



Tyfu
Canolbarth Cymru
Growing
Mid Wales

Digital Strategic Growth Priority:

Programme Business Case

1st July 2021

V 0.12

www.growingmid.wales

Document Control

Version	Changes	Date
V0.1	Outline Document Structure for agreement	
V0.2 V0.11	– Updates to reflect stakeholder and market inputs	28 th April 2021

Sign Off

Version	Sign off Required By	Sign off Obtained	Date

Contents

1. Foreword.....	4
2. Executive Summary	5
3. Introduction	8
4. Strategic Case	12

IMPORTANT NOTE

Phase 1 of the development of this Programme Business Case is for the Strategic Case and the outline of the approach to the Economic Case.

In Phase 2, the document will be completed and summarised accordingly.

1. Foreword

[DN Insert short cover section from GMW Board or GMW Economic Strategy about the importance of Digital Connectivity to GMW and the commitment of other the GMW governance groups, to link the document with the broader objectives].

2. Executive Summary

[The Executive summary is a summary of the Programme Business Case that will be completed at the end of Phase 2. The draft summary below provides an indication of the direction of travel for the document. The list is likely to be simplified to around 10-12 key points in due course]

Context

- [Our Vision for Growing Mid Wales sets out our ambitions and plans for the partnership – recovery and economic growth].
- [DI is an essential element for economic growth - Economic growth and development rely on the availability and affordability of good digital connectivity. It is important to residents, businesses, and the public sector].
- [Mid Wales is overwhelmingly rural – therefore good digital connectivity is even more important for us to stay connected.]

Problem

- [The current provision of Digital Infrastructure is poor – the region’s digital infrastructure lags behind many places, and is below the average for Wales in most measures. Even where there is acceptable provision, it is likely to become insufficient within the next 3-5 years].

Analysis

- [Poor provision is due to both demand and supply side factors – the region presents a poor business case for investment, because it is expensive to build, the return is weaker than in other places, and the customer market is relatively small].
- [The case for change is strong –we will need to address a range of factors to bring better DI, finding interventions that reduce costs, bridge funding gaps, increase demand and make Mid Wales more attractive for investors].
- [GMW partners have a key role – councils and other partners have a vital part in planning interventions and attracting investment. Economic development is a priority and a responsibility for GMW partners]
- [Within Mid Wales, we are already playing an active role – we have been working together for some time, and have formed a strong partnership].
- [Other parties are also working on the problem – but their actions may not be successful, may not be sufficient, and may come too slowly. DI delivery can have a long lead time – there is lots to do – and we need to act quickly].
- [Links with neighbouring regions of Wales and England offer collaboration opportunities – GMW can drive progress on its own, but it could do so more effectively and efficiently by working with others, when they are ready to do so].

- [We need to decide what interventions we should make, and what level of interventions would bring the most return].
- [The cost of the ambition may be high - but we are clear on what is possible and valuable, and this will help us shape our plans for investment and delivery]

Solution

- [The environment in which we are operating - consumer behaviour, market, government plans, existing and planned initiatives. The digital infrastructure environment will continue to evolve, and the GMW portfolio will need to be flexible to adapt to changes].
- [Our intervention model therefore also needs to be highly adaptable – the options are specifically set out such that we can vary intervention approaches to meet the conditions at any given time].
- [Flexibility is a key feature of it. No single intervention will be effective, and we will always need a range of tools to apply in different ways to meet changing demands and priorities].
- [This gives us a model to manage our response, not constrain our actions].
- [We have identified the broadest possible range of projects to address different aspects of the Digital Infrastructure issue].
- [By grouping them into levels of intervention, and estimating their costs, benefits, and probability of success we have identified the type of projects that deliver the best return for Mid Wales, and play a key role in the delivery of the GMW Strategic Vision for the economy].
- [There is a clear case for GMW Steering Board [DN] to operate a structured and well-resourced programme of active Digital connectivity intervention projects].
- [Depending on which projects are ultimately approved for delivery, the programme will cost between £x and £xm over the next 10 years, returning an estimated £xm in net benefits to the economy].
- [Like our options, the programme that will be put in place will also provide a structured framework for managing a changing environment]
- [The programme will plan and deliver projects, carefully measure their effects on residents and businesses, and the Mid Wales economy].
- [We will take care to focus on our objectives, and make best use of the resources and money available, flexing as needed to achieve those objectives].
- [We will manage the cost of our flexible response framework through regular monitoring and strong governance].

- [If the GMW Board does not act, those benefits will come in time through the actions of the market and government, but they will do so 5-10 years more slowly].
- [The region would risk falling even further behind other places at a time when Digital Infrastructure is becoming an even more important driver of economic performance].
- [GMW must act to improve Digital Infrastructure, and it must do so quickly to capture benefits that will otherwise be permanently lost.]

The development of this Programme Business Case will be completed in phases:

- Phase 1: the development of the Strategic Context and Case for Change, and the partial completion of the Economic Case. The first part of the Economic Case describes the key dimensions of intervention, and identifies a long list of projects for consideration against the Critical Success Factors. The PBC also outlines the key considerations for the Commercial, Financial and Management cases, which will be developed further as part of Phase 2.
- Phase 2: Assessment of the Longlist to identify a Short list from which to select a Preferred Option. Once the preferred option is agreed, the Commercial, Financial and Management cases will be completed.
- A subsequent phase will develop the arguments further in an Outline Business Case.

3. Introduction

3.1. The Purpose of this Programme Business Case

This Programme Business Case (PBC) sets out the considerations for the initial phase of development of our Digital Connectivity business case for Growth Deal funds.

It identifies that Digital Infrastructure investment is slower in Mid Wales than elsewhere, and that without intervention our homes and businesses will remain behind in Digital Infrastructure provision. The PBC describes the economic ambitions and digital themes outlined in our regional “Vision for Growing Mid Wales” and offers a compelling and robust case for intervention by GMW to accelerate investment in digital connectivity across the region.

3.2. Key Considerations and Features of the PBC

Accelerating the provision of Digital Infrastructure within Mid Wales is our key objective. Widespread high quality Digital Infrastructure is unlikely to be delivered in Mid Wales quickly. It is therefore imperative that GMW sets in place interventions that directly provide or facilitate greater investment, stimulate demand, and bring forward digital infrastructure build to prevent the region falling further behind.

This PBC considers four key questions in respect of the GMW intervention:

- What are the obstacles to better Digital Infrastructure?
- Why should GMW itself intervene?
- What level of intervention should GMW make?
- How will the interventions work and what resources will be required – how will the Growth Deal funding be used to bring about the greatest impact in the region.

Before identifying why and how the GMW Growth deal should intervene, the PBC first establishes a firm understanding of the strategic context, the current provision of digital infrastructure, including the current levels of connectivity, market conditions, and existing activities to address Digital Infrastructure provision.

To set out a clear strategic context, the PBC describes the importance of Digital Infrastructure, both in general socio-economic terms, and in the context of the role it will play in supporting a flourishing Mid-Wales economy. It sets the baseline against which we might measure the effect of any action we may take. Interventions could be expected to result in a significant impact on GVA, for example by improving the ability of SMEs and home workers to operate effectively out of the region despite our highly rural topography, attracting both new investment and helping to stem the effects of out-migration. In this context, DI has played a critical role during the COVID-19 pandemic and this role is set to continue as we adapt to the changes it has brought about.

The PBC considers the current state of Digital Infrastructure in our region. It highlights the relative supplier monopoly that operates in the fixed line market and the impact that and other factors have on the provision of fibre to our premises, and the provision of mobile connectivity across the geography.

The PBC considers the supply side barriers that affect supplier Return on Investment and inhibit the provision of affordable connectivity. It describes the consumer behaviours and reasons for low take up that play a part in the poor business case in the region. It reinforces the need to help improve the commercial case for Digital Infrastructure in rural areas by making it more attractive and viable to suppliers.

The PBC considers the obstacles to provision by addressing broadly four types of location, using similar terminology to that used by DCMS.

At the urban “centre”, there is already a strong competitive market for provision. The market will continue to roll out to smaller towns, but its pace will slow as it gets towards the “outside”, where the investment case means that provision will rely on public subsidy. In the most rural “far outside”, the cost of delivery to each premises is prohibitively high, and imaginative solutions will be essential to ensure no home or business is left unconnected.

The PBC describes how the challenges of each type of location can be addressed through targeted interventions, to attract investment to our region and accelerate the provision of digital connectivity to support our ambitious Growth Deal plans.

The role of GMW in driving digital connectivity interventions, and the role of other relevant parties is also considered. The PBC takes into account both our own existing initiatives, and other existing national, regional and local initiatives and also identifies gaps in coverage. It identifies where the Growth Deal is best positioned to intervene and sets out the actions the GMW Board could and should take to make best use of public funds to bring the connectivity we need to Mid Wales. Our aim is to complement the role of other bodies in bringing about change, not duplicate.

It sets out a Longlist of options for GMW intervention, and a model to identify the most appropriate level and type of intervention. This features a Longlist of projects grouped together in ways that maximise the Return on Investment for the Mid Wales Growth Deal. This RoI is measured primarily in substantial increases to regional GVA. It also references social, health and well-being benefits and identifies some proxy indicators for success, whilst also highlighting other broader outcomes our investment will support.

The PBC will describe the costs and benefits of the proposed GMW intervention, and set out a high level, structured delivery approach to ensure that projects are scoped, justified, and managed effectively.

3.3. Digital Connectivity and Digital Infrastructure

The Local Government Association (LGA) defines digital connectivity as “an all-encompassing term used to describe mobile or fixed connections to the internet”. Being connected in this way has become part of the fabric of everyday life – as important to communities and businesses as a water, gas or electricity connection”.

Our Digital Strategic Growth Priority is concerned with the development of Digital Infrastructure and the skills needed for infrastructure build and commissioning.

In this PBC, we use we use the term 'Digital Infrastructure' to cover all the policies, procedures and physical structures that are used to support all forms of mobile or fixed connections and communications for the citizens, businesses and public sector organisations in our geography.

The scope of Digital Infrastructure spans three areas of delivery:

- **Solutions and Physical Infrastructure:** including the solutions that are installed such as fixed and mobile connectivity, public WiFi, LoraWAN, satellite, TV and radio; and built physical infrastructure such as ducts, masts and poles, fibre, and physical footprint such as buildings, street furniture and facades, land, power and cooling.
- **Policy, Process, and Engagement:** that affect how Digital Infrastructure is planned and implemented, for example including the approach to wayleaves and easements, Section 106 policy, planning and traffic regulations, standards, and so on. This category includes the engagement activity needed to stimulate demand for Digital Connectivity services.
- **Skills:** that relate to infrastructure build and maintenance and to the use of digital services, Examples include civil engineering skills and capacity for trenching, ducting and chambering, fibre blowing, splicing and testing, mast erection, as well as for network operations and maintenance. They could include skills in respect of commissioning and using infrastructure services. Skills development activity also includes that needed to encourage the take up of vouchers and connectivity services, for example community engagement skills.

These are all necessary and complementary components of good Digital Infrastructure provision and will therefore all form part of addressing the Growth Deal's Digital objectives and subsequent projects.

3.4. Source Data

The source data and statistics featured in this strategy reflect the environment at the time of writing. The Ofcom Connected Nations Report ¹provides data formally reported by industry on an annual basis, and is supplemented by data from interim updates. The strategy also references statistics from thinkbroadband.com, an example of a broadband comparison and reference site which uses crowd sourced data to provide

¹ Ofcom Connected Nations Annual Report 2020

more frequent updates. Other supporting publications are referenced as appropriate throughout the PBC.

4. Strategic Case

4.1. The Importance of Digital Infrastructure

4.1.1. Overview

Robust and widespread Digital Infrastructure is a key driver for economic development and social cohesion. Strategic documents produced at all levels of government (local authority, Welsh government and UK) acknowledge this and highlight the need for Digital Infrastructure to support future economic growth and benefits.

In 2014, the World Economic Forum explained in its report *Delivering Digital Infrastructure* that if we encourage investment and innovation in digital infrastructure, there will be significant economic and social benefits. With this in mind the UK Government has made 'world-class connectivity for all' a central aim of its strategy, *The Future Telecoms Infrastructure Review (FTIR)*.

The FTIR was published by the UK Government, Department for Digital, Media, Culture and Sport (DCMS) in 2018 in support of the Government's Industrial Strategy. It provides a comprehensive review of, and plan for the provision of Digital Infrastructure in the UK. The FTIR sets out ambitious targets for the delivery of Digital Infrastructure across the country. Its comprehensive assessment of the state of UK Digital Infrastructure and its markets identifies a range of demand and supply side factors which have hindered delivery progress. It highlights the critical need for the right type of intervention to stimulate the market to attract commercial investment and improve the uptake of connectivity services by consumers. It issues a strong call to action to improve the scope, scale and quality of the UK's digital infrastructure.

A 2015 report by the EU Commission on the role of broadband underlined the role of connectivity in increasing productivity: '...availability of top class connectivity, by means of fibre networks, together with the right set of digital skills in the workforce is predicted to have an impact on total factor productivity of the European economy (i.e. improving the way capital and labour are employed in the economy) and result in higher GDP growth'. Source: EU Commission, Socio-Economic benefits of Broadband, 2015.

In its Connected Nations 2017 report, Ofcom also highlighted the role of connectivity in the economy particularly with regards to small businesses, stating that a 'Lack of decent broadband is a particular concern for (UK) small businesses. Small businesses increasingly rely on broadband, but a disproportionate number cannot access even a basic service. This message has remained a common theme since this earlier report.'

DCMS undertook undertaken a comprehensive evaluation of the impact of improved connectivity, following its Superfast Broadband intervention. The Evaluation of the

Economic Impact and Public Value of the Superfast Broadband Programme² clearly articulates the importance of good Digital Infrastructure. The report highlights a range of key benefits that serve to support and reinforce the key messages of other analyses. The report goes further and suggests that even greater benefits can be achieved through ultrafast, and so by implication, gigabit-capable.

Fixed-line and mobile infrastructure is therefore widely acknowledged in government, academic and industry literature to be a critical socio-economic development tool. It supports significant GVA growth through enabling higher employment and greater productivity, in addition to Social Return of Investment (SRoI), through greater opportunities for more connected communities and better individual well-being.

This Programme Business Case represents both our response to the call to action that the FTIR issues, but critically, our commitment to fostering the right conditions to attract investment in digital infrastructure and skills across to grow our economy, and realise the ambitions for our region that our broader Growth Deal bid sets out.

4.1.2. The Importance of Digital Connectivity to Mid Wales

The Vision for Growing Mid Wales strategy has identified eight Strategic Growth Priorities for our region. These priorities collectively describe a compelling vision for economic growth and investment across Mid Wales and set out a clear context for the different needs for, and application of, digital connectivity to support that growth. Digital Connectivity is recognised not only as an enabler to other growth priorities, but as a Growth Priority itself.

² DCMS Evaluation of the Economic Impact and Public Value of the Superfast Broadband Programme, Final Report 2018.



Fig 4.1 Mid Wales Strategic Growth Priorities

Available and affordable digital infrastructure, along with widespread uptake of digital services are therefore recognised as fundamental principles and requirements within the Vision for Growing Mid Wales.

Enhanced and good quality digital connectivity and accelerating its deployment is fundamental to transforming the Mid Wales economy and enabling growth. Confidence in digital infrastructure will be vital to support future business investment in the region. In the wake of the Covid-19 pandemic, good connectivity is now needed not only for growth but also for fundamental economic recovery.

Digital technologies are transforming communications, services, learning and business opportunities at an ever-increasing pace. New digital technology like 5G plus the Internet of Things, Artificial Intelligence and data analytics have the potential to open up new businesses and improve the lives of communities.

Investment in digital infrastructure and supporting the adoption and exploitation of next generation digital technologies will be critical to improving productivity, capitalising on innovation and becoming more competitive as a region. Improved connectivity will provide businesses with access to markets, information sources, services and opportunities both in the UK and globally. The recent COVID-19 induced experiences of 2020 have shown how critical digital infrastructure will be to supporting local economic recovery and growth.



For the foreseeable future, ever more of our lives is moving online, whether we like it or not. Government cannot allow digital inequality to continue to compound and exacerbate the economic inequality that has been so harshly exposed in the covid-19 pandemic.

Meg Hillier, MP, Chair of Public Accounts Committee

Ensuring access to good quality digital connectivity and supporting digital skills, the latter through our Skills and Employment Growth Priority, will help bridge the digital divide and give people the freedom to live and work more flexibly while making the region a more attractive place to live. Public interventions will be key to addressing non-commercial areas that are unlikely to receive private sector investment.

4.1.3. Expected future connectivity requirement

The deployment of Digital Infrastructure is a costly and long lead time activity, but user demand tends to have a much shorter horizon.

Any Mid Wales intervention therefore needs to consider how the current requirement will change over time, so that it delivers what consumers will need and want by the time the intervention's outcome is available.

In terms of the current requirement, the government has set out the Universal Standard Obligation (USO) which mandates that everyone should be able to expect a bare minimum connection that can deliver a download speed of at least 10Mb and an upload speed of at least 1Mb. Superfast broadband, 25-30Mbps according to the measure used, is considered the current requirement for most users. In that context, FTTC technology, which can reach speeds of up to around 80Mbps, is essential for all but the most basic requirement.

The pace of increase in demand for digital connectivity services remains high, with online HD streaming and video calling become commonplace in just a very few years. In 1998, Jakob Nielsen used data from 1983 onwards as a basis for Nielsen's Law³, a model for predicting internet bandwidth growth similar to Moore's Law for computing power. His model predicted that the bandwidth demanded by high-end users would grow by 50% per year, and that general users would follow the same trend, 2 to 3 years

³ Nielsen's Law: Users' bandwidth grows by 50% per year (10% less than Moore's Law for computer speed). The new law fits data from 1983 to 2019

later. Regular reviews of the model and prediction have shown it to be remarkably accurate, as the logarithmic scale of the chart below shows.]

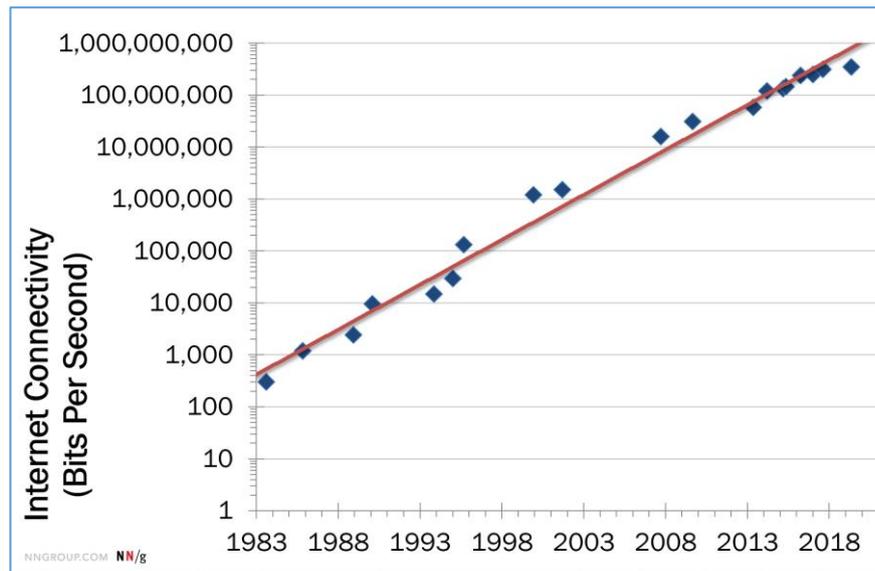


Fig 4.2: Nielsen's law of internet bandwidth Source: NNGgroup.com

In Ceredigion, around 20% of premises do not have superfast broadband, and nearly 5% do not have the USO 10Mbps minimum. In Powys, those figures are approx. 22% and 6% respectively. The combined Mid Wales percentage of premises without USO 10Mbps is 5.3%

If 30Mbps is assumed as today's requirement, Nielsen's model suggests that FTTC will become too slow in just 3 years from now. Even GFast, for the small number of users close enough to the exchange to get it, will become too slow in around 6 years. This expected underlines the reason for the drive towards full fibre, with its much less limited speed headroom.

Against this background, customers will often express satisfaction with speeds of 10-20Mbps and show limited willingness to pay more now to guarantee fibre broadband. The combination of exponential requirement growth and short-horizon customer decision making present a major challenge for those planning for the future.

The advent of 5g, LPWAN and other emerging technologies are expected to have a revolutionary impact on the support and development of new and as yet unknown digital services and applications. The demand they drive is likely to be similar to growth in broadband requirements.

It is possible that Nielsen's law may no longer continue to apply in the way in it has for the last 36 years, but it seems more likely that the demand for digital connectivity will continue to grow rapidly.

Any targets to be achieved through our Investment Objectives must recognise this growth, and build in sufficient headroom to accommodate it.

4.2. Our Region

Our GMW Vision⁴ describes the key features of our region, emphasising both the potential it offers, but also recognising a number of challenges and barriers to effective regional growth that this Digital Strategic Growth Priority PBC will serve to highlight further and later address. Fig 4.3 below illustrates some of our key regional indicators.

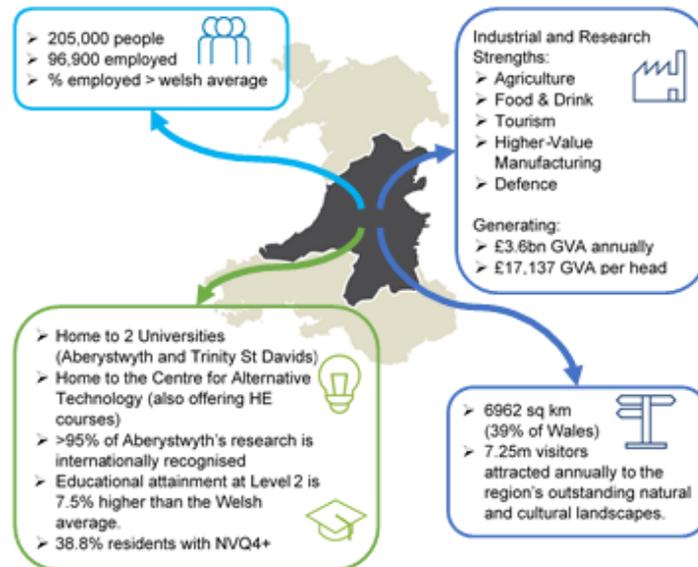


Fig 4.3: Mid Wales at a Glance

Our Geography: is highly rural, representing 34% of land mass of Wales. We have approximately 96,000 domestic and commercial premises, many of which are scattered in smaller, highly dispersed settlements.

Our region has important Digital Infrastructure interdependencies with neighbouring councils, both in Wales and in Shropshire and Herefordshire. Our central location joins together the North, South and West of Wales and the bordering councils of England, offering Digital Infrastructure value to these neighbours. This positioning and the collaboration it can and does facilitate, can help to 'drive and support intra-regional growth across Wales and the UK, where the sum total of its economic impact is larger than the sum of its individual parts' (p.14). The underlying infrastructure offers value from close collaboration. Where it helps our ambitions to collaborate we should, but we should not be limited or held back should others not yet be ready.

⁴ Vision for Growing Mid Wales

Our Vision for Growing Mid Wales document p.14 recognises the features of our geography that create shared commuter links, but it also describes the need to ensure employment land and premises are available to fuel local growth; premises which require digital connectivity and which may be subject to the more rural and sparse geographical features of much of our local landscape. The geographical features of our region and the impact on DI provision are described in further detail later in the Case for Change.

Our Economy: Mid Wales contains 12,660 VAT registered businesses. Like many other rural parts of Wales⁵, we have a very high proportion (>95%) of micro businesses (<10 employees) with only 0.8% of businesses across Mid Wales are classed as medium or large (50+ employees).

The degree to which SMEs experience good connectivity can have a strong urban/ rural dimension. This risks creating a digital divide between rural and urban communities and also has the potential not only to put rural businesses at a competitive disadvantage, but also to discourage entrepreneurs from establishing businesses in Mid Wales altogether. The viability of the local SME economy relies heavily on sufficient connectivity to operate.

Our regional GVA is relatively low comparatively, as described in our Vision:



“Mid Wales contributes £3.6bn in annual gross value added (gva) to the UK economy equating to £17,509 per head).

Thus is amongst the lowest in the UK and compares to £65.1 billion (£20, 738 per head) for Wales; with Mid Wales contributing approximately 5.5% of the gross value added (gva) generated by the Welsh economy, a proportion that has remained constant over almost the last twenty years.

Whilst many factors are at play, it is highly likely that the absence of quality Digital Infrastructure is a significant contributor to low GVA. The relative importance of, and reason for, provision to individual sectors can vary as does the benefit it brings. However, the provision of good connectivity can reasonably be expected to have a positive effect on productivity and economic growth across the business spectrum. For sectors that comprise pure technology businesses, the success and growth of the business is directly related to the provision of connectivity services; its very existence

⁵ Source: Vision for Growing Mid Wales

relies on the availability of high speed, high capacity fibre infrastructure. In other sectors, quantifiable improvements in service are driven by Digital Infrastructure as one of a large number of enablers. In these cases, the benefit attributable to connectivity supported by Digital Infrastructure is difficult to quantify separately.

In this sense, Mid Wales is no different from the rest of Wales and indeed the rest of the UK; its businesses and sectors experience the same types of benefits, but its use may vary given the specific nature of the Mid Wales economy.

Our Vision highlights a range of strong sectors in Mid Wales strengths, and references amongst them: high value manufacturing; agriculture, food and drink; defence and security; and Tourism. The examples the plan provides highlight a number of key dependencies on digital connectivity for our key sectors.

The seasonal nature of much of our employment also brings its challenges. Our economy has a high degree of seasonality – the significant influx of visitors means a direct increase in need from tourists themselves, but also brings a higher business need for better capacity and coverage to service tourism.

Our population totals approximately 205000 people, and is characterised by an ageing population and a net out-migration of young people. Since 2008, the region has seen an overall decline in its population of around 1.2%⁶.

Providing widespread connectivity to support increasing levels of consumer and business need is an important tool in retaining local skills and knowledge amongst the working age population.

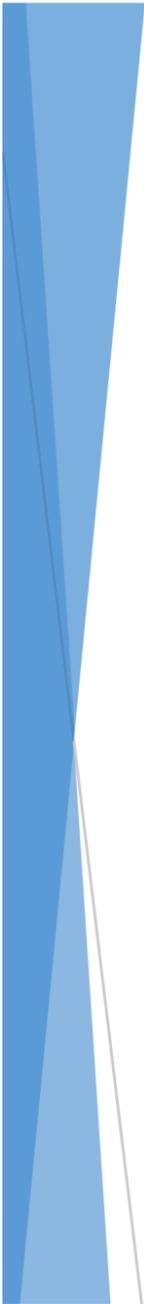
Digital connectivity also has a key role to play in attracting new skills. Our region has seen an increase in the growth of knowledge based services which typically are highly reliant on good connectivity. Whilst the concentration of such workers lags behind many other parts of the UK, it does offer significant potential for the region. Knowledge work can typically provide the local population with higher value jobs, who in turn have more disposable income to re-invest in the local economy.

To retain and attract new skills and sectors, grow a viable business sector, and create more employment, relies heavily on the availability and affordability of quality mobile and fixed connectivity. The effects of out-migration may be slowed by the effect of the COVID-19 pandemic as remote working increases, and local people no longer need to re-locate or travel to other parts of Wales or the UK to work.

⁶ Source: Vision for Growing Mid Wales, p.12.

As our Vision⁷ highlights, 'Poor connectivity, low GVA per head, limited skills infrastructure, grid constraints and lack of supporting business infrastructure all play their part in limiting the region's potential to take advantage of our opportunities'. It summarises a range of factors that drive the need for better and more widespread digital infrastructure. Increasingly connectivity will play a key role in addressing these barriers to economic prosperity.

⁷ Source: Vision for Growing Mid Wales, p.11.



Key Regional Features driving the need for DI Investment

- **LAGGING PRODUCTIVITY:** Mid Wales continues to lag behind other Welsh and UK regions in both its GDP and figures
- **A DECLINING, AGEING POPULATION:** indicating reducing population figures and a changing demographic - demonstrating the 'pinched middle' of a relatively high older population and a proportionately low working age population.
- **NARROW AND VULNERABLE ECONOMIC BASE:** Leading to employment and productivity imbalances. The largest GVA contributors by sector are manufacturing, real estate and wholesale and retail – whilst agriculture provides the biggest employment numbers, but contributes comparatively less GVA. Seasonality of employment also adds to the economy's vulnerability.
- **PROJECTED EMPLOYMENT DECLINE:** forecasts show the Welsh economy growing by 1.7% during the period 2018-2040 (+ 24,000 jobs) while the Mid Wales economy is forecasted to decline 3.45% (reduction of 3,352 jobs) – whilst the UK looks set to grow by 7.4% over the same period.
- **STATIC AND WEAKENING LABOUR MARKET:** gaps in skills provision and infrastructure to adequately meet industry demands are exacerbated by a lack of focus on the issue in Mid Wales. Weaknesses in regional skills infrastructure exacerbates employment and educational opportunity – leading to a reducing equality of opportunity & labour mobility and reinforcing out-migration.
- **MARKET FAILURE:** Underlying structural economic weaknesses aligned with decades of under-investment by the public sector has exacerbated market failure. Market failure is prevalent throughout the economy and can be clearly evidenced through weak and relatively static commercial and residential build rates, declining and narrowing business base and the inadequate state of our digital, road and energy grid infrastructure – that cries out for public intervention.
- **THE HIDDEN NATURE OF A RURAL ECONOMY:** relatively strong employment and low unemployment data masks low pay and underemployment and the high self-employment and home working data combined with low incomes is masking rural poverty which is a real cause for concern amongst local authorities and policy makers in Mid Wales.

4.3. Strategic Fit

4.3.1. Organisational overview

The Growing Mid Wales Partnership formed in 2015 and jointly led by Ceredigion and Powys County Councils, represents a significant collaboration between stakeholders from across the public, private and voluntary sector within our region. We have long shared a common purpose – “to facilitate and accelerate economic growth via a single and ambitious vision for economic and employment growth in the region”.

This purpose has driven the development of our Growth Deal proposal since 2017 when the partnership was invited to submit a proposal for regional Growth Deal funds. This proposal serves to further reinforce our commitment to building and growing our regional economy, and reflects the collective objectives of our regional stakeholders; the businesses and voluntary organisations that contribute to the regional economy, and on whose behalf GMW will progress the Growth Deal.

The stakeholder and organisational landscape which the Growth Deal priorities are both defined by, but also support, is highly varied. Fig 4.4 below shows the key local bodies and organisations that participate directly, but also those with whom we collaborate, or depend upon for successful delivery of our objectives.



Fig 4.4: Mid Wales Growth Deal Stakeholder landscape

4.3.2. National Alignment

Digital Infrastructure is recognised as a critical enabler of strategic outcomes at all levels of government.

The importance of the role of Digital Infrastructure in supporting socio-economic outcomes is described clearly through a number of related and mutually reinforcing UK and Welsh strategies, through to the local vision of our Mid Wales Growth Deal and our individual Council objectives. This helps to achieve a high degree of national and local economic and Digital Infrastructure strategy alignment.

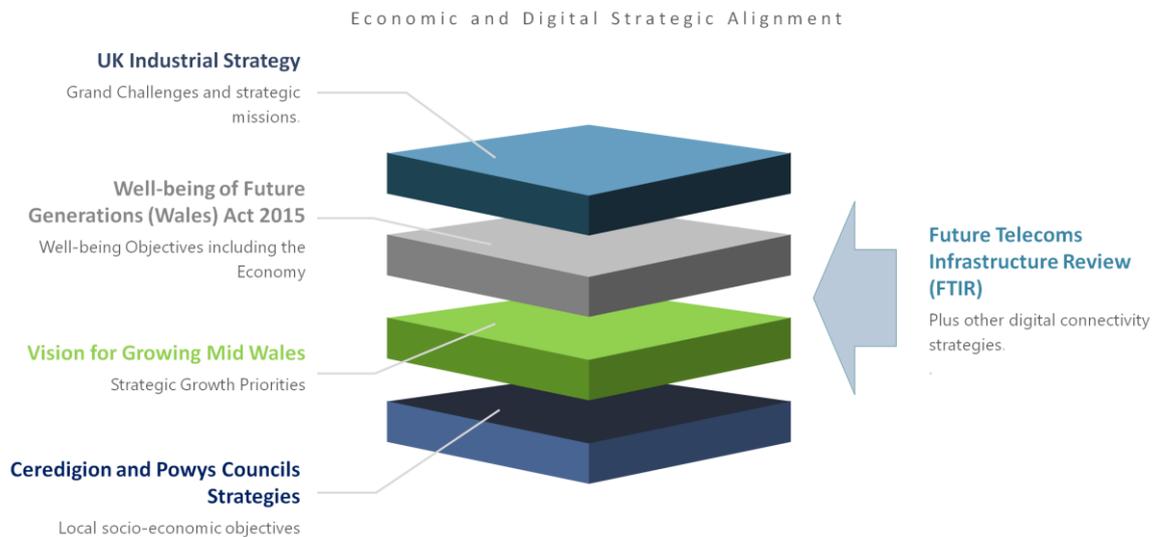


Fig 4.5: Strategic Alignment

4.3.3. Welsh Government and Regional Alignment

The Welsh Government (WG) has a key role to play in supporting Growing Mid Wales, and our proposal for the how Growth Deal funding should be used.

The Welsh Government's Well-Being of Future Generations (Wales) Act 2015 is a cornerstone piece of legislation for all Welsh Local Authorities. Alignment with the objectives of the Act helps to ensure that consistency in planning and delivery across our region and across Wales. Amongst other priorities, the Act highlights the need to develop and grow the collective economy of Wales.



A prosperous Wales – an economy that generates wealth by providing its skilled and educated population with access to decent work opportunities.

Well-Being of Future Generations (Wales) Act 2015

“Prosperity for All: The National Strategy”,⁸ is the Welsh Government’s stated mission for delivering high quality of life and strong, safe communities, and has to date also been a key driver of our GMW objectives for the region.

The Strategy emphasises the key importance of not just what we deliver, but also how we deliver; creating integrated and collaborative social, commercial, health, educational, and physical infrastructure that allows us to improve the lives of the people of Wales. It recognises that not all communities across Wales have experienced the same growth, leaving them isolated amongst their regional and national peers, and acknowledges that Government has a key role to play in providing stimulus to help struggling communities.

Part of that role is government intervention to build the infrastructure to support growth. As the Strategy states: *“Our communities remain a national asset, and we will invest to re-connect them, physically and digitally, to build a more united and connected nation”*.

Recognising the role of digital in helping to establish greater unity and connection, the Welsh Government also formulated its Digital Action Plan⁹. Most recently in the wake of Covid-19, this message has been reinforced once again:

*“The Covid pandemic has demonstrated the importance of digital in delivering modern services at pace. We have seen digital acting as a major catalyst in adapting to the challenges we have faced....Critical to the delivery of [our] whole strategy is the underlying infrastructure. This infrastructure is the foundation we need to build good quality digital services.”*¹⁰ (Lee Waters MS, Deputy Minister for Economy and Transport)

⁸ Prosperity for All” the National Strategy; Taking Wales Forward

⁹ Wales Digital Action Plan 2017-2020

¹⁰ Ministerial Foreword Digital Strategy for Wales, 23rd March 2021.

The achievement of the Welsh Government's stated aims is clearly critically dependent on the availability and affordability of quality digital infrastructure.

Within its new Digital Strategy, the Welsh Government sets out six mission statements which closely align with and many of our Mid Wales Growth Priorities. Mission 5, Digital Connectivity, like our Digital Growth Priority, highlights the importance of infrastructure in supporting digital services. It too highlights the challenges inherent in bringing connectivity to more rural areas given the challenging topography and the distributed population. The strategy also recognises the need to work with others with similar aims to optimise the use of public funds and aggregate demand, thus improving the business case for greater investment.

The Welsh Government and GMW therefore share common objectives which are mutually reinforcing.

We both have a vested interest in bringing better digital infrastructure to Wales, and to our region. Close collaboration to make best use of our collective resources and to leverage our capabilities will help to strengthen the perception of Mid Wales as a place to invest and grow services, to the benefit of our wider economy.

Strategic alignment with other Welsh regional Growth Deals, and councils, and with our cross border neighbours, will also serve to strengthen this position. Our geographical position means we have close economic links to North, South and West Wales. Our success in many ways can be dependent on the growth of other regions and vice versa; growing the Welsh economy will be to the benefit of all regions.

Like the transport network, digital connectivity should not be limited by geographic borders even if the responsibility for its delivery differs in different regions. Therefore, whilst an element of competitive economic tension between regions is likely to always be present, it is important that we recognise that our collective aims can deliver a scale of connectivity ambition and capability which is greater than the sum of our parts. We are then able to translate this ambition into a coordinated approach to digital infrastructure build that meets all our strategic aims.

4.3.4. Local Strategic Alignment

Our priorities reflect the broader national and regional aims of the UK and Welsh Governments, but they are ultimately driven by our own local needs.

Our respective Ceredigion and Powys local Public Service Board Plans, developed in conjunction with our Health, Fire and Rescue, and Natural Resources Wales, and other invited partners, set out our local responses to delivering against the Well-being of Future Generations Act. Building strong community and local resilience is a key feature, amongst others, of these plans, as is the long term role of digital infrastructure in enabling such resilience.

Regionally, we have set out eight strategic growth priorities, each of which aspire to bring about ambitious change. The inclusion of the Digital Strategic Growth Priority as one of one these strategic focus areas demonstrates the importance of digital connectivity for supporting our business sectors, and to bringing about the economic recovery, regeneration, and growth that our region seeks.

The need for alignment is therefore clear. GMW does not intend to replace other local, regional or national initiatives where they are better placed to deliver the results we need. Rather, our local Digital Growth Priority activities should serve to supplement and complement established projects to make them even more effective, and plug existing gaps, where it adds value to do so.

Our Digital priority recognises the weaknesses in our current digital infrastructure provision. It represents a key step in our roadmap to address these weaknesses.

4.4. The Case for Change: Introduction

The key features of our geography, economy, and population were described earlier. With a highly rural landscape, many of our settlements are highly dispersed. Our 96,000 domestic and business premises are almost four times more sparsely distributed as for Wales as a whole.

Our region currently attracts a limited number of market operators, though that is beginning to change. In most of the region, there is very little competition at the infrastructure level, and we have a more limited choice of options than more urban parts of the UK.

The Case for Change considers the current technology arrangements and market provision, and the supply and demand factors that are preventing both investment by suppliers, and consumer take up of available services. Establishing a clear understanding of the root causes of poor provision will help identify the appropriate interventions to apply to address the issues we face.

4.5. The Case for Change: Current Infrastructure Arrangements

4.5.1. Broadband

Research statistics drawn from Ofcom Connected Nations 2020, and more recently Thinkbroadband.com show an interesting connectivity situation across Mid Wales.

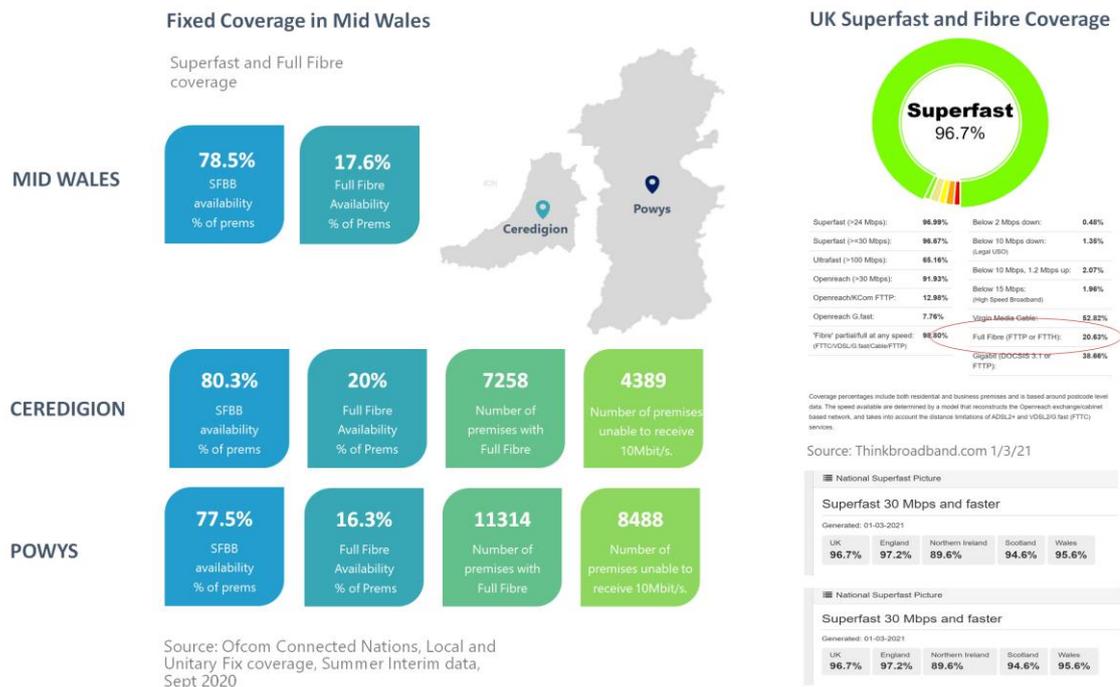


Fig 4.6: Regional and county based fixed connectivity statistics

The Ofcom 2020 reported coverage for Superfast Broadband in Mid Wales was 78.5%, with Ceredigion and Powys at 80.3% and 77.5% respectively. This means that for approximately 20% of our premises, we still don't have connectivity levels that are enjoyed by the vast majority across the UK. As well as addressing that difference for

today's requirements, the clear implication is that when full fibre broadband becomes a necessity of home and business life in 3-5 years' time, Mid Wales will again be slow to benefit, particularly given the more challenging economics of fibre rollout.

In the case of full fibre, the region's coverage is currently similar to Wales as a whole, but behind the UK as a whole. However, the figures in respect of high speed connectivity in general tell a story that gives rise to concerns for the future. It is very likely that the urban areas of Wales will quickly move ahead in full fibre provision, leaving Mid Wales behind, because the cost of deployment in urban areas is considerably lower than in Mid Wales.

The following data also sourced through Ofcom shows the combined status of fixed broadband provision within the region, compared to Wales as a whole. The combined figure of 18% offers represents an average across the two counties.

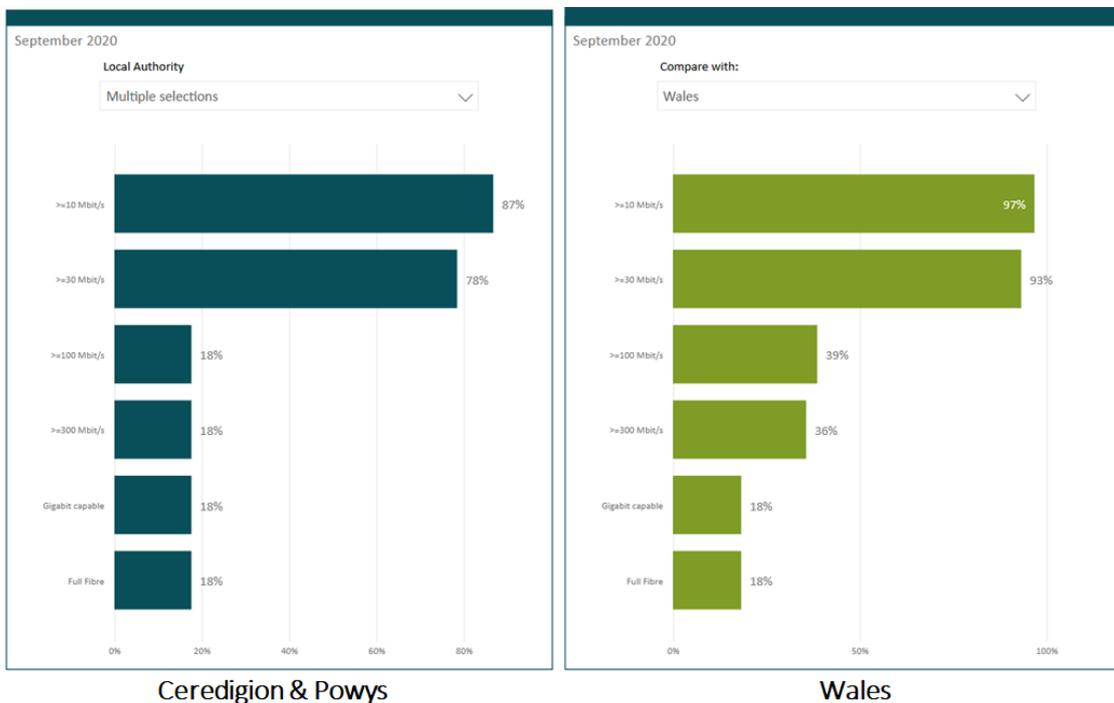


Fig 4.7: Combined fixed connectivity statistics

The issue of poor connectivity provision has a direct impact every day on our region's residents, businesses, and on its economy.

4.5.2. Mobile

Ofcom's Summer Update 2020 indicates that only 54% and 21% of premises in Ceredigion and Powys respectively can receive indoor 4G signal from all four Mobile Network Operators compared with 85% in Wales as a whole. An in-car 4G signal is available from all four MNOs on just 38% and 42% of the roads in Ceredigion and Powys respectively. Our region is significantly less well served than other parts of Wales and the UK.

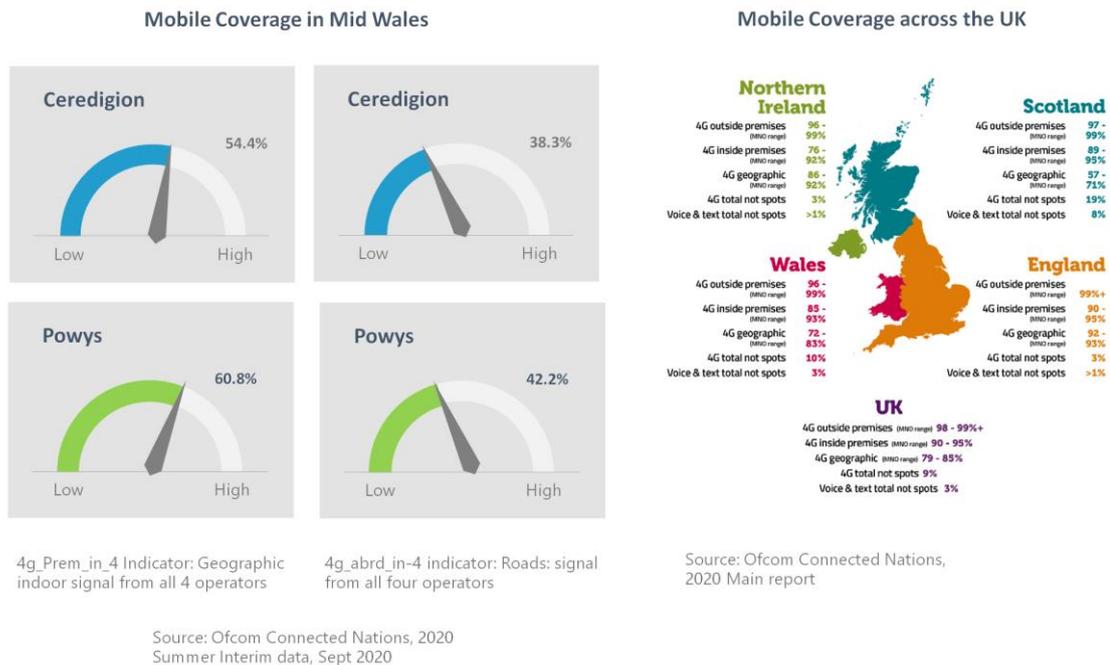


Fig 4.8: Council based mobile connectivity statistics

The current lack of connectivity in Mid Wales is in part due to the particular challenges posed by the region’s topography for operators deploying mobile infrastructure. A large percentage of our premises are located in rural areas. In order to reach these premises significantly more infrastructure is required than that needed to reach citizens and businesses in urban areas.

Mobile use has seen a notable increase over recent years. Ofcom’s reporting of the impact of lockdown on mobile use nationally offers some insight, and may reveal implications for future coverage requirements in Mid Wales. The report notes:

- An increase in mobile voice traffic use during the lockdown as consumers increased both the frequency of their calls, and the length of their calls
- A decrease in mobile data traffic, thought to be attributable to consumers working from, and staying at home and offloading data use to Wifi.
- A shift in mobile hotspots from urban areas to suburban areas during lockdown, again possibly reflecting greater working from home, and possible relocation.

Many of the impacts of the pandemic may prove to be short-lived. However, some elements of the change in working patterns, and the potential re-location of some business beyond the typical urban setting is likely to persist and if so, may place an even greater emphasis on the need for good quality mobile coverage across our largely rural region, to support our local economy. Despite the clear and highly detrimental of COVID-19 in many respects, the change in such patterns may even offer our region an opportunity to further build and grow our rural based economy, once the obvious need to recover has been addressed.

The Welsh Government report, Mobile Action Plan, highlights: ‘Mobile phones are no longer just about making phone calls or sending text messages; 57 per cent of mobile

phone users in Wales report using a mobile phone to go online. Expectations of the mobile signal are therefore rising, with customers wanting mobile connectivity where they live, work and want to travel. Businesses too want to take advantage of the opportunities that connectivity affords them and do not want to endure the lost opportunities that lack of connectivity costs them.'

As we look further ahead, the evolving 5G technology is expected to be a step change in mobile connectivity, providing mobile access to high bandwidth connectivity. Mid Wales still lags behind other counties in its receipt of 4G services so it is reasonable to assume that our region will suffer the same disservice in relation to the roll out of 5G infrastructure, particularly in respect of the highest frequency parts of the technology.

We must improve our mobile infrastructure if we are to provide sufficient levels of coverage to meet the needs of our businesses.

Mobile coverage is about much more than availability. Where the region is covered by the lower 800Mhz frequency, coverage and penetration may appear to be good, but available bandwidth is considerably poorer than for the higher 2100 and 2300Mhz spectrum. This means that whilst coverage appears to be available, the quality and strength of that coverage falls short of that needed to provide the service performance that customers need. We need to encourage operators to provide more coverage, but also coverage of the higher capacity high frequency spectrum. The two go hand in hand, because of the lower range of high frequency services.

These factors combined show a compelling need to accelerate investment into mobile infrastructure within our region.

4.5.3. WiFi

WiFi is often the preferred approach for access to internet connectivity. Not only is this the case for data access, but it is widely becoming the preferred option for voice calls, especially in areas of poor mobile signal. Offloading mobile to WiFi may offer some mitigation for the challenges facing 5G deployment.

Public Wi-Fi connectivity not only supports the citizens, local businesses and tourists of Mid Wales, as well as public sector service delivery, but also helps our councils plan for the provision of services. For example, using high strength Public Wifi Access Points allows us to gather footfall data in tourism hotspots and high streets. Such data can help us understand behaviours, and to plan for the seasonal impact of tourism in our region, targeting the type and scale of services to exploit the opportunities it brings, and managing the challenges that can also accompany high visitor rates.

4.5.4. LPWAN

LPWAN networks are low power wide area networks designed to allow low-powered devices to communicate with Internet-connected applications over long-range wireless connections at a low bit rate.

It is a valuable option where traditional fixed or mobile connectivity is either not available or is expensive in relation to the application. It is relatively inexpensive to set up, virtually free to operate, and can be set up anywhere a gateway can be installed.

The LORAWAN LPWAN protocol coverage in Mid Wales is already considerably ahead of other areas. Existing projects will deploy a further gateways to provide near pervasive coverage in 2021. Completing the coverage will unlock the potential for a huge range of Internet of Things (IoT) applications.

4.5.5. Satellite

Satellite connectivity could be considered to be a subset of Broadband, since it is typically used where a wired connection is not economically viable. It is included separately because of its fundamentally different technical approach.

A number of commercial satellite broadband services are available on the market, and new services from Starlink and OneWeb will be available within the next 3-5 years. Their high cost for performance is likely to limit their use to the very hardest to reach locations, and to specialist applications.

4.5.6. TV

As with mobile connectivity, television transmission is affected by the region's topography. Reported in the Welsh Government's Mobile Action Plan, Ofcom's statistics on television transmission highlight the scale of the challenge experienced in Wales as a result of the country's geography: 'to reach 1 million people in England it requires 12 masts, in Northern Ireland it requires 25, Scotland requires 45 and Wales needs 67.'

No current issues are identified with TV connectivity in Mid Wales, but it is possible that future changes, including the spectrum clearance for 5G could drive a requirement for intervention. TV Whitespace technologies may offer a broadband solution for some hard to reach locations.

4.5.7. Airwave replacement

The emergency services Airwave radio service is being replaced by the new Emergency Services Network (ESN), scheduled for completion by 2021, although indications are that this date is unlikely to be achieved. The new service is based on a 4G mobile infrastructure provided by EE. ESN will drive the deployment of around 300 new masts in rural areas to extend 4G coverage, each of which will be made available to other mobile operators. Although Airwave itself is largely out of scope for Mid Wales' own interventions, it will have a positive effect on mobile coverage in the county.

4.5.8. Telephony

The copper-based Public Switch Telephone Network (PSTN) that currently carries much of the country's landline calls is intended to be replaced by IP telephony by the end of 2025. This does not mean that the copper wires themselves will be replaced at that time – that is expected to take place over a longer timescale to 2033. However, the PSTN replacement may offer both opportunities to drive better connectivity, and risks due to consumer uncertainty and possibly changes to some broadband service types. Handled badly, the changes could waste money that might otherwise be used to improve connectivity.

Copper services are considered by most providers to be more expensive to operate than fibre services because they are more costly to maintain, and because they require more electrical power. There could be scope to use this feature to accelerate its replacement, at the same time driving better broadband infrastructure.

4.5.9. Internet of Things

IoT promises major changes in all areas of society, driven by the possibility that enormous numbers of small and low-cost devices could exchange large volumes of data. The technology is in its infancy, but it is likely to grow exponentially as use cases are developed and devices become more commonplace, and as the region's LPWAN coverage plans are achieved. The implications for Mid Wales in respect of smart roads, buildings, transport, agriculture, energy and so on are significant. The combined volume of IoT will quickly begin to have an effect on Digital Infrastructure such as LPWAN, WiFi, Mobile data and broadband.

4.5.10. Summary

Mid Wales currently has Digital Infrastructure coverage and capacity that falls short of today's requirements, and will certainly fall very short of the requirements of the next few years.

Although most areas of Digital Infrastructure suffer similar limitations, they do not all have the same impact on the economy, scope for GMW intervention and urgency.

Despite potential significant funding, GMW will almost certainly be budget-constrained – the scale of the problem is estimated to need investment of over £200m to resolve completely. Our interventions should therefore be focused where they can deliver the greatest impact for the region, and driving and supporting other investments.

The first priorities are therefore fixed and mobile connectivity. As illustrated through our other Strategic Growth Priorities, these have a fundamental effect on the efficacy of our economy and so play a significant role in allowing business to grow and flourish. They are also foundations for other forms of Digital Infrastructure.

The next priorities are LPWAN and WiFi. To an extent, these build on fixed and mobile connectivity. They will become essential as IoT grows quickly.

GMW's ability to influence Satellite, TV, Airwave and Telephony is small. In some cases, there is no obviously valuable intervention that could be made within our budgetary scope, and in others the impact is anyway very small. These are areas that GMW should continue to monitor, but is less likely to address actively.

4.6. The Case for Change: Digital Infrastructure Barriers

4.6.1. Market Provision

The number of providers of fixed and mobile connectivity in Mid Wales has been very small, and the level of good connectivity is also lower than in other places.

The historically limited competition is illustrated by the near monopoly supplier situation in the region, with Openreach dominating infrastructure provision. Alternative Network Providers (Altnets) are beginning to create a more dynamic market. Spectrum and Gigaclear (backed by Infracapital), Voneous and Broadway Partners are active, along with other smaller organisations like Dragon WiFi and new entrants like Simwood. There is a latent competitive market place which could be stimulated to drive progress.

4.6.2. Supply Barriers to Better Digital Infrastructure

The reason for the lack of digital infrastructure supporting many areas across our region is a combination of supply and demand side factors that together appear to present a weaker business case for supplier investment than in other places. Our region could present an unexploited opportunity for the market if the barriers to provision can be addressed.

Digital Infrastructure is expensive to build, and in rural areas like Ceredigion and Powys where the distance between premises is greater, and many premises are far from existing infrastructure, the cost per premises is high. The topographical features of our region may also make construction even more challenging and costly; the greater distances between premises require many kilometers of fibre. At 205,000 population and just under 100k premises, the total size of the customer market is comparatively low, and the demand for better Digital Infrastructure may be lower than it is in locations with a higher proportion of digitally dependent customers.

As a result, the rate of return for suppliers might be below their minimum investment criteria, or other areas are prioritised because they have a better return, or because they are more attractive in some other way. They are likely to invest in Mid Wales after other areas, if at all.

This lack of scale is therefore a key factor. To present a compelling case for investors, we must be able to present a sizeable enough opportunity to attract market interest and create real competitive tension.

Our geographical location and inter-dependency with other neighbouring regions can play an important role here. Building on our shared interests with the North Wales Growth Deal, the Swansea Bay City Deal, and initiatives in Herefordshire and Shropshire can help position the region as part of a wider aggregated demand pool; collectively our shared population and premises can present a much more compelling scale of consumer base to boost the business case.

4.6.3. Demand Side Barriers to Better Digital Infrastructure

A further problem compounding the poor business case is, in common with other parts of the UK, that customers do not always take up connectivity services that are of value to them, even when they are available. Citizens are not sighted on the role they can play in attracting the investment to deliver infrastructure

There are two dimensions to consider:

- The take up of connectivity services when they are available

- The take up of government funded broadband vouchers to pay for connectivity

With regards to the first dimension, the problem is particularly acute in respect of the upgrade to fibre; it is difficult to persuade customers to adopt fibre so that it is available when they need it in 3-5 years' time, when the broadband service they have today seems acceptable.

Upgrading to full fibre typically costs consumers around £5-£10 per month more for a comparable package, although some find fibre-based services can be cheaper than a copper alternative where they are available. Survey evidence suggests however, that although some consumers may want better connectivity, many users are not prepared to pay more for it, or to switch providers.

Bringing the demand forward to encourage the investment necessary to meet requirements in the near future is a significant challenge. Often, the result is that supply runs behind demand, leaving customers with a period in which they are under served and fall behind areas where the business case is stronger for the market investment.

On the second dimension, many individual consumers simply do not know about the availability of vouchers. Where awareness exists but vouchers are not taken up, other factors may be at play.

Insights from Behavioural Science may be applied to explain consumer behaviour in both respects. Identifying the additional factors and behavioural biases that prohibit consumers from taking up available services or vouchers, can point to some practical interventions to drive demand.

Loss aversion, where consumers fear the perceived loss of what they currently know and have more than they value the potential gains may go some way to explaining this behaviour. Helping consumers to understand the trade-offs between choices and the cost of their inaction, supported by evidence based communication methods can have a significant persuasive effect.

As well as the right messages, the communications vehicle used can also have a significant impact. Using, for example a 'trusted messenger' from the local community to work with local consumers and businesses to raise awareness, consult and engage, highlight that cost of inaction, and more practically, to support voucher applications can positively influence how consumers respond; more so potentially than a strictly government led initiative. Incentivising known and respected local voices to participate, either by appealing to their altruistic tendencies, or by more tangible means, could deliver noticeable improvements in take up.

These biases can be deeply ingrained and hard to disrupt. Understanding what is preventing people from adopting services, and setting in place a 'citizen transformation project' to identify and use these levers to bring consumers along could provide fertile ground for demand stimulation.

A number of councils have adopted broadband voucher engagement schemes to bring forward demand, and which typically centre on door to door community engagement. Applying an enhanced approach drawing on behavioural insights may serve to further increase the success of these initiatives.

4.6.4. Other barriers and opportunities

In common with much of the UK, barriers and unexploited opportunities exist for providers of Digital Infrastructure across Mid Wales.

Some key examples include:

- **Investment funds**
Although the independent sector generally considers that funding is now available, it may remain a barrier for some potential providers to Mid Wales.
- **Civils skills**
In common with the UK in general several potential suppliers have indicated that capacity shortages in the civils market could be a constraint for Digital Infrastructure deployment in Mid Wales. As interest in Digital Infrastructure increases across the UK and within Wales, the concurrent demands for supplier support may severely test supplier availability. The added impact of COVID-19 is likely to exacerbate this further.
- **No standardised Section 106 approach**
New developments do not yet automatically drive fibre delivery, and there is not a unified approach to co-ordinating all aspects of infrastructure planning.
- **Public Realm coordination**
Although works are well managed in respect of planning and delivery, opportunities may be missed to deploy Digital Infrastructure at the same time as other public sector projects, when costs would be lower.
- **Underutilised assets**
There are significant examples of digital assets in public and commercial sector ownership that are not used to their full potential, for example because they are stranded or have no route to market. Road, Rail and Canal curtilage and duct are a good example where more cross-infrastructure consideration could drive better Digital Infrastructure.
- **Digital Infrastructure for public sector use is not bought directly**
The public sector typically buys connectivity services, often site by site, and often on short contract terms. The underlying infrastructure commercial model is at a larger scale and a longer term, so that it is not easily influenced by the services spend. Aggregating demand and buying the services or infrastructure on a longer term is a good way to spend the same money, or less, to get a better outcome.

This combination of supply-side obstacles and demand side structural problems drive up the cost of delivery across Mid Wales, and make our counties less attractive than other areas as a priority for market investment.

4.7. The Case for Change: Current Initiatives

Many organisations are already working to resolve the problem of poor Digital Infrastructure across the UK, and across Wales.

By understanding this landscape, GMW can avoid duplicating the activities of others where they are better placed to deliver, build on the progress made by others where it complements and supports our aims, and consider how to plug the gaps where there is a lack of activity in a critical part of the region, or type of Digital Infrastructure deployment.

Understanding how the participants and their work fits together ensures that GMW can focus energy and investment into the right place. This section describes a range of the key existing Digital Infrastructure initiatives that are already under way.

4.7.1. DCMS

The UK Government Department for Digital Culture, Media and Sport (DCMS) sets out the digital strategy for the UK. The FTIR sets out much of this landscape.

Building Digital UK (BDUK), part of DCMS, leads several funding programmes to stimulate the development and uptake of both fixed and mobile services. It often works with local bodies to set in place local projects to spend central funding, and relies heavily on local councils to lead or deliver many elements of the centrally driven initiatives.

The key examples of DCMS intervention projects are described below.

- Gigabit Hubs

The UK Government has stated its aim to deliver full fibre to more than 15 million premises and to have nationwide gigabit capable coverage by 2025.

DCMS has announced the successor programme to its earlier Local Full Fibre Networks (LFFN) and Rural Gigabit Connectivity (RGC) programmes. The programme offers £150m to provide gigabit capable connectivity to rural public sector buildings like schools, surgeries and fire stations.

- Gigabit Vouchers

In the latest iteration of DCMS' Gigabit Voucher Scheme (GVS) and Rural Gigabit Voucher Scheme (RGVS), businesses and residents are able to apply for a voucher to be put towards the cost of a Supplier installing fibre to their premises. These initiatives aim to stimulate demand for services, by providing an incentive to citizens. DCMS is trialling a voucher promotion approach.

In June 2020, the Welsh Government also announced a substantial top up to the DCMS value of the Rural Gigabit Voucher Scheme. As a result, the existing values of £3,500 for rural SMEs and up to £1,500 for rural residential premises, were doubled to £7,000 for SMEs and £3,000 for residential premises. This is expected to continue to offer significant encouragement for voucher take-up.

- Outside In

'Outside In' is a developing programme, aimed at delivering gigabit capable connectivity to business and domestic premises in the hardest to reach 20% of the country. The programme will be backed by a substantial £5bn government investment. It is currently understood that the programme will take a form similar to Superfast Cymru, in the sense that the service available for customers will be upgraded without them needing to participate. The identification for the Final 20%, and the mechanism by which premises will be identified is not yet clear.

Whilst there has been much discussion around the F20 and Ofcom Area 3, there does not appear to be a clear definition of the premises that are in those classifications. As such, it is very difficult to identify which premises within Mid Wales will be addressed by these proposals.

In addition, the local collation of Open Market Research (OMR) data is not typically encouraged, but obtaining centrally collected data has been difficult. Without these means to know detailed plans and which sites are eligible, GMW risks duplicate investment in sites which could be covered, and missing premises that won't.

- Final 1%

DCMS is understood to be planning a programme to address the final 1% of hardest to reach places, in addition to Ofcom's Universal Service Obligation. Details of the project have not yet been released.

- 5G Testbeds and Pilots

The 5G Testbeds and Pilots programme is a series of research and development focused funding rounds aimed at accelerating the deployment of 5G networks, maximising the benefits from 5G and creating 5G business opportunities for UK companies.

Around £100m has been distributed through funding calls for Use Cases, Industrial Testbeds, Urban Connected Communities, and Rural Connected Communities. The 5G Create funding call, which makes available £30m, is currently running.

- OfCom Universal Service Obligation (USO)

"Every home and business in the UK has the legal right to request a decent, affordable broadband connection" (Ofcom). The Universal Service Obligation came into being on 20th March 2020 to support this right and ensure that anyone unable to receive a download speed of 10 Mbit/s and an upload speed of 1 Mbit/s, request an upgraded connection.

The USO details the eligibility rules for consumers. Providers rely on a range of technologies to provide connectivity including existing fixed and wireless connections and satellite. The cost of the upgrade is determined upon survey.

- Shared Rural Network

The Shared Rural Network is a £1bn deal between the government and the 4 leading Mobile Network Operators to deliver 4G coverage to 95% of the UK

landmass by the end of 2025. Government funding is ensuring that the operators collaborate in rural areas by mast sharing and adding new masts. It means that all networks will be available in all areas instead of the inconvenient patchwork that exists today in many areas.

4.7.2. Welsh Government

The Welsh Government has a range of complementary initiatives underway. The Welsh Government Digital Infrastructure Strategy Group is a forum to review plans and oversee all national DI initiatives, some key examples of which are described below.

- Superfast Cymru 2

Phase 2 of the Welsh Government's superfast broadband programme was announced in 2018 and is extending the reach of the programme into those rural communities not provided with connectivity under Phase 1.

The original aim was to provide connectivity to a further 26,000 premises by March 2021, using Openreach's gigabit capable FTTP technology. The work for this phase has been split into three lots: Lot 1 North Wales (which contains Ceredigion), Lot 2 East Wales (which contains Powys) and Lot 3 South West Wales.

Further updates to the plans have included an increase in site numbers, bringing it to 39000 premises, and an increase in funding to £56m. This is stated to include 2592 premises within Ceredigion, and 3516 premises within Powys¹¹. The detailed list of premises that will be connected has not yet been released.

The Welsh Government recently launched an Open Market Review to confirm the premises in Wales which do not have access to broadband of at least 30Mbps and where there are no plans to deliver this infrastructure over the next three years. It has experienced some issues of smaller providers failing to provide a response, and consequently being overbuilt with the support of public funding.

- PSBA

The PSBA public sector network is managed by the Welsh Government through a contract with BT that has been extended until 2025. The network connects most public sector sites in Wales. When the contract is renewed, there may be opportunities to drive better infrastructure and further efficiency savings through the procurement.

¹¹ <https://gov.wales/written-statement-update-digital-connectivity-wales-20th-july-2020>.

- Trunk Road Concession

The Trunk Road concession is a Welsh Government project that will improve fibre infrastructure by allowing access to the curtilage of the trunk roads network and to fibre assets deployed for smart roads. This allows the installation of fibre into new ducts, or into existing Welsh Government telecommunications ducts, as well as the use of surplus fibre. The project offers GMW an opportunity to drive strategic backhaul into Mid Wales.

- Network Rail Signalling

Network Rail is considering projects to upgrade fibre and duct for its own signalling use on the Cambrian Line and the Heart of Wales Line, and discussions are underway to consider the wider value of this infrastructure development to address backhaul connectivity opportunities in our region.

- Greenlink Project

The Greenlink project is a proposed electricity network interconnect to link the power markets in Ireland and Great Britain. The subsea cable would make landfall at Freshwater West, continuing to the National Grid's substation adjacent to Pembroke power station. The Welsh Government is considering a project for Greenlink to carry a data cable to bring additional internet capability to Wales. Combined with the Trunk Road Concession and other backhaul projects, Greenlink could provide an important backbone component for GMW.

- Fibrespeed

The Fibrespeed network, in partnership with Welsh Government, extends across North Wales, providing a backhaul option and connectivity to key business parks. A possible extension to Pwllheli and further south offers an opportunity to connect the northern part of our region with key internet hubs. Fibrespeed should be considered in the wider picture of publicly owned fibre and duct infrastructure, including road and rail curtilage use.

4.7.3. Other Growth Deals and Regional Initiatives

Other nearby Growth Deals are also involved in initiatives to address the shortcomings in digital infrastructure in their areas. It is imperative that we monitor and liaise with our neighbours to avoid duplication and wasted investment, but also to maximise the opportunities for scale where they may be mutually beneficial.

- Swansea Bay City Deal (SBCD)

The Swansea Bay City Deal is a £1.3bn investment in 11 major projects across the Swansea Bay City Region, which is made up of Carmarthenshire, Neath Port Talbot, Pembrokeshire, and Swansea.

One of the central aims of the Swansea Bay City Region deal is to create an "internet coast" in South West Wales, utilising a fibre-optic transatlantic cable from New York to Oxwich Bay to bring ultrafast broadband to towns along the region's

coastline. In addition, the Swansea Bay City Region deal contains several proposed initiatives around TV whitespace and making use of radio/ satellite technology to provide superfast broadband.

Swansea Bay City Deal (SBCD) also aims to “address shortfalls in the availability of digital connectivity in the region by investing in digital connectivity drive the uptake and quality of those services that are already available”.

The Digital Infrastructure challenges faced in Mid Wales are very similar to those in the north and west of the SBCD area. Many of the same initiatives cut across both the GMW and SBCD areas, and the same providers are active in both. There are likely to be synergies from working together.

- North Wales Growth Deal

The North Wales Growth Deal is a £1.1bn investment in 14 major projects across the six Council areas of North Wales, including three that directly border the GMW region.

A key part of the Connected North Wales theme is to “upgrade digital networks and infrastructure access the region to support the functionality, competitiveness and growth of the indigenous business sector with an emphasis on SMEs.”

The rural parts of the region have Digital Infrastructure challenges similar to Mid Wales. Some notable opportunities exist to work with North Wales, for example in considering a Fibrespeed extension, engaging with network providers together, and working with other public sector infrastructure users across the two regions.

- Other Collaborative Opportunities

Individual neighbouring areas have their own Digital Infrastructure projects, offering opportunities for joint working to increase scale and market attractiveness for interventions, and to share lessons learned.

Monmouthshire and Herefordshire both have joint venture engagements with Alternative Network (Altnet) broadband providers who have expressed an interest in extending networks in Mid Wales.

Opportunities to leverage public sector connectivity to drive wider benefits could be supported by close relationships with Dyfed Powys Police, Mid & West Fire and Rescue Service, and with Powys Teaching Health Board and Hywel Dda Health Board, as well as with other public and third sector bodies. These organisations need better infrastructure for their own service delivery, and working with them may make it possible to co-ordinate investment for wider benefit.

4.7.4. Commercial Investments

High speed broadband provision in the region has changed dramatically in the last two years. Although Openreach continues to dominate the broadband infrastructure market, Altnets are beginning to provide a credible alternative, in part due to the option to use Openreach infrastructure components through its Passive Infrastructure Access (PIA) products. Openreach itself continues to extend its full fibre delivery across the region.

Voneus has recently acquired smaller providers with a footprint in Mid Wales. Spectrum Internet has ambitious plans to extend its use of the WG Trunk Road Concession. Gigaclear has a proven experience of delivering rural broadband, and has a growing footprint in Herefordshire. Other providers have expressed an interest in addressing the challenges of Mid Wales connectivity, particularly if the right projects come to market.

Commercial rollout is expected to continue without intervention, but it will be focused first on areas of highest population density. However, GMW has the opportunity to drive better broadband in rural areas more quickly by structuring interventions that make the business case for investors more compelling, and by stimulating a competitive market in the region. The key will be to attract commercial investments to Mid Wales quicker than they would otherwise be made.

4.8. The Case for Change: Conclusion

There is a clear case for addressing Digital Infrastructure shortcomings in Mid Wales. Good Digital Infrastructure is essential for our economy, but provision falls considerably behind that in other places. Although work is already under way across Wales and more locally to address these problems, it may be too slow, and it may not be successful, and it does not address all aspects of the problem. Challenges posed by lack of available data and scheduling of national initiatives also make it difficult to identify the gaps which must be addressed.

Digital Infrastructure coverage and capacity already within our region falls short of today's requirements, and without action it will certainly also fall short of requirements in the next 3-5 years. Since Digital Infrastructure build has a long lead time, it is essential to intervene quickly.

A combination of supply and demand issues mean that the return on investment that suppliers can expect in Mid Wales may not be attractive. Higher costs per premise and low demand may mean that investment in our region is likely to be made only after other places with a more favourable business case, or that its rate of return falls below the markets minimum acceptable rate altogether.

The current state is unlikely to be resolved without interventions that address the problems driving the market investment case. The need to achieve a degree of scale to attract investment will be a feature of our plans and some interventions.

The lack of good Digital Infrastructure has been a persistent problem across Ceredigion and Powys. Mid Wales' superfast broadband availability still lags behind other parts of

the country, and there are strong indications that its ultrafast and 4G/5G availability will follow the same pattern.

Given these factors and without continued interventions, the status quo is likely to remain; our provision will be lacking and will be insufficient to meet the ambitions of our Vision and economic strategy.

4.9. Investment Objectives

This PBC and the GMW Portfolio Business Case that it supports intends to address the issues in digital connectivity provision across Mid Wales.

The primary driver for better digital connectivity is economic performance, measured most simply through an increase in Gross Value Added (GVA). Through better quality, more widespread and better value Digital Infrastructure provision, we will support education and skills development, enable more businesses to locate and grow, increase sustainable employment opportunities, and create a more regionally balanced and prosperous Mid Wales economy.

It is crucial that the investment made under the Digital Growth Priority banner is focused to drive this GVA increase. The Investment Objectives for the PBC are therefore:

- Increase the contribution of existing public/private investment in digital infrastructure by £100m to deliver a RoI of £180m by 2030 (attracting investment, delivering economic return)
- Achieve a target of 80% of outdoor 4g mobile data coverage by all operators by the end of 2026 (Coverage and acceleration)
- Achieve a target of 60% full fibre coverage by the end of 2026 (Coverage and acceleration)
- Achieve a target of 98% superfast coverage by the end of 2026 (Coverage and acceleration)

4.10. Benefits

Better Digital Infrastructure is widely considered to drive economic growth by enabling a range of outcomes for business and domestic users, such as lower costs, more employment opportunities, and more highly skilled jobs.

There are broadly three types of relevant benefits of digital connectivity provision:

- **Social Benefits**
Quality of life, social cohesion, health, environmental and other benefits that are not typically measured financially
- **Economic Benefits**
The benefits that contribute to GVA growth, as referenced by the Investment Objectives

- Public Sector Efficiency Benefits

The value to the public sector of faster and more reliable connectivity for its own buildings

However, Digital Infrastructure is not itself directly responsible for delivering the benefits associated with that use, as many other factors play a part. The difficulty in directly attributing socio-economic benefits to improved digital infrastructure provision is well recognised. Economic benefits are nonetheless reasonable to expect, and possible to infer.

Industry research ¹²suggests that for every £1 of spend on Digital Infrastructure there is an £8 economic return on investment.

This research has some value as a benchmark, but it should be used cautiously. It is a relatively rare example of a specific measurement of the economic benefit of Digital Infrastructure. Since the research was commissioned by one of the leading Digital Infrastructure providers, its objectivity could be questioned. Other local government and commercial initiatives will also target GVA growth so that it will be difficult to identify that part of any eventual growth that is driven by Digital Infrastructure.

However, the rule of thumb does provide a useful indicator and allow us to model an increase in GVA as the primary proxy measurement of the effectiveness of interventions. Bottom up estimates of productivity and job creation suggest that the rule of thumb is a reasonable estimate.

The Growth Deal's ability to target and measure the results of intervention on the availability of fixed and mobile Digital Infrastructure is much stronger. There are a range of directly relevant indicators which can signify a change in the environment and so too can act as a proxy for the enabled benefits that can reasonably be expected to result from that change. These indicators, in addition to an increase in GVA, will serve as measures of our success. The indicators are:

- An increase in the number of premises that have superfast connectivity
- An increase in the number of premises that have gigabit capable connectivity.
- An increase in in-building mobile access to multiple operators
- The availability of in-vehicle mobile access
- The user experience of roaming on rural networks

¹² *Deployment of FTTP in Rural Northern Ireland, A DotEcon Report for NI Networks, 2018*

- The availability of 4g on key transport corridors
- The availability of 5g on key transport corridors

4.11. Outcomes

The digital connectivity interventions undertaken by GMW will support the delivery of a broad range of economic outcomes. We expect accelerated provision to support:

- Growth in regional prosperity – through improved productivity, inward investment and the creation of new jobs.
- Creation of better-quality jobs for the local labour market – through targeted interventions in high value sectors to create new jobs.
- A more skilled workforce within the region: through supporting skills and training initiatives and targeted interventions in high value sectors to create opportunities.
- Improvements in standards of living across the region - inclusive growth that provides opportunities, reduces poverty, inequality and deprivation.

Beyond these primary economic outcomes, our investment could reasonably also be expected to enable:

- Improvements in individual wellbeing & community cohesion - by reducing social exclusion, improving sustainability, helping people to hold better control over their own lives, and enabling better connected individuals and communities.
- Reduced Health and Social Care costs - by supporting telemedicine and preventative care in the home and in the community, we hope to reduce the need for and impact on secondary health and social care provision together with associated costs
- Greater environmental benefit – through reducing the need to travel and so CO2 reductions and other benefits,

4.12. Strategic Case Summary

The Strategic Case demonstrates the critical role that digital infrastructure plays in supporting economic growth, regeneration, and in the wake of COVID-19, the fundamental recovery of our local businesses sector.

The fixed and mobile provision in much of our region falls short of what we need and expect, and even where premises across Mid Wales are adequately served now, this is unlikely to be the case in 3-5 years' time.

The issues we face are clear; our region with its rural topology and limited population has not to date presented a sufficiently compelling business case to attract supplier investment. Consumer behaviour can also play a significant part in limiting build. Digital infrastructure can be expensive to deploy in a geography such as ours, and without a

guaranteed consumer base, Suppliers are likely to seek regions with a better Return on investment.

This poor business case is highly likely to continue to deter Suppliers from investing in our region. Without intervention, digital infrastructure may come much later than we need it, or possibly not at all in some of those areas in most need.

There are many features of our region that present real opportunities on which to build. Our links to North and South Wales, and across the border into neighbouring English counties means we are well positioned to exploit collaborative opportunities. We can both drive digital infrastructure build that is not constrained by geographical location, and drive collaborative initiatives that exploit and use that digital infrastructure to bring about shared economic benefits and growth. Pooling our resources where and when it makes sense to do so will increase our collective scale and attractiveness and provide greater market leverage to bring digital infrastructure to Mid Wales. We will be attuned to these opportunities but will not be held back if objectives or actions are not aligned.

GMW has a keen understanding of the issues that hinder investment. We understand the local features that pose obstacles to provision, but by the same token we know our local economy and our business sector, and so understand where opportunities can be found and exploited to bring the prosperity we seek.

GMW has a clear role to play but we will take account of the role of other bodies in bringing digital infrastructure to Mid Wales; we will complement not duplicate the activities of others. The environment is likely to continue to change over the next few years and we will need to be flexible in responding to the needs of our local economy and to the changing plans of others who seek to also effect change.

The interventions we will set in place will be targeted at the many and varied obstacles that prevent investment. We will act to reduce costs and bridge funding gaps, increase demand, and make Mid Wales an attractive location for prioritised investment. In doing so we will help improve the commercial case for Digital Infrastructure in rural areas by making it more attractive and viable to suppliers.

We will also encourage and demonstrate greater levels of demand and potential uptake of the services that Digital Infrastructure supports. Greater and more targeted engagement with our business, and citizen community, drawing on behavioural science principles will help to raise awareness and positively influence consumer behaviour, and stimulate demand for services, and take up of vouchers.

Our plans will address the low levels of supplier competition by stimulating the market and breaking down traditional barriers to investment and local deployment; we will further open our doors to suppliers and create effective relationships that deliver quality Digital Infrastructure.

There are many local, regional and national assets across the region already at our disposal, which offer strong foundations upon which to build, both commercially and of course physically.

In the wake of the COVID-19 pandemic we have an even more compelling need to act and drive action. Once our aims to stabilise and recover are achieved, we have great ambitions to drive real economic change and benefits across the region.

