evolution can be characterised as follows:

BT Next Generation Coverage	
0-40%	Existing investment plans
40-50%	Competitive Pressure
50-66%	Wish List?
66-90%	Possibly Subsidised

The scale of these heroic assumptions can best be judged by considering the amount of investment required to attain the rising targets. The Analysys Mason (AM) report for the BSG, cited earlier, looks at this matter in some detail. The study considers three technology options for the deployment of next generation broadband – FTTC/VDSL, fibre to the home using a passive optical network (FTTH/GPON) and fibre to the home via point-to-point fibre connections (FTTH/PTP). For each of these options, the report analyses the deployment costs in a number of population areas or ‘geotypes’ – based on housing density, distance from the nearest exchange etc. These geotype costs are then used to assess the cumulative cost of national coverage, starting in urban areas and moving to rural and more remote locations.

Taking the incremental coverage targets identified for BT (above), the base case results for AM’s two cheapest technology options are approximately² as follows:

Population Coverage	FTTC/VDSL (£bn)	FTTH/GPON (£bn)
0-40%	1.35	5.50
40-50%	0.35	1.50
50-66%	0.60	2.50
66-90%	1.60	8.50
TOTAL (0-90%)	3.90	18.0

The estimated cost for 40% coverage of VDSL, £1.35bn, is a bit lower than BT’s own estimate (£1.5bn) but we know that some of that initial coverage will also include FTTH build. What the figures do reveal, however, is that getting UK coverage to the two-thirds level will be no mean feat, requiring further BT investment of at least £1bn. Competitive pressure from Virgin might well drive some such investment but, in the midst of a recession, it is difficult to see the private sector willingly funding the critical deployment stage between 50% and 66% UK coverage.

As to the 'final third' of the population, the AM report suggests that pushing fixed network coverage to 90% would require further investment of £1.6bn for VDSL or at least £8.5bn for FTTH. Even if the latter is dismissed as an unrealistic objective, it seems clear that considerably more private sector funding will be required to reach the 90% objective. As noted earlier, it looks highly likely that the government will have to dip into the Next Generation Fund if it is to meet its universal service target. That means there might be a lot less than £1bn on hand for the Final Third Project (although there could well be some double counting of un-served homes here). Even if £800m could be made available to subsidise FTTC build in remote areas, this level of investment would need to be matched by the private sector in order to meet the incremental cost of £1.6bn.

Much of the AM report is taken up with sensitivity analysis of the base case results. For instance, because fixed costs make up a large proportion of the total, the build cost per home is very sensitive to demand-side assumptions. Higher uptake of next generation services could therefore reduce average deployment costs in rural and remote areas. The report also notes that the FTTC option could be made cheaper if there was no requirement on BT to share its street cabinets with competing operators. On this basis, the cost of a national FTTC/VDSL network might fall from £5.1bn to £4.6bn. However, *Digital Britain* makes it clear that "service competition should as far as possible be available across the country" (Page 58), and this requirement might clearly preclude the potential saving. Indeed, AM point out that if some facilities-based competition is to be encouraged, it might well be necessary to build additional cabinets. This would increase the cost of the national FTTC deployment by 10% to £5.6bn.

Who's Holding the Purse-Strings?

Alongside its public funding proposals, *Digital Britain* has some interesting things to say about the development of competition in the broadband sector. Not least of these is the heavy hint that Virgin Media might be obliged to offer access to its network infrastructure. While the government concedes that regulatory intervention might be 'premature' at this stage, it has clearly taken note of the absence of a wholesale broadband offering by Virgin, "a fact which BT and others have claimed is a factor limiting service innovation" (Page 67). The suggestion might also have been prompted by straightforward budgetary considerations. The Analysys Mason report estimated that access to existing cable infrastructure could reduce national FTTC costs by over £0.5bn, and/or reduce FTTH/GPON costs by up to £1.3bn...

A slightly more puzzling policy proposal is the government's intention to amend the 2003 Communications Act to make the promotion of network infrastructure one of Ofcom's principal duties. In itself, many would regard this initiative as a welcome

– and overdue – reform. If nothing else, it is consistent with the proposal that Ofcom becomes responsible for collecting the new landline levy payments on behalf of the Treasury. The oddity is that, while Ofcom has been newly charged with both fostering infrastructure competition and with collecting NGF payments, it appears not to have been tasked with overseeing the public sector subsidies themselves. Instead, *Digital Britain* envisages the creation of a new ‘Network Design and Procurement Group’ (NDPG), a body “at arms’ length from central government” (Page 58), to manage both USC delivery and the tendering process for Next Generation deployment subsidies.

Given the resource limitations highlighted in this Paper, the NDPG will undoubtedly face some very difficult value judgements and investment trade-offs. It has to be right, therefore, that decision-making is free of political influence but, if not Ofcom, what is this new body? How will it interface with BT and the regulator? We are told only that the government plans to recruit a CEO by the end of October 2009, so perhaps the intention is to create yet another delegated or specialist mini-regulator alongside PhonepayPlus, the OTA, NGNuk and UKPorting? If so, the fear has to be that hugely important decisions for the UK’s broadband development have been farmed out to a largely invisible quango...

Another possibility is that the authorities have finally seen the need to co-ordinate top-down policy decisions on sector development with the growing body of bottom-up initiatives for local and community-based broadband projects. As the author has argued elsewhere³, this kind of holistic approach is long overdue but the institutional framework remains something of a concern. Specifically, *Digital Britain* has proposed the award of a £150k grant to the Independent Networks Co-operative Association (INCA) to promote the inter-operability of community broadband projects. Does that imply a bigger role for INCA going forward? INCA is an offshoot of the Community Broadband Network (CBN), which itself relies to a large extent on vendor sponsorship for its evangelical support of local initiatives. Without doubting the worth of such bottom-up projects, many would see cause for some concern if much larger decisions about the UK’s broadband connectivity were to be devolved to an organisation of this kind. Surely, the proper home for such long-term policy decisions is with Ofcom itself....?

Does it Fly?

The interim version of *Digital Britain* surprised many with its advocacy for a universal broadband commitment. The idea immediately sparked a number of difficult questions, e.g.

- Would a 2Mbps threshold hold back development of next generation broadband services?

- What delivery technologies would be used?
- How much would it cost, and who would pay?
- Who would administer the scheme?

At the heart of all these questions was a basic unease with the idea of public sector intervention in industry development. The previous Caio Report on UK broadband⁴ had essentially argued against major government intervention, and Ofcom itself had generally advocated market-based solutions for the sector. The final *Digital Britain* report addresses some of the more basic questions on fostering broadband diffusion but has it settled the debate on the role of the public sector? Antony Walker, Chief Executive of the Broadband Stakeholder Group, certainly seems to think so:

The challenge is to find the intervention sweet-spot, not so much as to be heavy handed and not so little as to be ineffective. This intervention could be just enough to incentivise in areas that would otherwise be considered commercially unviable....This is the kind of forward looking, innovative and proportionate response that the BSG has been calling for over the last two years.

Walker may be right but the evidence from the analysis in this Paper is that the government's broadband targets will still rely totally on further heavy investment by the private sector – and by BT in particular. Some of the less eye-catching proposals in the Report, such as the final requirements for the sharing of network infrastructure (BT and Cable) will be crucial in determining whether that investment is forthcoming.

More troubling perhaps is the rather ambiguous role that appears to be seen for Ofcom. Known to be sceptical about some of Lord Carter's ideas, could it be that Ofcom was deliberately excluded from management of the USC and NGF? But if that was the intention, why the new remit to encourage infrastructure investment? And how is the regulator to deal with the new NDPG on one hand and a beefed-up community lobby on the other?

It seems that *Digital Britain's* broadband strategy has some way to go before we can make a realistic assessment of its air-worthiness. For the time being, the set of proposals published last week might be regarded either as a very clever balancing act or, just possibly, as an unworkable compromise.

Notes and References

- 1 Analysys Mason, final report for the Broadband Stakeholder Group: *The costs of deploying fibre-based next-generation broadband infrastructure*, September 2008
- 2 Based on visual interpretation of exhibits in the Analysys Mason report
- 3 See *A Different Regulatory Emphasis For UK Broadband Development - Is There a Place for Public Sector Intervention?*, InterConnect Communications, April 2009
- 4 *Review of barriers to investment in next generation access*, Final report by Francesco Caio, September 2008

The Author

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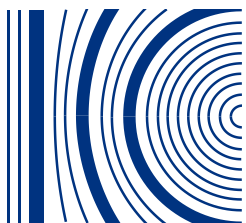
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