Federation of Small Businesses
The UK's Leading Business Organisation

FSB discussion paper

The fourth utility:

Delivering universal broadband connectivity for small businesses across the UK

July 2014

Table of contents

—

Acknowledgements

—

The FSB would like to thank the Foundation for Information Society Policy (FISP) for their support and assistance during the writing of this report. In particular, we are grateful to David Harrington, Malcolm Taylor and Bob Franklin for their invaluable advice and extensive feedback along the way. Thanks also goes to Matthew Copeland at Digital Business First who provided useful comments on an earlier draft.

Lastly, we would like to thank the many FSB members who shared their broadband experiences, a small selection of whom are featured as case studies in section 2 and the appendix to this report.

Executive summary

—

Small businesses are the bedrock of the UK economy and critical to growth and job creation. In an increasingly globalised world in which technology is changing business practices, the vast majority of small firms will need access to high-quality digital communications infrastructure and services in order to succeed.

This paper starts from the premise that too many small businesses in the UK are unable to access fixed and mobile broadband services that are 'fit for purpose' and meet their commercial needs. Lack of access reduces productivity, stifles innovation and restricts the ability of British firms to grow and compete in global markets.

Today, broadband provision varies widely across the UK in respect of coverage, bandwidth speed and service quality. In some parts of the country, predominantly in rural areas, coverage is either very poor or non-existent. In a world where business is increasingly conducted online, small firms located in these areas are thus at a competitive disadvantage. This has knock-on effects for the prosperity of local economies and exacerbates regional economic imbalances.

Yet, as the case studies in this paper show, many urban or semi-urban businesses can experience poor coverage too, and even where broadband is available the range and quality of services often fall short of what businesses require. Tailored business packages offering symmetrical upload and download speeds are often prohibitively expensive, while business parks and premises have been overlooked in the roll-out of local fibre networks to residential areas. If the full potential of small business is to be harnessed and the economic benefits of broadband connectivity realised, this must change.

Small businesses and current broadband provision

Small firms and entrepreneurs are increasingly aware that access to high-quality broadband provision is a commercial necessity and that in many respects it represents the 'fourth utility'. A recent FSB survey[1] found that:

- Ninety four per cent of small business owners consider a reliable internet connection critical to the success of their business, while 60 per cent expect to increase their online presence in the next year.

- As many as 14 per cent of small businesses consider lack of reliable and fast broadband connectivity to be their main barrier to growth.

- Two thirds (65%) of small businesses access broadband through a wired connection. However, only 12 per cent have a fibre-optic connection, while 35 per cent have a mobile connection.[2] Worryingly, approximately 45,000 small businesses (1% of Britain's 4.5 million small businesses) still have to rely on a dial-up connection.[3]

- Only 15 per cent of small firms say they are very satisfied with their broadband provision, while a quarter say they are fairly or very dissatisfied.

- In a separate survey, 40 per cent of small businesses said improved digital infrastructure in their area would encourage them to invest in new technology.[4]

---

1   FSB The Voice of Small Business survey panel, Infrastructure Survey, April 2013.
2   FSB 'Voice of Small Business' survey panel, Member Survey, March 2014.
3   FSB 'Voice of Small Business' survey panel, Member Survey, March 2014.
4   http://www.fsb.org.uk/frontpage/assets/fsb-intellect-april13.pdf

These findings are a testament to the importance of broadband to small businesses, and highlight frustrations with current levels of service, as well as the potential gains on offer if access to broadband technology is improved. This lack of provision has clear implications too for the Government's desire to implement digital delivery of its services, for example those of HMRC. Without fit-for-purpose broadband, that desire will be frustrated by the lack of access to broadband among large numbers of small businesses.

Towards universal 'fit-for-purpose' broadband for small firms

The UK Government's current broadband policy centres on a target of delivering bandwidth speeds of 24 megabits per second (Mbps) to 95 per cent of premises by 2017, and 2 Mbps to the remaining five per cent. In the FSB's view, this is not sufficiently ambitious. Programmes to deliver these targets have been subject to criticism too, most notably the Broadband Delivery UK (BDUK) scheme on the grounds of value for money. Furthermore, current policy through to 2017 lacks by definition a medium- to long-term plan to deliver 'fit-for-purpose' universal broadband services that are responsive to user needs and future-proofed in line with the best available technology.

We therefore need a step change in the UK's ambition and policy delivery if this country is to be at the forefront of the digital revolution. That the Government is now considering its longer-term approach and the publication in January 2014 of draft Terms of Reference to inform a new Digital Communications Infrastructure Strategy offer some encouragement as well as insights into its thinking.[5]

In our view, the Strategy presents the opportunity to set out a vision for broadband provision that is ambitious and puts the UK ahead of its competitors, and which for the first time is delivered with small businesses firmly in mind. Over the past decade, small firms have fared badly in the roll-out of broadband services. Independent service providers (ISPs) have focused largely on attracting residential customers with low introductory deals rather than offering affordable packages suitable for smaller businesses. This approach needs to change if the enormous benefits of broadband are to be felt more widely, and it must include the business broadband contracts available, which should be made more accessible to small firms.

There are, however, a number of fundamental market barriers to achieving universal broadband connectivity. The level and scope of competition in the market is weak, particularly for fixed broadband, which is geographically unbalanced. This limits access and choice for small businesses. Partly as a result of this, investment in new infrastructure has been inadequate and the current regulatory framework has been insufficient in promoting effective competition and encouraging new entrants into the passive and active infrastructure market. Ofcom has a crucial role to play in ensuring that there is a truly competitive market throughout the UK and in taking action to correct market failure, and needs to be more proactive.

Market development has also been stymied by a failure on the part of the industry to stay ahead of the demand curve. Now and in the future, small businesses will become ever more dependent on better, faster and more reliable broadband services, and it is critical that the market should reflect this. Overcoming these barriers is crucial to delivering universal broadband connectivity.

---

5   https://www.gov.uk/government/publications/digital-communications-infrastructure-strategy

Recommendations

In this discussion paper, we argue that the UK's broadband market needs to ensure that fit-for-purpose connectivity is available to everyone, regardless of location, and that it not only meets current demand but is also future-proofed. We define 'fit-for-purpose' broadband services as having speeds that are guaranteed as advertised, a high quality of service, and symmetry between download speeds – which are prioritised by residential users – and upload speeds – which are equally if not more critical for businesses that operate online.

In order to achieve this vision, the FSB recommends the following:

- **An ambitious national broadband strategy to deliver world-beating universal connectivity** to businesses and consumers throughout the UK, with the Government establishing interim milestones and identifying and implementing the necessary policy interventions. Clarity and policy certainty will give small businesses confidence to invest. The forthcoming Digital Infrastructure Strategy provides an opportune moment to commit to an ambitious plan to deliver world-leading digital services in the UK.

- In the short term, the Government should revisit its offer to remote areas. This should be guided by a new **commitment to deliver a guaranteed minimum speed or 'service level floor' of 10 Mbps to all premises in the UK by 2018-19, regardless of location.** This would replace the current target of delivering 2 Mbps to premises in the remaining five per cent of hard-to-reach areas by 2017–18 (one year earlier). In view of existing geographical variations in broadband coverage and rollout programmes already underway, service speeds will necessarily vary by location. However, a universal floor regardless of location is needed and must be much more ambitious than the current target, which is insufficient for small businesses located in the affected areas.

- Also in the short term, **the Government should prioritise the delivery of fibre-optic broadband to new and existing business parks and ensure that enterprise zones and clusters are fully connected.**[6] The aim should be to equip all businesses in these areas with high-speed broadband, with guaranteed speeds and a symmetrical service. Roll-out to business parks should be directed initially at areas where superfast broadband is absent and where the returns on investment will help to spearhead regional economic development. This may require intervention in the leased line market, alongside additional government support and the potential reallocation of existing funds set aside for existing residential roll-out programmes.

- **A medium to long-term objective of delivering guaranteed minimum speeds of 100 Mbps to all premises by 2030.** Setting an ambitious target will send critical policy signals to investors and the market, and will demonstrate to the business community that their digital needs will be met. How the target is achieved will depend on the state of the market and current technology. The FSB is technology-neutral; however, we envisage a combination of fixed (i.e. fibre) and mobile coverage with parallel wireless to accommodate service disruptions. The emergence of 5G offers significant potential, and although it will still require fixed backhaul – and hence is not a substitute for a fixed network – 5G is likely to play an important part in the future technology mix.

6   While Enterprise Zones offer superfast broadband to businesses located within them, not all premises have yet been connected.

- **Reform of the broadband market is needed to deliver better outcomes for small businesses.** We recommend that the Competition and Markets Authority (CMA) conduct, at the request of Ofcom, an assessment of the state of the broadband market and the probable competitive landscape after 2017. The CMA should work with Ofcom to examine options for boosting competition, including in the commercial customer market, so that more small firms can access affordable tailored services, and also to consider the steps needed to create commercially viable opportunities for providers in locations that are currently deemed non-viable. A full assessment of the viability of BT and Openreach becoming fully separate businesses should also be conducted as part of the CMA's review.

- Further steps are needed to **support new entrants into the broadband market.** Smaller independent providers have missed out on opportunities to provide broadband connectivity through the subsidised BDUK programme because contracts have been won exclusively by the incumbent. The practice of existing providers stepping in to build their own infrastructure in areas where viable community networks already exist – so-called 'overbuilding' – should also end: more-effective regulation would ensure this. Where supply is limited or non-existent, new entrants and local community initiatives should also be supported into the market, potentially through tax incentives and by delivering genuine open access to passive infrastructure.

- The Government should consider reforms in the mobile market, including the **viability of moving towards a system of national roaming between mobile network operators (MNOs).** While such a move is not without its challenges, it would ensure that small businesses and consumers can access broadband on the move across a larger geographical area, and have choice of backup in the event of network disruptions.

- Finally, **to ensure stability and consistency of policy, and because of the economic importance of digital connectivity, the FSB believes that all aspects of broadband policy should come under the remit of one department,** with a single minister assuming responsibility for overseeing the delivery of universal connectivity. The current situation, in which pockets of funding for broadband and wider digital initiatives are shared among several departments, is unnecessarily complex and risks hampering policy consistency and creating investor certainty.

For the vast majority of small businesses, broadband has become the 'fourth utility', as the title of this report suggests. Symmetrical superfast broadband is critical to business success, and regional growth and demand is likely only to grow.

As is the case with other infrastructure projects, broadband is critical to the medium- to long-term health of the UK economy. This paper sets out how universal access to the fourth utility can be delivered.

Introduction

—

'Broadband is an essential building block of a growing economy'

Prime Minister David Cameron, 2012.[7]

For the vast majority of small businesses, access to broadband has never been more essential. The emergence of digital communication technologies and the internet have revolutionised business practices across a wide range of sectors and industries. They have also enabled the emergence of start-ups and new growth industries that will be central to the UK's economic performance in the years ahead.

Having an online presence offers incomparable opportunities for small businesses to advertise and sell their products and services and to engage with customers and suppliers. Nearly all firms (94%) agree or strongly agree that a reliable internet connection is critical to the success of their business.[8] Social media, online marketing platforms, e-invoicing, video conferencing and cloud computing are also increasingly important tools for running a successful business.

In order for the UK to be able to compete on the global stage, UK businesses require the infrastructure to be able to innovate and develop new technologies and processes. Ensuring that businesses have access to high-quality broadband services is vital if 'UK Plc' is to remain internationally competitive in sectors where we are strong, such as financial services and the creative industries, and if we are to build expertise in emerging growth sectors, such as high-value manufacturing.

This paper outlines the importance of broadband for small businesses across the UK and sheds light on the lack of suitable broadband provision affecting many firms today. With demand for digital connectivity set only to increase, we argue that a more ambitious and long-term approach is required from Government, coupled with reforms to the market to increase competition and support new investment. These steps will be crucial to providing universal connectivity and maximising the role of small businesses in delivering economic growth and jobs across the UK.

Section 1 provides an overview of current UK broadband policy and delivery programmes, while **Section 2** highlights the experiences faced by small businesses today in accessing broadband services. In **Section 3** we set out several criteria for what 'fit-for-purpose' broadband for small business should look like. This precedes **Section 4**, which analyses some of the fundamental barriers to delivering universal connectivity in the UK. Finally, **Section 5** concludes the report by proposing a series of recommendations for Government, Ofcom and industry.

An extensive range of case studies showcasing the views and experiences of small business owners with their current levels of provision is included as a separate **appendix** to this report.

---

7   http://old.culture.gov.uk/news/news_stories/9332.aspx
8   FSB Small business survey panel: Infrastructure Survey, April 2013.

1. Broadband policy in 2014: The state of play today

—

Today, 80 per cent of UK adults have access to the internet at home via either a fixed or mobile broadband connection or a mobile handset.[9] It should be the UK's ambition to be at the top of the global connectivity league table and to lead the way in the development and use of digital technologies and services.

By the Government's own admission, we are 'only at the foothills of a fully connected world'.[10] In the future, networked objects and devices will be able to communicate with each other. We will see an increased demand for machine-to-machine (M2M) communication, which in many cases will require reliable high-speed connectivity. With this degree of dependence on connectivity, a sudden loss of internet services could have devastating consequences for homes and businesses across the UK.

The Government's broadband policy,[11] in place until 2017–18, stipulates that 95 per cent of premises should have access to superfast broadband of 24 Mbps or above by 2017 and that the remaining five per cent will have access to standard broadband of 2 Mbps.

The original target was to roll out superfast broadband to 90 per cent of premises, but in the June 2013 Spending Round the government announced additional funding to extend coverage to 95 per cent of UK premises by 2017.[12] It also stated that it would explore with industry the feasibility of extending the target further to deliver superfast broadband to 99 per cent of premises by 2018.

In order to achieve its targets, a number of programmes have been put in place. These are:

- The Rural Broadband Programme to deliver broadband in rural areas. After an original promise of £530 million of funding, a further £250 million was announced in the 2013 Autumn Statement to extend superfast broadband to 95 per cent of UK premises by 2017.

- 'Super-connected cities' across 24 cities in the UK. Households and businesses can obtain a one-off voucher worth between £250 and £3,000 to upgrade their connection to ultrafast broadband.[13] The cost to the Exchequer is estimated to be £150 million.

- The Mobile Infrastructure Project (costing up to £150 million) to improve the quality and coverage of mobile phone voice and data services. As part of the conditions imposed during the 2013 spectrum auction for 4G licences, consumers can expect to see a roll-out programme in which at least one of the mobile network operators (MNOs) will cover 99.5 per cent of the population 'indoors' by 2018.

9   http://stakeholders.ofcom.org.uk/market-data-research/market-data/communications-market-reports/cmr13/internet-web/
10   Industrial strategy: government and industry in partnership, Information Economy Strategy, June 2013, p.14
11   https://www.gov.uk/broadband-delivery-uk
12   HM Treasury, Investing in Britain's future, June 2013: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/209279/PU1524_IUK_new_template.pdf
13   In the UK standard broadband is defined at 2Mbps, superfast at up to 24 Mbps and ultrafast at over 24 Mbps. The EU definition of superfast is 30 Mbps. Further reading:http://www.ispreview.co.uk/index.php/2012/05/uk-government-complicates-superfast-broadband-definition-with-30Mbps-target.html

- The Rural Community Broadband fund (up to £20 million) aimed at the hardest-to-reach areas, which are currently without any broadband service at all or on a standard broadband connection of up to 2Mbps.[14]

Sitting above these programmes is the Government's Digital by Default policy, which first came into being in 2011.[15] It requires businesses and individuals to communicate with Government digitally until eventually all paper-based communication is phased out. Despite this policy being in place, some areas of the UK are still unconnected and will continue to remain unconnected until at least 2017, and possibly beyond.

However, in a July 2013 paper entitled 'Connectivity, Content and Consumers: Britain's Digital Platform for Growth', the Government for the first time provided an indication of its ambition beyond 2017. Following this, the Department for Culture, Media and Sport (DCMS)[16] recently consulted on its 'Digital Communications Infrastructure Terms of Reference', which was launched in January 2014. The Government's intention is that this work will inform the development of a longer-term 'Digital Communications Infrastructure Strategy for 2025–30', which should be available to the public by the end of 2014.[17]

This is commendable and an important first step. However, it is crucial that the emerging strategy is ambitious and far-reaching, and sets out how Government intends to extend or supersede the emerging national standard – namely, Fibre to the Cabinet (FTTC) technology – and deliver a more capable architecture that will provide 'fit-for-purpose' connectivity for all. By way of comparison, it is interesting to note that the European Commission at present has a more ambitious programme for connectivity and digitalisation than current UK targets. The European Digital Agenda has 13 specific targets, including that the entire EU will be able to access broadband speeds of at least 30 Mbps by 2020, and that 50 per cent of European households will able to access 100 Mbps in the same timeframe.[18]

Individual EU member states and non-EU countries have also set significantly more ambitious targets than the UK. Finland, for example, is committed to offering universal access of 100 Mbps to its citizens by 2015, while in South Korea 90 per cent of the population will have access to 1000 Mbps (1 Gbps) by 2017.[19]

The need for ambition correlates with expectations of user demand. Recent figures from the International Telecoms Union (ITU) show increasing global demand for ICT products and services. By the end of 2013 there were 6.8 billion total mobile phone subscriptions – almost as many as there are people on the planet. An estimated 2.7 billion people will also be connected to the internet.[20] We will address the issue of user demand in more detail later in this report.

14   https://www.gov.uk/broadband-delivery-uk#rural-community-broadband-fund
15   https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/78060/DCMS_Digital_Strategy.pdf
16   https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/225783/Connectivity_Content_and_Consumers_2013.pdf
17   https://www.gov.uk/government/publications/digital-communications-infrastructure-strategy
18   http://ec.europa.eu/digital-agenda/en
19   Ibid.
20   http://www.itu.int/net/pressoffice/press_releases/2013/41.aspx#.U00mKzhwbcs

Criticisms of broadband delivery

___

While UK broadband policy aspirations over the last decade have been well intentioned, delivery to date has revealed several shortcomings and has been subject to much criticism.

In the current Parliament, both the fixed and the mobile broadband delivery programmes have been marred by delays. The original target date for delivering superfast broadband to 90 per cent of premises was 2015, but this was subsequently pushed back to 2017.

Among the programmes that have been singled out for criticism is Broadband Delivery UK (BDUK), the UK Government's flagship scheme for delivering rural broadband to the most remote areas, using public funds where necessary. Created following the publication of the Treasury's National Infrastructure Plan (NIP) and permissible with State Aid rules, BDUK subsequently became an independent unit within the DCMS. It acts as the central liaison body for local authorities, helping them to develop and approve local broadband plans, and allocates BDUK funding accordingly. In order for a project to go ahead, BDUK funds have to be matched by the relevant local authority.[21]

In May 2013, the Major Projects Authority's report gave the BDUK programme an 'amber/red' rating, meaning that it was at risk of failing and urgent action must be taken to rectify the problems.[22] Later in the year, the National Audit Office (NAO) issued a report on rural broadband delivery that was critical of BDUK. While the report focused mainly on value for money in supporting rural broadband roll-out, it was highly critical of delays to the programme and inadequate risk management. It associated the latter with the fact that the majority of public funding had gone to BT, the dominant supplier of broadband services in the UK's largely unregulated fibre-optic market.

At two Public Accounts Committee (PAC) hearings in July 2013 and January 2014, MPs probed further into the BDUK programme. The Committee stated that the programme was not providing value for money and needed to be far more transparent so that smaller internet service providers (ISPs) would have a viable opportunity to plug the gaps where BDUK and BT had chosen, on economic grounds, not to deliver broadband services.[23]

On 1 April 2014 the PAC published a second report on the BDUK Rural Broadband programme. It concluded that BDUK had failed to ensure meaningful competition in the broadband market and that the Committee's previous recommendations on transparency and ensuring value for public money had not been acted upon sufficiently. The Committee also called for a higher standard of cost and data transparency in order to drive competition in the broadband market.[24]

It is within this context that the practices of BT have been criticised by several commentators. Allegations that the company has excluded business parks in local delivery plans have been made by witnesses giving evidence to the PAC.[25] It has also been suggested that BT has used its dominant market position to undercut smaller independent providers on price.[26]

21   https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/78021/BDUK-Programme-Delivery-Model-vs1-01.pdf
22   https://www.gov.uk/government/publications/government-major-projects-portfolio-data-for-dcms-2013
23   http://www.publications.parliament.uk/pa/cm201314/cmselect/cmpubacc/474/47402.htm
24   http://www.publications.parliament.uk/pa/cm201314/cmselect/cmpubacc/834/834.pdf
25   http://www.publications.parliament.uk/pa/cm201314/cmselect/cmpubacc/474/474.pdf
26   http://www.inca.coop/inca-news-september-2013

Furthermore, several Rural Community Broadband Fund projects[27] have been rejected on the grounds that they cannot demonstrate their eligibility. In order to be eligible, the projects must be located in the final 10 per cent of the country not covered by the Local Broadband Plan. But the exact reach of the Local Broadband Plan is deemed commercially confidential by BT and is therefore not publicly available. In effect, therefore, any provider that wishes to bid for a project has to wait until BT has publicly revealed its delivery plans and usually therefore can only put in a competing bid. It has been suggested that this procedure, and the general lack of transparency concerning BT's costs and deployment plans, is effectively shutting alternative providers out of the market and in turn hindering broadband delivery.

It is critical that the government considers the lessons learned from each of these programmes when it draws up its long-term Digital Infrastructure Strategy. The problems have not been confined to the roll-out of fixed broadband, however.

Lessons can also be learned with regard to how broadband policy is run and managed from Whitehall. Before 2011, responsibility for broadband was shared between BIS and DCMS, with both departments overseeing the regulatory functions of Ofcom and creating a degree of policy confusion as a result. While the decision to move primary responsibility for broadband policy from BIS to DCMS in 2011[28] attempted to address this concern, the subsequent role of DCMS particularly in the design and delivery of the rural roll-out and its relationship with BDUK has been heavily criticised, including by the PAC. From a business perspective, transferring responsibility away from BIS has also meant that broadband policy is now one step removed from other Government initiatives to spur private-sector growth.[29]

Even today, broadband policy remains to a certain extent dispersed across Government. Small pockets of funding for broadband and the wider digital connectivity agenda are being levered by several departments, including Defra and the Cabinet Office. This situation arguably undermines the Government's ability to align its priorities and provide policy clarity for businesses and investors.

Delivery of mobile broadband investment has also encountered problems. Key programmes have been delayed owing to issues to do with Annual Licence Fees (ALFs) and the reform of the Digital Communications Code (DCC), both of which remain unresolved and place in doubt the actual coverage levels that will be achieved.

There is also a wider concern about mobile broadband, which centres on a technical debate over whether it can replace fixed broadband technology in the future – a debate to which we now turn.

27   https://www.gov.uk/government/news/government-boosts-hill-farm-and-upland-communities-support
28   https://www.gov.uk/government/news/transfer-of-responsibilities-from-bis-to-dcms
29   http://robbratby.com/2011/01/23/uk-telecoms-policy-moves-government-department-as-proposals-for-new-communications-act-announced/

The role of mobile broadband

—

The mobile broadband market is significantly different from the market for fixed broadband. It consists of over 50 providers: four main operators (Vodafone, O2, EE and Three) own their own masts and towers, while a host of mobile virtual network operators (MVNOs) including BT Mobile, Tesco Mobile and giffgaff offer voice and data services that are carried over the networks of the 'Big 4' at wholesale rates. While there are fewer players than in the fixed market, the mobile market is more vibrant, with a greater variety of products at a wider range of prices than in the fixed market.

The importance of mobile broadband cannot be overstated. Almost three quarters (71%) of small businesses say that mobile phones are crucial or very important to their business. 4G services, i.e. high-speed mobile broadband, are becoming more widely available, and demand is increasing as consumers and businesses conduct their online affairs on the move. Currently, consumers can experience high-speed services with little congestion on the networks. However, higher demand for mobile data in the future is likely to congest networks, and speeds are likely to slow down.

As with fixed broadband, many small businesses are unable to obtain the quality of mobile service they require. Mobile broadband services are often expensive at the premium package rates required for business purposes, while coverage is often unreliable, particularly in rural and semi-urban areas. The Countryside Alliance has estimated that mobile network 'not-spots' costs the British economy £1.3 bn per year.[30] According to our own survey data, 57 per cent of small businesses say they experience no or poor mobile signals 'very often' or 'quite often' when using their phone for business services, while half say the lack of a mobile signal has a negative impact on their business.[31]

The subject of mobile 'not-spots' is particularly important for the small business community. RootMetrics, an organisation that monitors mobile performance, has created a Coverage Map[32] on which users can see in very granular detail the level of mobile coverage available in their area. This includes data on how mobile networks perform when customers make a call, send a text, or upload a photo on their phone.[33] Although the interactive coverage map shows that the majority of the UK is able to receive an acceptable mobile signal, there are still many areas where coverage is poor and intermittent.

In the light of these concerns and given the technology currently available, it remains questionable whether mobile broadband will remove the need to provide a fixed broadband network in the near future. There are a number of reasons for this. Firstly, mobile broadband does not at present have the capacity or the required grade of service to satisfy the growing demands of consumers and the business community. Secondly, delivering high mobile bandwidth requires high-capacity backhaul. Some mobile network operators own their own backhaul capacity, but it is more common for MNOs to buy access to backhaul from fixed operators. As a result, mobile providers are largely dependent on the existence of a fixed network.

In view of these limitations, and given the problems many businesses already face in accessing decent mobile coverage, it is likely that mobile broadband will continue to be a essential complement to, rather than a replacement for, fixed broadband. This is particularly the case for businesses on the move, which increasingly require constant high-speed mobile connectivity.

30   http://www.countryside-alliance.org/ca/4g-broadband/download-our-mobile-phone-coverage-report-sick-of-no-signal
31   FSB Small Business Survey Panel, Infrastructure Survey, April 2013.
32   http://webcoveragemap.rootmetrics.com/uk/
33   http://webcoveragemap.rootmetrics.com/uk

———

The emergence of 5G, however, sheds light on the significant potential of mobile broadband technologies. The group Digital Business First (DBF)[34] has argued that 5G may be a game changer for the UK's broadband needs and could be capable of providing a credible broadband infrastructure network delivering globally competitive speeds throughout the UK.

While the precise definition of 5G remains to be determined, it will essentially involve a different network design and backhaul architecture, which should enable it to integrate more efficiently with the fixed network to deliver high data rates and very low latencies. Building on existing 2G, 3G and 4G networks, 5G could enable a variety of technologies with high data volumes including high-quality video services, machine-to-machine (M2M) communications and augmented reality, which use more frequencies (not just higher bandwidth) from across the radio spectrum.[35]

The 5G spectrum currently available in the UK is small; however, Ofcom has signalled that further spectrum is likely to be auctioned in 2015–16. Should sufficient spectrum be released and the required investment be forthcoming from fixed and mobile providers,[36] 5G is likely to form a key part of the solution to meeting the UK's broadband needs. Government will therefore need to seriously consider the options for 5G as part of its long-term Digital Infrastructure Strategy and put in place an appropriate policy and regulatory framework to harness the potential of 5G.

In the meantime, the reliance on mobile broadband and voice services is likely to increase. For example, Cisco, which conducts regular global mobile data forecasts, has found that traffic grew by 70 per cent in 2012. Average smartphone usage grew 81 per cent in the same period, while the number of mobile-connected tablets increased 2.5-fold to 36 million, and each tablet generated 2.4 times more traffic than the average smartphone.[37]

Given the projected growth in demand for mobile technology and the persistence of network outages and black spots, especially in rural areas, there are strong arguments for reforming parts of the mobile market, and several ideas have been put forward. Among them, the FSB believes that there is merit in exploring the potential for moving towards national roaming between MNOs.

Advocates such as the Foundation for Information Society Policy (FISP)[38] argue that national roaming would achieve comparable levels of coverage to what is on offer today at a lower cost and with a better customer experience. So far, however, Ofcom (and DCMS) have decided against any examination of national roaming, reportedly in order to avoid lengthy legal challenges by spectrum owners. Critics have also pointed out that national roaming could lead to a 'race to the bottom' between mobile providers by reducing the incentive to invest in resilient networks.

As the European Union Agency for Network and Information Security (2013) has argued, however, this problem could be addressed either by restricting national roaming to specific circumstances, for instance to deal with severe outages or persistent black spots, or by levying 'intra-provider roaming costs' (i.e. charges to use other networks) on the operator suffering an outage, which in turn would give operators an incentive to invest in more resilient networks to prevent outages in the future.

34   http://media.wix.com/ugd/aba692_b90320e5f53c426a82fe8edb699c3dfa.pdf
35   See for instance 'EE makes the case for 5G', 19 May 2014: https://ytd2525.wordpress.com/category/5g/ and 'Cisco: 5G will be fast and smart, but perhaps not by 2018', http://www.policytracker.com/headlines/cisco-says-that-5g-will-be-fast-and-smart-but-perhaps-not-by-2018 19th May 2014
36   Ibid.
37   http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-520862.html
38   http://www.fisp.org.uk/

———

Regardless of these debates, national roaming for both voice and data is favoured by customers, and 79 per cent of small businesses agree or strongly agree that mobile phones should pick up the strongest signal regardless of network[39] – a view that is likely to stem from years of frustration with inadequate voice services (see case studies 18 and 22 in the appendix).

39   FSB Voice of small businesses infrastructure survey , April 2013

2. Small businesses and current broadband provision

—

The majority of small businesses in the UK use broadband to run their business. According to a recent FSB survey of over 8,700 small business owners, 65 per cent access broadband through a wired connection. However, only 12 per cent have a fibre-optic connection, while a further 35 per cent rely on a mobile connection.[40] Perhaps most worryingly, 1% of small businesses (and therefore as many as 45,000 of Britain's 4.5 million small firms in total) still use a dial-up connection for business purposes, quite possibly because they have no other option.[41]

The digital divide between those businesses that enjoy sufficient broadband connectivity and those that do not is still far too great.[42] As many as 14 per cent of small businesses across the UK see lack of reliable and fast broadband connectivity as their main barrier to growth. For those businesses that are connected to broadband, levels of satisfaction with the service tend to be low. Only 15 per cent of small businesses say they are very satisfied with their broadband provision and a quarter of small firms say they are fairly or very dissatisfied.[43]

This supports the FSB's view that the ability to access high-quality, 'fit-for-purpose' broadband is off limits for many small businesses across the UK. This is often the case for businesses in rural locations. However, companies in urban and semi-urban areas also suffer a poor service.

Case study: Chiltern Training, Reading

We have problems with the speed of broadband to our office, which is in Reading town centre. We are a training company and have about 100 learners and 15 staff in each day. The speed is often very slow. We would love fibre-optic broadband to be rolled out more quickly by BT.

The best service currently available on our road is based on ADSL2+ which provides up to 24 Mbps download. But this is only a nominal speed and it is unlikely that anyone can get more than about 16 Mbps. This depends on a number of factors, including distance from the exchange and the quality of the external and internal telephone and network cabling and equipment. The average speed is around 6 Mbps. We currently pay for two separate broadband services to our offices and the current download speeds are 12 Mbps and 8.5 Mbps.

There are other specialist providers that offer fibre-based services but they are more expensive and would require us to pay for costly installation work. We have been advised that a 25 Mbps service would cost about £600 per month, with installation costs of £2,500.

---

40   FSB The Voice of Small Business survey panel, Member Survey, March 2014.
41   FSB The Voice of Small Business survey panel, Member Survey, March 2014.
42   Ibid.
43   FSB The Voice of Small Business survey panel, Infrastructure Survey, April 2013.

For many small firms, cost restrictions and the commercial considerations of service providers are key barriers to better-quality broadband – and are often cited by FSB members. With regard to cost, small businesses are at a disadvantage when it comes to what they can and cannot pay for. Larger business can often afford to invest in leasing an ultrafast fibre-ethernet connection, which provides very high bandwidth and a high service level agreement (SLA), including timely repair and maintenance support. The cost of such a bespoke service is very often out of the reach of smaller businesses.[44]

Secondly, the type of service offered by providers often does not meet the needs of small businesses. Many ISPs focus primarily on providing paid-for content to consumers, with download speeds dominating the offering. For businesses, however, upload speed is usually of equal if not greater importance. In order to transfer files and deliver goods and services online, a fast upload speed is crucial, as it is for remote working and for online video conferencing. Yet many small firms do not currently enjoy sufficiently fast upload services.

Case study: Orange and Blue, Oxfordshire

I currently work from a home office, running a networked design agency. Our download speed is not bad: 13-18 Mbps. My problem is upload speed. Upload speed is a significant factor in providing a fast and reliable service for our clients.

However, at present, my upload speeds are extremely poor. I enquired from BT whether this would be better if I upgraded to a business deal with them and was informed that it would be unlikely to improve upload speeds.

The mismatch between the needs of small businesses and the type of service offered points to a problem in a market that is driven by commercial considerations: namely, the current focus of service providers on the domestic market at the expense of the small business market. For an ISP, selling a bundled package (broadband, TV service and a landline) to a household is often more profitable than selling a broadband connection to a small business, unless it is a leased line.

This situation – and the desire among ISPs to protect their leased line revenues – explains why small businesses have been overlooked by providers in the roll-out of local broadband programmes, including those in business parks. In some cases, business parks in close proximity to fixed broadband infrastructure have been excluded while nearby households have benefited. (Case studies 4, 9 and 11 in the appendix provide first-hand evidence of this.) One option for companies located on business parks is to consider jointly purchasing and sharing a lease line; however the up-front installation and ongoing service charges can quickly escalate and any savings from 'clubbing together' are often negligible. There is also the risk of free riding by businesses who do not participate, which creates further disincentives to invest.

---

44 A leased line does not come at a fixed cost but is a bespoke service depending on the distance from the exchange, what speed is needed, what SLA is required, etc. The ISP will assess the requirements and quote a price for installation and the cost per month for leasing the line, which typically costs several hundred pounds a month.

Case study: Business Park in Greater Manchester housing 21 small and medium-sized businesses

Our business park is located a four-minute walk from a cabinet that is enabled with fibre-optic cable but the business park itself is not enabled and is not part of the current broadband roll-out plan.

Each individual business within the park has been offered leased lines into their business at a typical installation charge of £500 and an annual rental cost of £5,200 + VAT. This is for a three-year contract at a speed of 10 Mbps. So, not very fast and a lot more than what domestic consumers pay for similar speed connections to their homes just yards from where we are based. And if businesses want to club together, the charges double accordingly.

We are held back from embracing the rapid growth that is currently taking place in our region. We are unable to bring in more efficient ways of working through cloud computing and remote working. Some of us have to bring our work home on a memory stick in the evening and upload it to the cloud as our home broadband is that much faster.

At present we are all getting less than the minimum speed required to fill in compulsory online tax returns from HMRC. It beggars belief that small businesses are not prioritised in the current broadband roll-out. We generate growth, we employ local people, and we strengthen local economies. Why should we not have the same broadband service as local residents?

Even in Enterprise Zones, the availability of broadband provision can be limited, and this is despite a Government commitment to ensure that companies located in these areas are able to access superfast broadband. As recently as December 2013, it was revealed that nine of the 24 Enterprise Zones in England were still without superfast broadband three years after their creation, with several of the remaining 15 zones having only 'partial' access.[45] A recent investigation into the Shoreditch Tech City hub, which is home to the 'Silicon Roundabout' at Old Street, found that many start-ups and existing tech businesses in the area were still without fibre broadband services.[46]

For many UK firms, then, access to high-quality broadband remains severely limited. Unless they are prepared to pay for an expensive bespoke leased line, either individually or collectively, most small firms have little option but to opt for a standard (i.e. copper) business contract. These tend to be far less reliable with significantly lower bandwidth speeds and a significantly lower SLA than a leased line. This is the predicament facing most small businesses in the UK today.

In some areas of the country where high-quality broadband is lacking, communities and local businesses are responding by working together to attract alternative providers or build community networks themselves. In the FSB's view, Government and local authorities should be encouraging this and facilitating the entry of alternative providers, such as community-based initiatives, into the market to deliver broadband services where there are gaps in provision. The programme of broadband investment being implemented by City Fibre in Peterborough shows that high-quality broadband can be delivered to communities and businesses at symmetrical low latency speeds and at prices that are comparatively lower than a leased line connection (see box 1).

45   http://www.ft.com/cms/s/0/c01ddaa4-b5c1-11e3-81cb-00144feabdc0.html#axzz31hMZD5Rs
46   http://www.thesundaytimes.co.uk/sto/business/Tech_and_Media/article1409274.ece

There are other examples across the UK of community or private-sector-led initiatives that have been deployed to meet demand from local communities. In response, the Independent Networks Cooperative Association (INCA) recently launched a Broadband Not Spot Registration Scheme under which a community that lacks broadband services can register and subsequently be matched with an independent ISP that can deliver fast, reliable and cost-effective broadband services to that community.[47]

In order for them to be successful, it is crucial that private and community initiatives are allowed to proceed freely. As discussed above, several have allegedly been halted as a result of the commercial practices of BT, which – it has been argued – has built over networks once demand has been established, and subsequently offered broadband services at a lower rate.[48] We address BT's dominant role in the market and the problems that this causes in more detail in Section 5 of this report. A related problem concerns the lack of private investment in new local broadband infrastructure, and while there are positive signs in certain parts of the country that ISPs are starting to build new networks, new investment remains limited. This again will be addressed later in the report.

Box 1: Peterborough CityFibre network www.cityfibre.com

Businesses and residents in Peterborough are set to benefit from a city-wide, pure fibre-optic network, delivering Gigabit connectivity speeds. This brand new infrastructure will be paid for by a wholly private investment in Peterborough of up to £30 million by CityFibre, the UK's largest independent provider of fibre-optic infrastructure to smaller cities and towns.

Peterborough has been identified by CityFibre as one of the UK's fastest-growing cities, with a record 1,400 SMEs launched in 2012. The new fibre network will see internet connections offering speeds of up to 1 Gigabit per second, approximately 40 times faster than current superfast broadband.

The new network will be available to 80 per cent of Peterborough's businesses and will enable the local authority to achieve efficiencies and improve public services. Peterborough City Council has developed a Strategic Partnership with CityFibre to provide a framework to meet the Council's strategic objectives in the delivery of Gigabit speed services.

---

47   http://www.inca.coop/notspot
48   http://www.inca.coop/inca-news-september-2013

3. Defining 'fit for purpose': What should UK plc aim for?

In contrast to other countries, broadband technology has been slow to take off in the UK. Following the 3G spectrum auction[49] in 2000, there was a time lag before consumers started taking up mobile broadband services. The main reason for this was the time it took for products using 3G to be developed and for associated software applications to reach the market.

Take-up of fixed broadband services has followed a similar pattern, with consumers waiting for online interface delivery products to emerge. This has led to a tendency among some operators to argue that demand was lacking and that, consequently, the building of new network capacity was not necessary.

In recent years the situation has shown signs of changing, with the announcement by BT and other providers of major investment programmes, in apparent recognition of the growing scale of demand for broadband services. Indeed, it is increasingly clear that the point at which consumers view fast and reliable broadband as an everyday necessity has arrived – and it is arguably the case that supply is now failing to keep up with demand. The Government's decision to revise its original broadband target of delivering 24 Mbps to 90 per cent of premises by 2015 and 2 Mbps to the remaining 10 per cent illustrates this point neatly. While it did represent a positive attempt to establish a minimum level of service, within a year it was being criticised as inadequate and failing to meet the needs of too many consumers – in particular the 'final' 10 per cent.

We can be confident that demand will continue to increase in the future and all UK businesses and citizens will need access to 'fit-for-purpose' broadband that is better and faster than today's average speeds. From a business perspective, this is borne out by changing commercial practices and a growing dependence on digital technology. In a 2014 FSB 'Voice of Small Business' survey, 72 per cent of respondents said they expected their reliance on the internet to increase or increase significantly over the next two years, while 78 per cent expected it to increase or increase significantly over the next five years.[50]

The Government has for the most part subscribed to this argument and vision for the future. In the Information Economy Strategy strand of the Industrial Strategy launched in 2013, it speaks of the 'internet of things' and a 'fully connected United Kingdom' where every citizen is online and connected and where digitalisation plays an important part of every aspect of our life. The challenge now is to translate vision into reality.

As discussed in Section 1, the Government's forthcoming Digital Communications Strategy offers an opportunity to develop with stakeholders a medium- to long-term plan to deliver 'fit-for-purpose' and future-proof universal broadband connectivity. Critically, any national broadband strategy must be based on an informed yet ambitious view, which puts demand ahead of supply considerations, and brings high-quality broadband services to the whole of the UK.

Within the context of this strategy, there is a strong case for reviewing the appropriateness of existing targets: in particular the current target to provide a floor of 2 Mbps to the remaining 5 per cent of premises. FISP has argued that the Government should commit to delivering a more+ ambitious 'service level floor'.[51] This would reflect a defined minimum service for bandwidth and quality of service at the

---

49   Took place in April 2000 and netted the UK Government 22.47bn; there were five winners that won spectrum licences to provide 3G services: http://news.bbc.co.uk/1/hi/business/727831.stm
50   https://www.gov.uk/government/publications/information-economy-strategy
51   http://www.fisp.org.uk/wp-content/uploads/2013/09/FISP-No.1-Feb2013-Final.pdf

point of consumption, available to all consumers (business and residential) wherever they are located. Crucially, it should also include reliable and guaranteed connectivity, providing at least the minimum speed at all times, and a high degree of bandwidth symmetry. This would reflect business concerns: 30 per cent of small businesses have said that they are dissatisfied with the reliability of their connection, their upload speed (38%) and their download speed (48%).[52] A further 27 per cent say they are dissatisfied with the value they are getting for their money and with the cost of their connectivity.

Defining what we mean by 'fit for purpose' is not without its difficulties, however. Indeed, there are differing views on what represents adequate speed, symmetry and latency levels. This problem is highlighted by the different definitions used by the UK Government and the EU to describe superfast broadband: the former considers up to 24 Mbps to be superfast while the latter uses 30 Mbps, a point acknowledged by Ofcom (which itself uses the EU definition in its 2013 Infrastructure report).[53] The challenges and complexities of defining speed are discussed in Box A below.

Defining high-speed broadband

The broadband speed that can be achieved is dependent on many different factors. These include what type of technology it is delivered over, the distance the premises are from the street cabinet or exchange, and also how many lines are shared on that cabinet or exchange.

In the UK, as in many other countries, ISPs are using innovative ways of delivering broadband services over infrastructure that predates traditional – i.e. copper wire – broadband technology. Copper infrastructure was only ever intended to deliver voice services, not data. New technologies have meant that more capacity than previously thought possible can be squeezed out of copper wire. However, unlike fibre-optic cable, copper wire will eventually reach a limit.

A recent study published by Ofcom reported that the average broadband speed in the UK is 17.8 Mbps. This figure means little to individual small businesses, but Ofcom has also created a clickable map available at http://maps.ofcom.org.uk/broadband/ which shows the average speed of any given region and the proportion of premises experiencing very fast and very slow speeds. It is interesting to note that while superfast broadband is available in 89.1 per cent of premises in greater London, 5.4 per cent of London is getting less than 2 Mbps. Indeed, ISP Pro has argued that no single city or region in the entire UK can at present achieve 24 Mbps superfast connectivity for 100 per cent of premises.

A further problem is that of guaranteeing advertised speeds. Recent data published by Ofcom has shown that actual average speeds are in some cases far lower than advertised for certain fixed-line contracts: for instance, the average speed of packages advertised as offering speeds better than 'up to' 10 Mbps and below 'up to' 30 Mbps was found to be 8.4 Mbps during the month of November 2013.

This issue has been taken up by the consumer group Which?, which has found that three in five people experience problems with their broadband and nearly half have suffered slow speeds. They have launched a campaign calling on broadband providers to give customers written estimates of speed at the start of their contract and to allow them to exit from contracts without penalty at any point if they cannot get the minimum speed, and to obtain refunds for loss of service.

52   FSB Small Business Survey Panel, Infrastructure Survey, April 2013, FSB 'Voice of Small Business' member survey, March 2014: http://www.bcs.org/upload/pdf/foundation-for-info-society-policy-feb13.pdf

53   http://stakeholders.ofcom.org.uk/binaries/research/telecoms-research/infrastructure-report/IRU_2013.pdf

A 'fit-for-purpose' minimum service level would not necessarily mean that service levels should be the same everywhere. In areas where super- and ultrafast broadband networks are already established, bandwidth levels are likely to be higher than in those areas starting from a lower baseline service. Furthermore, the roll-out of more advanced services (exceeding the minimum service level floor), might involve a phased approach tailored to the needs of certain small businesses in a given area – for instance, those located in business parks or in hi-tech industry clusters that are especially dependent on ultrafast broadband. This would allow Government to focus on meeting the needs of 'earlier adopters', and would enable the area in question to be ready for the 'followers'.

Regardless of which approach is taken, the minimum service level floor would provide an ambitious universal benchmark and thus form an integral part of any long-term Government strategy to provide universal connectivity. In the short term a reasonable but sufficiently ambitious target would be to deliver 10 Mbps to all premises by 2018-19, as opposed to the current 2 Mbps universal target. As technology and bandwidth demand are constantly evolving, the service level floor would need to be reviewed regularly and possibly altered to ensure that it meets business needs. In the medium to longer term, 100 Mbps to all premises by 2030 should be considered.

Committing to these targets would signify ambition and give the necessary policy signals to the market, which is best placed to decide how the targets are met and what technology is involved. The latter will necessarily be determined by cost, and, depending on the technology used, estimates vary significantly. To give an example, the Broadband Stakeholder Group have estimated that providing Next Generation Access (NGA), which involves speeds greater than 24 Mbps (the maximum that can be supported by existing copper networks) to 100 per cent of the UK would cost around £29 bn.[54] A more recent study by Point Topic, however, estimates the cost for delivering NGA to the whole of the UK to be £7.2 bn.[55] The difficulty in estimating costs arises in part from the assumed start and end points of the fibre network. The further it penetrates, the higher the cost.

Despite these uncertainties, it is reasonable to expect a mixture of fixed-fibre technology, including FTTP and FTTC, and that mobile will form part of the technology 'mix' necessary for achieving fit-for-purpose universal connectivity in the short to medium term. Parallel universal wireless coverage should also be developed to give fixed customers choice and alternative access in the event of disruption. The emergence of 5G could significantly alter the technology mix and is discussed in Section 1.

To small businesses and consumers, these questions are fundamentally less important than the ultimate objective of being able to access fit-for-purpose broadband. Nevertheless, if ambitious long-term targets were set and potentially agreed on a cross-party basis, businesses would benefit from long-term certainty on broadband policy. In the interim, it would inform small business engagement with providers with respect to securing a better package, and help them plan their own investment decisions.

If the Government is to see its vision of 'universal connectivity' and 'digital by default' come to fruition, a long-term strategy incorporating an ambitious minimum service level floor is essential. But targets alone will be insufficient. In order have any chance of achieving this ambition, the Government will need to address the current structure of the market, the state of existing infrastructure and other barriers to universal connectivity that we are faced with today. We consider each of these in turn in the next section.

54   http://www.computerworlduk.com/news/it-business/10868/29bn-price-tag-for-superfast-broadband-in-uk/
55   http://point-topic.com/press-and-events/2013/europe-superfast-broadband-digital-agenda-scoreboard-update/

4. Main barriers to achieving universal connectivity

—

The current market model

The current broadband market model has evolved from policy and regulatory decisions made over the past three decades. It has led to considerable retail competition in some, densely populated, geographical areas and low levels of competition in semi-urban or rural areas.

One consequence of this imbalance is that if several fixed-network and mobile competitors were to withdraw from the market, as is possible if their business models change or are no longer sustainable, the result would be even less competition and ultimately fewer fixed broadband options for consumers in less densely populated areas. This is made more likely by the absence of a long-term regulatory framework.

In order to fully understand and rectify this imbalance, it is important to consider the current structure of the market.

Today, there are over 100 fixed-line internet service providers (ISPs) in the UK. BT is the dominant ISP with 30 per cent of the retail communications market. Virgin Media has 21 per cent of the market, Sky has 19 per cent, TalkTalk has 17 per cent, and other ISPs of various sizes share the remaining 13 per cent of the market between them.[56]

On the supply side BT and Virgin are the two principal owners of broadband infrastructure, though there are others that own a smaller share of the network.[57] British Telecom was created in 1980 but was at the time still part of the Post Office and still under obligation to provide a universal telephone service and other basic services.[58] It was privatised in 1984 and half of its shares were sold to private investors. As a consequence of its original obligation to provide universal telephone services, BT owns and maintains passive infrastructure (PI)[59] across most of the UK.

Owing to its significant market power,[60] since 2005 BT has been required by the UK telecoms regulator, Ofcom, to allow access to its copper network through local loop unbundling (LLU). This means that ISPs that do not own and operate their own infrastructure can rent access to BT's copper access network infrastructure to offer broadband and telecoms services to their customers.

In theory, this model should work provided that the regulatory controls are in place. While it has been claimed that NGA infrastructure is 'open access', this depends on how 'open access' is defined. In most cases the incumbent provider retains control of the access and switching and is able to dictate terms and conditions. To many, this is not 'open access' in the truest sense of the term, and instead might serve to perpetuate supplier dominance in the UK market.

---

56   http://media.ofcom.org.uk/facts/
57   http://www.thinkbroadband.com/news/4653-sky-are-to-trial-bt-openreach-s-physical-infrastructure-access.html
58   http://stakeholders.ofcom.org.uk/consultations/uso/main/
59   PI includes ducts, poles and dark fibre. PI is an essential element of telecoms infrastructure but does not actually carry or modify signals. Because up to 80 per cent of the cost of laying new fibre lies in digging new ducting or erecting new poles, the lack of access to PI is a major barrier to new entrants.
60   This requirement on BT has been in place since liberalisation; it effectively remained unmet, however, until functional separation was imposed on BT in 2006.

It is well understood that the current commercial roll-out of NGA services is both costly and challenging and that ISPs are investing heavily in projects with a long-term return. However, there is a strong argument that if access to passive infrastructure were not constrained by the existing regulatory regime, competition would encourage active infrastructures to co-exist over a wider area than today.

Better access to passive infrastructure would also encourage more entrants into the retail market. Yet, rather than moving in either of these directions, there is a major risk that the market – with state support in some areas – is creating a duopoly (BT and Virgin Media) in the provision of broadband infrastructure in urban areas and a monopoly (BT) in rural ones.

To ensure that true competition is fostered in broadband, it is essential to look beyond 2017 when assessing the UK policy and regulatory framework for broadband delivery. In order to deliver a longer-term strategy that gradually reduces the need for public investment, Government should work with the network operators to better understand what changes could be made to create commercially viable opportunities in areas that are currently deemed non-viable. This would require a willingness, particularly on the part of BT, to explore changes to its existing commercial models.

One, albeit highly controversial, way of achieving this would be to require BT to allow unrestricted access to its passive infrastructure. Ofcom concluded in a recent Business Connectivity Market review that it would not proceed with the imposition of passive access at this time, citing concerns about the possible inconsistency with its statutory duties and current approach, including the use of price controls on BT's wholesale leased line services.

Others have argued, however, that passive access would enable more competition and innovation in the market and provide a greater incentive for providers to invest – which could lead to more diverse, faster and more reliable broadband services for consumers and businesses alike.[61]

In the absence of greater passive access, more fundamental market reform may be necessary. A starting point for this would be to review the role of existing ISPs in the fixed broadband market at present and the likely levels of competition at the end of the current roll-out period. The functional separation of BT that resulted in LLU was supposed to open up the market, but has not had the intended effect. Instead, it has resulted in targeted connectivity in areas where it is profitable for BT to invest. In the FSB's view, a comprehensive debate among key stakeholders to explore alternatives to the current market model – and whether a more competitive model will open up new commercial opportunities for all actors in the market, including BT – is now overdue.

One option that Government might consider is the feasibility of fully separating BT from Openreach to enable the latter to operate as an independent business. Among the arguments in favour of structural separation are the following:

- It is a huge task to upgrade BTs copper wire network to fibre; it will cost several billion pounds depending on the estimates used. This is more than either BT or Government is currently willing to spend. Even so, both BT and Government are under considerable pressure to upgrade broadband services to meet consumer demand for speed and connectivity throughout the UK.

- The BT network has unparalleled – and near universal – reach if both passive and active infrastructure are included. This is potentially an enormously attractive resource to external investors. With additional private capital, necessary upgrades to the UK's communications

61   See, for instance, the views expressed by a number of stakeholders in response to Ofcom's Business Connectivity Market Review: http://stakeholders.ofcom.org.uk/binaries/consultations/business-connectivity/statement/Sections8-16.pdf

infrastructure could be carried out faster and higher-capacity wholesale access than is possible today could be available sooner.

- Further delays in upgrading BT's infrastructure will affect what other ISPs are able to offer, but also what BT's retail arm can offer. This is detrimental to the roll-out of broadband provision. If it were to divest itself of its wholesale arm, BT's retail business could reinvent itself and present a very different business proposition from what it can today to meet evolving consumer demands.

- From a government perspective, the argument in favour of preventing providers from controlling wholesale or enabling infrastructure while simultaneously dominating the retail market has gained traction in other sectors as a means of opening up competition – e.g. the area of bank payments, where the Government is acting. Extending this principle to the telecommunications sector would necessarily involve scrutiny of BT's existing role.

Reforming the market in this way would represent a major overhaul of the broadband sector and should be approached carefully with the relative merits and drawbacks being fully appraised before any steps are taken. Were structural separation to occur, it would clearly be better if such a move were to happen of BT's own accord. Legislation to impose a split between BT Retail and BT Openreach would most likely result in a lengthy legal battle. But if BT had an incentive to sell Openreach to the highest bidder it would transform the dynamics of the market, and wholesale access could be a very different thing from what it is today. This would also offer a potential incentive for Virgin Media to allow access to its infrastructure, which would encourage further competition across the wholesale market.

Regardless of the merits or otherwise of this option, it is becoming increasingly apparent that the current market needs to change if we are to see more meaningful competition and, ultimately, better and more far-reaching broadband services for small businesses and households. To achieve the latter, we must get to a point where greater levels of private investment are leveraged into the sector: the structure of the existing market represents a fundamental barrier to achieving this.

The current regulatory framework

———

Greater competition in the broadband sector also requires a suitable regulatory framework and appropriate regulatory safeguards. The role of Ofcom is central to this.

Ofcom was established by the Communications Act 2003[62] and has responsibilities across television, radio, telecommunications and wireless communications services. Its statutory duties are: '(a) to further the interests of citizens in relation to communications matters; and (b) to further the interests of consumers in relevant markets, where appropriate by promoting competition'.[63]

The FSB believes that Ofcom has not done enough to promote competition in the broadband market in recent years and that this is affecting the quality and coverage of services for small businesses and domestic consumers. A growing number of experts have pointed to this and have suggested in particular that BT's position in the infrastructure market is too dominant to allow for healthy competition.

In their 2012 report, the centre-right think-tank Policy Exchange argued that the lines between policy development and regulation of the broadband market had been blurred because regulation was too weak and the policy direction too vague.[64] In a report looking at the EU and UK telecom sector, the Boston Consulting Group (BCG) concluded that broadband provision suffers from outdated regulation that distorts competition and discourages capital investment, particularly by telecommunication providers in high-speed, high-capacity NGAs.[65] The Digital Business First campaign has also argued that regulation of the telecoms market must be improved to enable better broadband delivery. In their latest paper[66] they argue that what is considered superfast broadband in the UK is lagging behind the speeds that are being delivered in many digitally leading countries with more efficient regulatory frameworks.

One of the strongest advocates for significant change in the regulation of superfast broadband (SFBB) products is TalkTalk. It said in its response to the Fixed Access Market Review, currently being carried out by Ofcom, that

> "if effective margin squeeze regulation is not put in place now, BT will leverage its dominance in the SFBB market from wholesale to retail level, leading to significant consumer detriment. Even if effective wholesale regulation is introduced at a later date, it will be very difficult to bring the market back to a competitive structure within a reasonable timeframe, as consumer switching costs will lock in market shares, and as some firms may have exited the market. Thus consumer harm will persist well beyond the period of lax regulation."[67]

The FSB agrees that the positions being adopted by Ofcom in the fixed-line, broadband access and business connectivity reviews lack ambition with regard to competition and the rate of transition to fibre access. As suggested in the previous section, the existing market structure does not lend itself to meaningful competition at present and there is a risk that the Fixed Access Market Review will be yet another missed opportunity to achieve better competition in the broadband market.

62   http://www.legislation.gov.uk/ukpga/2003/21/contents
63   http://www.ofcom.org.uk/about/what-is-ofcom/statutory-duties-and-regulatory-principles/
64   'The Superfast and the Furious', Chris Yiu, Sarah Fink, Policy Exchange, 2012, p. 52.
65   https://www.bcgperspectives.com/content/articles/telecommunications_public_sector_reforming_europes_telecom_regulation/
66   'The UK's enduring broadband deficit – a divided nation, time for an effective plan' http://media.wix.com/ugd/aba692_ b90320e5f53c426a82fe8edb699c3dfa.pdf
67   http://stakeholders.ofcom.org.uk/binaries/consultations/fixed-access-market-reviews/responses/TalkTalk_Reply_to_BTs_FAMR_Response.pdf

Lack of competition, as we have seen earlier, has implications for government programmes: the BDUK programme for rural areas is a case in point. Currently it is very difficult for ISPs to identify market opportunities, particularly smaller local and regional players who may wish to provide networks and services where BDUK funds have been awarded. Many ISPs have complained of a lack of accurate information on the exact location of BT's roll out plans and argue that this puts them at a significant competitive disadvantage.

In some areas, however, the lack of suitable regulatory oversight of local-level access has actually led to too much retail competition. This has resulted in a race to the bottom on prices, to the detriment of a wider range of services including those required by small businesses. For example it is possible in some locations for home users to get an 'up to' 17 Mbps unlimited connection from EE for a little as £2 per month plus line rental, or an 'up to' 16 Mbps connection from TalkTalk for £2.50 plus line rental.[68] These highly competitive deals are not available everywhere and are arguably not sustainable business models for the ISPs. The way in which the market has responded has also meant that less-profitable products, such as leased line business contracts, have been overlooked and thus more expensively priced. This, combined with the way in which the leased line market is regulated, has left many small businesses neglected in the broadband roll-out.

In our view, Ofcom needs to review its regulatory approach and be far bolder in ensuring that we have a competitive yet balanced UK-wide market for broadband in the coming decades. This includes ensuring fair and transparent pricing of broadband products and services for all users (business and residential), encouraging new entrants into the market, and using its regulatory powers to investigate where there is significant evidence of anti-competitive practices, including access restrictions to passive infrastructure. A balanced yet robust regulatory framework will be critical to the success of any longer-term strategy to deliver universal broadband connectivity.

68   http://www.uswitch.com/broadband/packages/?gclid=CNH6gbum-7wCFWT4wgod3jwALQ#products=sort%3Dbestsellers

Lack of investment in broadband infrastructure

—

We have noted in previous sections that the delivery of 'fit-for-purpose' broadband should not necessarily require wholesale infrastructure competition across the entire UK – and that, in the fixed market in the short term, better access to passive infrastructure is a priority. However, this does not negate the fact that investment in communications infrastructure has been lacking in the past – particularly in rural or semi-rural parts of the UK – and that, in the future, new investment will be needed to achieve universal connectivity.

Infrastructure investment tends to be capital-intensive and to entail high up-front capital costs, regardless of the infrastructure in question. This is no different for fixed and mobile broadband communications. Investors will weigh up investment decisions based on return rates relative to the cost of capital and other factors, such as policy risk and asset depreciation.

Yet globally the broadband sector is regarded as a high-growth industry, with strong performance driven by the increasing demand for broadband services.[69] Furthermore, investment in broadband infrastructure and services appears to have provided decent returns for the main market players in the UK. A study by Frontier Economics commissioned by Vodafone in November 2013 found that the reported profitability of BT's regulated services was significantly in excess of its cost of capital. The report looked at profitability from 2006 to March 2013 and found returns in excess of the benchmark cost of capital in every year of that period.[70]

Such indicators may bode well for BT's investment programme. As has been mentioned, BT faces a major upgrade programme to replace its long-standing copper access network. This is crucial if BT is to maintain existing services and deliver higher bandwidth speeds in the future.[71] It will, however, entail significant up-front costs. Despite the profit potential of broadband services and the expected growth in demand in the future, we have yet to see the level of investment needed to deliver universal connectivity.

Furthermore, the relatively limited funds allocated to broadband in the UK contrast starkly with other infrastructure projects that have attracted significant capital, albeit primarily from the Exchequer – for instance, the £42.6 bn earmarked for HS2,[72] the £50 bn of capital investment going into roads,[73] and the £16 bn earmarked for the Hinkley Point Nuclear plant.[74] The state funding of broadband provision to date via BDUK, the Super-connected Cities programme, the Rural Community Broadband Fund and the Mobile Infrastructure Project (the funding allocated to which is summarised in Section 1) are, collectively, still a small proportion of the investment needed to deliver universal fit-for-purpose connectivity to small businesses across the UK.

There is some evidence that the situation is slowly changing for the better. Several ISPs have announced joint initiatives to fill gaps in broadband provision, most recently in York, where four telecoms groups (Sky, TalkTalk, CityFibre and Fujitsu) have revealed plans to build an FTTP network capable of delivering speeds of up to 1 Gigabit per second (1 Gbps). This project is the biggest challenge yet to BT's dominance of the UK's fixed-line communications infrastructure. The companies have also said they intend to bring ultrafast broadband to further cities across the UK.[75]

69   http://www.reportlinker.com/ci02087/Broadband.html
70   http://www.frontier-economics.com/europe/en/publications/420/
71   BTs infrastructure is largely copper based. The infinity programme only delivers fibre to the cabinet and copper to the premise, so it will always have limitations (while twisted copper can potentially deliver superfast connectivity (i.e. 24 Mbps and over), this depends on distance from the cabinet and the number of users at any one time). Virgin's infrastructure is largely fibre to the curb (FTTC) but its availability is geographically limited.
72   https://www.gov.uk/government/publications/hs2-strategic-case
73   https://www.gov.uk/government/publications/action-for-roads-a-network-for-the-21st-century
74   http://www.telegraph.co.uk/earth/energy/nuclearpower/10392510/Hinkley-Point-good-for-Britain-says-Ed-Davey.html
75   http://www.theguardian.com/technology/2014/apr/15/sky-talktalk-cityfibre-ultra-fast-network-york

This initiative represents a significant departure with regard to infrastructure competition and is an encouraging sign. However, the Government clearly has a role to play in enabling further infrastructure development. In the FSB's view, this must centre on two areas: providing long-term policy certainty for investors by setting out clear objectives and delivery plans; and reforming the broadband market to encourage the flow of private capital and new entrants into the market.

At present, the absence of long-term policy certainty is also likely to deter private investors. As we have already mentioned, there is strong evidence that the current market structure and regulatory environment, combined with relatively low retail prices and high entry costs, discourage new investment in access infrastructure. Consequently, few new players have emerged in the last five years, other than those making relatively small-scale investments.[76] A further reason for this lies in the tax regime, and, specifically, the way in which business rates are levied on smaller ISPs developing basic infrastructure. In practice, this means they often pay more for cable deployments than the major fixed-line operators. A change in the Valuation Office Agency's approach towards assessing broadband infrastructure for business rates purposes could have an impact on the taxation of NGA and fibre-optic broadband networks and make things more equitable for ISPs.[77]

Beyond this, the extent to which Government should provide significant additional funding is open to debate. There is a strong argument that fundamental reforms should be made to the market, and existing public funds could be better spent, before additional public investment is allocated. In the interim, it is important that Government works with network operators to better understand what changes could be made to turn currently non-viable areas into commercially viable opportunities for ISPs. This will help to determine the extent to which additional public funding is necessary, both to support existing ISPs and to enable other providers to roll out high-speed broadband in rural or semi-rural areas where infrastructure is lacking.

76   http://www.eurim.org.uk/activities/commspol/MakingBroadbandInvestmentMarketsWork.pdf
77   http://www.ispreview.co.uk/index.php/2014/03/uk-mps-hold-hope-voa-business-rates-fibre-tax-review.html

Approach to establishing demand for broadband services

––––

Investment in new broadband infrastructure and services will be forthcoming only if the demand is there. As we have established earlier, cost and levels of demand have been used as key arguments in the debate on delivering universal connectivity. As we have seen, some service providers have argued that it is not economically viable to deploy higher-speed broadband services in certain parts of the UK. But this is today's argument, based on today's anticipation of demand and willingness to pay.

Trend analysis by, for example, Cisco (referred to in the mobile section of this report) indicates very clearly that, over the next decade, we are almost certain to see dramatic increases in demand. As we have previously suggested, this is as true for small businesses – whose commercial operation is increasingly dependent on digital communications – as it is for individuals and households.

It is therefore essential that broadband delivery across the UK stays ahead of the demand curve and that we find solutions to encourage investment in areas that are deemed unviable today. Too often, however, demand has been based on uncertain knowledge. The case study below is an analysis of demand for the BDUK programme in Coventry, Solihull and Warwickshire by Synchronoss.[78] It suggests that the BT Openreach network records were not sufficiently accurate to determine the commercial viability of exchange areas because they did not go into enough detail about the level of demand in the area.

Synchronoss[82]

'Getting it right first time – Demand analysis and cost modelling for Superfast Broadband at CWS Broadband'

'Thanks to the information provided by our local communities through their Local Broadband Champions and the surveys on our website, our team has been in discussions with BT about areas that have been omitted from their commercial roll-out plans.'

'At both Warwick Gates and Coton Park we were able to show that there were sufficient potential subscribers for superfast broadband services to make a clear business case for BT to invest in these areas.'

'Through the data that we have collected over the past couple of years we have good knowledge of our area and so were able to apply to BDUK for additional funding. This means that with match funding an additional £750,000 has been brought to the project, which has yet to be allocated to the roll-out programme.'[83]

As a result of the Synchronoss study, the local authorities in question were able to amend their local broadband plans. They also managed to make more effective use of public funds by including an additional 44,690 properties in the BDUK roll-out. The case study highlights the importance of ensuring that provision of broadband is based on accurate records and stays ahead of the demand curve. As we have seen, more and more small businesses are conducting their operations online and this will continue to drive commercial demand for broadband services.

78   http://www.nextgenevents.co.uk/cms/files/pdf/icc13/Jeff%20Bygrave.pdf
79   http://www.synchronoss.com/
80   http://www.nextgenevents.co.uk/files/pdf/icc13/Jeff%20Bygrave.pdf

———

There is still some way to go, however, in ensuring that supply meets the needs of small firms: as the Broadband Stakeholder Group (BSG) has acknowledged, more needs to be done to understand the ways in which small firms are using online resources and we also need to understand how to communicate the benefits of digitalisation effectively to those small businesses that have still not made the transition to digital.[81] What is certain, however, that demand is set only to increase and that we need to see a significant improvement in the way in which Government and the market respond. Unless this happens, many small businesses across the UK will continue to miss out on high-quality broadband provision.

81   http://www.broadbanduk.org/wp-content/uploads/2014/03/Capitalising-on-Connectivity.pdf

5. Conclusion and recommendations

—

Small businesses across the UK are increasingly dependent on superfast, high-quality broadband services. Demand for broadband among small businesses is set to increase, as the internet and digital communication continue to revolutionise business practices and the commercial and productivity benefits become more apparent. Government's desire for 'digital by default' can be met only if broadband provision is in place. In short, if the UK wishes to lead the global race, then it is necessary for our small businesses to be universally connected now and for the UK to be ahead of our competitors for the coming decades.

This paper has outlined the importance of providing 'fit-for-purpose' broadband provision for all small businesses across the UK, regardless of their geographical location. It has also identified a number of barriers to universal connectivity, namely the current market structure and regulatory approach, lack of investment in rural areas, and the failure of the sector to keep pace with demand particularly in the small business community. Each of these factors restricts access to broadband for small firms.

In order to overcome these barriers, small businesses require a positive upsurge in Government ambitions for and policy on broadband. Current plans, appropriate though they may be for the present state of the market, lack ambition, are short-term in focus and are not delivering what small businesses need, particularly – though not exclusively – in remote rural and semi-rural locations. Unless this changes, and the problems in the market are addressed, these firms can expect their broadband needs to continue to go unmet.

With this in mind, this paper recommends the following:

- **A national broadband strategy to deliver universal connectivity.** Until now, UK broadband policy and programmes have focused on the delivery of schemes that culminate in 2017. Beyond this point, policy ambition remains undecided as regards future targets set by Government plans to upgrade to existing networks and the roll-out new broadband services beyond this date. This creates uncertainty for current market providers, potential investors, and also the UK's small firms, many of which are unable to plan future investment to grow their business as a result.

  The development of the forthcoming Digital Infrastructure Strategy provides an opportune moment for Government to correct this and to commit to an ambitious plan to deliver world-leading digital services to businesses and consumers throughout the UK. The content of this plan will determine the future of broadband investments for years to come, so it is critical to get it right. In the FSB's view, the strategy should involve Government establishing interim milestones, and identifying and implementing the necessary policy interventions. Above all, it must recognise that individuals and small businesses will be more and more dependent on better, faster and more reliable broadband services and the strategy must reflect that, not only to ensure that the Government's vision to deliver world-beating digital infrastructure services can be realised, but also to make sure that UK's businesses remain internationally competitive.

- The FSB believes that Government should revisit its current targets and in particular the current plan to connect the hardest-to-reach premises. Businesses in these locations are simply unable to operate online, which puts them at a significant competitive disadvantage. It also exacerbates regional economic imbalances.

To correct this, the Government in cooperation with industry should commit to **delivering an ambitious 'service level floor' of 10 Mbps for all premises in the UK by 2018-19.** This target compares with the current target of delivering 2 Mbps to premises in the 5 per cent of hard-to-reach areas by 2017/18.Given existing programmes and geographical variations in broadband coverage, service speeds will necessarily vary by location. However, a universal floor offering guaranteed minimum bandwidth speed and quality of service at the point of consumption, regardless of location, is needed and must be much more ambitious than the current minimum, which is insufficient for small businesses located in rural areas. Since technology and bandwidth demand are constantly evolving, this service level floor would need to be reviewed regularly and potentially increased to ensure that it meets business needs.

- **A long-term objective of delivering guaranteed minimum speeds of 100 Mbps to all premises by 2030**. While both the short- and the long-term targets may appear ambitious, the FSB believes both are achievable and desirable. Setting an ambitious target will send critical policy signals to investors and the market, and will demonstrate to the business community that their digital needs are being met. How the target is achieved will depend on how the market responds and on technological developments. We take an essentially neutral approach to the question of the technology needed to deliver this vision, although it is likely that a combination of fixed (i.e. fibre), mobile and parallel wireless services will be required to accommodate service disruptions. This would ensure choice for consumers and cater for modern business needs.

For the foreseeable future, mobile is likely complement rather than replace a fixed service. The emergence of 5G, which will be able to integrate mobile and fixed networks and offer low latency and high data speeds, brings the potential for it to become an important part of the solution to universal connectivity. Nevertheless, 5G will still require fixed networks to provide backhaul functions.[82] Whichever technologies emerge and take prominence within the next decade, it is crucial that the UK's broadband network is 'future-proofed' to ensure that investment is well spent and that the needs of businesses and consumers are met for the foreseeable future.

- In the short term, the **Government should prioritise the delivery of fibre-optic broadband -whether fibre to the premises (FTTP) or equivalent technology - to new and existing business parks**. In many places throughout the UK our members have told us that residential areas adjacent to business parks have access to superfast broadband but the business park has been left out of the broadband roll-out. This situation must be rectified. Equally, steps need to be taken to ensure that enterprise zones and technology clusters are fully fibre-connected, as many still are without adequate broadband services.[83]

In the FSB's view, the Government should ensure that all businesses in these areas are equipped with ultrafast broadband, with guaranteed speeds and a symmetrical service. Roll-out should be targeted initially at areas where superfast broadband is absent and where the returns on investment will help to spearhead regional economic development. This may require intervention in the leased line market, alongside additional government support or the reallocation of existing funds set aside for existing residential roll-out programmes.

- As this paper has outlined, the current market structure does not work for small businesses

---

82   http://media.wix.com/ugd/aba692_b90320e5f53c426a82fe8edb699c3dfa.pdf
83   While Enterprise Zones offer superfast broadband to businesses located within them, not all premises have yet been connected.

and **reform of the broadband market is needed**. The current government-sponsored programmes, particularly the BDUK programme, have proved to be ineffective in delivering meaningful competition. **In the fixed broadband market, small businesses are too often overlooked**. The type of business connections on offer should be of higher quality, fit for the needs of business, and more accessible. There should also be a focus on delivering more symmetrical upload and download speeds to meet small businesses' needs. Better digital services at reasonable prices will enable small businesses to grow, develop new innovative products and services, and boost their local economy.

In order for this to happen, we recommend that the Competition and Markets Authority (CMA) conduct, upon the request of Ofcom, an assessment of the state of the broadband market and the probable competitive landscape after 2017, when the current commercial and state supported roll-out programmes are due to be completed. This should explore long-standing concerns, for instance the geographical imbalances in the market, which have seen relatively high levels of competition in high-density urban areas and very low levels in remote areas. Crucially, the CMA should work with Ofcom to examine opportunities to boost competition, including in the commercial customer market, so that more small firms can access affordable tailored services, as well as the steps needed to create commercially viable opportunities for providers in locations that are currently deemed non-viable.

In the short term, Government should work with the network operators to better understand what changes could be made to create commercially viable opportunities in areas that are currently deemed non-viable. This would require a willingness, particularly on the part of BT, to co-operate with Government and the regulator to look at possible new commercial models. As part of the CMA's review, a full assessment and cost–benefit analysis of the viability of BT and Openreach becoming fully separate businesses should also be explored. This should include an appraisal of the potential benefits that structural separation and becoming a standalone company would bring to BT, and the impact of this on competition between ISPs in the market.

- Further steps are needed to **support new entrants in the broadband retail market**. Smaller independent providers have missed out on opportunities to provide broadband services via the subsidised BDUK programme because contracts have been won exclusively by the incumbent. This must be rectified in any future rounds, while the practice of existing providers stepping in to build their own infrastructure in areas where viable community networks already exist should also end: better regulation by Ofcom would ensure this. Where supply is limited or non-existent, new entrants and local community initiatives should also be supported into the market, potentially through tax incentives and by reviewing the Valuation Office Agency's approach to assessing broadband infrastructure for business rates purposes, which discourages investment by smaller ISPs. The Government could also dedicate a proportion of BDUK Innovation funds to promoting new entrants. Further market reform options should also be considered as part of the CMA market review, including granting full and unrestricted 'open access' to passive infrastructure for new and existing ISPs.

—

- The Government should consider reforms in the mobile market including the **viability of national roaming between mobile network operators (MNOs)**. This would ensure that small businesses and consumers can access broadband on the move across a greater geographical area and overcome network disruptions that continue to pervade mobile users across the UK, and would ultimately bring choice to consumers. While we recognise that there are a number of legal barriers to delivering national roaming, options for moving ahead should be explored in partnership with the mobile industry.

- Finally, the way in which Whitehall manages and oversees broadband policy can be improved. In particular, lessons can be learned from the oversight and delivery of the BDUK programme to ensure that the same mistakes are not made in future roll-out programmes.

  As with all major infrastructure projects, it is also important that Government ensures policy stability and projects consistency. Broadband should be no different and the FSB therefore believes that **all aspects of broadband policy should be handled by to one department** with a single minister assuming responsibility for overseeing the delivery of universal connectivity. The current situation in which pockets of funding for broadband and wider digital policy initiatives are shared between several departments is unnecessarily complex and is likely to limit policy certainty.

These recommendations are not intended to be exhaustive. They are intended to initiate serious debate within Government and across industry, and to emphasise the importance of universal broadband connectivity for the future of the UK economy and its small businesses.

If small businesses are to thrive and prosper and contribute to a growing economy, they need universal access to what is now considered the 'fourth utility'. It is time to turn that vision into reality.

6. Glossary

—

4G

4G is the fourth generation of mobile phone communication technology standards. It is a successor to the third generation (3G) standards. A 4G system provides mobile ultrafast internet access.

Backhaul

Backhaul generally refers to the side of the network that communicates with the global internet, paid for at wholesale commercial access rates.[84]

BIS

Department for Business, Innovation and Skills

BDUK

Broadband Development UK

BSG

Broadband Stakeholder Group. The BSG was formed in 2001 and is funded by its sponsor members: Alcatel Lucent; Arqiva; BBC; BSkyB; BT Group; DCMS; Ericsson; EE; ITV; TalkTalk Group; techUK; Three; UK Broadband; Virgin Media; Vodafone. Together, these companies make up the BSG Executive, a committee that meets every six weeks and sets the overall direction for the work of the BSG. They are joined on the Executive by the CBI; Communications Consumer Panel; INCA and Ofcom (as an observer).[85]

Dark fibre

Fibre-optic cables that do not carry a signal (opposite to lit fibre)

DBF

The 'Digital Business First' campaign was started in Oxford when over 50 business leaders signed up to promote the creation of a complete digital architecture for Britain.[86]

DCMS

Department for Culture, Media and Sport

DCLG

Department for Communities and Local Government

DECC

Department for Energy and Climate Change

DEFRA

Department for Environment, Food and Rural Affairs

Exchanges

An exchange is a telecoms or digital system that enables telephone calls or data transfer between subscribers. There are approximately 5,600 exchanges in the UK.

FTTC

fibre-to-the-curb/kerb, -closet, or -cabinet: the street cabinet or pole is closer to the user's premises, typically within 1,000 feet (300 m), within range for high-bandwidth copper technologies. FTTC is occasionally ambiguously called FTTP (fibre-to-the-pole), leading to confusion with the distinct fibre-to-the-premises system.[87]

84   http://en.wikipedia.org/wiki/Backhaul_(telecommunications)
85   http://www.broadbanduk.org/bsg-sponsors-and-executive/
86   http://www.digitalbusinessfirst.com/
87   http://en.wikipedia.org/wiki/Fiber_to_the_x

___

FTTP

fibre-to-the-premises: this term is used either as a blanket term for both FTTH (fibre-to-the-home) and FTTB (fibre-to-the-business), or where the fibre network includes both homes and small businesses.[88] It is imperative that the Government puts a stronger focus on delivering FTTP.

ISP

Internet service provider

Latency

A measure of time delay from one networked point to another. Good performance of a hosted desktop system is generally defined by a latency of less than 100 milliseconds (ms) or 0.10 second.[89]

LLU – Local Loop Unbundling

The distance between the exchange and a customer's premises is called a local loop and unbundling it means that other operators could buy access to the infrastructure through Openreach.[90]

Mbps

When internet speeds are quoted, figures are usually given in megabits per second (Mbps), for example an 8 Mbps broadband connection.

NGA – Next Generation Access

NGA involves a significant upgrade to the available broadband service by making a marked improvement in its speed and quality. This is typically thought of as symmetrical with a download speed of 24 Mb plus and a fast upload speed. The Definition of UK Superfast Next Generation Broadband is generally taken to mean broadband products that provide a maximum download speed that is greater than 24 Mbit/s. This threshold is commonly considered to be the maximum speed that can be supported on current-generation (copper-based) networks.[91]

MNO

Mobile network operator

Not-spots

Area not covered by a mobile signal from any mobile network

Passive infrastructure

Telecoms infrastructure (masts, ducts, cabinets) that does not carry a signal

Service level floor

Minimum level of service to be provided

SLA

The service level agreement is the part of a contract where the service is formally defined. The SLA will typically have a technical definition in terms of mean time between failures (MTBF), mean time to repair or mean time to recovery (MTTR).[92]

___

88   http://en.wikipedia.org/wiki/Fiber_to_the_x
89   http://www.tivarri.com/2011/09/02/latency-explained-%E2%80%93-why-your-internet-speed-isn%E2%80%99t-the-whole-picture/#Ulf9cThwbcs
90   http://en.wikipedia.org/wiki/Openreach
91   http://en.wikipedia.org/wiki/Next-generation_access
92   http://en.wikipedia.org/wiki/Service-level_agreement

SMP

Significant market power is when prices exceed marginal cost and long-run average cost, so the firm makes an economic profit.[93]

Symmetrical speed

When upload and download occurs at the same speed. This makes a big difference to the online experience. If your services are delivered over ADSL (asymmetric digital subscriber line), your upload and download speeds are not the same.

Standard broadband

UK definition = 2 Mbps

Superfast broadband

UK definition = up to 24 Mbps

---

93   http://en.wikipedia.org/wiki/Market_power

7. References

—

BIS, *Britain's Superfast Broadband Future*, December 2010

BIS Industrial strategy: Government and industry in partnership. *Information Economy Strategy*, June 2013

Boston Consulting Group, *Reforming Europe's telecom regulation*, 2013

Broadband Stakeholder Group, *Capitalising on Connectivity – Realising the benefits of broadband for UK Small and Medium Sized Enterprises*, March 2014

Cabinet Office *Digital Strategy*, December 2012

Carnegie Trust UK, *Going the last mile: How can broadband reach the final 10%?*, March 2013

Cisco® *Visual Networking Index (VNI) Global Mobile Data Traffic Forecast*, 2013

DCMS Policy Paper, *Connectivity, content and consumers - Britain's digital platform for growth*, July 2013

Digital Business First, 'The uk's enduring broadband deficit, *a divided nation - time for an effective plan*', March 2014

European Union Agency for Network and Information Security (ENISA), *National Roaming for Resilience, National roaming for mitigating mobile network outages*, November 2013

Foundation for information society policy, *The need for a clear communications infrastructure policy*, FISP No. 1, February 2013

FSB/Intellect, *The digital imperative - small businesses, technology and growth*, April 2013

FSB, *Small Businesses as Consumers: Are They Sufficiently Well Protected?*, March 2014

Frontier Economics, *The Profitability of BT's Regulated Services*, November 2013

HM Treasury, *National Infrastructure Plan (NIP)*, 2010

House of Commons Committee of Public Accounts, *The rural broadband programme, Twenty-fourth Report of Session 2013–14*, September 2013

House of Commons Committee of Public Accounts, *The rural broadband programme, Fiftieth Report of Session 2013–14*, March 2014

Major Projects Authority's report, *Major Projects Portfolio Data for DCMS*, 2013

National Audit Office (NAO), *The rural broadband programme*, July 2013

Ofcom, *Communications Market Report*, 2013

Ofcom, *Infrastructure Report*, 2013

Policy Exchange, T*he Superfast and the Furious – Priorities for the future of UK broadband policy*, 2012

SQW, *UK Broadband Impact Study – Impact Report*, November 2013

8. Appendix Small business case studies

—

Case Study 1

Lansberry Bookkeeping, Cumbria

I run a small bookkeeping and accounting business from my home in Kentmere, Cumbria, where there is no prospect of receiving 'superfast' broadband at any time in the foreseeable future. I am 'fortunate' in getting a speed of around 1.4 Mbps – I know further up the valley it drops off to about 0.5 Mbps.

As far as my own business is concerned it is becoming more and more essential to have reliable broadband as everything to do with the Government now has to be submitted online, and the software necessary to comply constantly needs to be upgraded over the internet. Some of these programmes take many hours to download at my current speed. At the moment I am just about managing. It is only just possible to assist clients via a remote link, and this is something that I would like to be able to offer to more clients in order to expand my business.

Case Study 2

Rogers Space Heaters International, Cornwall

We sell spare parts for portable industrial heaters to customers in the UK, the Republic of Ireland, mainland Europe and the Middle East. The internet enables everything we do: it drives customers and sales, it enables communication with customers and suppliers, and we completely depend on our connectivity.

We are located on a country lane, just outside a village in rural Cornwall. When broadband was first rolled out a couple of years ago we used to get around 0.5 Mbps. On a good day we can now hit 1.7 Mbps. We can just about get by on this but it is very frustrating at times and not at all sustainable for the future. If we had better and more reliable broadband services our business would be more efficient and we could use Skype to communicate with customers and suppliers. A lot of our spare parts are manufactured in Poland so better connectivity would help communication with our suppliers too.

In today's day and age you cannot run a business without being online, and having sufficient broadband connectivity is crucial. With connectivity you can run a business from anywhere, no matter how remote the location. Without it you do not stand a chance.

Case Study 3

JAYBOX, Cumbria

We manufacture online jukeboxes, and provide music to supply to them. Our business is based on the internet and we need connectivity for everything we do. In order to meet our broadband needs we have to have two telephone lines into the business. We have been quoted £5,000 by BT to put a leased line in, but cannot afford that cost.

Having access to better connectivity would help us run our business much more efficiently. We have all our music files on the cloud and we upload more than 1,000 MP3 files per month. At present we have to plan these uploads around other office activities as it takes four to five hours to send the data, and connectivity during this time is virtually non-existent.

Case Study 4

BEAM Ltd, Bristol

Our business is about two miles from the Chipping Sodbury exchange that has been updated to support Fibre to the Cabinet (FTTC). Unfortunately, it looks as if our cabinet will not be updated to FTTC, let alone Fibre to the Premises (FTTP), by Openreach.

As a small electronics and software company, we need reliable and fast internet, particularly a fast upload speed, in order to service our customers. I find it ludicrous that homes a few hundred metres from a major business park can get FTTC, but as a business we can't. This has got to change. For this to happen, BT/Openreach has to be forced somehow to provide services for businesses or open up their ducts.

Providing media to homes is more lucrative for ISPs and they will not, by themselves, view small businesses as a priority. So some public money will be needed to implement FTTP universally. However, control of this and funding of broadband infrastructure from the public purse should not just be given to BT. Usage and maintenance should instead be shared between many smaller companies. Until the UK Government gets a handle on this situation, small UK companies will continue to suffer.

Case Study 5

Business Park in Greater Manchester housing 21 small and medium-sized businesses

Our business park is located a four-minute walk from a cabinet that is enabled with fibre-optic cable but the business park itself is not enabled and is not part of the current broadband roll-out plan.

Each individual business within the park has been offered leased lines into their business at a typical installation charge of £500 and an annual rental cost of £5,200 + VAT. This is for a three-year contract at a speed of 10 Mbps. So, not very fast and a lot more than what domestic consumers pay for similar speed connections to their homes just yards from where we are based. And if businesses want to club together, the charges double accordingly.

We are held back from embracing the rapid growth that is currently taking place in our region. We are unable to bring in more efficient ways of working through cloud computing and remote working. Some of us have to bring our work home on a memory stick in the evening and upload it to the cloud as our home broadband is that much faster.

At present we are all getting less than the minimum speed required to fill in compulsory online tax returns from HMRC. It beggars belief that small businesses are not prioritised in the current broadband roll-out. We generate growth, we employ local people, and we strengthen local economies. Why should we not have the same broadband service as local residents?

Case Study 6

nanoTech Software Ltd, Thames Valley

We moved to our current location last November but were unable to get broadband installed until February this year. When it finally was installed, it was so unfit for purpose (1.9 Mbps) that we are now using mobile phone dongles on 3G as they provide a superior service (5 Mbps). At one point we were paying £25 per day just to get basic, virtually unusable broadband because there was no viable alternative.

As we are software developers, broadband is vital to our business. We write cloud-based software, which requires a constant connection to the internet. But what we get at present is the technological equivalent of entering a Formula One race with nothing but steam power.

Our lease expires in May and we will be leaving this area at the first opportunity. We have been training a local college graduate and also planned to run training courses in cloud development in the area; however, as a direct result of the poor/non-existent broadband, we have no option but to relocate as soon as we can find premises that are better served.

We do business with a company in India that has far better broadband than we do. The technology that exists today will be denied us in the UK because we can't support it. We are at risk of becoming a technologically third-world country in this respect.

Case Study 7

Chiltern Training, Reading

We have problems with the speed of broadband to our office, which is in Reading town centre. We are a training company and have about 100 learners and 15 staff in each day. The speed is often very slow. We would love fibre-optic broadband to be rolled out more quickly by BT.

The best service currently available on our road is based on ADSL2+ which provides up to 24 Mbps download. But this is only a nominal speed and it is unlikely that anyone can get more than about 16 Mbps. This depends on a number of factors, including distance from the exchange and the quality of the external and internal telephone and network cabling and equipment. The average speed is around 6 Mbps. We currently pay for two separate broadband services to our offices and the current download speeds are 12 Mbps and 8.5 Mbps.

There are other specialist providers that offer fibre-based services but they are more expensive and would require us to pay for costly installation work. We have been advised that a 25 Mbps service would cost about £600 per month, with installation costs of £2,500.

Recently we have been looking into letting out one floor of our building but our three potential business clients were put off by the broadband speed.

Case Study 8

Nutty-Tart-Grafix, Thames Valley

As I run a very small business working from home, broadband has always been an issue, more so in recent years as my work as a graphic designer is forever evolving. I no longer send artwork out on CDs and DVDs but almost exclusively over the internet. Increasingly larger file sizes for larger jobs have meant that my old speed of almost 1 Mbps of internet was painfully slow for the upload and download of files. I finally moved to fibre with Plusnet (who were my existing provider) a year or so ago and now whizz over the net at almost 40 Mbps – quite a difference.

I was led to believe that my distance from the exchange in Slough meant the main problem was the antiquated wiring, hence slow speeds. It is only since exchange updates that fibre has been a contender and speedier connections possible.

Case Study 9

ebpSource Limited, Slough

We are a small, niche, internet software business based on Slough Trading Estate. The Estate is now attracting many very large data centres as well as entrepreneurial businesses such as ours. Our whole business revolves around the internet but unfortunately both BT and Virgin Media are reluctant to invest in decent broadband infrastructure on our business estate as they prefer to invest in residential areas where they will get volume clients.

Consequently, our only options are either to invest in a fully dedicated T1 line, which our business cannot afford, or to rely on ADSL line access, which as you can imagine is less than ideal. Despite repeated discussions with Slough Estates (SEGRO), BT and Virgin Media, all we have been able to get is some vague promise of something happening at some point in the future with zero commitment as to dates.

We are coming close to the end of our lease on the Estate and, should high-speed broadband not be available by our renewal date, we will be forced to move out of the area and quite frankly may even consider moving our business to another country as we are so disappointed with the lack of support given by the parties that we are trying to work with.

Case Study 10

Orange and Blue, Oxfordshire

I currently work from a home office, running a networked design agency. Our download speed is not bad: 13-18 Mbps. My problem is upload speed. Upload speed is a significant factor in providing a fast and reliable service for our clients.

However, at present, my upload speeds are extremely poor. I enquired from BT whether this would be better if I upgraded to a business deal with them and was informed that it would be unlikely to improve upload speeds.

Case Study 11

IT Ambulance Ltd, Thames Valley

I run an IT support company and have 200 SME clients across the south of England.

Our home counties base is in Aylesbury, which is a growth town. There are dozens of new industrial units being built, none of which has decent broadband provision. Anglo Business Park, Aylesbury enjoys less than 1 Mbps broadband. Try dividing 1 Mbps broadband service between 10 users in a business: it is impossibly slow!

As a result of this, my customers cannot use web conferencing and incur significant travel costs going to manufacturing sites in the north of England. They are also not able to use cloud-based technologies or automated offsite backup mechanisms to secure their data.

You would think this is a localised issue in more rural locations but I have customers in Wembley and Putney who suffer the same problems owing to sub-1 Mb broadband.

Case Study 12

Dale Anderson – Professional Bookkeepers & Accountants , Buckinghamshire

I live and work in Pitstone and the broadband is slow despite saying I have 6 MB speed on BT. This stops me from working online using cloud-based software and recommending my clients to use these products. This is despite living and working on a brand new development with an industrial estate opposite with many small and medium-sized businesses and one that is part of a large business involved in the aerospace industry.

I have clients who work near Cheddington, Bucks., who can only get sporadic broadband during the day. This prevents them from conducting business online, and banking online is a bit of a worry as they don't always know if the transaction has happened until later on when they get broadband back or even a day or two later.

Case Study 13

ION Systems, Thatcham, Berkshire

I believe the state of our UK Broadband network does affect businesses. In fact, every time this subject arises I am both irritated and saddened. There are three factors, which are all interlinked: cost, speed and location.

One example is a client based not far outside Newbury. Their internet is around 5-6 Mbps which would ordinarily be enough for general internet access. They have remote offices and workers who connect back into the main office. One line is not enough so they have to pay for a bonded DSL service. We have another client based in Aldermaston. They are a growing business and now have four remote offices and have bonded DSL (more expensive) at each location to get the speed and reliability they require.

Our business is located on a business park outside Newbury. The ADSL speeds here are laughable at 12 Mbps. One client connection gets cut off every time it rains heavily. The business park's management company were forced to provide their own broadband via expensive leased lines to ensure that clients have reliable internet.

Generally, the further away from populated areas you are, the more internet services cost per Mbps and the more reliability suffers. If you are in a town, you have a choice of many different services and providers.

For me, broadband is no longer a luxury but a necessity. It's infrastructure plain and simple. We move goods around on our road and rail systems. The faster and more efficient that is, the more our economy benefits. It's the same for our digital economy, and it could have a greater impact.

Case Study 14

Positive Concepts OU and Ltd, South Oxfordshire

Twenty years ago when internet and broadband were becoming essential for any IT firm, I asked my MP for help in obtaining a broadband service in Dunsden for my firm.

I was eventually told this would not be available in south Oxfordshire in the foreseeable future, so I decided to work in Estonia, assisting Estonian and then Latvian and Lithuania IT firms seeking outsourcing from BT in the UK, Ericsson in Sweden, Nokia in Finland and other firms. My company acted as a catalyst, providing low-cost, high-quality software development capability for BT and others that was carried out in Estonia and other Baltic countries.

I commuted weekly from Dunsden and later from Binfield Heath to all the Nordic and Baltic countries... From 1996 to 2009 I worked mostly from Estonia, owing to the lack of broadband in south Oxfordshire. In 2012 we heard that there was a possibility of obtaining a fibre-optic link from Playhatch, about a mile away. Another resident in Binfield Heath put a lot of effort into negotiating with BT and creating the Binfield Broadband Action Group, and several of us assisted him.

In 2013, the 640 villagers of Binfield Heath agreed to raise £50,000 as a contribution to the capital cost of BT installing a fibre-optic link from the Playhatch fibre-optic hub. We had a financial shortfall, so I managed to convince a local landowner to make up the difference.

Binfield Heath residents finally obtained a reliable fibre-based superfast broad band link about a month ago. I've just tested the speed and right now it is 46 Mbps download and 16 Mbps upload. Occasionally the download is as fast as 75 Mbps and download can be 25 Mbps. We understand that Binfield Heath is currently the ONLY small village in south Oxfordshire that has its own superfast broad band service.

Case Study 15

iNovar, Reading

As a company recently selected as a winner of the inaugural Dell Start-Up In Residence Challenge, iNovar are now in a position to significantly increase their operations here in the UK and to proceed with the recruitment of a number of skilled and well-paid staff to run our International Sales and Support functions. However, one of the barriers to this growth is the ludicrously slow and low bandwidth broadband connections we are forced to work with.

As a simultaneous UK and US start-up we rely heavily on Skype, GotoMeeting, DropBox, Facebook, Twitter and other online systems and while my US colleagues in Atlanta have been enjoying broadband speeds in excess of 10 Mbps upstream speeds and 40 Mbps downstream speeds for some considerable time, we're struggling along on 1 Mbps upstream and 12 Mbps downstream with the result that online conversations are often disjointed or need to be frequently disconnected and reconnected in an attempt to share screens.

Unless the UK can start to deliver a seriously more powerful broadband capability (and soon!), we will lose out to competition for the placement of the recruits, etc. elsewhere. I'm already considering relocating the Far Eastern team to Singapore largely because of the availability of high-speed broadband in that country.

Case Study 16

Constant Solutions Ltd, Milton Keynes

We are an outsourced service provider serving customers across Europe, the Middle East and Africa. All our business is conducted online so we are completely dependent on our broadband capacity. The speed at which we can conduct our business is directly related to the efficiency of our internet connection.

One of the biggest challenges we have is the cost of increasing capacity and performance. I estimate we are at between 60 and 80 per cent of the level of performance we would ideally like to be at. The cost of improving that starts becoming prohibitive very rapidly – particularly if you want a guaranteed level of service.

The other concern is resilience, and we seem to be completely at the mercy of BT infrastructure. Generally things work well, but when something is broken it can be frustratingly difficult to get the matter resolved. As an example, we recently had a problem with loss of connectivity that took three business (five calendar) days to resolve. We had to send people home so they could work with their home internet connections.

Mobile connectivity is very patchy. Whatever the phone companies claim regarding coverage, the reality is way behind where it needs to be. Even in major urban areas connectivity can be very hit and miss. Outside the good areas performance (for both mobile and wired) degrades very rapidly.

Talking generally, a major concern we have is that if the UK falls behind other countries/regions we will not be able to provide the levels of service performance our customers will come to expect. My view is that the UK needs to upgrade infrastructure and bandwidth capability just to maintain the current position, and to go much further if we want to be seen as in the forefront of technological capability.

Case Study 17

Carlton Thermal Systems Ltd, Chalgrove, Oxfordshire

We recently encountered the following problems with our broadband. We had tried to use Video-over-IP systems such as Skype with one of our suppliers in the US, but found that we had insufficient upstream bandwidth to allow for a reliable video connection. Following this, we explored possible options as solutions to the problem, but none seemed to work with our existing IT system set-up.

We looked at satellite broadband as an option, but were advised against it by our IT support company as it would cause problems with our IP set-up and they had seen customers experiment with it in the past and go back to standard broadband. We looked into bonding our existing lines to increase speeds as well, but again we were advised against it because of the real-term cost versus difference would not be worth it. We were also hindered by our existing supplier's not having enough data on our existing connection to be able to work out a suitable replacement, and being a general nuisance when asked simple questions.

Case Study 18

Lucinda Brown Gallery, Bucks

I live and run a small enterprise in the grounds of Claydon House, NT. It is in a very rural area not yet covered by the high-speed internet options. No matter which provider I go to that promises me speeds of 20 Mbps or more, the bottom line is I get barely 2 per cent of the promised speed owing to the archaic exchange that serves the villages in this area. Apparently, BT, who are responsible for this, do not think it is important enough to upgrade this area because we are remote. In my view, it is more vital to upgrade for precisely that reason.

Case Study 19

Circle Sound Services, Bicester, Oxfordshire

My broadband provider is Virgin and broadband speed here is excellent - I am on fibre-optic cable with 100 Mbps speed. However, my mobile broadband is quite poor.

I am on Vodafone (as Vodafone has the very best roaming tariffs) but seem only to get 'Edge' connection where I am with very occasional and weak 3G - no 4G yet.

Bicester is expanding, with a large new housing estate being built with a Premier Inn hotel, and also the UK's first Eco Town is about to be built a few hundred metres from me. Bicester really needs a good 4G service all over the town.

Case Study 20

Circle CASHTRAK, High Wycombe

I have a home office situated on a short road (fewer than 20 houses; though there are blocks of flats at the end), very near the main A40. We have progressed from dial-up but we are on the original really slow broadband and Openreach has no intention of expanding the new faster connection to our road.

As I run a firm located at home it is preferable for me also to use subcontractors who work from their own home to take my overflow of work. This of course means they need access to the server to be able to use files in an efficient way, but this process is extremely slow owing to the speed of our broadband connection; I typically get download speeds of under 3 Mbps and upload of only 0.8 Mbps. I am always told this is poor compared to what they believe is achievable, yet everything is set up as they suggest and I use a wired system not wireless to ensure I do get the best.

This is really not acceptable when most of the town is covered by fast broadband. I get very annoyed by TV adverts, especially at the moment those from Virgin, where they say 'We are now improving the speed to superfast', yet there are many places that do not even have the original upgrade in place yet.

The expansion of superfast networks would be really good for small businesses like me that are home-based. It actually costs me money to have the slower network and the staff take longer to do things while waiting for the computer to catch up, so I am paying for unproductive hours.

Case Study 21

CirAudio Ltd, High Wycombe

We are a UK manufacturer based in High Wycombe, and despite High Wycombe being Infinity-enabled we are left with a 1 MB connection, which is seriously hampering our business. I do feel strongly that the BT monopoly in rolling out this technology in UK is leading BT to cream the profits on leased lines to businesses.

Small companies cannot operate efficiently without the use of high-quality broadband. We are a high-tech company having to rely on third-world technology.

Case Study 22

Federation of British Historic Vehicle Clubs Ltd, Wallingford

We have been battling BT in this village for years and years. The service is appalling. Up to last summer I had only a 300 Kbps broadband speed, making it impossible to send or receive large files and rendering any form of video streaming or iPlayer viewing/listening impossible. Following another huge problem with the phone lines here last summer the broadband speed was coincidentally improved, and I now get 2.5-2.8 Mbps – still poor and nowhere near what the BT contract says is possible.

It makes life very difficult, as my work includes sending large files to a printer (and receiving from the printer, of course). It takes an age and can time out frequently. I am a one-man band here and am conscious that if I don't give a superb service my workload could be taken away at any time in favour of someone who can offer a better service. To add insult to injury, the mobile phone reception here is also non-existent. And yet we are living in the heart of Oxfordshire.

Case Study 23

Global Perspectives™, Offices in UK, Belgium, Spain and South Africa

You would think that I have nothing to complain about as I have ADSL2 and that gives me a 12-14 Mbps download speed, but the problem is the upload speed, which is <1 Mbps. And it's this that constrains my work as I have to upload big files to others throughout the day and continuously synchronise files with others who are based abroad.

I also use cloud storage and backup in case of fire or theft. I recently changed my cloud backup company and it took weeks to upload all the data. Now I do all this overnight, given the slow speeds during the day. Of course, while all of this slow uploading is going on, my computer speed slows too so I become less productive.

Case Study 24

Metering Technology Solutions Ltd, Henley-on-Thames

We are a small, private limited company providing meter-reading solutions to the utility marketplace, and we employ five people. We run the business from the grounds of our home in Stoke Row, seven miles outside Henley-on-Thames, and have been established since 1995. Our broadband is terrible; I have just run a speed test and the results showed 0.8 Mbps download and 0.4 Mbps upload.

Our meter-reading solutions enable our customers to read their meters remotely via the internet. Leaks can be identified and an email alert sent. The lack of broadband speed means we cannot run product/system tests from our premises or demonstrate our products to their best advantage from our premises.

When trying to upload documents/photographs it is sometimes necessary to ask everyone else to stop using the internet to maximise the bandwidth. Internet pages are slow to load, resulting in loss of productivity, while trying to use Skype and face time is almost impossible, as the connection is frequently lost.

Case Study 25

Valerie Douglas - Construction, Northern Ireland

We are based in rural Northern Ireland, our broadband is really slow, we get speeds of 3.12Mbs download and our 778Kbps Upload. This has impacted on our ability to simple things such as email, send quotes and communicate with our customers. We have spoken with our provider, but apparently there is nothing more they can do.

Case Study 26

Albert - Property developer, Aberdeenshire

I own a property development company, based in Aberdeenshire. Although my internet speeds have improved slightly, I still only get around 1.5 mbps. My wife also runs her own wedding jewellery business from home. We are both negatively impacted by poor broadband. I actually find it easier to run the business from my holiday home in rural Turkey, where the internet speeds are much quicker, around 8mbps. I intend to 6 weeks there this summer.

Federation of Small Businesses
The UK's Leading Business Organisation