

Extending UK superfast broadband beyond 95% of premises: a new bottom-up approach

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Context

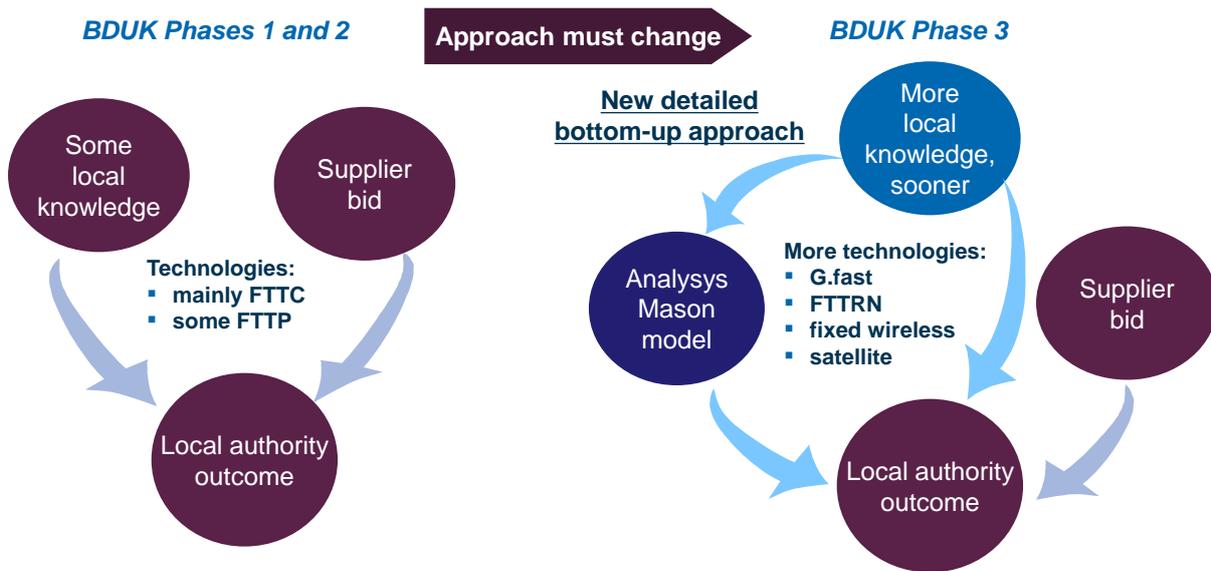
The UK government, through Broadband Delivery UK (BDUK) and in partnership with local authorities, is overseeing a GBP1 billion programme to improve broadband and mobile connectivity infrastructure in localities where the market has indicated it will not invest commercially. Significant progress has been made, and the majority of local authority areas are set to achieve 90% superfast broadband coverage by 2016 (this is known as BDUK Phase 1). In addition, many delivery contracts are in place for BDUK Phase 2, which will provide superfast broadband to 95% of the UK by 2017. However, the most challenging of the government's objectives – to achieve near-universal superfast broadband coverage by 2018 (BDUK Phase 3) – will need a new approach to delivery if it is to overcome the difficulties that exist.

What makes BDUK Phase 3 different?

In Phases 1 and 2, a mostly *top-down* approach has been used to develop solutions using the supplier's standard network model; the high volume of premises provides flexibility to change the target communities in the implementation plan as local issues arise. However, in Phase 3, the lower volume of premises and the scattered locations being targeted will not allow such flexibility, and the costs estimated at the outset could increase significantly during the survey and deployment stages.

During Phases 1 and 2, Analysys Mason undertook many pre-bid and post-bid cost and coverage modelling exercises for local authorities that demonstrated, on the whole, that value-for-money could be achieved. However, increasingly our modelling identified that the solution coverage was not optimised: a new bottom-up approach is needed for Phase 3, incorporating more local knowledge (e.g. about planning and highway restrictions) sooner in project planning, along with an assessment of more technologies using an *independent* network cost model, rather than the supplier's own network model. This requirement for a new approach is illustrated in Figure 1 below.

Figure 1: A new bottom-up delivery approach is needed for BDUK Phase 3 [Source: Analysys Mason, 2015]



A new bottom-up approach

In order to assess our proposed approach, we undertook a proof-of-concept with one authority in which local knowledge was used to test our independent assessment. The local findings concurred with our assessment and, therefore, the authority was confident it could engage with the supplier and jointly optimise the implementation to increase coverage and improve value-for-money.

Critical to the approach was a bottom-up, granular model of the local authority area based on Analysys Mason’s network cost geotypes.¹ This type of modelling is a proven analytical tool that can be adapted to local circumstances and, in combination with local knowledge about existing superfast broadband coverage (both commercial and from Phases 1 and 2), will enhance the view that a local authority has of the costs and potential technical solutions² required in Phase 3 to increase broadband coverage at a localised level.

Importantly, there is no need to know the precise physical details of existing networks because of the use of geotypes in the modelling. In addition, the geotype-based approach is less limited over time compared to a network-based view, which is restricted to the point in time when the network details were gathered.

Delivering BDUK Phase 3

The nature of the problems in Phase 3 (and to some extent in Phase 2) has changed compared to those faced in Phase 1. Many of the problems and constraints for Phase 3 are well known; the localities that are likely to require intervention have one or more of the following characteristics:

- geographically scattered
- low density of premises

¹ Analysys Mason led on the design and development of a novel ‘geotype’-based approach to network supply and demand modelling dating back to the 1990s which has underpinned a vast amount of our regulatory and policy advisory work, including market-impacting decisions like wholesale price setting, universal service costing and government subsidy calculations. This approach allows critical local factors to be captured effectively and accurately without the need for overly-detailed and time-consuming engineering specifications. Our modelling tools are very flexible, adaptable and transparent; they will also allow extensive scenario- and sensitivity testing to be conducted.

² Technical solutions that can be modelled by Analysys Mason include fibre-to-the-premise (FTTP), fibre-to-the-cabinet (FTTC) including vectoring and G-fast variants, fibre-to-the-remote-node (FTRN), fixed wireless access and satellite.

- include urban as well as rural areas
- require bespoke technical solutions to overcome legacy issues (e.g. poor quality lines) or topographical conditions (e.g. physical barriers such as a river).

Solutions can be found but the costs could be significant.

The bottom-up approach can be applied during the early stages of project planning³ for Phase 3, as it will provide local authorities with clarity about the nature of their local problem and the costs. The modelling outputs will be well understood by the local authority team, as they will have provided the local knowledge input to allow the modelling to adapt to local circumstances.

The outputs will also help guide the delivery and procurement strategies. For example, one of our network cost modelling exercises for a local authority identified geographical variances for different types of solution, and the delivery was ultimately separated into two areas and two procurement exercises. In contrast, on another project, the decision after a structured options appraisal (including assessment of the risks of separation) was to continue with a single procurement. The critical input in both instances was a granular view of the problems and costs involved.

Summary

In summary, a more granular, bottom-up approach utilising local knowledge to assess and deliver projects in Phase 3 will enable superfast broadband coverage to be optimised and the level of public subsidy to be minimised. In addition, after receiving bids from suppliers, the same modelling exercise can be adapted further to check that value-for-money can be achieved using the preferred supplier's solution, and to help support an optimised approach to network roll-out once the implementation contract has been agreed.

Analysys Mason has extensive experience of advising stakeholders (policy makers, national regulators and network operators) on strategic issues associated with broadband. Our independent advice provides tailored solutions to help achieve the strategic objectives of our clients in the most advantageous way possible. If you would like to discuss any of the issues raised in this article please contact Ian Adkins at ian.adkins@analysysmason.com.

³ Including change control in existing contracts.