House of Commons

Digital, Culture, Media and Sports Committee

Oral evidence: Broadband and the road to 5G, HC 153

Thursday 24 September 2020

Ordered by the House of Commons to be published on 24 September 2020.

Watch the meeting

Members present: Julian Knight (Chair); Alex Davies-Jones; Clive Efford; Damian Hinds; Giles Watling.

Questions 1 – 71

Witnesses

I: Gareth Elliott, Head of Policy and Communications, Mobile UK; Andrew Glover, Chair, Internet Service Providers Association; and Malcolm Corbett, Chief Executive, Independent Networks Co-operative Association.

Written evidence from witnesses:

- Mobile UK

Examination of Witnesses

Witnesses: Gareth Elliott, Andrew Glover and Malcolm Corbett.

Q1 **Chair:** This is the Digital, Culture, Media and Sport Select Committee's hearing on broadband and the road to 5G. We will be joined by Gareth Elliott, head of policy and communications, Mobile UK; Andrew Glover, chair, Internet Service Providers Association; and Malcolm Corbett, chief executive, Independent Networks Co-operative Association.

Before I start, I ask members to indicate if they have any interests they would like to declare in terms of this inquiry. No.

Gareth, Andrew and Malcolm, good afternoon.

Gareth Elliot: Good afternoon, and thank you, Chair, for inviting me to the session.

Chair: What I will do is ask some questions. I may ask all of you to give your perspective. As we go along, if you feel as if you do not particularly want to give your perspective or you feel as if perhaps one of your colleagues on the panel is better qualified, just say you will pass so that we do not get replication of answers, if that is clear.

To kick off, I am going to ask all of you this question. Is delivery of gigabit-capable broadband nationwide by 2025 genuinely achievable, along with 5G in 2027?

Gareth Elliott: From our point of view, and obviously speaking specifically on 5G here, we are working towards the Government's 2027 target of 5G coverage for a majority of the population. That is an ambitious target, and we need to ensure that barriers in the way of reaching that are removed as quickly as possible, barriers such as the planning framework, certainty on policy, vendor diversification and digital championing at a local level.

Andrew Glover: I think that word is going to reoccur. Ambitious is obviously the key thing, and it is something that, as an industry, we are striving for and want to try to achieve, but it is going to need everything to be absolutely perfectly aligned if we are going to meet it. Those issues around the various barriers that get in the way, be it wayleaves, street works or resourcing and skills, which is obviously a key area in terms of being able to scale up and make sure that everything is in place. It is going to be very hard, but it is one that we are trying to meet.

Q2 **Chair:** Forgive me, but there was a bit of a weary tone when you said "ambitious" there. I cannot blame you in that respect. Let's be frank about this. Is it not unrealistic, really, genuinely?

Andrew Glover: It is far better to shoot for 100% and fall slightly short than to set what everyone would say they would be very happy with, which would be, say, 70%, and then achieve only 70%. Are we going to hit the 100%? It is going to be incredibly difficult. Is it a worthwhile ambition? Absolutely.

Malcolm Corbett: Thank you very much for inviting us to join the session. Clearly, changing the target from the original target of full fibre everywhere by 2025 to gigabit-capable networks by 2025 was a big change. I do not think anybody believed that full fibre everywhere was achievable by 2025, given the Future Telecoms Infrastructure Review had posited something very, very different.

Gigabit-capable means that you include Virgin Media's cable network in the accounting, and that does make a significant difference. Currently there is a big conference going on called Connected Britain. I have been chairing various panel sessions at it, and yesterday I asked a group of operators whether they thought this was an achievable target. Generally people thought that we will get quite a long way towards it, even if we do not reach the whole 100%, and that it is better to have some target than none at all.

Q3 **Chair:** What percentage do you think?

Malcolm Corbett: That is a difficult one to say. Some of the more challenging rural areas are just challenging. To a large extent, it depends on how Government and Ofcom align their thinking and what we can do, as other people have said, to ensure that silly barriers do not get in the way, while respecting the rights of landowners and of local authorities. Local authorities need to protect their estate, and so on.

Q4 **Chair:** Do you think DCMS is being clear enough in the plans on how it is going to achieve this target and how it expects the industry to deliver?

Malcolm Corbett: Yes.

Chair: That was quite a long pause.

Malcolm Corbett: There is a caveat here, which is that in urban areas there is an awful lot of activity going on at the moment. BT Openreach is rolling out something like 40,000 premises with full fibre per week, which is a big acceleration. We measure the coverage of the independent sector once a year. That is basically the non-incumbents, not BT and not Virgin Media, everybody else. At the end of last year, they covered 1.2 million premises with an ambition to reach 2.4 million by the end of this year. Plenty of investment is going into the sector.

There is effectively a land grab going on at the moment between all sorts of different companies trying to identify areas in which they can deploy full fibre. Virgin Media covers a significant chunk of towns and cities around the country. The big challenge really is in the rural areas, and that is where the Government's funding and policy is orientated at the moment. The difficulty we have at the moment is that we are not quite sure how it is all going to work. Given that time is marching on, we need to get a better understanding pretty quickly.

Q5 **Chair:** That is a point I am going to return to in a minute, in terms of the way in which the very hard-to-reach places, to a certain degree, could be catered for. It is those just falling off, that may or may not be uneconomic, that may not be catered for as such.

Malcolm Corbett: Just to emphasise the point, one of the sessions I chaired yesterday was with investors. The investors have committed something like £6.6 billion to the independent sector. That is not BT, Virgin Media or Liberty; it is the independent sector. For the period up until 2025-26, there is an awful lot of money to go into fairly new companies to build these networks.

One of the key things the investors are talking about is the extent to which there is a degree of uncertainty in terms of the regulatory environment—what Ofcom is trying to do in its market review of the telecoms market, designating areas as non-competitive and other areas as competitive, and what Government are doing in terms of defining the 20% of premises that are subject to some public investment, public funding.

Q6 **Chair:** In essence, what you are saying is that they are almost being asked to take a blind punt.

Malcolm Corbett: Yes, and not many people are prepared to do that. They are doing it a bit, but there is a limit to how much they are prepared to do that, unless we can get much greater clarity from Ofcom on its intentions in terms of regulating, particularly area 3, and how that is going to work. At the moment, it looks like BT are attempting to—

Q7 **Chair:** Andrew and Gareth, are you of the same mind, effectively that there isn't yet joined-up thinking between Government and Ofcom and that we are basically in quite an uncertain position?

Gareth Elliott: A key point for me is that what we cannot have is moving targets. We have a target of 2027, and we have other areas such as high-risk vendors. If those targets continue to move, we cannot build certainty into our own infrastructure planning. What is here is that we do have a target, and we will work to that target. We just need to maintain those targets.

Andrew Glover: DCMS is becoming much clearer in what it is trying to achieve and what its overall objective is. Ofcom is lagging behind in terms of how it implements that, and there is still some discrepancy because what the two parties are trying to achieve. Ofcom is still trying to catch up from a regulatory framework that is all about giving consumers maximum choice and driving down price. Now, of course, the focus is changing to maintaining that while still trying to achieve this 100% target for gigabit-capability. There is still that discrepancy between the two, and that is what needs to get resolved.

With the Government target, there isn't complete clarity between Government intervention areas, as Malcolm says, and what they should be focused on and what the industry is going to be able to get to by itself through its own means. There is about £20 billion of investment going in from private companies, and we need to make sure that the Government intervention is focused not necessarily on the broad 20% but on the final 5% first and then extend it to 10%, and then extend it that way. The danger is that, when you say 20%, it starts to impact at the 80% level. If we are not careful, we are still leaving out the final 5%. That was the learning from before.

Q8 **Chair:** Are you saying that, effectively, the "outside in" policy needs to be very strictly enforced rather than, frankly, a little bit fudged?

Andrew Glover: Don't make it too wide. Focus it on the bits that we absolutely know are going to be uneconomic, and then expand it back from there. If you start from there and work backwards, you hit industry coming the other way and, by definition, once they start going to those really hard bits, they will find other bits that all of a sudden make economic sense because they are doing them or going past them and near them anyway.

Q9 **Chair:** Is £5 billion enough to reach that target? As I understand it, in my conversation with the industry, up to a quarter of homes are effectively uneconomic. Is more money needed, or does the economic model need to change?

Andrew Glover: I suspect more money will be needed. If we keep numbers simple and say 30 million premises is what we are trying to deal with, and if you say 10% means 3 million premises, £5 billion would get you about £2,000 on average per premises of subsidy. That probably deals with most of them, but it only deals with 10%, not 20%. Obviously, as you come back, the amount of subsidy you need to make areas economic should become less.

Q10 **Chair:** Gareth and Malcolm, do you agree with that analysis that, effectively, £5 billion is not enough to deliver to the hardest to reach?

Gareth Elliott: In terms of the hardest to reach, this is a very positive time for the mobile industry because we have just signed—on 9 March of this year—the Shared Rural Network initiative, which is a £1 billion initiative with £500 million investment from the industry and a further £500 million from the Government. That is to reach reliable 4G mobile broadband coverage to 95% of the UK's landmass.

Q11 **Chair:** That is not really answering the question, though, because Andrew said that he thinks more money will be needed downstream. Malcolm, do you have any thoughts on that?

Malcolm Corbett: The numbers are reasonably well known. The National Audit Office reported on the costs and economics of deploying different types of networks around the country a couple of years ago. In fact, we were involved in helping to generate some of those numbers. Andrew is right that £5 billion will do a lot and get a long way, but it will not necessarily reach the 20% of premises in the country that the Government are seeking to reach.

Q12 **Damian Hinds:** I am going to come at my questions from the perspective of an MP for a rural constituency where, quite often, we say our priority is not so much getting gigabit everywhere but, rather, getting just a bit everywhere, particularly in those harder-to-reach areas. Can we start with these figures, the 10% that became 20%, and some industry estimates put it at 25%, of homes that would not be commercially viable? Where do those numbers come from? How are they modelled?

Malcolm Corbett: There was an exercise done by the National Infrastructure Commission—sorry, not the National Audit Office—a couple of years ago that looked at the costs of deploying different types of networks, whether it be full fibre, extending the existing FTTC—fibre to the cabinet—network or looking at wireless and cable. That looked at the costs of doing those different networks in different places, so the costs are reasonably secure, I would say.

Q13 **Damian Hinds:** Is there not one really important element of the formula missing, which is take-up? A lot of the costs are going to be fixed costs to serve a particular area. Mathematically, whether you get a 10%, one third or three quarters take-up of eligible properties transforms the economics. What is the assumption on take-up when you install to an area?

Andrew Glover: That varies from operator to operator and from region to region. In areas where we have more competition, people are working on anything from 25% to 40%.

Q14 **Damian Hinds:** Yes, but in these hard-to-reach areas—and I speak as someone who represents one—you do not get a lot of competition.

Andrew Glover: Indeed, but it depends on what sort of regulation is being put around it. Yes, you are right that a lot of the newer people who are building are building in some of these hard-to-reach rural areas. They are working on a 60% penetration and take-up rate. In time, in theory, that should go to 90% or 100%, but it is unclear when. It all depends on regulation in terms of whether they are going to get overbuilt by other people and whether they become competitive. It is very hard to pick that number. Everyone would love it to be high, but for it to be high there has to be no competition.

Q15 **Damian Hinds:** You get this phenomenon in some rural areas where the service improves, the network gets upgraded, and nobody knows about it. If you are lucky enough to be elected as a Member of Parliament, you tend to know about it because you are the sort of person who goes on Twitter the whole time and looks up where the cabinets have been upgraded. But no actual member of the public, unless they are actively informed by somebody, gets to know about it.

The allegation—or the suggestion, shall we say—is that there sometimes isn't a great commercial incentive for operators to tell people that they could upgrade to a better service, because the service they are currently on sometimes has a higher price attached to it because they have not switched for a number of years. Therefore, there does not seem to be an incentive to tell people when it is available, which will artificially suppress take-up. How would you respond to that, Andrew?

Andrew Glover: I think all our members are working very hard to make sure that take-up is there, because everyone, certainly the people building it and investing in it, needs take-up. They are providing incentives to make that happen. That goes right across the board, whether you are Openreach or whether you are a new entrant. You need that take-up in order to make it work.

Some of the larger ISPs have to re-engineer their systems and ordering systems, et cetera, to cope with these new networks and new suppliers, and that takes time. But there are people out there selling these networks and trying to make sure that everyone knows. However, as you allude to, there is an uphill battle in convincing consumers that they should move over. One Catch-22 is that the superfast rollout was very successful and got to 96% or 97%. At the moment that suits a lot of people absolutely fine and they do not see the need or requirement to move over to gigabit-capable services as they come along. Convincing people to move on to these networks is a challenge, and that is where we need—

Q16 **Damian Hinds:** You mention these salespeople who are out and about trying to persuade people to switch over to these networks. Typically in a rural area where you do not have door-to-door marketing activity and there is not a whole range of different providers trying to get in on the act, what is this sales activity that is going on?

Andrew Glover: It is becoming door to door for a lot of those operators, along with national marketing. Often it is hard, and we get criticised for national advertising that says, "Switch to this wonderful new stuff" when, at the moment, only 14% or so of people can access it. There is obviously a balance to be done on quite when you push some of that marketing.

Q17 **Damian Hinds:** Malcolm, in terms of the new schemes that we expect to come forward, what mix do you anticipate between block subsidy for blocks of residential properties versus a voucher scheme or other types of funding?

Malcolm Corbett: It looks like the public funding from Government through BDUK will be about £4 billion in the "outside in" programme and about £1 billion of vouchers.

Q18 **Damian Hinds:** What lessons do you think there are to be learned from the rural gigabit voucher programme?

Malcolm Corbett: It is very flexible, and a lot of people like it a lot. It enables operators to connect quite challenging areas. One of the discussions being had with BDUK at the moment is the extent to which vouchers might be part of the solution to being able to connect farms, for instance, or properties with long driveways or that are further away from the network than others. The vouchers can be very helpful.

Q19 **Damian Hinds:** Looking at the rural gigabit voucher and the community fibre partnerships, how can you speed up those processes dramatically?

Malcolm Corbett: Speeding up, in a sense, is dependent on BDUK coming to a conclusion about how it is going to organise the F20 funding programme, the "outside in" funding programme. They are going to be dividing areas up into lots, and we do not yet know what those lots will look like and how they can be bid for, as it were. That all has to happen.

Andrew Glover: The other areas around speeding everything up, scaling generally, not just for "outside in" but everywhere, are around street works, wayleaves, planning consent. These are all things that will delay the whole system in terms of operators being able to mobilise and do a whole area at a time. Even in urban areas, not necessarily rural, you get roads that are not adopted and, therefore, you have to get permission from everybody. If one person objects, you cannot do the whole street. These are all issues that cause delays anywhere and everywhere in the process.

Q20 **Damian Hinds:** That may well be, but you will often hear complaints from rural communities—and if you do not, I will be happy to forward you some correspondence—that, even taking out the wayleave issues and the street works issues, it sometimes takes a long time to get something going through things like the community partnerships. That was the essence of my question. What can operators do in this new world to make that work much more efficiently and responsively?

Andrew Glover: We are scaling up. The recruitment levels are huge in terms of the skills that people are bringing in, and to bring in more crews requires training. Obviously you don't want just anybody turning up and digging up your drive. They have to be properly filled, trained and so on. It is a huge workforce that we are trying to put together. Those are happening, with apprenticeship schemes, training schemes, et cetera. Anything that can help with that. I am sure we will come on to it, but Covid has shut down a lot of those training places, so they are also things that are causing delays.

Q21 **Damian Hinds:** Andrew, how do you see competition and choice working in future, particularly in these rural areas where there isn't great choice at the outset? You can pull your cable through an Openreach duct but thereafter for that consumer, for that household, where is their competition and choice?

Andrew Glover: That is happening at two levels. There is already significant choice in terms of end ISPs, who sit on a number of operators.

Obviously historically that has all been on top of Openreach. As we expand the number of infrastructure providers, one of the challenges is to ensure that all that choice of ISPs is still available across those different platforms and infrastructures to hide that. That is work that is going on within the industry anyway, often referred to as wholesale platforms.

Obviously there is work going on with the European Communications Code to make switching simpler, which again will drive operators to be able to sit and operate and make these new networks available.

Q22 **Damian Hinds:** To be clear, if you have a company that connects your home to the network—eventually using Openreach infrastructure, but the company that has connected your home to that—thereafter, two or three years further on, does the consumer have a right to move to another service provider, even though there is an intermediate layer of infrastructure, if you like, between the on-the-premises kit and the Openreach infrastructure?

Andrew Glover: We have a complete blend. There are people who only deal with the end customer—they are the ultimate billing and selling company—and there are those who only build infrastructure. Obviously there is a whole bunch of people who do both. We have a very flexible market system. Obviously, the degree of switching, and so on, depends on which one of those you are in or is available to you at your particular premises. Generally speaking, there will be consumer choice in terms of operators. There may or may not be choice in terms of the wires that come in, depending on who has built it and how competitive your area is.

Q23 **Damian Hinds:** Finally a question perhaps to all three of you. The £5 billion means that, if it is 10% of households, you get almost £2,000 a home. If it is 20%, you get almost £1,000 per home. One way or another, it is still a reasonable amount of money. What are the chances that, before this programme is over, some other technological solution will come along with a unit cost of less than £1,000 per household? For example, how much of this could be done by 5G?

Gareth Elliott: This is the nuance to gigabit connectivity. They are not competing, they are complementary. There are opportunities for competing, and fixed-wireless access, certainly in rural areas, could provide a solution. I think you are going to need both. Someone asked whether 5G is the silver bullet. I would say it is not quite the silver bullet. It certainly is one, but you are still going to need fibre to fire that gun.

Malcolm Corbett: Many of INCA's members/operators build both wireless and fibre networks. Many of them started by building wireless networks first, because they were cheaper to deploy, particularly in challenging rural areas, and wireless networks are improving. With the right spectrum and the right equipment, 5G is potentially a very important element of the whole deployment going forward.

Q24 **Damian Hinds:** When you say you need a blend, Gareth, I get that, but can the last 100 yards—although it is probably a bit more than 100 yards in rural areas—be done with 5G? If so, presumably that gives you rather less than £1,000 a household unit cost.

Gareth Elliott: We are still in the very early stages of 5G. We have 60 cities and towns across the UK. The spectrum for 700 MHz, which will assist with the rural side of things, is yet to be auctioned off, but it will be early next year. As I said, we still need fibre into the base stations to get there anyway. Going back to that point, it is part of the solution but it is certainly not the only solution.

Q25 **Damian Hinds:** Forgive me. As you can tell, I am not a telco engineer, but presumably what is really driving these high, high costs is getting the connection to the individual premises, rather than the backbone of the network. I am thinking back to Scandinavia, Sweden, when mobile phone networks were first coming out. You would see mobile phone masts in places that did not have fixed-line telephone connections because it short-circuits the economics. Is there an opportunity here to do something similar for the local loop?

Gareth Elliott: There is an element here where we also need to look to the planning system. In Scandinavia you have an average mast height of 90 metres to cover a much wider area. Our average mast height in the UK is 18 metres. Again, we have to look at what we want and what we are prepared to do to be able to give ourselves the opportunities for that. As we started this conversation, there are a lot of areas we can look at to remove potential barriers to bring technologies that are better suitable for areas. At the moment, as we say, 5G is certainly a complementary part of that, but we still need to get fibre out into rural areas to provide the backhaul to those base stations.

Q26 **Damian Hinds:** Do not misunderstand me, I am not advocating 90-metre masts, just in case any of my constituents are watching. Just for our technical understanding, if we did have much higher masts or if we allowed much higher masts in the UK, would that transform the connectivity potential of 5G mobile networks?

Gareth Elliott: Again, we are looking at the joint technologies of 4G and 5G. It certainly is true that higher masts would help, but we are not looking for 90-metre masts either. What we are looking for is flexibility in the system to provide the best solution at the right place.

Andrew Glover: Without getting into physics, to do higher speeds you need to use different frequencies at shorter distances. Having higher masts is great for good line of sight and longer distances, but it does not necessarily improve your bandwidth. For 5G to operate at gigabit speed, you have to be a lot closer, hence why there have to be far more masts rather than, necessarily, higher masts. Again, it is a trade-off. One of the challenges is when you are looking at three particular properties that are in a very difficult position, and you almost get to a case-by-case basis, rather than a simple solution that is, "If only we do this, we can do everything." When you get to this final 5%, or even 2%, you are almost on a case-by-case basis of what is the right solution for this particular one in terms of value for money. If you are just looking for expediency, put in fibre and dig up the road, because you know it is going to solve the problem. Are we after speed or are we after the most cost-effective use of money? Then you potentially have to approach it in a different planning way.

Q27 **Chair:** Gareth, just to follow up on how 5G complements gigabit-capable broadband, do you think that DCMS still has in its mind that its preferred option is as much gigabit broadband as possible rather than 5G, or do you think they are coming round to the idea of that much more mixed approach?

Gareth Elliot: I do not think I can speak for DCMS, but we are certainly looking a holistic way of developing gigabit networks. Andrew made the point that 5G has its use cases and, if you want that capacity, you need closer infrastructure. It is one reason why the Shared Rural Network is being looked at for 4G as well. Again, I cannot speak for DCMS, but we are certainly looking to ensure that, as part of the solution, 5G is considered.

Q28 **Giles Watling:** This may be a very simplistic question to ask, but it comes straight off the back of your conversation with Damian just now about 90-metre masts. The UK is the most successful provider of wind farms, and we have these massive masts sitting right in the middle of my constituency. Anywhere you go in my constituency, you can see this onshore wind farm. Is there no way that you can share these wonderful structures in the middle of my constituency?

Gareth Elliot: Unfortunately, wind farms disrupt the signal.

Q29 **Giles Watling:** I thought there would be an answer to that. Moving on, am I right in saying that the rollout of fibre is the gold standard? Fibre is the most reliable, and it will be even when 5G is rolled out. Is that right?

Andrew Glover: Yes. It is the most scalable as well. In terms of futureproofing, we can go beyond gigabit with fibre. All you do is change some of the kit at the end and you can then do 10 gig. Absolutely.

Q30 **Giles Watling:** I am very enthusiastic about the "outside in" programme. Like Damian, I represent a largely rural constituency and we have areas that are untouched. Is the "outside in" programme diverting the commercial world's focus away from fibre, and is that undermining the 2025 target?

Andrew Glover: As I said, we have other restrictions in terms of the amount of resource that we can deploy, planning, et cetera. Yes, by nature, if you build in one area you do not build in another. There is a real question of what is the highest priority, to ensure that some of the hard-to-reach places get done and do not suddenly become very expensive and left behind, or do you want the maximum number done in the shortest possible time? Obviously that would go to the most economic and the easiest to do. It is, from a holistic point of view, right that the Government are focusing on those hard-to-reach ones, because otherwise they could be missed. But dealing with them will potentially slow down some of the rest of the rollout.

Q31 **Giles Watling:** Just to be clear, you would say that the 2025 target is at some risk?

Andrew Glover: As I said at the beginning, it is incredibly ambitious and challenging, and we have to make sure that everything lines up. If the work that is being done clarifies exactly how to deploy that money and how to deal with those hard-to-reach areas, and if there is regulatory certainty around it, that helps everybody to raise the extra money and find the extra resource to continue to plough on and do both. The greater the clarity and the more barriers that are removed, the faster we can go, obviously.

Q32 **Giles Watling:** You mention the regulatory issue. Do you think the Government could do more? Is there something the Government should be doing to help you hit these targets?

Andrew Glover: Sometimes it is probably about doing less. I have alluded, obviously, to wayleaves. The Bill only goes so far, and it leaves a lot of other issues that are not being addressed and still cause problems. When it comes to street works, we are still dealing with 40-odd councils that all have slightly different ways of doing it. There is no standardised wayleave agreement, so everybody's lawyer gets involved and wants their own take. That is not the Government, per se, but helping to regulate wayleaves to be more straightforward and plain for everybody would help with it. The business tax, tax on fibre, and so on, again is a regulatory uncertainty. Removing that, either by a complete revamp of business rates, which would be ideal, or at least extending the moratorium on fibre tax to come in line with Scotland and various other places would, again, help the process. This is about taking things away, rather than necessarily adding more.

Q33 **Giles Watling:** I understand that entirely. I was going to ask about that later. What difference would an exemption on business tax make to the rollout of 5G, for instance?

Gareth Elliot: We are looking for parity with fixed new infrastructure in business rates relief. In some of these, we see the Government have made positive movements for fixed, but we would suggest again, with the benefits 5G can bring, that it should be extended to 5G. That is especially in harder-to-reach rural areas, because that, again, helps with the economics.

Q34 **Giles Watling:** That helps with that mix you were talking about earlier. All of this rollout is going to involve local authorities. What role should local authorities play in the "outside in" programme, and do you think the design of the programme will facilitate local authority involvement?

Malcolm Corbett: It is not clear what role local authorities are likely to have in the "outside in" programme. In the previous BDUK programme, the superfast programme, the local authorities were effectively joint contractors with DCMS to fund the development. That is not envisaged for this programme, which is going to be managed centrally. However, local authorities do have, potentially, a very important role to play in the sense that they have local expertise and can help to ensure that barriers do not become a big obstacle, and so on and so forth. If local authorities are not involved, it would be missing a really big trick. They need to be engaged, but at the moment it is not clear how.

Q35 **Giles Watling:** Then, of course, they would also need to engage on planning issues, which are part of it. We know that landlords of large apartment blocks, flats or buildings are sometimes unresponsive and do not allow access. The gas, energy and water sectors have a right of entry. I imagine the building regulations legislation that is coming up is trying to deal with that. Do you think it falls short of the ambition to allow access?

Andrew Glover: The Telecommunications Infrastructure (Leasehold Property) Bill is fine for the scenarios it is dealing with; it just does not cover a lot of these other use cases that I have alluded to. It deals with blocks of flats and it deals with absentee landlords, but it does not deal with landlords who just do not want to play ball or do not understand what is being done and why it is of benefit. It deals with some, but it does not deal with everything.

Q36 **Giles Watling:** Malcolm, moving on from that, the plans for gigabit connection in new builds are very good. How could the Government strengthen these plans?

Malcolm Corbett: It is important to ensure that all new builds get fibre connectivity and have the ability to ensure that that fibre can be delivered by different companies, rather than just expecting BT and Openreach to do the whole job. We think it is important to ensure that there is, first, guaranteed connectivity, irrespective of the number of premises involved in that development, and that it is not just seen as being a monopoly for Openreach to deliver it. For instance, I am in a new apartment I have just moved into in the Royal Arsenal in Woolwich, and it comes preinstalled with Hyperoptic—that is my service provider, a gigabit connection—and with BT. That means we can choose.

Q37 **Giles Watling:** It is similar to what Damian was asking earlier, the consumer will ultimately have choice?

Malcolm Corbett: Yes. If we ensure that it is not just seen to be a monopoly for one provider, yes. The whole consumer choice thing is a little bit challenging, but it is going to happen. It just needs a bit of time to come through.

Giles Watling: That is very good to hear. Thank you very much.

Q38 **Alex Davies-Jones:** I would like to touch on the skills and labour gap. I am not sure which of you would like to answer, maybe all of you, but how long do you think it would take to address the skills gap and ensure the UK has enough telecoms workers for its needs, especially now we are dealing with the fallout from the coronavirus as well?

Malcolm Corbett: I will start, although I am sure Andrew has lots to say about this. It is certainly an issue that has been raised with us by all sorts of organisations that are building networks, whether they are quite large, like CityFibre, or much smaller operators. There is a challenge, and part of it is to do with changes to the immigration system as a result of Brexit, given that quite a lot of gangs working for the sub-contractors have come from different parts of Europe, like Lithuania, Romania and all sorts of other countries. That is one thing.

We need to work on a programme, and the Government could play a really important role here, to ensure we are generating the skills in the UK to be able to build these networks. If we do not do that, however much money is available for investment, whether private or public, it does not make any difference, frankly. It is a big challenge. We are working on it as an industry association, and I am sure that ISPA is as well.

Q39 **Alex Davies-Jones:** Malcolm, could you give a rough timescale for how long you think it is going to take to address the gap? Or is it, "How long is a piece of string?"

Malcolm Corbett: I cannot answer that question now, but it is a project we are working on at the moment, so we should have an answer to that question in a couple of months' time. We have a small team of people looking at this.

Andrew Glover: I do not have the exact numbers, but you can extrapolate fairly easily. We know we still have 27 million properties to go and visit. Basically, this is the scale of the engineering challenge we are talking about. Irrespective of the technology, you essentially have to visit every single premises in the country to deliver some form of new technology, whether it is a wire, a dish or something to go into everyone's property. It is a huge job. When we finish this task, be it 2025 or whatever date, it largely goes away. It is not something that we are continuing to do. We are not going to dig up all the roads again, and we are not going to lay new fibre again. It is a short-term project in that sense. Although we are scaling up, recruiting lots of people and so on, if you consider a five or six-year job to be a short-term job, the numbers we need are for only a period of time, which begs the question of where to get them from. Training a whole load of people for a job that then disappears may or may not be the right thing to do, versus getting in labour that is experienced, can do it and will disappear again when it is no longer needed. That is part of the challenge. Which is best? At the moment we are at the stage where we just need more people.

Q40 **Alex Davies-Jones:** Has coronavirus impacted this? Are you expecting there to be a fallout as a result?

Andrew Glover: To an extent it has been a mixed blessing. Because the roads have been quieter, it has been easier to do works. We worked very well with DCMS and the Government at the start of this, getting key-worker designation, allowing works to carry on and allowing access to materials. There was a little bit of a hiccup, but basically work has been able to carry on and has not been too badly affected. Some of the things I said around training and recruitment have been impacted so, yes, they are having a knock-on effect in terms of slowing things down, but it has not stopped us continuing to work.

Malcolm Corbett: The role that DCMS played was tremendous and really, really good, particularly during the early stages of the pandemic. The co-ordinating role the officials played was very helpful. One of the things that happened that was an unexpected benefit from this terrible, terrible situation was that there was better co-ordination between those people who are responsible for providing guidance to the local authorities on street works and the operators, and they were involved in the same calls. Changes were happening very rapidly and new advice was being given, which I have not seen before. I thought that if we could continue it, it would be beneficial to everybody.

Clearly the people who are responsible for street works have a responsibility to make sure that these works are done properly, that the reinstatements are done properly and that traffic is not too disrupted, and so on. We really appreciate the work they have to do, but the extent to which they were being very helpful to our sector was really tremendous, and DCMS itself played a really great role in that.

Q41 **Alex Davies-Jones:** Good. I am glad to hear that. I always look for any silver lining, so that is good to hear.

I would also like to touch on digital exclusion and how that is impacting things. People living in communities like mine in Pontypridd often struggle to afford the tech to take advantage of our current broadband services. We have seen today the issues with people not being able to afford the tech to have the new coronavirus app. The Welsh Labour Government have recently announced an extra £3 million to support digitally excluded learners in Wales through the coronavirus pandemic. How well do you think the UK Government are addressing these wealth inequalities around access to broadband at the moment?

Andrew Glover: There are a lot of good initiatives going on with the Good Things Foundation and various others—and our individual members support a number of different ones—and we are obviously very keen to support them. It does not necessarily address the rollout, but I completely accept that digital exclusion is a massive issue for us as an industry. A lot of our members have been helping out with free services through Covid, allowing people to get on by donating equipment to those who are more vulnerable and excluded. We are trying. Clearly it is a big problem and there is a lot more to do. There is more work to be done, but there are good signs.

Q42 **Alex Davies-Jones:** What more work needs to be done? Is there anything you could recommend to the UK Government to ensure that the poorest communities are not left behind in this race to 5G?

Andrew Glover: We already have some of the cheapest broadband in Europe, and it is obviously another expense that poorer families have to budget for and make available. There is more that we can do to try to corral people together and, as I say, our industry wants to play its part, but I could not really comment on how best to address some of those poverty and deprivation issues.

Malcolm Corbett: One area that is probably worth exploring at some level is that, for people who are building networks, there is a process involved that means you could deliver multiple local networks over one connection. One of the discussions we have been having with the GLA is the extent to which that might provide a mechanism for the public sector to be able to provide connectivity to people who are particularly vulnerable or suffering from deprivation as a way of enabling them to get online without the same costs of doing so. It may well be worth the Government or local authorities exploring that as a means of being able to address at least the connectivity part of the problem.

Alex Davies-Jones: Thank you, Malcolm, I appreciate that.

Q43 **Clive Efford:** Mr Glover, in your evidence you warn of the danger of regulatory burden coming from Ofcom, but this is a very complex area of a very complex market. Is it not inevitable that there is bound to be some degree of intense regulation?

Andrew Glover: Absolutely, and I certainly did not say there should be no regulation. It is just that the variety of different regulations we have to deal with is ever expanding, whether it is online harms, social exclusion or access to infrastructure, and so on. It is finding the right balance to the things that make the most impact and sweeping away the ones that do not have an impact. I was not saying that we need to get rid of all regulation; it is more a question of focusing on one or two things at a time, rather than a whole batch.

Q44 **Clive Efford:** I was going to ask you if you wanted a totally unregulated market, but I will skip that question. Do you have examples of things that could be changed to improve the situation and make it a better approach?

Andrew Glover: We have already touched on regulation around wayleaves and issues around that. In terms of regulation of the market, Malcolm alluded earlier to Ofcom's categorisation of which markets are competitive and which ones are not. I think there is a danger of those being too blunt or extending too far. The industry accepts and actually endorses a good, competitive market, and that is what we all want. but clearly there are areas that are not competitive and those need to be regulated to make sure they are not abused.

Q45 **Clive Efford:** The Ofcom consultation is taking place at the moment. In the areas they have set out, the three different areas, do you sense that there is the flexibility you would like to see or that they are listening?

Andrew Glover: As I alluded to earlier, I want to see that highly focused. The danger is that it is getting too broad and will impact on some of those smaller, newer entrants to the market. They potentially will get overlooked and almost ignored, yet they are a vital part of trying to achieve the overall picture of the rollout we are trying to do.

Q46 **Clive Efford:** Mr Corbett, in your written evidence you suggest that Ofcom is hostile to independent networks. What would you say are the risks of this?

Malcolm Corbett: Did we really say hostile? Ofcom supports a competitive market in the delivery of new infrastructure. However, when it comes to judging what areas are competitive and what areas are not, for example, area 3, it is reluctant to work out or gather the evidence on who is building networks in areas that it thinks are not competitive. Given that a whole swathe of INCA's members are focusing on rural areas, trying to deliver new fibre networks in rural areas, it seems Ofcom is missing a bit of a trick there. Given the Government are saying, "We think about 20% of the country is non-commercial", why is Ofcom designating area 3 as being something different? That is the area that is going to be subject to subsidy, because it is non-commercial.

Q47 **Clive Efford:** Would you say that Ofcom recognises enough the role of the independent providers in these networks?

Malcolm Corbett: They do for the big guys. CityFibre, which has billions behind it now, is recognised. Hyperoptic is recognised. But when it comes to smaller players, who are raising substantial amounts of money—there was a new one announced just the other day—it is all a bit too difficult, frankly, for Ofcom to be able to work out what they are doing and where they are. We are doing our best to make sure that they see that those companies exist and are delivering services, and they should not be overlooked, or they should not effectively get mandatory overbuild by BT.

Q48 **Clive Efford:** I do not know how many of you would like to comment on this but Dame Melanie Dawes, when she gave evidence to us, indicated that there was competition in an area if there was more than one provider. What is your view? Is that sufficient, or does competition require more than two providers?

Malcolm Corbett: There is a huge debate going on about this. Does it make sense to dig up roads more than once, or run lines over BT's existing infrastructure more than once, to serve customers in challenging areas when, effectively, that reduces the size of the market, increases the amount of disruption and doubles the amount of capital that has to be deployed, and so on and so forth? Does it instead make more sense to ensure that people get access to wholesale services from the service providers they want over the top of the infrastructure that is being built? Ofcom's position is to try to encourage four competing fibre networks in at least 40% of the country. I do not know many people in the industry who genuinely think that is going to happen.

Q49 **Clive Efford:** Is overbuild a big problem?

Malcolm Corbett: There is only one company in whose interests it is to overbuild everybody else, and that is BT Openreach. For the independent sector, they are building brand-new networks. There is so much territory to go for, there is not much point in seeking to overbuild somebody else. All you are doing is reducing the size of the market you have available. I cannot see Community Fibre turning up to this block of flats and installing their service alongside Hyperoptic, although obviously BT Openreach is going to.

Q50 **Clive Efford:** Do we need to prevent that? Is that unnecessary, or should it be stopped as uncompetitive? How would you describe it?

Malcolm Corbett: I think we need a pretty grown-up conversation about what it means to try to achieve a fairly challenging target, deploying the maximum amount of private sector capital alongside the state investment that is coming in to ensure a good result. The result we want is a good result, so it does not necessarily make a huge amount of sense to have this mantra of encouraging multiple networks to be built in Chipping Sodbury just because that is what you would like to see happen. It is probably better to try to think it through—paying attention to all the issues to do with competition, and so on—in a way that means we get the result we want, which is gigabit capability everywhere as close to the deadline as we can get it.

Q51 **Clive Efford:** On the switchover from Openreach copper, what do the Government and Ofcom need to consider now in order to secure an efficient move from copper to fibre?

Malcolm Corbett: A number of people have made the point to Ofcom and the Government that, if it is simply in the gift of BT and Openreach to decide when its copper is going to be switched off, whoever has built a fibre network in that area has to compete against the copper network for as long as BT wants it to be there. It would make sense to try to construct a process of switch-off that enables switch-off to happen at the point in time when full fibre is available to that town.

Q52 **Clive Efford:** From the consumer's point of view, what happens in terms of cost when that switchover happens from copper, which is an inferior system, to fibre?

Malcolm Corbett: Hopefully the cost will not change. The cost will not change at all. It is not going to be a dramatic change. It is a very competitive market, so it is unlikely we are going to see massive changes in price for consumers. From the point of view of the service providers, the major service providers, like TalkTalk, Sky and BT themselves, are very keen to be able to deliver services over full fibre networks, because the operational costs are much, much lower, significantly lower, than over the existing copper and hybrid fibre-copper networks that we have at the moment.

Q53 **Chair:** Gareth, what do you make of current Government policy on Huawei? Obviously, it may change this afternoon. Who knows? What do you think will be its impact on the delivery of the targets?

Gareth Elliot: It is fair to say that the decision by the Government impacts operators differently, some more so than others, and some that are not using it are obviously not impacted. Industry-wise, it impacts our ability to meet those targets. The Government's own figures suggest it will cost £2 billion and delay 5G for a year. However, that is the legislation. We will comply with that, and we are working towards that.

Q54 **Chair:** Do you think it is only a year?

Gareth Elliott: The operators are working towards that target.

Q55 **Chair:** That is the target, but do you think it is achievable?

Gareth Elliott: We are still very much working through.

Q56 **Chair:** In terms of the Government drawing a distinction between the use of Huawei equipment in the 5G network and using fixed networks such as full fibre, is that distinction appropriate, given the use of fibre to provide backhaul connectivity for 5G?

Andrew Glover: I would probably have to defer to the security experts as to whether the kit is the same and how it would be vulnerable. We are happy with the idea that, going forward, we are not using any more HRV in the network. It is a question of how quickly you swap out any that is already there.

Q57 **Chair:** In terms of the challenge that presents, does it just eat into the bottom line here and mean that the targets are much less achievable?

Malcolm Corbett: In a general sense, if you take out the major supplier of equipment to the sector, then obviously it does pose challenges in trying to meet the target, so it reduces competition in the sector and it poses challenges for everybody involved. As Gareth said, and I think Andrew would agree, it is not our job to second guess the security services, but I think Government need to recognise this will have an impact.

Q58 **Chair:** How can investment in dark fibre help to deliver 5G, and what can the Government do to support this?

Andrew Glover: Fibre is fibre. It is just considered dark fibre because of the kit you deal with on the end of it. In that sense, fibre is being deployed and generally, when you put it in, you put a whole bundle in, so some of that can be dark and some not. I am not sure there is anything that needs to be done around legislating on that. As I think Gareth would say, the key question is getting it to the right places. Quite often for masts and 5G, that is going to be the other side of the street or in a field or somewhere more remote, therefore it is trickier to get there, just laying the fibre. Whether it is dark or not is slightly irrelevant.

Q59 **Alex Davies-Jones:** How successfully are Government-backed projects demonstrating the potential applications of 5G?

Gareth Elliott: It was very welcome, the Government's investment in use cases. It is clear that, as with most generations of mobile technology, we are yet to really understand how people will use it, so I think this is very much about creating demand for 5G. It is probably a little early to say at this moment. It certainly has been very interesting. We have seen some fascinating case studies with connected cows, connected ambulances or agritech in terms of agricultural use of this technology with things like drones and soil analysis. This is what they are there for, to explore the technology and see how it could be used, but obviously we do not want to predetermine how the market will use it.

Q60 **Alex Davies-Jones:** Given the problems with public perception of 5G, what do you think are the areas or potential uses of the technology that we need to understand better as a society?

Gareth Elliott: That is a good question. We have to be honest about it, there is a problem with misinformation. We had concerns during the height of Covid about links with 5G. I can certainly say that is just false. We cannot transmit biological matter over our networks. Unfortunately that has led to concerns among the public and, in some extreme cases, to burning of masts and over 300 instances of abuse of our engineers.

What is important is that we work with the Government to ensure that people understand what 5G is, how it works and what it can do. Again, bringing it back to these use cases, that certainly is an example. Let us be honest, I think 5G can help save lives. It provides connectivity for emergency services in very rural areas and can provide emergency services with untethered access to huge amounts of information at first responder sites.

One fascinating example the Committee might be interested in is in Bristol. Where people have unfortunately fallen into the river, 5G has been able to trace those people in real time by their heat signature, as they have fallen down, and they have been found. Again, a fascinating example where it is there to save lives. Beyond that, obviously there is the economic potential and the productivity in terms of, as I say, agriculture and manufacturing. I hope that answers that question.

Q61 **Alex Davies-Jones:** Yes, it does. It is fascinating, and there is so much more that people need to be aware of. It is getting that information out there to people in a way they will believe, because of the problems with misinformation. It is interesting to find out how we can better do that.

What more do you believe the mobile industry can do to reassure the public that 5G technology is safe from a health perspective and a cybersecurity perspective? You have already touched on some of the issues we have had, but what more can we do to reassure people?

Gareth Elliott: One of the things we are working on at the moment is essentially working through the technology to make it accessible to people—less of the radio waves and less of the technology—and we are certainly doing that. We have been working with the Government and Ofcom. and a pamphlet has gone out to all councils explaining the technology, providing people at the council—councillors, leaders and planners—with the ability to reassure their residents. That continues to need work, certainly from our research and engagement with councils. They are looking for that guidance and advice from Government. There is more for the industry to do. We are certainly working on it at the moment, but there is also a role for Government and for devolved Governments as well.

Q62 **Alex Davies-Jones:** Do you think education is going to play a part in this, and teaching basic IT at subject level in schools, to get people more familiar with the technology and more reassured about it?

Gareth Elliott: Yes, I certainly think there is a role for schools and for educating children and upwards.

Q63 **Damian Hinds:** We know that 5G can deliver on some very important strategic objectives, particularly increasing network capacity. That enables things like the famous connected cows, and I gather it plays an important part in autonomous vehicles and so on. That is all very well for the future. Right now, to a consumer, who can give me a 20-second elevator pitch for why I should care about getting 5G?

Gareth Elliott: 5G clearly is important, but one of the key things, especially from an industry perspective and for consumers, is providing capacity. As more and more people use our networks, we have to ensure we have that capacity, and 5G is a leap, a step change, in capacity. Also it is not just necessarily consumers. As we go forward, we have to think about machine to machine, the internet of things, where I think rough figures suggest 700 billion devices over the next decade. That is going to significantly strain the networks. If people want to continue having the level of service they expect and demand, we are going to need to be able to provide that capacity into the system, and 5G is a key technology to do that.

Q64 **Damian Hinds:** Not to sound unreasonable in my line of questioning, but is there a consumer sales pitch for 5G?

Gareth Elliott: There is one ongoing at the moment, as people move to their mobile devices.

Q65 **Damian Hinds:** What is it?

Gareth Elliott: Obviously the general understanding that it is faster and provides a lot more speed in terms of downloading movies and things. Again, it is those critical applications with the industry, the emergency services and the country's ability to maintain lockdown, keeping people connected. This is where it certainly will do that, as we go to a new normal, and we have a lot of research out there now.

We have done some research through the BCC that has suggested that 80% of businesses expect the levels they are using, which have increased during Covid, to increase further afterwards, and we still do not know when that will be. Again, if this is the expectation for the new normal as people move away from the business centres and districts, we have to provide that capacity across the country. Again, that will be 5G.

Q66 **Damian Hinds:** Given those interconnections and interdependencies, I am keen to know what the scale benefits are. I am trying to avoid using the words "network effects," but that is what we are talking about. If you have 5G covering the whole country, does that deliver a benefit simply in proportion to—I am not constructing that sentence very well.

What I am trying to establish is whether you need to have it absolutely everywhere to deliver some of its key benefits. For example, with autonomous vehicles, with various industry processes, with logistics or perhaps with certain processes within agriculture, does it have to have universal coverage for some of those benefits to be delivered, or can it be delivered just place by place?

Gareth Elliott: At this stage, certainly in some of the technologies that we are talking about in rural areas, they do not necessarily need speed; they need more coverage, which is where 4G can come in. Also capacity is not as much an issue in rural areas, so again 4G can be there. We are in the very early stages of 5G rollout. As I mentioned earlier, the technologies and the full uses of it are still being discovered and studied. Again, someone would ask, "Why is the Shared Rural Network 4G, and 4G only?" One of the key reasons is that 4G will provide that capacity and coverage to the harder-to-reach areas, but also 5G needs to be built on top of 4G, so you have to have 4G first. A key part of that is extending and building out the networks to ensure they can be 5G-proof for the future.

Q67 **Damian Hinds:** Does that really give a good reason for why the Shared Rural Network does not cover 5G, too?

Gareth Elliott: I think people expect coverage, and they expect services. Certainly people in rural areas are looking for good quality mobile broadband, and 4G can provide good quality and very reliable mobile broadband.

Q68 **Damian Hinds:** Why wouldn't you be looking to the future and planning for 5G through the Shared Rural Network as well?

Gareth Elliott: Sorry, I may not have said that, but that is exactly what is being built into the Shared Rural Network. As I say, you have to have 4G before you can put 5G on to it, and we are building that in so that it will be futureproofed.

Q69 **Damian Hinds:** People like me who represent rural areas have a deep interest in the Shared Rural Network. When can our constituents start to notice the difference?

Gareth Elliott: The commitment we have, which was signed on 9 March this year, is to provide 95% 4G mobile coverage by at least one operator by the end of 2025.

Q70 **Damian Hinds:** But when will we start to see the difference, feel the difference, hear the difference?

Gareth Elliott: I do not know if it is hear or see, that is a good point, but certainly we are already seeing the benefits. We have already seen the first what we would call the partial not-spot element of the Shared Rural Network go up in Wales, so it is already beginning.

Q71 **Damian Hinds:** Finally, this is a question for any one of the three of you. As an industry, with all your terms like 3G and 5G and gigabit and the difference between superfast and ultrafast, fibre to the cabinet, fibre to the premises, do you ever think you need a marketing refresh?

Malcolm Corbett: Yes, sure. One of the things Matt Hancock did when he was Digital Minister was coin the term "full fibre" to distinguish it from what was going on before. That was a master stroke, frankly, because we call it FTTP or FTTH, fibre to the home or fibre to the premises, and Matt Hancock said, "We are calling it full fibre" and that was really helpful.

Damian Hinds: Fantastic, thank you.

Chair: Thank you very much. That concludes our session, so thank you to Gareth Elliott, Andrew Glover and Malcolm Corbett for appearing before us.