techUK
FOR WHAT COMES NEXT

The FTIR: Fit to deliver for 5G and full fibre four years on?

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Foreword

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Be it healthcare or smart manufacturing, better reliability or greener networks, full fibre and 5G technologies will deliver new services and spur economic growth. This report is about how to rapidly deliver them across the whole of the UK.

The UK is already in the middle of the nationwide deployment of full fibre and 5G technologies with 40%[1] of premises able to access full fibre and around 50% of premises covered by 5G from at least one provider. And that rollout is continuing at pace as the private sector invests and delivers.

But the need to complete these builds has never been greater. We know that full fibre will deliver higher and more reliable fixed connections to premises and businesses which will help drive greater economic growth. That will deliver real benefits to local areas – not least those which are levelling up priority areas – with nationwide coverage boosting productivity by over £50bn and bringing up to 1 million people back into the workforce.[2]

5G will bring different benefits in the form of business digitisation and efficiency gains, particularly in areas such as utilities, health and social care, media and manufacturing sectors. Nonetheless this could be worth up to £43bn to UK GDP by 2030[3] - as well as delivering faster and more reliable consumer speeds.

Many communities and businesses of course are already benefiting from these technologies, but now is the time to finish the job.

Full Fibre

For full fibre, the Future Telecoms Infrastructure Review (FTIR) published in 2018 ultimately set out the policy and regulatory framework for investment – and that investment has flowed, with £33.2 billion[4] helping to drive coverage from 6% to 41% of premises passed today.[5]

Along with the overarching framework it also set out a comprehensive list of actions which government would take in order to reduce the friction of rolling out infrastructure on a national scale.

Some of that has been delivered on and is welcomed. Some of it has not yet been undertaken and along the journey of this infrastructure build, we have discovered new barriers that need busting. This report includes a comprehensive overview of these actions and offers an action list for the government to undertake as part of its Growth Plan.

5G

For 5G, the path is less clear. The FTIR did not offer, understandably so given the maturity of 5G in 2018, the same comprehensive approach to incentivising investment in the UK. Whilst we have made significant progress nonetheless, it is now clear that unless we see a similar 'whole Government(s)' approach we will not realise the full benefit of 5G.[6] We therefore offer suggestions for the approach that the Wireless Infrastructure Strategy should take to unlock investment and facilitate the rollout of standalone 5G – which in plain speak is what will unlock economy-wide benefits and services outside of faster connections. This must also be accompanied by the same determination to eradicate barriers that cause unnecessary friction or slowdown infrastructure rollout.

Delivery

This report is therefore about delivery. It sets the direction on how government can help unleash private sector investment, which along with targeted public sector intervention, can build out the digital foundations for sustainable growth to all parts of the UK.

We look forward to engaging with government to take these actions forward as part of the Growth Plan.

Introduction

techUK's view is that the Government's policy set out in the Future Telecoms Infrastructure Review has helped create the right environment for competitive fibre networks to scale, attracting new players into the market, and delivered good outcomes for the UK. Significant revision of this policy is not required as there has been considerable progress made by the fixed industry since 2018. Since the FTIR was published, the total investment in the UK's fibre market has reached £33.2 billion, and 41% of UK full fibre premises have been passed to date. This continued investment and rollout pace is not a given, especially in light of significant economic headwinds. More hard work is yet to come:

The right framework is in place – it is now time to deliver.

Ahead of the highly anticipated Wireless Infrastructure Strategy, techUK's view is that government must recognise and prioritise the impact future wireless connectivity – alongside fixed – will have on the UK's growth and prosperity. The Strategy will be critical in setting out the future framework for mobile markets, providing workstreams for DCMS and Ofcom to take forward and deliver the long-term growth and productivity gains offered by advanced communications services. Crucially, these reforms – and learnings from the 5G Testbeds and Trials Programme – must be progressed as rapidly as possible in order to unlock and support further investment in the UK's mobile networks.

This paper outlines techUK members' views on the outcomes and impact of the FTIR since it was published in 2018 and includes recommendations for government to consider. techUK surveyed members of its Telecoms Infrastructure and Deployment Working Group to reflect on the original FTIR commitments, and in this document we summarise member views on what has worked, what hasn't, what government is yet to deliver, and the consequences for the market.

Whilst there is alignment across industry on certain issues, there are naturally areas where there is disagreement. However, on many topics there is also a strong will across industry to highlight the need for action and importance of resolving issues, even where their views diverge on the optimal solution or pathway, and with the absolute recognition of the wider issues and challenges currently facing the UK economy and society.

The publication of the Growth Plan offers the optimal opportunity for government to adopt techUK's roadmap and recommendations for delivering on the framework for the FTIR.

Recommendations

To capitalise on the progress made so far with the rollout of telecoms infrastructure in the UK, empowered by the framework introduced in 2018 by the FTIR, techUK makes the following recommendations:

- Government should continue to prioritise realising the long-term economic and social gains that will be delivered through continued investment in the rollout of full fibre networks and 5G, this prioritisation should include take-up and adoption.
- As the Wireless Infrastructure Strategy is finalised, we urge the government to recognise its importance and impact on the future of, and investment in, advanced connectivity in the UK, and we stress that this Strategy will be essential for the long-term growth and productivity in the UK.
- Government should retain and strengthen its clear focus on delivering the Product Security and Telecommunications Infrastructure Bill:
    - For fixed infrastructure: The Bill should extend powers to share infrastructure on private land to poles as well as ducts.
- DCMS and DfT must redouble efforts to introduce the flexi permits regime so that it can be activated at the earliest opportunity.
- Government should consider a planning regime that genuinely underpins the emerging mobile infrastructure requirements of significant network densification and accelerated deployment models.
- Government should explore ways to use the tax system to incentivise further investment in productivity-enhancing infrastructure.
- techUK calls on DCMS and the Home Office to introduce a specific visa targeted at telecoms workers to help support infrastructure businesses investing in growth. To address longer-term labour supply and workforce issues, an industry taskforce (with DCMS and the Home Office) should be convened to seek practical and workable solutions to the labour supply challenge.

- techUK recommends government establishes itself as an anchor tenant for advanced communications services and identify further public sector use cases for 5G and fibre solutions to boost the transition to a digital-first government, unlock smarter procurement; and encourage take-up across the private sector.
- Build on the success of the 5G Testbeds and Trials Programme: government must focus on achieving the transfer of 'trial and test' activity into commercial deployments at scale, to deliver 5G's genuine economic benefit to the UK.
- techUK recommends renewed energy and urgency is demonstrated by BDUK in contracting procurements as we reach a very important stage of Project Gigabit. Pace needs to increase. Government should accelerate the procurement timetable and bring forward future lots to ensure poorly connected households are not, once again, left behind,
- We recommend that appointing more effective and empowered Digital Champions in each local authority would be a useful action for the planning, permitting and coordination between local councils, operators and highways authorities. Increasing understanding and awareness of local decision makers on the economic imperative network deployment is key for the UK going forward.

Background

The Future Telecoms Infrastructure Review[7] (FTIR) was published in July 2018 by the Department of Digital, Culture, Media and Sport (DCMS). The FTIR was announced in the government's Industrial Strategy in 2017, with the aim of examining the market and policy conditions that would enable greater investment in future telecoms infrastructure at pace. The FTIR "set clear, ambitious targets for the availability of full fibre and 5G networks. We want to see 15 million premises connected to full fibre by 2025, with coverage across all parts of the country by 2033. We want the majority of the population to have 5G coverage by 2027." Subsequent commitments by government have seen the targets for fixed infrastructure diluted, from full fibre to gigabit (100% premises passed by 2025), then to 85% gigabit by 2025, to "by 2030, the UK will have nationwide gigabit-capable broadband" (see the Levelling Up White Paper).[8]

The FTIR's recommendations formed the basis of the DCMS Statement of Strategic Priorities (SSP) for telecommunications and the management of radio spectrum, which was published in 2019.[9] Another important strategic review from the UK's communications regulator Ofcom was the publication of the Wholesale Fixed Telecoms Markets Review (WFTMR) in 2021, which set out Ofcom's decisions for its regulation of the fixed telecoms markets that underpin broadband, mobile and business connections, for the period from April 2021 to March 2026.[10] Ofcom stated that these decisions were designed to promote competition and investment in gigabit-capable networks – "bringing faster, better broadband to people across the UK". While the SSP and WFTMR are both of notable significance to the topics explored in this paper, our focus here is reflecting solely on the FTIR.

Important context

From the COVID-19 pandemic to the war in Ukraine, the climate emergency, significant inflationary pressures across the economy and a cost-of-living crisis for UK society, a difficult path lies ahead for all.

The year 2022 is a marked contrast from the 2018 in which the FTIR was launched: the economy was then buoyant and many of the issues happening now could not have been foreseen. techUK members have reflected on this challenging context in drafting these conclusions, as this context will be front and centre for the UK Government and its people. We are very conscious that the new ministers appointed in September 2022 will have a significant focus on measures to ease the cost-of-living crisis.

Specifically for the UK's telecoms sector, supply chain issues, new security legislation and lack of labour and skilled workers are urgent and important issues to address, which this paper will outline. These factors have made infrastructure delivery more challenging, yet the sector has done well with delivering advanced connectivity.

We emphasise that these challenging times make it even more important that progress is maintained in delivering the FTIR objectives, or we risk delivery in the longer term. World class, resilient fixed and wireless infrastructure will underpin the UK's return to economic growth and stability and will drive down costs for consumers and businesses.

techUK view on ‘Full fibre connectivity’

Overall, techUK’s view is that the government’s policy set out in the FTIR has been very helpful in creating the right environment for competitive fibre networks to scale, attracting new players into the market, and has delivered good outcomes for the UK. Significant revision of this policy is not required as there has been considerable progress made by the fixed industry since 2018. However, there is a continued need for DCMS to deliver on the reforms it committed to. **Our members encourage government not to lose sight of the long-term economic and social gains that will be delivered through continued investment in, and rollout, of full fibre networks.** These networks will deliver better services for lower costs, and the competition that the government sought to encourage in the FTIR is already having a marked effect in increasing availability and a choice of suppliers for consumers.

In this section, we reflect on the recommendations DCMS published relating to full fibre connectivity, their relevance and impact.

Whilst there is alignment across industry on certain issues, there are naturally areas where there is disagreement. However, on many topics there is also a strong will across industry to highlight the need for action and importance of resolving issues, even where their views diverge on the optimal solution or pathway.

Reducing costs and barriers to deployment

Significant progress has been made on removing some barriers to network deployment. The FTIR set out government’s plans to reform existing wayleaves arrangements to provide a ‘right to entry’ for communications providers and to ensure full fibre connections to new build developments. Two pieces of legislation are now set to reform the Electronic Communications Code (ECC) to partially fulfil FTIR recommendations.

Firstly, for fibre connections to new builds, DCMS has completed an initial consultation and subsequent technical consultation, the latter closed in February 2022. The final amendments to building regulations have just been published after a significant wait. Members agree that the fibre/new build proposals will be helpful, but four years after the FTIR was published, are concerned that the measures have only just come into force. It is unfortunate that the proposals ruled out extending fibre to new builds to either renovations or conversations and some members would like to see this decision reversed.

Our judgement on this recommendation is that many providers already work, and have agreements, with housebuilders and developers – so this is an example of the market moving at a faster pace than legislation, with a recognition that in a post-Covid context, selling homes with fibre connectivity is an attractive selling feature.

Nonetheless, there remains considerable value in the underpinning of this step-change via legislation, and members urge government to accelerate the final stages of this measure as soon as it can. Furthermore, the measures only apply to residential new builds, not commercial premises, and will need to be rolled out in devolved administrations as well.

For wayleaves, and addressing the issue of unresponsive landlords, two pieces of legislation amending the ECC have been welcomed by industry – though there is disagreement over some related details.

The Telecommunications Infrastructure (Leasehold Property) Act gained Royal Assent in March 2021. The Act (abbreviated to TILP) inserts a new Part 4A in to the ECC which provides an expedited process that operators could use to gain access rights to multi-dwelling premises for a defined period if landlords are unresponsive to requests. Whilst this measure is welcome, industry still awaits the full implementation of the TILP Act following a recent technical consultation – a frustratingly long period, during which the issue of non-responsive landowners for third party land was not addressed. While the TILP Act proposals seek to balance the rights of landlords and operators, the Part 4A process set out in TILP is narrowly targeted, lacks the ambition of the original FTIR recommendation and appears only to be useful in a limited number of situations.

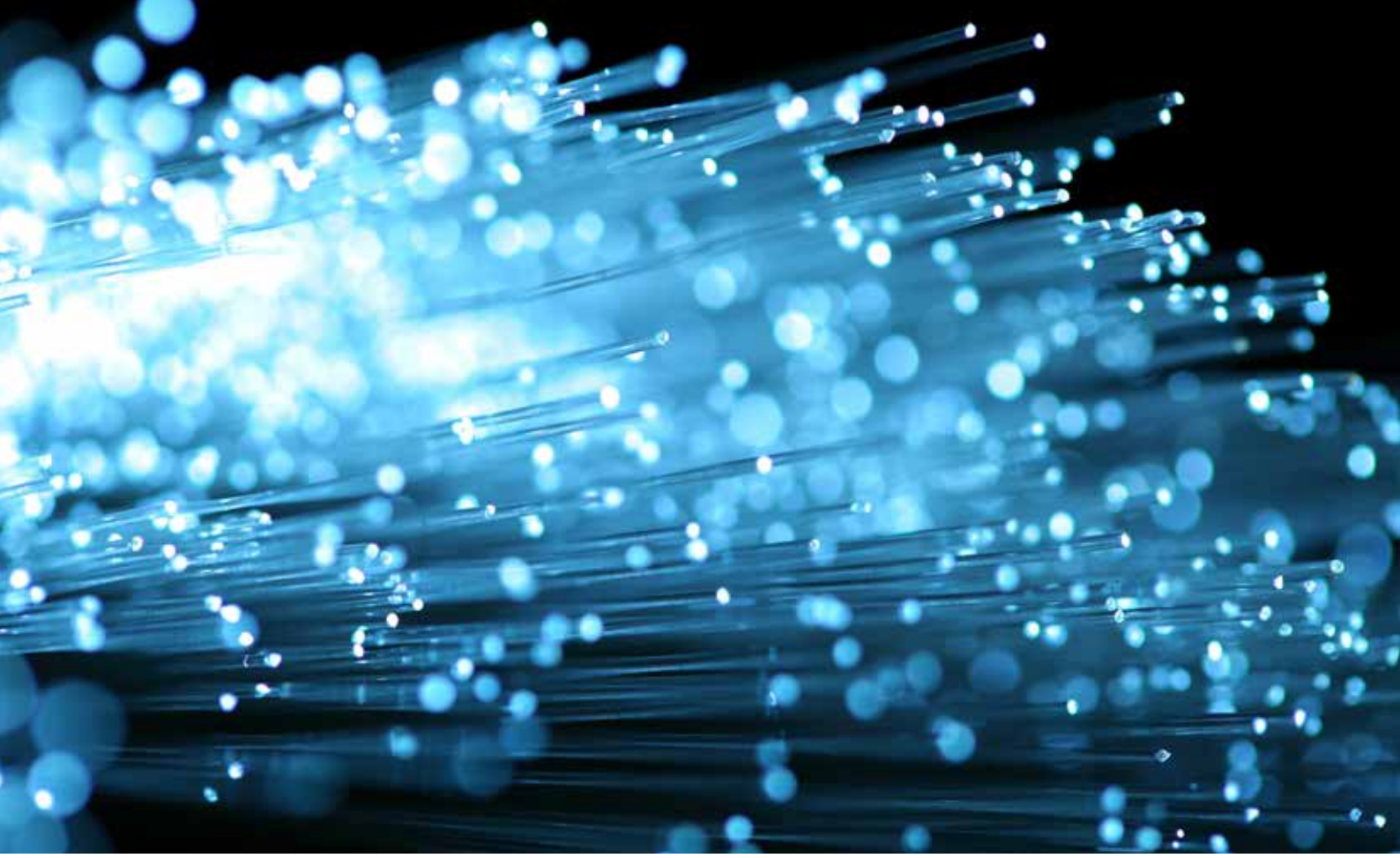
With remaining barriers to deployment still to bust, DCMS must the learn from lessons of implementing the changes listed above if the UK wants growth-enhancing infrastructure as soon as possible.

Further revision of the ECC is forthcoming via the Product Security and Telecommunications Infrastructure (PSTI) Bill, broadly viewed as a welcome measure by industry. The PSTI Bill, which at the time of writing is still passing through the Houses of Parliament, focuses on simplifying the negotiation process between landowners and communications providers and, for unresponsive landlords, fills some gaps left by the TILP Act – in rural areas and most critically for those freeholding third party land.

That the PSTI Bill has been introduced is a welcome outcome in terms of an FTIR achievement, and members stress that DCMS must retain and strengthen its clear focus on delivering the Bill as soon as possible.

Fixed members do agree that the PSTI Bill offers a significant improvement in terms of access to third party land, and unlocking ducts under private land, which will help address both rural and urban communities. There is further consensus on the need to extend these measures to historic poles on private land to avoid a serious missed opportunity to address issues specific to rural and urban Scottish deployment.

Access to multi-dwelling units has been raised during engagement between industry and government. Opinions differ amongst the industry on the best means to address this. But all agree that the rate of adoption of fibre in MDUs should be kept under close review, along with the success of the measures put in place by the government to encourage voluntary adoption of fibre in MDUs by landlords to ensure no MDU is left behind, while at all times protecting and promoting competition. It is also vital that any proposed measures comply with all applicable building safety requirements in MDUs.



Government should include changes to the upgrading and sharing of historic poles on private land in the remaining stages of the Bill to deliver the most valuable version of the PSTI Bill as it can, as it offers an important step in promoting competition and helping the rollout of next-generation connectivity that will benefit the whole of the UK.

Permits regime: a cul-de-sac?

The FTIR set out how government would streamline the permits regime and introduce best practice for street works. The England & Wales Street Works toolkit was developed by government, HAUC (England), JAG UK and Street Works UK, along with local authorities, operators and contractors, to offer advice and best practice for engaging in street works and is available on the DCMS Digital Connectivity Portal.[11] Even so, street works and planning continue to be a major challenge for operators.[12]

techUK members are wholly in agreement that the failure to take forward flexi permits by the Department for Transport, as announced in May 2022, is a major missed opportunity and disappointing for industry. Members noted that flexi permits showed a notable impact in trials on speeding up deployment and reducing administrative burdens for both operators and highways authorities themselves. **techUK calls on DCMS to increase its collaboration efforts with DfT and prioritise bringing forward a timeline for implementation of flexi permits.** Government must also collaborate effectively at a local level, with the objective of convincing local authorities who may doubt flexi permits as a viable solution.

Promoting market entry and expansion for new network operators

A major success of FTIR policy has been the rapid expansion of alternative fixed fibre operators, so-called 'altnets', who have attracted substantial investment to build new competitive

fibre infrastructure across the UK, in both urban and rural areas. Ofcom's WFTMR set out supporting policies which were intended to create incentives for investment in fibre infrastructure and encourage competitive provision, notably via Physical Infrastructure Access (PIA), which allows altnets to re-use Openreach's existing network of ducts and poles.

The FTIR also explored other potential avenues to encourage market entry and expansion. Ofcom was encouraged to consider the introduction of dark fibre access. However, the regulator concluded in the WFTMR that dark fibre access would be offered in Area 3 only, because it concluded that DFA would likely undermine incentives for altnet investment in new primary fibre infrastructure where this was economically feasible.[13] Members have divergent opinions on the relevance of dark fibre access, with some reflecting that it points to a lack of commitment by Ofcom to FTIR objectives.

The review of Communications (Access to Infrastructure) Regulations 2016, which took place in 2020, draws mixed reviews across our membership as they reflect on the FTIR. The Regulations are not widely used, and some feel that there is little scope for significant gains, or a strong enough use case for third party civils. However, the full benefits warrant further investigation by DCMS in its efforts to bust barriers and speed up deployment. The Regulations, if improved, could help UK operators with certain specialised access scenarios, including rail infrastructure both above, and under, ground. Multi-utility passing sharing opportunities draws similar mixed views: those less in favour point to the limited scope as multi-utility is rarely viable. We note, however, the recent 'Fibre in Water' trial which is yet to conclude and may offer industry more to consider.[14]

Stable and long-term regulation that incentivises competitive network investment

The FTIR identified that moving to longer, five year review periods could provide greater regulatory stability and promote investment. This was reflected in the subsequent Statement of Strategic Priorities (SSP) and Ofcom's WFTMR in 2021. The WFTMR marked a move towards more unified market reviews across different fixed line markets, and for longer periods. It also met another recommendation in the FTIR: for Ofcom to consider 'regulatory forbearance' in its regulatory approach to incentivise rollout.

The WFTMR was a highly significant set of regulatory decisions, and it warrants its own review and reflection by industry. While our task here is solely focused on the FTIR, much of members' feedback and opinion we have gathered concerns the framework set by all (the FTIR, SSP and WFTMR).

Members feel that the overarching outcome of this framework has been a major success, especially in the fixed sector, where planned investments in fibre deployment looks set to deliver advanced connectivity to millions of UK premises through the 2020s. These investments will underpin government's own target, which, while diluted, remains at 85% by 2025 for gigabit. Incumbent operators will upgrade their existing networks, and from a wider competition perspective, there are now over 100 altnets with ECC powers. INCA has estimated that alt-nets have more than doubled their footprint year on year since 2019, now reaching 5.5m premises - and are expected to reach 11.5m premises by the end of this year. Investment remains buoyant with an additional £5.7bn committed during 2021 bringing total estimated investment in the independent sector to £17.7bn for the period to 2025.[15]

These figures are testament to the government's success in encouraging such investment and growth in the market through the FTIR.

However, there is still some work to do. Some members consider that, perhaps as an unintended consequence of the five-year market review cycle or the plethora of other responsibilities that it has been given (such as online harms legislation and telecoms security), Ofcom is insufficiently focused on proactive monitoring and implementation of the WFTMR.

The FTIR saw government encourage Ofcom to set out its approach in determining a 'fair bet' return, which was actioned in the WFTMR, and the anchor 40/10 price point maintained. Ofcom committed to respect the principle by guiding that it would keep the regulation of legacy networks stable for at least ten years in addition to forebearing from setting price controls for FTTP for at least as long, if not longer. Anchor pricing was introduced to ensure that consumers could continue to have access to a low cost superfast broadband service, which was priced at a modest premium to reflect the better value of the service, while allowing for a modest premium for FTTP services. The 'fair bet' principle and anchor pricing has positively impacted UK connectivity in that it enabled BT/Openreach to increase its planned rollout to 25 million homes. Fair bet was contested by industry at the time, with mixed views on how the WFTMR incentivised the broader market 'fair bet' opportunity, but it was critical to pricing indicators for wider industry.

Taxation system

techUK notes that, while not included in the FTIR, the Telecommunication Infrastructure (Relief from Non-Domestic Rates) Act was enacted in the same year (2018).[16] This Act allowed fixed infrastructure operators to claim 100% relief on new fibre infrastructure for five years, and played a significant role in helping to support the fibre business case for greater investment across the industry. Since then, other tax mechanisms, such as the super deduction 2021-23, have only financially benefited certain members, with networks yet to register profits unable to qualify for support. As both the rates relief and super deduction mechanisms are coming to an end, **now is an optimal time for government to explore ways to use the tax system to incentivise further investment across the industry in productivity-enhancing infrastructure.**

Labour supply challenges

The extent of investment and competition unlocked by the FTIR in the telecoms infrastructure sector, specifically for fibre rollout, has created a more highly contended labour market than was originally forecast. This, combined with high inflation, and other labour market restrictions, have meant it has been more challenging to attract enough workers to build and maintain new networks.

For techUK members, labour supply remains an 'amber issue': rollout can continue but the need for both civil engineering operatives and trained telecoms engineers should concern government that its own targets for coverage are at risk of slipping. DCMS and the Home Office should explore additional measures which could help operators access skilled workers overseas alongside the extensive measures the industry is already taking to upskill and deploy UK-domiciled workers. In addition, government should work with industry, including other utility and construction companies, to ensure that there is an adequate supply of civil operatives available to build the new networks required.

Our recommendation is made with the understanding that there is a limited, and optimal, window of opportunity to address labour challenges. Therefore, at the first moment possible, techUK calls on DCMS to convene an industry taskforce to seek practical and workable solutions, in partnership with the Home Office, and introduce a specific visa targeted at telecoms workers to help support infrastructure businesses investing in growth.

The interests of consumers

Looking to consumer policy, members point to a disappointing lack of focus in the FTIR on consumer demand with regard to the take-up of fibre services.

Just one FTIR recommendation touched on stimulating demand for fibre services, which included actively considering full fibre solutions when purchasing government services. techUK members feel that much more can be done to move to a true digital-first government.

We encourage the government to identify further public sector use cases for 5G and fibre solutions, this – along with increased effort to ensure that existing services take full advantage of advanced connectivity – would be of great value.

As the fibre rollout has accelerated since the FTIR was published, take-up remains strong: Ofcom's 2021 Connected Nations report estimated that around 24% of premises with access to full fibre take a full fibre service, with take-up increasing by at least 750,000 premises since 2020.[17] Switching between providers also looks set to improve with the introduction of One Touch Switching. However, some members raised notable concerns on Ofcom's lack of progress on consumer information on fibre services, despite recommendations in the SSP and from the GigaTAG group.[18] Not only will this mean that some relatively less tech-savvy users may miss out on the benefits of full fibre infrastructure, but it also harms the long-term economic case

for investment, particularly in more challenging geographies, and makes eventual copper retirement substantially harder. Increasing consumer awareness will also help to protect the investment that the government is making in the rural rollout programme led by BDUK, by unlocking the productivity and economic growth benefits arising from full fibre use in those regions.

Protecting the rights of consumers remains a priority shared across government, the regulator and industry. The FTIR did set out a recommendation that the regulatory framework should "provide reassurance that the interests of consumers are safeguarded as fibre markets become more competitive" and members acknowledge that new contracting rules were implemented, as well as battery back up regulations which were reviewed and updated. The safeguarding of consumers' interest has clearly become increasingly important in light of the current cost-of-living crisis. Beyond the regulatory framework, industry remains committed to supporting customers who may be facing financial hardship, with number of measures available.[19]

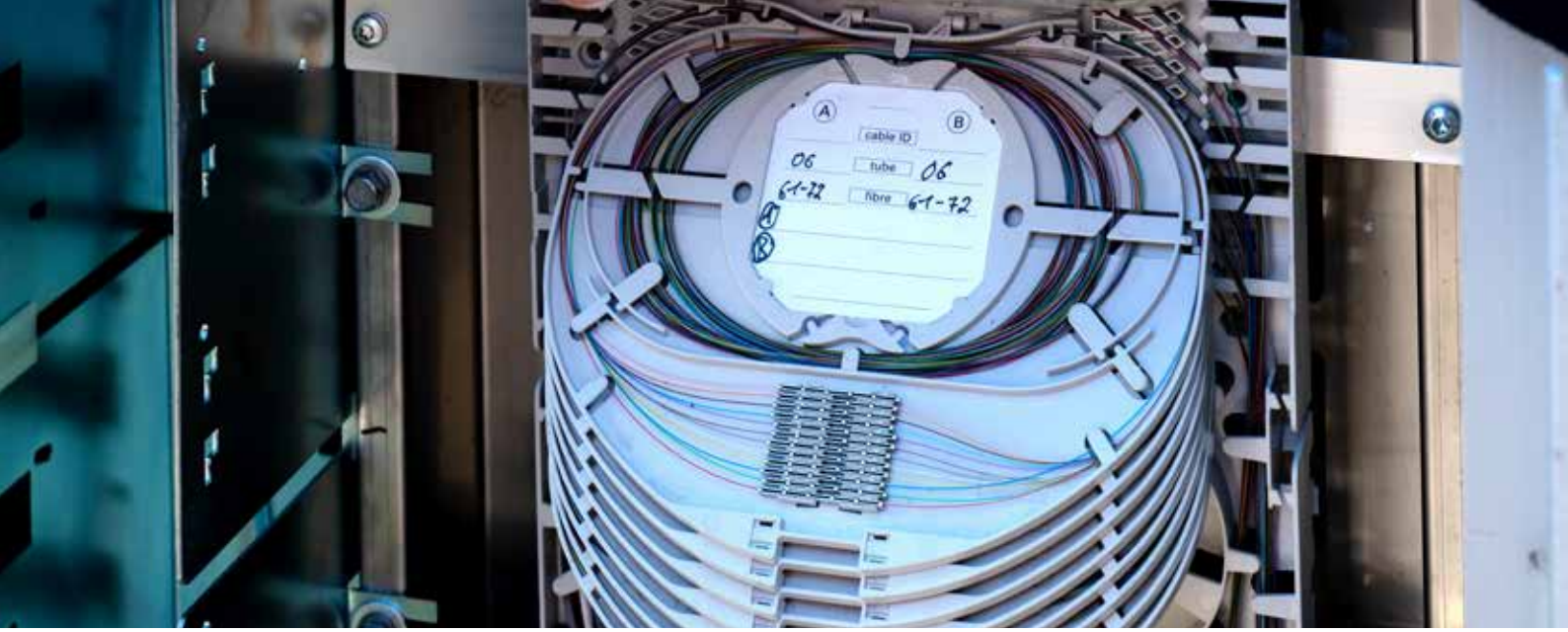
Competition measures

In the FTIR, government concluded that the most effective way to deliver full fibre connectivity for all was to promote competition where possible ('competition *in* the market'). So, where there is actual or prospective effective competition between networks, regulation is not needed. Government would intervene where necessary, but the FTIR stopped short of adopting a 'competition *for* the market' model (i.e., franchising) which would have been a regulatory departure requiring significant legislative change to deliver. The market variations identified in the FTIR suggested a regulatory framework that was geographically differentiated, and this approach was adopted in Ofcom's WFTMR (Areas 1, 2, and 3). Ofcom's expectation is that this approach will be maintained for at least 10 years.

Members note that this approach will become increasingly relevant as greater numbers of areas have coverage from competing full fibre providers. Government should maximise the potential of commercial investment in fibre to minimise the need for public funds, such as Project Gigabit, to be spent where not absolutely necessary.

The transposed European Electronic Communications Code (EECC) conferred to Ofcom new powers to conduct a forecast of near and medium-term planned builds and publish these in aggregated form. Government identified the lack of this build planning information in the FTIR via the 'hold up' problem (where commercially unviable areas "may be able to support at least one commercially funded network but suffer from operators holding off their investments due to strategic uncertainties"). Regulation to address the 'hold up' problem has not formally been introduced. Some members feel that transparency measures could mitigate this problem by allowing operators to see where other operators are not planning to build, and where that operator's investment would be optimally returned.

Members feel that, now, the key player is Ofcom, who must take a more proactive stance on a number of issues if the full ambition of the FTIR is to be realised. Ofcom's regulatory approach should keep the encouragement of competition at its heart, harnessing the private investment



pouring into the market, protecting consumers, encourage take-up and dovetailing with the ongoing BDUK Programme to ensure gigabit connectivity is rapidly and effectively deployed for rural communities.

Ensuring world class connectivity for all

The FTIR set out the details of the government's "Outside-In" strategy to target deployment of full fibre in the commercially most difficult to reach premises in the UK. The continued delivery of "Outside-In" is questionable: in January 2022 the Public Accounts Committee reported that DCMS was "unable to demonstrate that it is still following its "Outside-In" approach" and that its "approach to rolling out gigabit risks perpetuating digital inequality across the UK".[20] Though the Project Gigabit funding programme was eventually established in 2021, DCMS recently stated that it "continues to assess available policy options for premises in remote areas that are unlikely to be reached through Project Gigabit procurements due to their rurality and the potential cost and complexity of providing them with Gigabit service".[21]

Four years on, techUK is concerned that there remains a significant risk to ensuring world class connectivity for all.

Firstly, Project Gigabit was originally backed with £5 billion of public funding, but only £1.3 billion is now immediately available to DCMS for disbursement. Secondly, the funding programme has been frustratingly slow in identifying which households would be left behind. We recognise the complexity in defining intervention zones against the backdrop of substantial expansion of commercial deployment plans.

Our members consider that BDUK (now an Executive Agency of DCMS) should speed up the delivery of the programme, including the timely release of Type A and Type B bundles already identified, and definition of areas in Scotland and Wales. Type C bundles will be important at a regional and national level too. As public procurement contracts are let, this FTIR intervention will clearly have a substantial impact on overall UK coverage, targeting as it will the areas currently underserved by advanced connectivity.

techUK recommends renewed energy and urgency is demonstrated by BDUK in speeding up procurements. We are reaching a very important stage of BDUK's Project Gigabit, with the first lots to be awarded later this year, but this pace needs to increase. Government should accelerate the procurement timetable and bring forward future lots to ensure these households are not, once again, left behind.

techUK view on ‘A World Leader in 5G’

From the off, the FTIR established 5G coverage as a key objective for government, with the goal that “that the majority of the population will have 5G coverage by 2027”. Although the FTIR went on to set ambitions for the new uses and services enabled by 5G technology, it is a mixed picture on the impact and relevance of the FTIR recommendations for future mobile infrastructure. Firstly, the FTIR ambition for 5G coverage does not define whether this would be standalone (SA) or non-standalone (NSA) 5G – the latter leverages existing networking infrastructure, and the former can be described as “full 5G”. If the overarching goal is to be a world leader in 5G, DCMS need to move beyond simply considering coverage, and focus on a wider set of quality of service parameters to measure our progress on becoming a world leader in taking advantage of 5G.

Stimulating demand for 5G use cases, innovative services, and spectrum policy

The UK 5G Testbeds and Trials Programme (5GTT) is widely regarded by techUK members as a positive outcome of the FTIR. Its funding of a range of projects and programmes, with private investment, have helped demonstrate a number of use cases for 5G across different industry verticals. Compared with other European countries, 5GTT has helped the UK take a leading role in front of the chasing pack for 5G.

The intention behind some of the FTIR’s 5G recommendations were ultimately not aligned with the impact of 5GTT, in that it did not focus directly on trialling different infrastructure models, although members note that 5GTT’s successor, the Open Networks Programme, is in the process of funding a number of opportunities to trial different architecture models for mobile infrastructure, such as Open RAN.

Even so, members are clear that 5GTT was a success, and to build on this success, government must now focus on achieving transfer of ‘trial and test’ activity into commercial deployments at scale, to deliver 5G’s genuine economic benefit to the UK (not just upgraded mobile broadband). If this transfer is not prioritised, the UK risks this activity ‘dying’ as the pilots conclude.

Members also call upon government to generate more use cases which demonstrate the value of 5G for the public sector, in establishing itself as anchor tenants for 5G infrastructure and services.

The FTIR’s recommendations on spectrum policy were actioned, and viewed positively by members, though work remains in this area. Firstly, the award of the 700 MHz spectrum band[22] was an important step towards enabling the deployment of 5G across the UK and in rural areas. The spectrum award of 3.4-3.8 GHz was also an important step for future densification and deployment of 5G.

techUK's members in the mobile sector believe that the approach to spectrum policy, specifically Ofcom's spectrum management approach (with a reliance on market mechanisms) remains the right course to take.

Annual licence fees (ALFs) remain a significant burden, with members viewing ALF costs as excessive and, disappointingly, a barrier to defragmenting the overall 3.4-3.8 GHz band, although we note Ofcom has started to address this issue. Currently, ALFs prevent efficient trading and hence efficient use of spectrum, rather than fostering it. techUK recommends government should consider – if not abolishing them – taking steps, along with Ofcom, to ensure fees are set more cautiously and that where they are set, they are returned to industry in some form to fund investment in public mobile networks.

In the longer term, we also believe that government and Ofcom should:

- Deliver a mobile spectrum roadmap that delivers appropriate new spectrum
- Address excessive ongoing costs of national mobile spectrum to enable further investment in network deployment
- Remove barriers to a market-based approach to spectrum sharing
- Produce a spectrum management strategy that supports national mobile networks and supports innovation

Industry views on these topics have been shared with DCMS as it drafts the forthcoming Wireless Infrastructure Strategy, which – if successful – could have as notable impact on our mobile market as the FTIR has had on the fixed sector. These views include the need for DCMS to recognise that economies of scale in mobile and the scale of investment required in 5G suggest that the policy approach to consolidation needs to change.

For private networks, that Ofcom assessed and then introduced new licensing models as part of its planned release of spectrum in the 3.8-4.2 GHz band was a positive and extremely relevant outcome of the FTIR. The band has been made available through local licences on a first come, first served basis. While take up has been modest to date, this model has the potential for the UK to be a European leader in the deployment and use of private networks, through the delivery of 5G use cases that public networks may not be suitable for. There are steps techUK members view as essential to build on this success and make the intervention more impactful, such as reviewing and updating Ofcom's licensing tools (i.e., solution orientated database) and regime (such as access to higher power) to ensure they are fit for purpose as private network demand in the UK scales. If Ofcom were to automate and speed up its licensing process and be more flexible on permitted power levels, much greater use of the 3.8-4.2 GHz band would likely be achieved.

Members also note that Ofcom has yet to provide clarity on the leasing of the most valuable and useful spectrum bands for mobile, which remain prohibited, as members feel that leasing should be permitted to support market-based mechanisms. The outcome of this leasing could see improved efficiency of spectrum use, especially in rural areas.

Easier and cheaper to deploy mobile infrastructure?

The FTIR set a number of recommendations to help support infrastructure models "that promote competition and investment in network densification and extension".

Central to this ambition was government's recognition that local solutions are essential to address deployment barriers and require better collaboration between all parties. While it was helpful to recognise the importance of this, the FTIR has not led to a marked improvement in engagement by local authorities on matters relating to the deployment of digital infrastructure.

Although a Local Connectivity Group was established, bringing together local areas, industry and landowners, its impact was mixed. Some Digital Champions have been appointed across local authorities, but their effectiveness is variable depending on seniority and resource. DCMS did establish a Digital Connectivity Portal, noted previously. More recently, the National Connectivity Forum has been set up, which will bring together site providers and operators. DCMS has also convened a number of working groups to explore non-statutory measures to improve the relationship between landowners and operators. Some members felt that this work was relevant, but fundamentally local authorities continue to follow their own approach, notably on planning and their own assets, and more work is needed.

We recommend that appointing more effective and empowered Digital Champions in each local authority would be a useful action. It would also be useful to reinvigorate the Local Connectivity Group, as techUK is unclear what its current priorities or workplans are.

Members feel that concession awards - identified in the FTIR as needing to give greater priority to the proposed investment plans and quality of the mobile infrastructure provision of the bidders – are no longer the preferred approach of industry, as open access agreements now dominate.

In instances where some authorities have provided concessions for their street furniture, these awards have tended to prioritise revenue generation over future investments and network provision. Open access should be promoted as the way forward, with densification encouraged through levers such as spectrum award conditions, and reduced ALFs in exchange for increased network expenditure.

The creation of the Digital Connectivity Infrastructure Accelerator (DCIA)[23] by DCMS was lauded as a positive outcome, though not a specific recommendation from the FTIR. The DCIA aims to address the challenges in the deployment of wireless networks, specifically exploring those involved in using publicly owned infrastructure assets, through the funding of pilots that support the implementation of digital asset management solutions. As the DCIA is a live project, while received positively, members are yet to see the full impact of its creation. Its success will depend on, as above, increased engagement and buy-in from local authorities – and ideally – their Digital Champions. Accurate asset information will be critical to network densification, most notably when mmWave is to be deployed after 2023.

Welcome interventions

The FTIR included a commitment that the government would work with industry to understand their concerns and explore whether there were additional ways to support collaboration between utility providers and communications providers to deliver connections to energy infrastructure in as timely and cost-effective manner as possible. Members noted the limited progress made on this commitment; however, it has become more relevant since the FTIR was published. The recent storms, such as Storm Arwen, demonstrated that resilience, and power resilience, are critical to network functions. On that basis, members now see a more pressing case for power companies to prioritise their interactions with networks operators, and to make sure that repairs to telecoms networks are prioritised in the event of future adverse weather events. Network upgrades will rely on significant power upgrades, therefore a reduction in lead times and costs is necessary to help ease the rollout of 5G across the UK.

techUK stresses the need for greater cross-government action to support this, bringing together BEIS, the Cabinet Office and DCMS.

Since the FTIR was published, a number of planning reforms have taken place, which have broadly been welcomed by industry. Changes made to the Permitted Development Rights regime should make the deployment of 5G apparatus easier, as it includes options such as enabling masts to be widened without prior approval. Further reforms are planned, and techUK encourages the relevant authorities and national governments to prioritise these as they will help with projects such as the Shared Rural Network. However, as these reforms proceed, members advise policymakers to engage with industry early, enabling operators to review proposals to ensure intent is achieved. As amended, members find the legislation increasingly complex and in some instances contradictory.

As noted earlier, the PSTI Bill looks set to improve the conditions for operators rolling out next generation telecoms infrastructure. For mobile, the amendments to the ECC are welcome, and members feel that a formal review of the ECC (as recommended in the FTIR) is not required. Despite some ongoing issues with the ECC, hence the PSTI Bill, the deployment of mobile infrastructure continues at a good pace.

One member has built nearly 700 new masts across the countryside, delivering 4G mobile coverage to hundreds of communities for the first time and has upgraded over 1,500 existing 4G sites to 5G since May 2019. These were supported through the previous revision to the ECC in 2017. **Our recommendation to government is to ensure the passage of the PSTI Bill without opening up the valuation approach, as it is now critical to enable the ECC to be truly effective for mobile.**

We recommend that government should also consider a planning regime that genuinely underpins the emerging mobile infrastructure requirements of significant network densification. The government's ambition to improve national connectivity, support levelling up and regional economic growth are recognised as being contingent on industry's ability to deploy fixed and mobile infrastructure.

techUK view on ‘Convergence between Full Fibre and 5G’

The FTIR set out how, in the longer-term, the government expected to see a growing convergence between fixed and mobile networks and services. Its recommendations included:

- Removal of practical obstacles or barriers to converged networks
- Recognising convergence, and considering access network requirements holistically, through unified market reviews
- Network operators and mobile operators, working with local authorities, to engage on likely locations for 5G cell sites, to ensure that fibre networks can be future-proofed
- Ensuring other government programmes, like the 5G Testbeds and Trials, promote investments that recognise convergence

The latter recommendation was not tackled, and nor do members see this as a major issue to address. 5G cell sites and future-proofed fibre networks was also not a relevant issue: firstly, fibre rollout has mainly focused on residential and enterprise broadband provision, with networks near macro sites largely accidental rather than planned. There is value in coordinating this in rural areas where it would be most valuable, but in urban areas, many MNO sites are already fibre-fed, and some operators are primarily seeking to re-use and upgrade existing assets rather than to find new sites for 5G.

As discussed, the WFTMR marked a move towards more unified market reviews across different fixed line markets, as it incorporated:

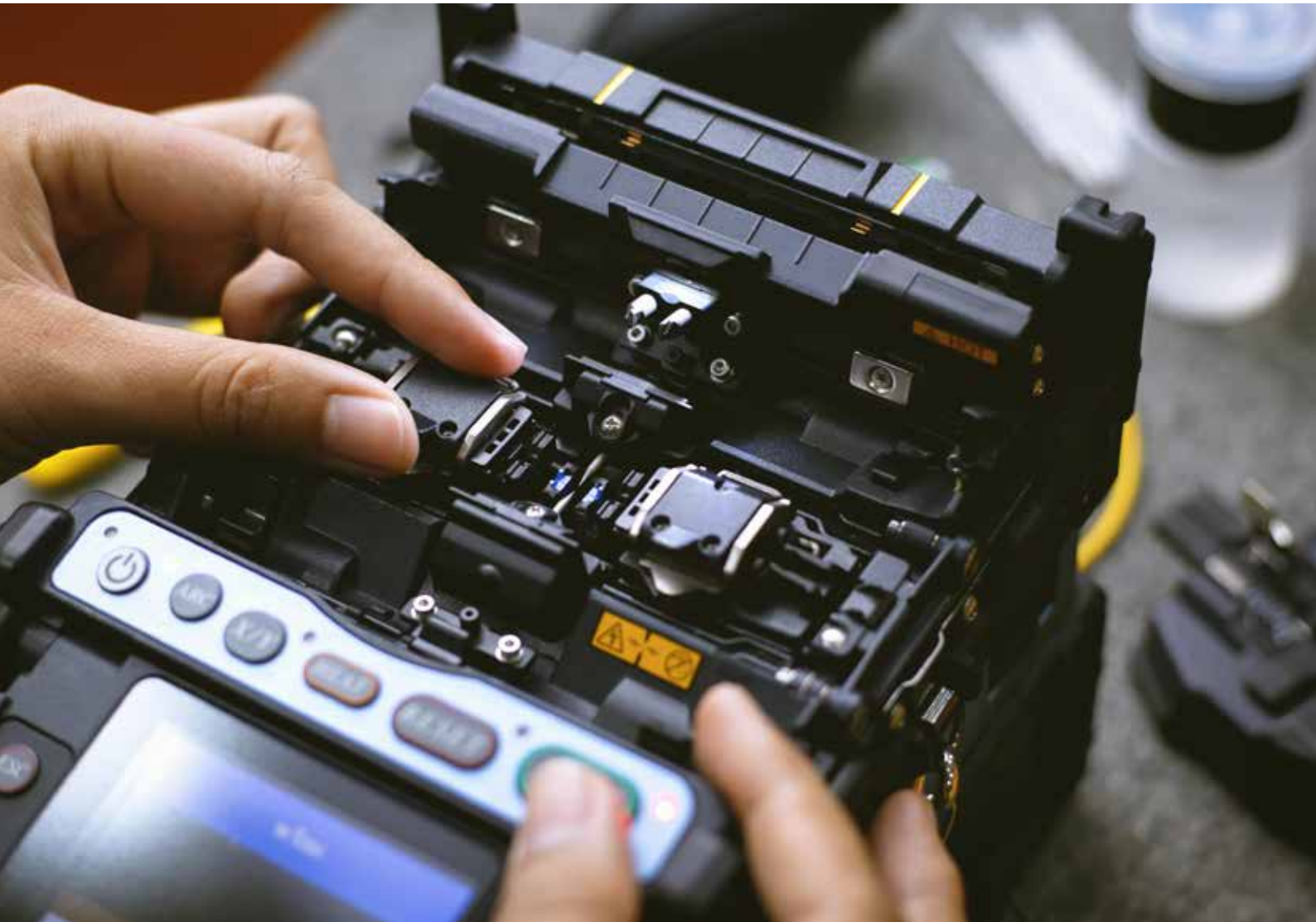
- Wholesale Fixed Analogue Exchange Lines (WFAEL) market
- Integrated Services Digital Network (ISDN) market
- Wholesale local access market (WLA) market
- Wholesale broadband access (WBA) market
- Business connectivity markets
- Physical infrastructure market

Ofcom did consider competition between fixed and mobile but rightly concluded at the time that there was no material supply side substitution between fixed and mobile.

What impact has the FTIR had on convergence across fixed and mobile? Members feel that government partially delivered in its ambition here: we await the outcome of the Wireless Infrastructure Review and forthcoming Strategy, which members feel could play an important role in considering the issues, or barriers, to convergence, and crucially, for DCMS to set out workstreams to address these emerging challenges.

While some challenges will be longer-term, members feel that is important that DCMS allocates sufficient resources to tackle them, alongside dealing with some of the more urgent issues affecting short term deployment. It is also important that the Digital Markets Unit is established via legislation and to ensure that regulators (including the Competition and Markets Authority and Ofcom) can address competition and consumer harm in a timely fashion, as they arise.

The picture now: on convergence, members point to the significant evolution in telecoms markets that has taken place since 2018. This evolution is particularly true in the mobile market, where the pace of change has been significant, with new players such as hyperscalers making an impact. Even in 2022, thinking in terms of fixed/mobile convergence in regulatory terms is perhaps premature.



Conclusion

While comprehensive, the FTIR did not touch on, nor could foresee, developments that would also have a significant impact on the rollout of telecoms infrastructure in 2018-2022. Positively, the UK's national mobile operators 'went early' with 5G, and the UK was among the earliest countries to do so, compared to number 75 for the 4G rollout. More challenging has been the ongoing inflationary pressure effecting the whole sector, labour supply and supply chain disruption. Furthermore, the Telecommunications (Security) Act 2021, which introduced a significant new security framework for public networks and service providers, and legislated the removal of high-risk vendor equipment from deployed fixed and mobile infrastructure, adds a notable burden to operators.

Even so, the overarching frameworks established by the FTIR, SSP and WFTMR have delivered good outcomes for the UK, and significant revision is not necessary for fixed infrastructure. techUK notes the considerable progress that its members, and wider industry, has made under this framework, while highlighting the continued importance for DCMS to deliver the relevant reforms it committed to in 2018. In addition, we encourage DCMS to take action to further incentivise investment through addressing the major barriers to rollout that remain, including labour shortages.

We conclude that investment in, and deployment of, full fibre networks across the UK should not be the sole focus for government – with greater attention paid to delivering on take-up and adoption of advanced communications services.

The upcoming Wireless Infrastructure Strategy will be critical in setting out the future framework for mobile markets, and providing workstreams for DCMS and Ofcom to take forward. We also expect the outcome of Ofcom's recent consultation on its future approach to mobile markets. It is vital that reforms are progressed as rapidly as possible in order to unlock and support further investment in the UK's mobile networks. Furthermore, techUK members note that both fixed infrastructure, from future consolidation of altnets to challenges in promoting take-up, and mobile infrastructure (market structure and economics, network densification and participants) are at potential inflection points – therefore government needs to review this context before any course adjustment or new policy or initiatives are launched.

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The Working Group is the home of telecoms infrastructure deployment at techUK, covering fixed and mobile infrastructure. The Group focuses on the uptake of the deployment of fibre and radio networks, including 5G, through engagement and collaboration with local authorities, working with techUK's Local Government Programme, creating a forum all stakeholders to convene and share knowledge and best practice.

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techUK is a membership organisation that brings together people, companies and organisations to realise the positive outcomes of what digital technology can achieve. We collaborate across business, Government and stakeholders to fulfil the potential of technology to deliver a stronger society and more sustainable future. By providing expertise and insight, we support our members, partners and stakeholders as they prepare the UK for what comes next in a constantly changing world.

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