

Executive Summary

1. This report presents the findings of the National Infrastructure Commission for Wales' investigation into digital communications infrastructure in Wales. Our work was undertaken between mid-2019 and mid-2020 but disrupted by the COVID-19 pandemic after March 2020. The pandemic prevented us from engaging further with stakeholders as we would have wished and means that some predictions about future demands for digital communications in Wales (and the capacity of the industry to roll out the infrastructure to meet it) are more uncertain than would otherwise have been the case. The pandemic also underlined the critical role that is played by digital communications in modern societies in allowing people to continue to live their lives without regard to the physical distances between them.

2. The evidence in this report shows how households, and particularly businesses, have already obtained very significant economic and social benefits from adopting new digital communications technologies like superfast broadband or 4G. These benefits could be even greater for the next generation of technologies – fibre to the home and 5G – which are the focus of this report. Digital communications infrastructure is now a critical factor in determining where new, high growth businesses choose to locate and where young people decide to live. A key message is that these businesses and young people cannot afford to wait in the hope that a fibre connection will become available 10 years from now. They will move to somewhere where fast reliable broadband is already available in the meantime.

3. Although our remit is to advise the Welsh Government on strategy for the next 5-30 years, the rate of change in digital communications means that we have chosen to focus on the next 5-10 years. The evidence shows that nations that are leaders in digital communications in one technology cycle tend to remain the leaders for subsequent generations. The opposite is also the case. The recommendations in this report are designed to ensure that Wales will be better positioned to exploit the opportunities that are offered by continuous advances in digital communications technologies, both in the next 5-10 years and beyond.

4. The UK Government's policy for digital communications has undergone various twists and turns since 2017 but it has a clear focus today on extending fibre to the home to every household in the UK by 2025 and a set of policies and new legislation to support that aim. The Welsh Government currently does not have a similar set of policies or targets for digital communications infrastructure in Wales (as, for example, the Scottish Government does). We think it should, whilst recognising that digital communications policy is not a devolved matter and that many of the policy levers which might be used to influence the way in which digital infrastructure is deployed in Wales are held by the UK Government or by Ofcom, the UK telecommunications regulator.

5. We consider the role to be played by mobile communications in Wales. We think too much attention has been paid by policymakers to promoting fibre to the home technology in the UK and not enough on improving mobile broadband provision,

including using 4G and 5G connections to provide home broadband services instead of, or ahead of, fibre connections. The UK is behind most other countries in this regard, and only 3% of the total data traffic in the UK is carried over mobile networks today, much less than in most other countries. We think Wales can and should be doing more with its mobile infrastructure.

6. Mobile broadband technologies offer benefits which fixed broadband connections cannot offer, both in terms of availability whilst on the move and, importantly, the speed at which the infrastructure itself can be rolled out. 'Home' mobile broadband connections can be a good, low cost option for households in rural areas, either until fibre to the home turns up or on a permanent basis. The latest generation of mobile technology will also support a range of new applications for businesses and public authorities which promise significant economic and social benefits over the next 10-15 years. Importantly, the adoption and use of new mobile technologies tends to occur more quickly than with new fixed broadband technologies.

7. Whilst our investigation was being conducted the UK Government concluded an agreement with the UK mobile operators to build a new Shared Rural Network. This is the first agreement of its kind in the UK and should significantly improve mobile coverage and choice of mobile provider for many households, both in the UK and in Wales. We welcome the UK Government's decision to adopt a more pro-active approach with the mobile industry, including the use of £500 million of public funds, rather than rely upon the market to deliver, as some of its predecessors have done.

8. Fixed and mobile broadband communications infrastructure are not separate and should be considered within the context of an overall digital communications infrastructure strategy for Wales. Mobile broadband networks will require fixed fibre connections to carry traffic from the mobile masts to the core networks of the operators. But we also think that the different rate at which fixed and mobile infrastructure can be deployed, particularly when the fixed infrastructure being deployed is fibre to the home, means that they should be thought of as playing a wider complementary role to each other.

9. This is particularly important in Wales, where a significant number of households (around 60,000) remain without access to fixed superfast broadband services and where many households and businesses who do have access to what is regarded as reasonable fixed broadband services today are likely to have to wait many years before further significant improvements in speed are available. During this time, many households and businesses in Wales will begin to find that today's broadband infrastructure no longer meets their needs.

10. One response to this, which appears to be favoured by the UK Government (and by the UK National Infrastructure Commission) is to accelerate the deployment of fibre to the home so that everybody can use fibre at home by 2025. We support the UK Government's desire to upgrade the UK's fixed digital infrastructure as quickly as possible and we think the Welsh Government should participate enthusiastically and ensure that a proper share of the £5 billion of funds which the UK Government has pledged are available in Wales. The design of

the programme needs to be flexible enough to meet Welsh needs, which we think differ from the rest of the UK.

11. We are concerned that Wales does not appear to be attracting investment from the new generation of smaller commercial fibre to the home operators which are emerging elsewhere in the United Kingdom. This kind of entry is attractive both because it would directly contribute to expanding fibre coverage in Wales and because it might increase pressure on Openreach and lead it to reallocate more of its resources to Wales. It might also introduce a welcome degree of competition into the next tenders for public subsidy of fibre to the home infrastructure in Wales.

12. A key recommendation is that the Welsh Government act quickly to replace the existing all Wales Digital Infrastructure Group with a high profile ‘barrier busting’ taskforce led by a senior civil servant, similar to that created by the UK Government, with clear objectives and deadlines within which to achieve them. One of the tasks of this group would be to ensure that local authorities and other organisations do more to facilitate the deployment of fibre to the home infrastructure by these operators. We also recommend that the Welsh Government review and simplify the existing broadband voucher schemes which are used to support the deployment and adoption of fibre broadband. The aim should be to improve the take up of vouchers in Wales and to guard against the risk that the existing voucher budget is allocated to an ever smaller number of households at an ever higher cost per household when it could be used for other, better value, purposes.

13. We share the view of others (including, recently, the CEO of BT) that the UK Government’s target of nationwide availability of ultrafast digital infrastructure by 2025 is probably unachievable, given labour market and other constraints in the UK today. We think the £5 billion of public funds budgeted by the UK Government is unlikely to be sufficient to meet its targets and the total funding requirement could instead be as much as £10 billion. We are also concerned that the particular challenges of deploying fibre to the home infrastructure in Wales – with a large rural population and less competitive pressure on BT – mean that Welsh households and businesses will find themselves at the end of the (long) queue for fibre. This means Welsh households could be waiting many years – probably more than 10 in some cases – to obtain a better broadband connection than they have today. Some households and businesses will be so expensive to reach that they may never be served by fibre to the home technology, or only at an unaffordable cost.

14. This is why we think the Welsh Government needs an alternative strategy. This is intended to ensure that Welsh households and businesses can obtain access to significantly better broadband than they have today – at speeds of around 100 Mb/s – within the next 5 years rather than waiting for 10. We consider home broadband services delivered over 4G and then 5G mobile networks are best placed to perform this role. We consider that home broadband connections provided by these networks could be delivered much more quickly than fibre and at a fraction (perhaps a third) of the cost. They would not provide the gigabit speeds that are required for Virtual Reality gaming or 8k TV consumption

(the benefits of which we are uncertain about in any event), but they would still provide households and businesses in Wales with a substantial and necessary improvement in their broadband capability, at least until fibre to the home eventually arrives.

15. A strategy to extend and accelerate the provision of 4G and 5G mobile broadband services in Wales over the next 5 years has other attractions too. First, the provision of home broadband services over 4G and particularly 5G infrastructure would offer the mobile operators a source of revenue when the commercial prospects of many of the other applications using 5G remain uncertain today. This could help encourage the commercial deployment of 5G in Wales more generally, which promises significant additional benefits from IoT and other innovative applications. Second, as time passes, demand for other 5G services should emerge and the infrastructure which was initially used to support home broadband could then be re-used for other purposes. As and when fibre to the home is deployed within the relevant area, households would be expected (and could be required) to migrate to fibre, releasing the 4G or 5G capacity for other uses. Third, mobile infrastructure which is installed to support home broadband would also support mobile broadband provision across wider geographic areas, with benefits that arise from that. Fourth, the wider availability of 4G or 5G home broadband services should allow the Welsh Government to delay investments in fibre to the home in those parts of Wales where households and businesses were being adequately served with 4G or 5G home broadband. If the costs of deploying fibre fall over time and/or demand increases, then delay would mean the industry ends up

serving more households on a commercial basis (BT's own estimates of the costs of deploying fibre commercially have fallen significantly in the past 5 years). A policy which promotes the use of 4G and 5G home broadband ought therefore to lead to a lower overall level of public expenditure whilst at the same time providing superior broadband availability in the short and medium term and a similar level of fibre coverage in the long term.

16. An alternative strategy for Wales might involve the Welsh Government copying the UK Government and investing very large sums of public funds – over and above whatever proportion of the £5 billion budget is allocated to Wales – in an effort to deliver fibre to every home in Wales by 2025. Even if a budget of £1.3 billion which we estimate would be required were available to do this, we do not think it would represent a good use of public money. Wales simply cannot afford to commit itself to a dogmatic policy which involves incurring ever greater costs to connect an ever smaller number of households to one infrastructure. We think far more can be achieved if a proportion of those funds were instead allocated to first maximizing the provision of 4G and 5G home broadband connections in Wales.

17. Action is urgently required if the strategy we recommend is to be implemented effectively. Instead of being a leader in the deployment of 4G or 5G technology today, Wales appears a less attractive place for telecommunications operators to invest than many other parts of the UK. It has been slow to reform its planning regime, which has an adverse impact on the cost and length of time taken to deploy new digital infrastructure. Guidance to Welsh local authorities on these

matters has not been revised since 2002. Another of our key recommendations is that the Welsh Government acts to ensure at least parity with the rest of the UK on telecoms planning matters. Other issues, such as the availability and cost to telecoms operators of using local authority and other public assets, also need to be addressed.

18. However, if Wales is to extract more from its 4G and 5G mobile communications infrastructure than the rest of the UK then it should be aiming not for parity but to have an even more favourable environment, particularly for mobile infrastructure. The challenge here is to ensure that any further actions which the Welsh Government take will yield tangible benefits for Welsh citizens rather than, for example, simply reducing costs for the mobile operators. We think the recent Single Rural Network agreement which the UK Government negotiated with the industry provides an example of what can be achieved when a more pro-active approach is taken, but that more can be done. This is why we recommend the Welsh Government explore with industry whether further changes to the planning regime and the provision of public funds could be used to secure additional 4G coverage and accelerate 5G availability in Wales, above and beyond that already committed to under the Single Rural Network agreement, including adopting a new 5G coverage target for Wales.

19. Responsibility for the implementation of many of our recommendations will rest with other public bodies, including local authorities (acting alone or through City Deals), Network Rail, Transport for Wales, the North and Mid Wales Trunk Road Agent and the South Wales Trunk Road Agent. We heard evidence that some local authorities in the United Kingdom are far more supportive of digital infrastructure than others. Wales will only improve its digital infrastructure if all organisations make it easy for operators deploying digital infrastructure, whether fixed or mobile, to deal with them. The best local authorities or regions approach digital investment in a strategic way, recognizing that the long term benefits of digital deployment for the community far exceed any short term revenues that might be earned by the authority itself in the form of rents.

20. Achieving this will require a greater degree of pro-active guidance and direction from the Welsh Government than we have seen in the past. That is why we recommend the creation of a 'barrier busting' taskforce, led by a senior Welsh Government official, with responsibility for leading the effective implementation of the changes we recommend in this report and identifying others that might be required.

21. Even if Wales succeeds in upgrading its digital infrastructure along the lines that we have proposed, there will still be a need to encourage the greater use of that infrastructure, particularly fixed broadband, by households and businesses in Wales. Today, fewer than half of Welsh households and businesses that could use superfast broadband actually do so, a lower proportion than the rest of the UK. Growth in data traffic in Wales during the COVID-19 pandemic was high – but still lower than that experienced in most other parts of the UK. Today’s comparatively low levels of adoption and use of digital technologies mean that the Welsh economy stands to obtain even greater benefits from broadband infrastructure than other parts of the UK if we can increase usage of it.

22. There are many initiatives already in place in Wales and in the rest of the UK to encourage households and businesses to exploit the opportunities arising from new digital infrastructure. The UK Government has recently established a new Gigabit Take Up Advisory Group to provide a greater focus for these efforts across the UK. Before recommending more initiatives for Wales, we recommend that Audit Wales are asked to take stock and assess what is already underway. Those initiatives that work or can be adapted to the new technologies should be invested in and expanded. Those that do not should be discontinued.

23. A full list of our recommendations are contained in Chapter 8 at the end of this report. If adopted, we would expect a Welsh Government ‘barrier busting’ taskforce, working with local authorities and others, to move quickly to implement the recommendation intended to make Wales a more attractive place to invest in all forms of digital infrastructure and for the Welsh Government to start discussing ambitious targets for 4G and 5G ‘home’ mobile infrastructure with the mobile industry. This would include the offer of Welsh Government funds to support mobile infrastructure under a new, more flexible, ‘Gigabit Cymru’ programme, as well as serious consideration of planning rules that are more favourable towards mobile infrastructure than those seen elsewhere in the UK. The Welsh Government should not at this stage aim to spend more than £3500 to connect individual households to a fibre network and should simplify the use of vouchers for this purpose. However, the Welsh Government should consider investing heavily to improve the adoption of new digital technologies where the infrastructure is already available, but only after Audit Wales has reviewed the effectiveness of the programmes that already exist.