Tyfu Canolbarth Cymru
Growing Mid Wales

Digital Strategic Growth Priority:

Programme Business Case

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Document Control

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V0.1	Outline Document Structure for agreement	
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Sign Off

Version	Sign off Required By	Sign off Obtained	Date

Contents

1. Executive Summary

Context

- Our Vision for Growing Mid Wales sets out our ambitions and plans for the partnership – recovery and economic growth.

- Digital Infrastructure (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 sparsely populated – 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.

- GMW partners 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. Digital Infrastructure 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 - we are clear on what is possible and valuable, and this will help us shape our plans for investment and delivery. It is likely that the level of funding available will be less than the possible scope of project delivery, and so prioritisation will be key.

- There is a clear case for GM to operate a structured and well-resourced programme of active Digital connectivity intervention projects.

- If GMW does not act, the benefits of digital infrastructure 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 a more important driver of economic performance.

Solution

- The environment in which we are operating will continue to change - consumer behaviour, market, government plans, existing and planned initiatives will continue to evolve. The GMW Portfolio will need to be flexible to adapt to changes.

- Digital infrastructure interventions need to work together - no single intervention will address all issues, and we will always need a range of projects to work together to meet changing demands.

- We identified the broadest possible range of projects to address different aspects of the Digital Infrastructure issue and estimated their costs, benefits, and probability of success

- We grouped Projects into levels of intervention to assess what type of Projects will deliver the best return for Mid Wales and most closely meet the GMW objectives.

- The preferred option is to actively engage in digital infrastructure interventions, working closely with other bodies on a powerful Programme of Projects.

Delivery

- The digital infrastructure market is strong – although the Mid Wales region presents difficulties for DI, a Programme that closes gaps in market business cases will deliver results.

- Projects will be managed as a Programme, but each Project will have different requirements – each Project will be carefully considered to ensure that it can be delivered.

- The Programme of Projects can be flexed – the budget available is likely to be less than the cost of all possible Projects, and the actual cost of Projects may be different from the estimated value. The Programme will prioritise the best value Projects and manage them to fall within the budget.

- The Programme will be managed by a hybrid team of resources – a core team will be supplemented by additional Project team members as required, including external specialist support.

- The Programme will continue to assess the Projects that should be delivered – it is possible that the prioritisation of Projects could change as the digital infrastructure environment evolves.

- A multi-level governance model will ensure that the Programme is well managed – the core team will work closely with the Programme Board, which in turn will report to the Management Group.

Outcome

- The programme is expected to cost approximately £15m over the next 10 years, returning an estimated £120m in net benefits to the economy of the region.

2. Introduction

2.1. The Purpose of this Programme Business Case

This Programme Business Case (PRBC) sets out the considerations for the 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 PRBC 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.

2.2. Key Considerations and Features of the Programme Business Case

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 Programme Business Case 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 PRBC 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 PRBC 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, digital infrastructure 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 PRBC 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 of that and other factors has on the provision of fibre to our premises, and the provision of mobile connectivity across the geography.

The PRBC 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 PRBC 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 PRBC 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 PRBC 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. It selects a Preferred Option that provides a mode of intervention that best meets the range of challenges and opportunities faced in our region.

The PRBC describes 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.

2.3. 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 PRBC, 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 Wi-Fi, 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.

2.4. Source Data

The source data and statistics featured in this strategy reflect the environment at the time of writing. The Ofcom Connected Nations Report [1]provides 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 more frequent updates. Other supporting publications are referenced as appropriate throughout the PRBC.

[1] Ofcom Connected Nations Annual Report 2020

3. Strategic Case

3.1. The Importance of Digital Infrastructure

3.1.1. 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 Programme[2] 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 connectivity.

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.

3.1.2. 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 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 Hiller, 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.

3.1.3. 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 Law[3], 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 later. Regular reviews of the model and prediction have shown it to be remarkably accurate, as the logarithmic scale of the chart below shows.]

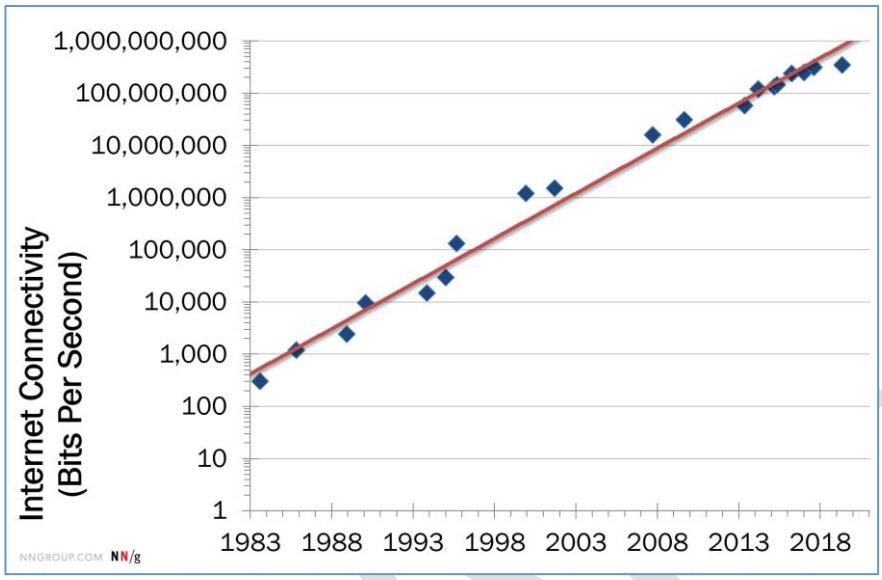


Fig 2: Nielsen's law of internet bandwidth Source: NNGroup.com

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

[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

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.

3.2. Our Region

Our GMW Vision[4] 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 PRBC will serve to highlight further and later address. The figure below illustrates some of our key regional indicators.

[4] Vision for Growing Mid Wales

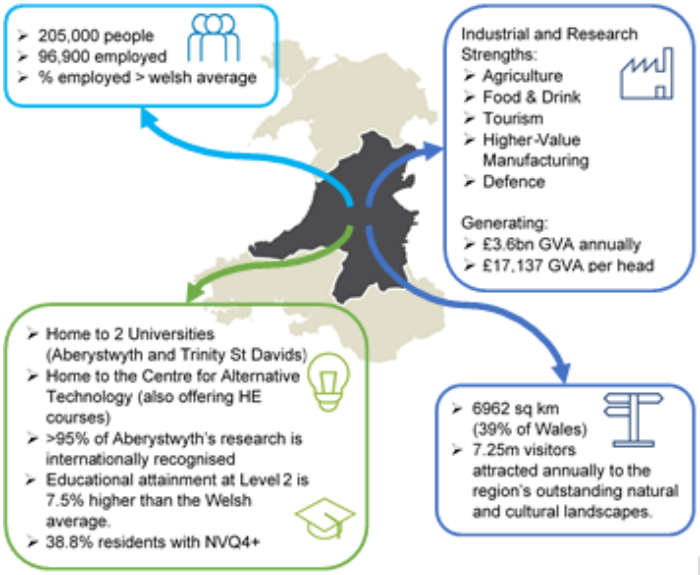


Fig 3: Mid Wales at a Glance

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.

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 digital infrastructure 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 Wales[5], 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 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

[5] Source: Vision for Growing Mid Wales

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

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

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.

As our Vision[7] 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 Digital 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.

3.3. Strategic Fit

3.3.1. 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. The figure 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: Mid Wales Growth Deal Stakeholder landscape

3.3.2. 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.

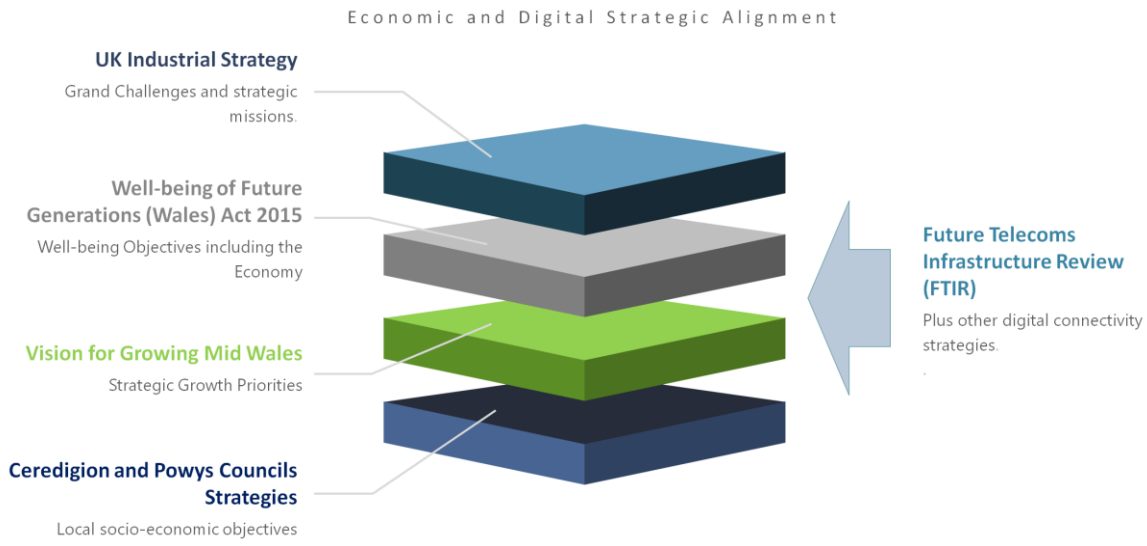


Fig 5: Strategic Alignment

3.3.3. 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".*

[8] Prosperity for All" the National Strategy; Taking Wales Forward

Recognising the role of digital in helping to establish greater unity and connection, the Welsh Government also formulated its Digital Action Plan[9]. 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)

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

[9] Wales Digital Action Plan 2017-2020

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

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.

3.3.4. 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.

3.4. 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.

3.5. The Case for Change: Current Infrastructure Arrangements

3.5.1. Broadband

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

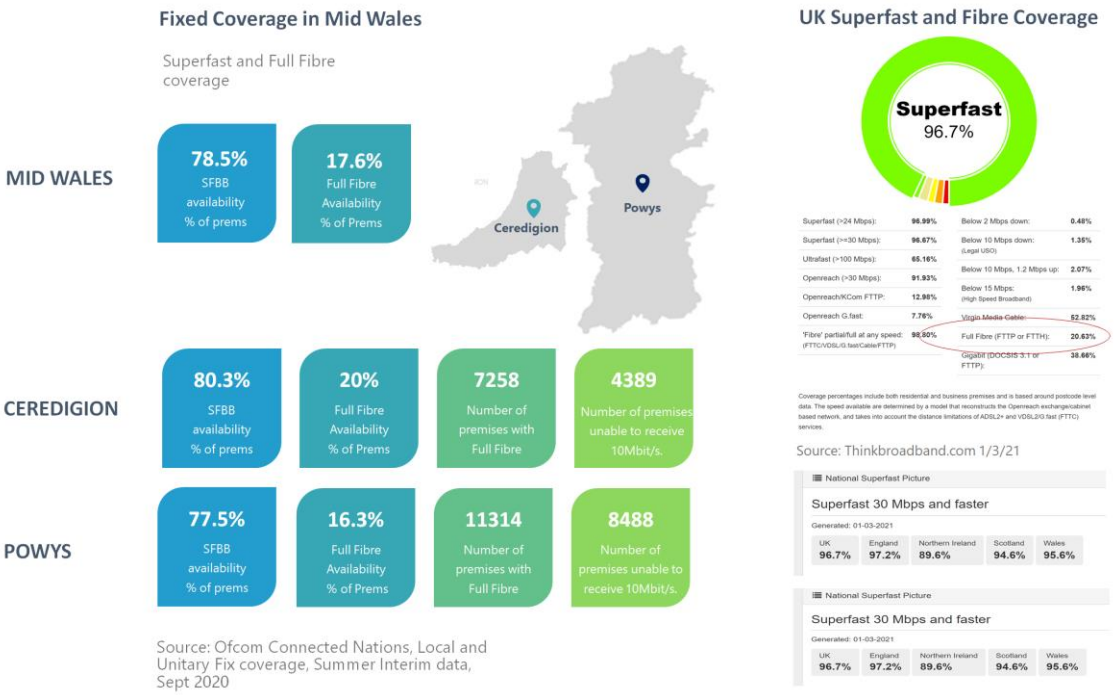


Fig 6: Regional and county based fixed connectivity statistics

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.

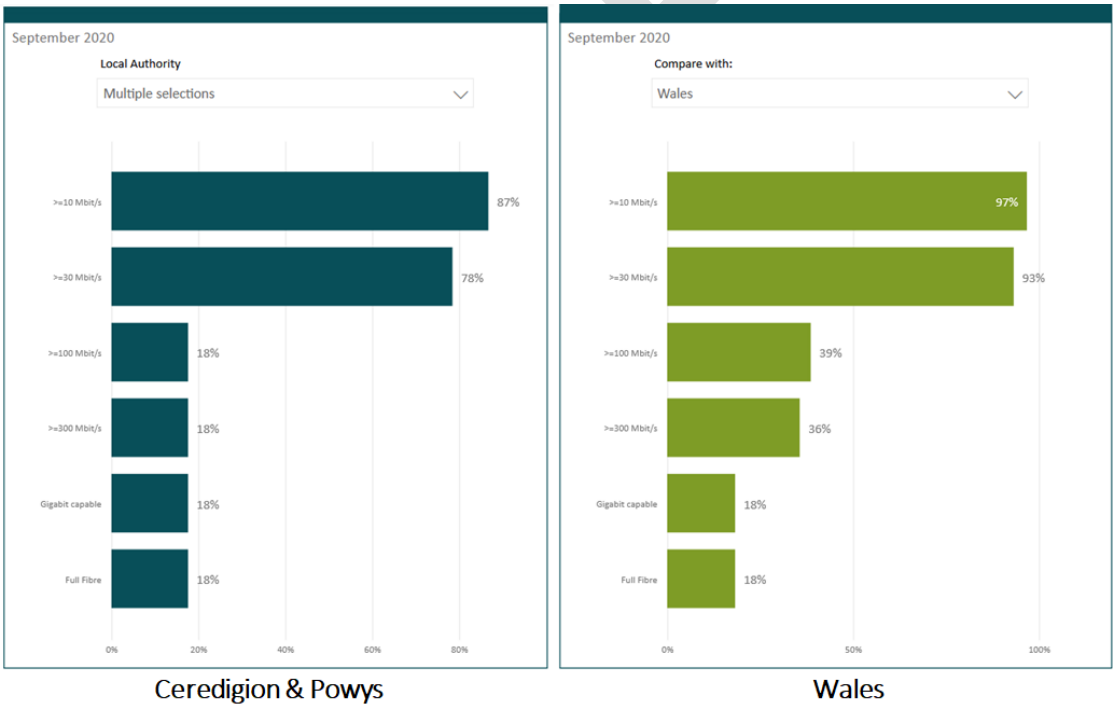


Fig 7: Combined fixed connectivity statistics

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

3.5.2. 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.

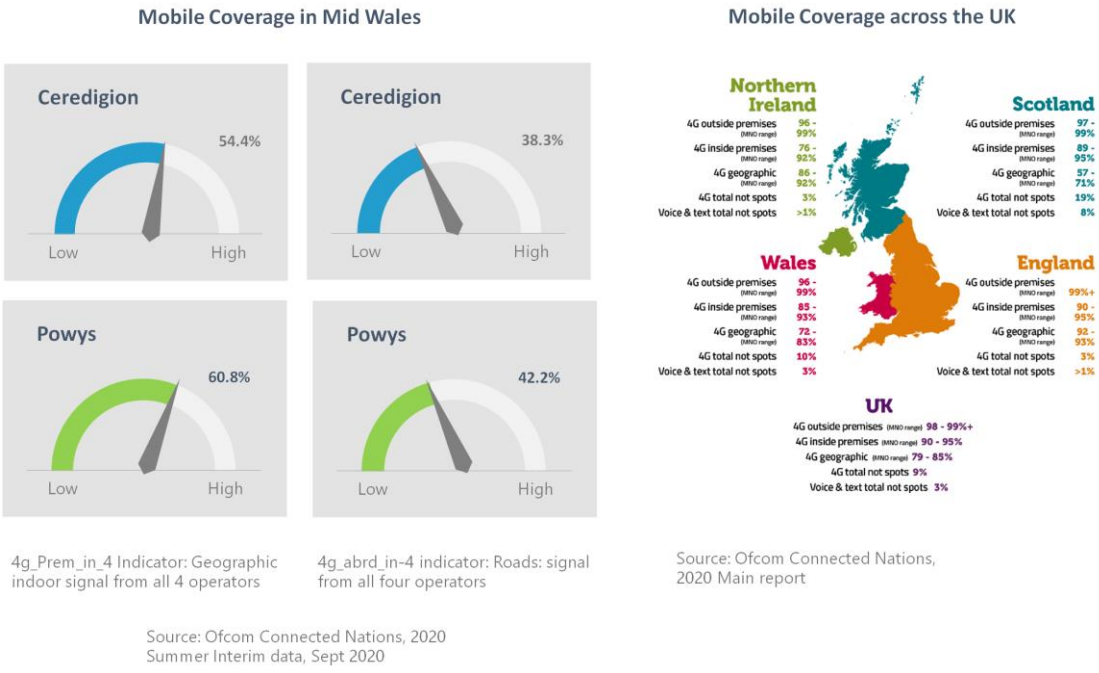


Fig 8: Council based mobile connectivity statistics

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 Wi-Fi.

- 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 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.

3.5.3. Wi-Fi

Wi-Fi 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 Wi-Fi 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 Wi-Fi 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.

3.5.4. 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.

3.5.5. 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.

3.5.6. 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.

3.5.7. 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.

3.5.8. 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.

3.5.9. 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, Wi-Fi, Mobile data and broadband.

3.5.10. 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 Wi-Fi. 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.

3.6. The Case for Change: Digital Infrastructure Barriers

3.6.1. 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 Wi-Fi and new entrants like Simwood. There is a latent competitive market place which could be stimulated to drive progress.

3.6.2. 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 kilometres 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.

3.6.3. 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.

3.6.4. 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 text 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.

3.7. 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.

3.7.1. 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.

3.7.2. 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 digital infrastructure 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 Powys[11]. 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

[11] https://gov.wales/written-statement-update-digital-connectivity-wales 20th July 2020.

opportunities to drive better infrastructure and further efficiency savings through the procurement.

- 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.

3.7.3. 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.

3.7.4. 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.

3.8. 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 it's 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.

3.9. Investment Objectives

The Portfolio Business case sets out the following Investment Objectives:

- To create between 1,100 and 1,400 net new jobs in Mid Wales through the Growth Deal by 2032
- To support a net additional GVA uplift of between £570 million and £700 million for the Mid Wales Economy through the Growth Deal by 2032
- To deliver a total investment of up to £400 million in the Mid Wales Economy through the Growth Deal by 2032.

This PRBC and the GMW Portfolio Business Case that it supports intends to address these objectives 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 PRBC 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)

3.10. 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 [12] suggests that "every £1 invested in digital infrastructure delivers £8 of benefit (presented over 15 years) through increased profit and increased employment.

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

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

3.11. 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,

3.12. 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 COVOD-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.

4. Economic Case

4.1. Approach

4.1.1. Overview

The Strategic Case describes a range of geographical, demand, supply and non-technological challenges that are hindering investment and build of digital infrastructure, and affecting business and consumer service adoption. It sets out a clear case for change.

The focus of this Economic Case is to determine what the GMW Growth deal itself could and should do in response to the case for change.

It is clear that action of some form should be taken. The fundamental question at this stage is to determine what the scale of the GMW Board's digital connectivity interventions should be.

The environment in which we are operating - consumer behaviour, market, government plans, and existing and planned initiatives will continue to evolve. It is therefore imperative that GMW can flex to respond to these changes.

Our intervention model needs to be highly adaptable, providing a means to manage our response without constraining our actions. The options we identify need to allow us to vary intervention approaches to meet conditions at any given time. The model needs to take account of the fact that no single intervention is likely to be effective. GMW will always need access to a range of tools to apply in different ways, and in different settings to meet changing demands and priorities.

An initial list of around 90 possible projects that the GMW Board could undertake has been identified, many of which will be necessary. These projects range from those focused primarily upon build activity, through policy and process driven initiatives, community engagement projects, and projects to develop the skills to build DI, or to enable end users to take-up digital connectivity services.

It is possible to treat these individual projects as options in themselves. Here, this long list would be tested against a set of Critical Success Factors (CSFs) to select a more manageable and realistic short list of projects and so options to consider.

However, given the range of different challenges that the Strategic Case describes, it is logical that the tools and projects required to address the causes of these issues will also vary.

The Economic Case therefore groups projects with similar characteristics into a broad Longlist of Options that represent progressively increasing levels of GMW intervention.

The Longlist draws on the principles set out in the Options Framework (OF), and represents the levels of intervention that are possible within each of the OF dimensions.

The approach undertaken comprised:

- A consideration of the broad range of high level intervention approaches that may meet the strategic objectives of the Digital Programme.
- A lower level consideration of the individual options at the level of each dimension of the Options Framework.
- A consideration of the option in terms of SWOT and how well they met the critical success factors
- Discounting some possibilities and carrying forward others, summarising them to identify a Preferred Way Forward (PWF).
- Confirmation of four options to take through to Shortlist covering a BaU, Do Minimum, a less ambitious PWF and the PFW.
- Assessment of the options against the Investment Objectives and Critical Success Factors
- Assessment of the NSPV; Benefit/Cost Ratio; and risks
- To identify the Preferred Option

4.1.2. Options Framework Dimensions

The Options framework sets out several dimensions to help identify different features of the Longlist, as follows.

Dimension	Description	Considerations
Scope	The 'what', in terms of the potential coverage of the programme. Potential scopes are driven by business needs, service requirements and the scale of organisational change required to improve service capabilities. Examples include coverage in terms of: business functions, levels of service, geography, population, user base and other parts of the business.	The identified Digital Infrastructure Options consider the level of participation GMW might expect to undertake.
Service Solution	The 'how' in terms of delivering the 'preferred' scope for the programme. Potential service solutions are driven	The identified Digital Infrastructure Options consider the types of activity we might

	by available technologies, recognised best practice, and what the marketplace can deliver. These solutions provide the potential 'outputs' and key activities for the programme, and as such the portfolio of enabling projects and activities required.	expect to undertake including secondary enabling activity, or direct build, process and skills development activity.
Service Delivery	The 'who' in terms of delivering the 'preferred' scope and service solution for the programme. Potential options for service delivery are driven by available resources, competencies and capabilities – both internal and external to the organisation. Examples include: in-house provision, outsourcing, alliances and strategic partners.	The identified digital Infrastructure options consider variations on who might undertake the work, for example, whether we leave activity to others or whether we do it ourselves.
Implementation	The 'when' in terms of delivering the 'preferred' scope, solution and service delivery arrangements for the programme. Potential implementation options are driven by deadlines, milestones, dependencies (between outputs), economies of scale, benefit realisation, and risk management. The optimal option provides the critical path for delivery of the agreed projects and activities and the basis for the programme plan. Options for implementation include: piloting, modular delivery, big bang and phasing (tranches).	The identified Digital Infrastructure options consider whether the approach we take to delivery for example, project by project, programme with immutable projects, flexible phased programme.
Funding	The 'funding' required for delivering the 'preferred' scope, solution, service delivery and implementation path for the programme. Potential funding options are driven by the availability and opportunity cost of public funding, Value for Money and the characteristics of the programme. Potential funding options include the public or private capital, the generation of alternative revenue streams, operating and financial leases, and mixed market arrangements.	The identified Options consider ways in which the activity may be funded, for example, from one source public funding, through to a mixed source public and private funding model.

Source: Options Framework, supplemented with GMW considerations

4.1.3. Critical Success Factors

The Programme's Critical Success Factors (CSFs) are based on the approach in the OGC Green Book. They provide a way to evaluate the effectiveness of an option against a set of different, but related dimensions. The CSFs reflect those used within the GMW Portfolio Business Case, which this PRBC supports.

"OUTCOMES":

- CSF1: STRATEGIC ALIGNMENT
  The option supports the delivery of the GMW Growth Deal strategic economic objectives

- CSF2: BUSINESS NEEDS
  The option delivers long term value for money in terms of costs, benefits, and risks – net benefit

- CFS3: OPTIMISES SOCIAL WELFARE
  The option delivers long term value for money in terms of costs, benefits, and risks – net benefit

"INPUTS":

- CSF4: ACHIEVABLE IN MARKET
  Suppliers are able to deliver the required services; appealing to the supply side

- CSF5: AFFORDABLE
  Cost of the option is affordable through available funding sources

- CSF6: ACHIEVABLE
  GMW and its constituent stakeholders have the capacity and capability to deliver the option

The options that best meet the CSFs will undergo detailed analysis. The CSF evaluation aims to eliminate options that are unfeasible, because they are impractical, or violate constraints such as affordability, or that are excessively risky. It aims to clearly identify those that do not deliver sufficient benefit.

4.2. Longlist Options

The Longlist options are:

OP1: Do nothing: monitor the status of digital infrastructure, relying on other public sector bodies and the market to plan and deliver infrastructure initiatives.

OP2: Enable: lobby and mobilise other public sector bodies and the market to plan and deliver infrastructure initiatives, working to increase the effectiveness of those initiatives for Mid Wales.

OP3: Individual Active Intervention: Work alone to actively plan and deliver infrastructure interventions and invest GMW funds in Digital Infrastructure. Focus activity only on those initiatives that GMW itself can directly control and deliver to the exclusion of any collaboration with other parties. Do not lobby and mobilise others, or monitor status.

OP4: Collaborative Active Intervention: Work with others to actively plan and deliver infrastructure interventions and invest GMW funds in Digital Infrastructure. Focus activity only on those initiatives that GMW itself can directly control and deliver with other parties.

OP5: Set up Telco Operator: become a Telecoms Operator to directly build and operate Digital Infrastructure services. Do not supplement build and operation activities with collaborative participation arm.

OP6: Supported Active Intervention: Work alone to actively plan and deliver infrastructure interventions and invest GMW funds in Digital Infrastructure. Focus activity only on those initiatives that GMW itself can directly control and deliver to the exclusion of any collaboration with other parties. Supplement with monitoring, lobbying and mobilising activity.

OP7: Supported Collaborative Active Intervention: monitor, lobby and mobilise, actively plan and deliver infrastructure interventions and invest GMW funds in Digital Infrastructure. Work closely with other bodies to drive results, for example leveraging government schemes, increasing scale through collaboration, creating joint ventures with commercial providers, building community partnerships etc.

OP8: Supported Active Intervention and Set UpTelco: monitor, lobby and mobilise, actively plan and deliver infrastructure interventions and invest GMW funds in Digital Infrastructure. Work closely with other bodies to drive results, for example leveraging government schemes, increasing scale through collaboration, creating joint ventures with commercial providers, building community partnerships etc. become a Telecoms Operator to directly build and operate Digital Infrastructure services.

4.3. Longlist Options Assessment

The Longlist Options were identified and assessed to identify a Preferred Way Forward and supplementary options to consider as part of the shortlist. A summary is shown below.

	OP1: Do Nothing	OP2: Do Minimum Enable	OP3: Intermediate Option: Active Participation	OP4: Intermediate Option Collaborative Active Intervention	OP5: Intermediate Option: Set up Telco	OP6: Intermediate Option: Supported Active Intervention	OP 7: Intermediate Option: Supported Collaborative Active intervention	OP8: Do Maximum: Supported Collaborative Active Intervention & Set Up Telco
1.Service scope As outlined in strategic case	1.1 Monitor **Carried Forward**	1.2 Lobby and Mobilise **Carried Forward**	1.3 Alone, plan and deliver intervention focusing only on our own controlled activities. No lobby, no monitor **Carried Forward**	1.4 Together plan and deliver only those activities we can control and deliver with other parties **Carried Forward**	1.5 Set up telco **Discounted**	1.6 Alone, plan and deliver intervention focusing only on our own controlled activities. Supplement with Lobby and Monitor **Carried Forward**	1.7 Together plan and deliver only those activities we can control and deliver with other parties by creating joint ventures with commercial providers, building community partnerships etc **Preferred Way Forward**	1.8 Together plan and deliver only those activities we can control and deliver with other parties by creating joint ventures with commercial provoders, building community partnerships etc, and becoming a Telco **Carried Forward**
2. Service Solution: In relation to the preferred scope		2.1 Enable (facilitate and process) **Carried Forward**	2.2 Build, Enable (facilitate and process), and skills alone **Carried Forward**	2.3 Build, enable (facilitate and process), and skills together **Carried forward**	2.4 Design, Build, enable (facilitate and process) and skills alone **Discounted**	2.5 Build, enable (facilitate and process) and skills alone **Carried Forward**	2.6 Build, enable (facilitate and process) and skills together **Preferred Way Forward**	2.7 Design, Build, enable (facilitate and process) and skills together **Carried forward**
3. Service Delivery: In relation to preferred scope and solution	3.1 Leave to others **Carried Forward**	3.2 Support others **Carried Forward**	3.3 Do all alone (excluding lobbying and mobilising, and leave Telco to MNOs) **Carried Forward**	3.4 Do all of it with others (excluding lobbying and mobilising, and leave telco to MNOs) **Carried forward**	3.5 new organisation set up: Do all of it ourselves (including Telco) **Discounted**	3.6 Do all of it with alone (including lobbying and mobilising, and leave telco to MNOs) **Carried forward**	3.7 Do all of it with others (including lobbying and mobilising), but leave telco to MNOs **Preferred Way Forward**	3.8 New organisation set up: Do all of it with others (including lobbying and mobilising, and telco activity Carried forward
4.Implementation: **I**n relation to preferred scope, solution and method of service delivery		4.1 Project Based approach - project by Project **Carried Forward**		4.2 Programme Approach - immutable projects **Discounted**	4.3 Long Term Organisational portfolio delivery **Carried Forward**	4.4 Programme approach - flexible project allocation Over 5 - 10 years **Preferred Way Forward**		4.3 Long Term Organisational portfolio delivery **Carried Forward**
5.Funding: In relation to preferred scope, solution, method of service delivery and implementation		5.1 One Source Public Funding (GD funds) **Carried Forward**	5.2 Multiple Source Public Funding Public (GD, DCMS, WG fibre) **Carried Forward**	5.3 Mixed Source Public and Private funding **Preferred Way Forward**	5.4 Self funded **Discounted**	5.3 Mixed Source Public and Private funding **Preferred Way Forward**		5.5 Self funded **Discounted**

4.4. Short List Methodology and Options

From the Long list assessment, a Shortlist of four options were taken forward for detailed assessment and renumbered.

A summary is shown below:

	OP1 Do Nothing / Business As Usual	OP2: Do Minimum (Enable)	OP3: Intermediate Option - less ambitious PWF (Supported Active Intervention)	OP4: Preferred Way Forward (Supported Collaborative Active Intervention)
1.Service scope As outlined in strategic case	1.1 Monitor **Carried Forward**	1.2 Lobby and Mobilise **Carried Forward**	1.4 Together plan and deliver only those activities we can control and deliver with other parties **Carried Forward**	1.7 Together plan and deliver only those activities we can control and deliver with other parties by creating joint ventures with commercial providers, building community partnerships etc. **Preferred Way Forward**
2. Service Solution: In relation to the preferred scope	N/A	2.1 Enable (facilitate and process) **Carried Forward**	2.3 Build, enable (facilitate and process), and skills together **Carried forward**	2.6 Build, enable (facilitate and process) and skills together **Preferred Way Forward**
3. Service Delivery: In relation to preferred scope and solution	3.1 Leave to others **Carried Forward**	3.2 Support others **Carried Forward**	3.4 Do all of it with others (excluding lobbying and mobilising, and leave telco to MNOs) **Carried forward**	3.7 Do all of it with others (including lobbying and mobilising), but leave telco to MNOs. **Preferred Way Forward**
4.Implementation: In relation to preferred scope, solution and method of service delivery	N/A	4.1 Project Based approach - project by Project **Carried Forward**	4.1 Project Based approach - project by Project **Carried Forward**	4.4 Programme approach - flexible project allocation Over 5 - 10 years **Preferred Way Forward**
5.Funding: In relation to preferred scope, solution, method of service delivery and implementation	N/A	5.1 One Source Public Funding (GD funds) **Carried Forward**	5.2 Multiple Source Public Funding Public (GD, DCMS, WG fibre) **Carried Forward**	5.3 Mixed Source Public and Private funding **Preferred Way Forward**

4.4.1. Shortlist Evaluation Model

The Shortlist is considered in terms of:

- The extent to which they meet the Investment Objectives and CSFs
- The Net Social Present Value
- Benefit to Cost ratio
- Risks

4.5. Investment Objectives and CSFs Assessment

Each of the Shortlisted options were considered in terms of how well they meet the Investment Objectives set out in the Strategic Case and the Critical Success Factors identified earlier in the Economic Case.

A summary of the assessment is shown in Table 1 below.

Table 1: IO and CSF assessment

	SHORTLIST OPTIONS			
Investment Objectives	**OP1 Do Nothing / Business As Usual**	**OP2: Do Minimum (Enable)**	**OP3: Intermediate Option - less ambitious PWF (Supported Active Intervention)**	**OP4: Preferred Way Forward (Supported Collaborative Active Intervention)**
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)	Passive monitoring does will not attract the additional investment rquired nor aaccelerate the provision of DI to the region needed to enable a significant increase in RoI by 2030.	Enabling others to atrract additional investment rquired and aaccelerate the provision of DI to the region may have some marginally better efects the passive monitoring, but it will still fall far short of the impact required to enable a significant increase in RoI by 2030.	Actively intervening to set up build, enable and skills projects will bring forward the investment and DI coverage required to deliver a significant target RoI of 180m	Actively intervening with others to set up build, enable and skills projects will bring forward the investment and DI coverage to deliver a target RoI of £180m by 2030.
Achieve a target of 80% of outdoor 4g mobile data coverage by all operators by the end of 2026 (Coverage and acceleration)	Passive monitoring does will not attract the additional investment rquired nor aaccelerate the provision of DI to the region needed to increase and accelerate mobile data coverage by 2026	Enabling others to atrract additional investment rquired and aaccelerate the provision of DI to the region may have some marginally better efects the passive monitoring, but it will still fall far short of the impact required to increase and accelerate mobile data coverage by 2026	Actively intervening to set up build, enable and skills projects will have a better impact on bringing forward the investment and DI coverage required to better efects than Enabling and passive monitoring, but it may still fall short of the impact required to increase and accelerate mobile data coverage by 2026 **Possibly Green?**	Actively intervening with others to set up build, enable and skills projects is highly likely to bring forward the investment and DI coverage required to increase and accelerate mobile data coverage by 2026
Achieve a target of 60% full fibre coverage by the end of 2026 (Coverage and acceleration)	Passive monitoring does will not attract the additional investment rquired nor aaccelerate the provision of DI to the region needed to increase and accelerate full fibre coverage by 2026	Enabling others to atrract additional investment rquired and aaccelerate the provision of DI to the region may have some marginally better effects than passive monitoring, but it will still fall far short of the impact required to increase and accelerate full fibre coverage by 2026	Actively intervening to set up build, enable and skills projects will have a better impact on bringing forward the investment and DI coverage required to better effect than enabling and passive monitoring, but it may short of the impact required to increase and accelerate full fibre coverage by 2026 **POSSIBLY Green?**	Actively intervening with others to set up build, enable and skills projects is highly likely to bring forward the investment and DI coverage required to increase and accelerate full fibre coverage by 2026
Achieve a target of 98% superfast coverage by the end of 2026 (Coverage and acceleration)	Passive monitoring does will not attract the additional investment rquired nor aaccelerate the provision of DI to the region needed to increase and accelerate Superfast coverage by 2026	Enabling others to atrract additional investment rquired and aaccelerate the provision of DI to the region may have some marginally better efects the passive monitoring, but it will still fall far short of the impact required toachieve the target Superfast coverage by 2026	Enabling others to atrract additional investment rquired and accelerate the provision of DI to the region will have a better impact on achieving the target Superfast coverage by 2026	Actively intervening with others to set up build, enable and skills projects is highly likely to bring forward the investment and DI coverage required to achieve the target Superfast coverage by 2026
CSF1- Strategic Fit	Passive monitoring does will not accelerate the provision of DI to the region, and the status quo will remain for a long time. It does not support the outcomes described in the WBFGA and supporting strategies.	Lobbying and mobilisation activities are aligned with the strategic and policy drivers and will have some effect but we are largely reliant on others and it is likely to take a long time.	Actively intervening to set up build, enable and skills projects will bring forward the investment and DI coverage required to support to support the principles and objectives outlined in key strategies. The	Actively intervening with others to set up build, enable and skills projects will bring forward the investment and DO coverage required to support to support the principles and objectives outlined in key
CSF 2: Business Needs	Passive monitoring and reliance on others may, over time, bring some DI investment to the region but it is almost certain to be in the long terms and much later than needed to overcome regional needs.	Lobbying and mobilisation activities will have some effect in attracting investment in DI and supporting other programmes to overcome regional challenges, but the effect will be limited and is not likely to accelerate provision to the pace required.	Actively intervening to set up build, enable and skills projects will accelerate DI investment which in turn will provide the foundations for initiatives to address the regional challenges.	Actively intervening with others to set up build, enable and skills projects will accelerate DI investment which in turn will provide the foundations for initiatives to address the regional challenges.
CSF3: Optimises Social Welfare	Passive monitoring will not actively attract investment into DI. Without adequate DI the region will not attract or develop industries to the level required, nor unlock the investment to drive employment, and reduce outward migration. Although the cost is zero, there will also be a very low benefit.	Lobbying and mobilisation activities will have some effect in attracting investment in DI which in turn will provide the foundations for business to support the optimisation of but it will be limited and not at the pace required. Although the cost will be low so too will be the benefit.	Actively intervening to set up build, enable and skills projects will significantly accelerate DI investment to address strategic objectives and provide a better RoI. The cost will increase but the benefits will also increase significantly.	Actively intervening with others to set up build, enable and skills projects will significantly accelerate DI investment to address strategic objectives and provide a better RoI. The cost will increase but the benefits will also increase significantly.
CSF 4: Potential Supply-side Capacity and Capability	The option does not require additional supplier capacity, but also does no attract and encourage greater supplier capacity in the market.	The increase in supplier capacity needed as a result of this activity is likely to be easily accommodated.	The increase in supplier capacity needed as a result of this activity is likely to be accommodated. The Option also includes projects that will focus on skills development and partnerships to support DI provision.	The increase in supplier capacity needed as a result of this activity may pose some challenges regionally. The Option also includes projects that will focus on skills development and partnerships to support DI provision.
CSF5: Potential Affordability	The option requires no funding and so is affordable.	The option is likely to require a low level of additional funding and so is affordable.	The option is likely to offer a compelling strategic and economic case and so is likely to attract sufficient public and match funding to support a suitably substantial delivery programme.	The option is likely to offer a compelling strategic and economic case and so is likely to attract sufficient public and match funding to support a suitably substantial delivery programme.
CSF6: Potential Achievability	The options requires no additional governance or resource and so is achievable.	The option Requires little additional governance and resources and so is achievable	The governance and resource required to support the option will be factored into the business case and should be accommodated. GMW is already well governed to support the DI programme that the option will lead to.	The governance and resource required to support the option will be factored into the business case and and should be accommodated GMW is already well governed to support the DI programme that the option will lead to. There may be some additional governance challenges beyond that for the alone option, but the requirements should be manageable.

4.6. NPSV Assessment

The Net Present Social Value for the options is calculated based on the outline project list for each option.

For each project, four key parameters are estimated, as follows. The values are discounted using the Social Time Preference Rate to set all options on the same present value basis.

4.6.1. Delivery Costs

The delivery costs are the estimated costs of project management, specialist resources such as procurement, legal and technical, and in kind resources of public sector bodies.

4.6.2. Investment

The investment value is the estimated GMW and funding from other public sector sources, along with the investment leveraged from private sector sources.

4.6.3. Benefits

Two types of financial benefits are estimated for each project in the options.

Public sector efficiency savings are the savings to the public sector from reduced costs, typically through efficiency savings. For example, better digital connectivity reduces the cost of public sector service delivery.

GVA improvement is the economic impact of better digital infrastructure, through job creation, higher value jobs, citizen cost savings and so on. The GVA improvement is generally based on a high-level estimate, since for almost all projects, the specific GVA factors are too difficult to reliably estimate.

4.6.4. Probabilities and Optimism Bias

For each project, an estimate of the probability that the project will be successful, and an estimate of the likelihood that the project will be delivered are made. These two probabilities adjust the expected net benefit to recognise that not all projects will ultimately be commissioned, and that those that are commissioned may not deliver all the outcomes expected from them.

4.6.5. Risk Monetisation

For each option, the risks are monetised and treated as a cost by estimating the cost of mitigation multiplied by the likelihood of occurrence.

The risks considered for each option are:

- Public funds spent unnecessarily
- Outcomes not achieved for spend incurred
- Projects undermine interventions by other public bodies, or vice versa

- Investment too small to drive outcomes

The expected mitigation costs are shown in the table below.

Option	Risk	Mitigation	Probability	Mitigation Cost	Expected Mitigation
Option 1	Public funds spent unnecessarily	Staff effort to scrutinise projects	2%	£ 50,000	£ 1,000
	Outcomes not achieved for spend incurred	Addition staff effort to manage outcomes	2%	£ 50,000	£ 1,000
	Projects undermine interventions by other public bodies, or vice versa	Additional staff effort to ensure joined up delivery	20%	£ 250,000	£ 50,000
	Investment too small to drive outcomes	Increased investment	25%	£ 2,000,000	£ 500,000
					£ -
	Total				**£ 552,000**
Option 2	Public funds spent unnecessarily	Staff effort to scrutinise projects	5%	£ 150,000	£ 7,500
	Outcomes not achieved for spend incurred	Addition staff effort to manage outcomes	15%	£ 250,000	£ 37,500
	Projects undermine interventions by other public bodies, or vice versa	Additional staff effort to ensure joined up delivery	15%	£ 250,000	£ 37,500
	Investment too small to drive outcomes	Increased investment	20%	£ 3,000,000	£ 600,000
					£ -
	Total				**£ 682,500**
Option 3	Public funds spent unnecessarily	Staff effort to scrutinise projects	10%	£ 500,000	£ 50,000
	Outcomes not achieved for spend incurred	Addition staff effort to manage outcomes	3%	£ 500,000	£ 15,000
	Projects undermine interventions by other public bodies, or vice versa	Additional staff effort to ensure joined up delivery	10%	£ 250,000	£ 25,000
	Investment too small to drive outcomes	Increased investment	5%	£ 5,000,000	£ 250,000
					£ -
	Total				**£ 340,000**
Option 4	Public funds spent unnecessarily	Staff effort to scrutinise projects	10%	£ 350,000	£ 35,000
	Outcomes not achieved for spend incurred	Addition staff effort to manage outcomes	2%	£ 500,000	£ 10,000
	Projects undermine interventions by other public bodies, or vice versa	Additional staff effort to ensure joined up delivery	2%	£ 100,000	£ 2,000
	Investment too small to drive outcomes	Increased investment	3%	£ 5,000,000	£ 150,000
					£ -
	Total				**£ 197,000**

Table 2: Risk Monetisation

4.6.6. Total Net Present Social Value

The NPSV for the shortlisted options is shown in the table below.

	Total Costs	NPSV
Option 1 Do Nothing	£ 1,400,000	£ 14,190,361
Option 2 Do Minimum	£ 1,400,000	£ 14,190,361
Option 3 Intermediate Option Supported Active Intervention	£ 30,151,719	£ 107,151,974
Option 4 Preferred Way Forward Supported Collaborative Active Intervention	£ 38,035,375	£ 144,807,788

Table 3: NPSV

4.6.7. Cumulative Net Present Social Value

The cumulative NPSV against the cumulative cost is shown in the chart below. The chart illustrates the assumptions that costs are largely incurred at the start of the Programme, that benefits accrue slowly at first and then more rapidly, and that benefits ultimately cease as the general provision of Digital Infrastructure improves.

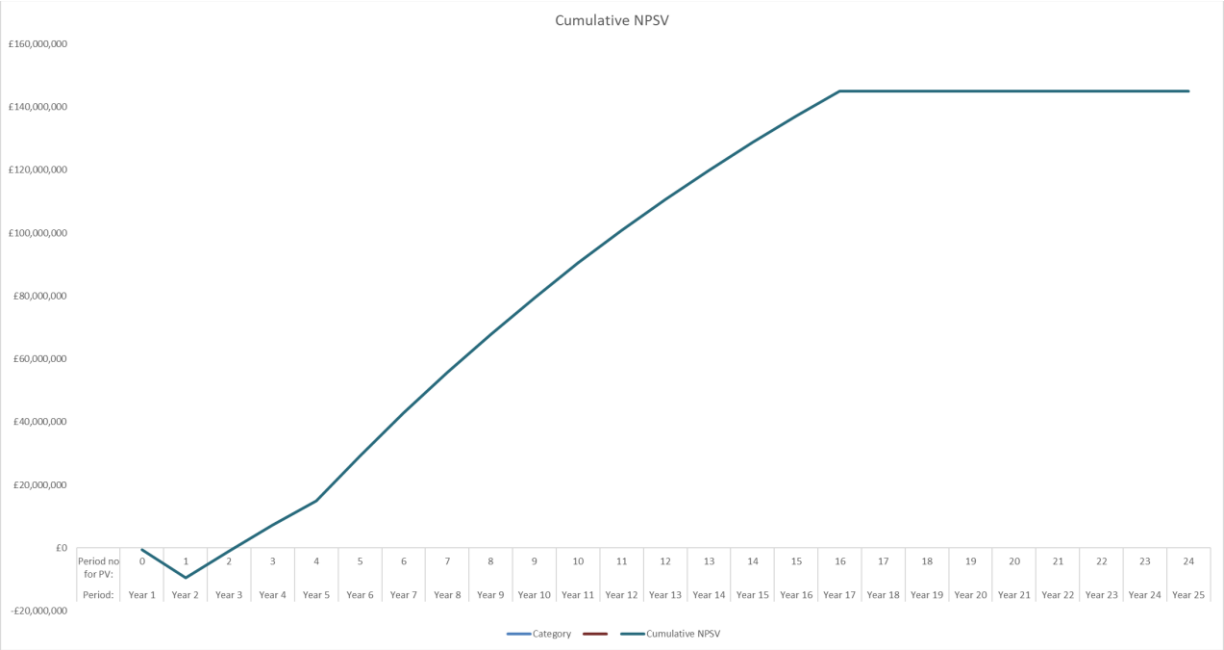


Fig 9: Risk Scoring Matrix

4.6.8. Benefit Cost Ratio

The Benefit Cost Ratios for the Options are shown in the table below.

	Total Costs	Total Benefits	BCR
Option 1 Do Nothing	£ 1,400,000	-£ 177,556	-0.1
Option 2 Do Minimum	£ 1,400,000	£ 14,893,222	10.6
Option 3 Intermediate Option Supported Active Intervention	£ 30,151,719	£ 111,074,077	3.7
Option 4 Preferred Way Forward Supported Collaborative Active Intervention	£ 38,035,375	£ 150,265,686	4.0

Table 4: Benefit Cost Ratio

Option 2 Do Minimum has a very high benefit/cost ratio because it leverages a high value investment from other bodies for a low cost. However, its total benefit is limited.

4.7. Preferred Option

The Preferred Way Forward, Option 4 Active Collaborative Engagement, is the preferred option. It represents the best balance of NPSV, BCR and level of risk.

The primary driver for the programme is net economic benefit. Option 4 excels in this regard, although its BCR is lower than the outlier Option 2.

4.8. Sensitivity Analysis

Since the preferred option drives a much higher level of infrastructure investment than the other options, and since the GVA benefit is directly related to the level of investment, the preference is extremely robust.

For the Do Minimum to be preferred, the level of benefit for the preferred option would need to be only around 8% of what is currently assumed.

4.9. Projects Summary

4.9.1. Types of Projects

The projects identified to date will all drive Digital Infrastructure delivery across Mid Wales. Some projects are included in more than one option, because the options are not mutually exclusive. The projects fall into three broad areas of activity, as follows.

Build
Projects that directly build new infrastructure, including ducts digging, fibre laying, mast construction or re-purposing, and other asset creation or re-use. For build projects, GMW will typically pay a supplier to build the infrastructure, though in some instances, we may build it ourselves. Examples of such projects include hub site connectivity, fibre access network (tails), backhaul connectivity, 5G infrastructure, datacentres, and internet exchange.

Asset reuse is a feature of the build category of projects. These initiatives focus on using council assets like ducts, street furniture, building facades, lighting poles, and roof space, making them available to providers for use in Digital Infrastructure delivery.

There is also a strong commercial element to build projects. When scoping, procuring, and delivering it is important to consider a range of factors for example, the use of different procurement routes to maximise competition, the range of services and best value; IRU and service models for long term use, management and maintenance of the infrastructure asset, and potential shared funding models with other public sector partners.

Enable: Process, Policies and Engagement
These projects focus upon putting in place the mechanisms that are needed to help accelerate Digital Infrastructure build, for example, easing supply side issues by

removing or minimising typical deployment barriers; and addressing demand side issues by actively raising citizen awareness of services and encouraging changes in consumer behaviour, to stimulate demand, for example by encouraging and helping citizens or businesses to apply for grants or voucher schemes.

Skills

Skills projects are needed to ensure that Mid Wales has access to the specific knowledge and expertise needed to grow our Digital Infrastructure footprint. This may include working with commercial or educational bodies to develop the Civils and engineering know-how needed to deploy the Digital Infrastructure, together with development of softer community engagement skills. Note, the development of user digital skills does not sit within the scope of this project type.

The three project types are not mutually exclusive and simply reflect the project's primary focus. Every project is therefore likely to have a combination of Build, Enablement and Skills elements.

The Projects are listed in an accompanying spreadsheet Annex A. Each project has an outline description, and an associated estimate based on a range of key parameters. The outline costs of projects are provided at this stage to achieve an aggregated estimate for the broad range of projects we could seek to undertake. It is not a commitment to spend on all projects.

Detailed development of the costs, and benefits will be undertaken as part of Phase 2 activity which will complete the latter part of the Economic case, and the remaining Commercial, Financial and Management Cases.

The Projects have also been mapped to form a GMW Transformation Map (Tmap), which represents the range of possibilities across the three broad areas. The potential range of interventions is likely to far exceed the investment available, and so many projects are unlikely to make it to the final roadmap. However, identifying what could be done, will allow GMW to decide what should be done.

The Tmap is provided in Appendix C. It provides a useful communication tool for Stakeholders to engage with and understand the broad intentions and ambition of GMW, but critically provides the foundations for a detailed roadmap, and planning tool for later development by the GMW team.

4.9.2. Projects considered:

The Economic Case uses a list of approximately 90 potential projects as a means of assessing the costs and benefits of the shortlisted options. The projects have not themselves been selected at this stage. The Programme Board will in due course prioritise the projects to take forward, according to the available budget and other factors.

The Digital Infrastructure problem in Mid Wales is complex and dynamic. It is very likely that a range of projects will be required to address it effectively, and a Programme of projects is therefore the appropriate response.

The illustrative detail of the projects can be found in the “Projects Report v3” document, along with the parameters for each project that were used in the short list selection process.

Throughout the life of the Programme, the environment will change; some projects may become less effective, and new opportunities may develop. New projects identified by the Programme may be added and evaluated in the same way, so that the preferred way forward can be confirmed even if the Projects list later changes. Similarly, project parameters may be changed so that the prioritisation of the projects selected for delivery will ultimately be determined based on the most up to date view at the time.

4.10. Economic Case Summary

The Economic case is based on a representative programme of outline projects grouped into a longlist of options that represent different levels of intervention in the region’s digital infrastructure.

The longlist options were assessed against the criteria of the Programme to identify the closest matching shortlist.

The shortlist options were assessed against the Programme’s Investment Objectives and CSFs, and in respect of their Risk, Net Present Social Value and Cost/Benefit Ratio to identify the preferred option.

The Preferred Way Forward, Option 4 Active Collaborative Engagement, is the preferred option. It represents the best balance of NPSV, BCR and level of risk.

The option greatly outperforms the other options, including when optimism bias and sensitivity are considered. The Economic Case outcome is highly robust.

5. Commercial Case

5.1. Overview

The Commercial Case considers how the Programme's projects will be procured, taking account of the market and of the procurement models that will be appropriate to the services.

The procurement route for each project will be defined on a case-by-case basis, defined in each project's Procurement Plan. The procurement approach will be defined at a Programme level.

5.2. Procurement Plans

Each project Procurement Plan will consider the constraints imposed by the Councils' own procurement policies, co-ordinated by Powys County Council's Procurement team. Procurements are generally likely to be bound by the Public Contracts Regulations in respect of the expected contract value. The Procurement Plans will consider the type of contract that is required, and the level of collaboration with other public sector bodies. They will consider the most appropriate mechanism to address the requirements in the market, balancing the cost of procurement and the level of competition to deliver the best value results.

A number of frameworks exist for Digital Infrastructure services, including Crown Commercial Services framework RM6095 which is designed specifically for hub site connectivity. In most cases a further competition is anyway required, and so other procurement routes are generally similar in terms of procurement effort and duration, and of outcome. The procurement plans will take account of the suppliers available through each route.

The market is strong for most elements that are likely to be procured. Both Civils construction and IT services are highly competitive markets that will provide good competition through a variety of routes to market. More specialist Digital Infrastructure elements are well served, but not necessarily in Mid Wales, so that procurements for these will need to be more carefully considered to ensure strong competition.

Although the creation of joint venture partnerships are not themselves subject to the public contracts regulations, they share many of the same considerations and will require a similar approach to market engagement and assessment. The services of joint ventures may also be subject to procurement activities, depending on their value.

Planned market engagement will be an important feature of the programme. Particularly in respect of fixed connectivity, a near monopoly exists at the provider level, and so a substantial effort will be required to attract and retain other providers to create a competitive environment to drive value. Early, clear, and consistent engagement with

potential providers, and a clear programme of work will help to illustrate the opportunity for bidders to support their planning and active engagement.

5.3. Collaborative Procurement

Although the size of procurements for the GMW region is likely to be sufficient to attract market interest in most cases, it is possible that some Projects will benefit from increased scale.

In addition, other authorities will be addressing similar problems with similar projects, and there is therefore also scope for cost saving through collaborative procurement.

For this reason, each Procurement Plan will specifically consider the options for collaborative procurement.

5.4. Outcome Based Specifications

The technical solutions to meet Digital Infrastructure requirements will generally be the same, so that procurements will often include specific standards. However, the commercial proposals from suppliers may vary considerably, depending on their individual investment models. Specifications will therefore aim to be as non-prescriptive as possible, so that while the end point may be fixed, the mechanism for delivery will allow for different approaches.

5.5. Market Conditions

5.5.1. Fixed broadband provision

The fixed broadband market in the region remains dominated by Openreach Infrastructure, but there is evidence that alternative network providers (AltNets) are becoming more active.

Among others, Voneus has recently acquired further capacity including in Ceredigion. Beacons Telecom now connects around 700 premises, including many in Powys. Broadway Partners, has announced a £145m investment from Downing LLP. Ogi and Gigaclear are highly active in adjacent counties.

There is good reason to believe that these providers, and others who are already active in the GMW region, or have expressed an interest in doing so, would participate actively in fixed broadband intervention projects. Many of them are already engaged in co-funding projects of various types.

5.5.2. Mobile Telephony provision

Mobile Telephony provision remains a major problem in the GMW region, due to the high cost and low return of providing pervasive coverage in sparsely populated areas. The Government's Single Fibre Network programme aims to reduce operator costs by driving mast sharing, and the Emergency Services Network programme aims to reduce mobile not spots to support the replacement of the Airwave system with 4G.

The level of cost associated with direct interventions is very substantial, so that it is unlikely that Projects will directly engage mobile operators for network extension. It is more likely that projects will drive enablement and demand stimulation, so that procurements will address a much wider range of suppliers.

5.5.3. LPWAN provision

The Councils have previously worked with Welsh Government to drive near complete coverage of the LORAWAN low power Wide Area Network solution.

Although some further extension to this network may be required, most projects will be targeted at a broad range of suppliers of different kinds. The number of suppliers engaged in the LPWAN technology space is very large, and no market limitations are expected.

5.6. Subsidy Control

In practical terms, GMW's interventions will generally be "No Aid". Projects that involve subsidy are likely to have higher cost and risk, and to take longer. Reliable No Aid approaches for Digital Infrastructure have been widely tested, and the preference will be to use such approaches, except where a usable Subsidy route already exists.

It is assumed that the new subsidy regulations working through parliament will remain broadly the same as they were under the EU.

That means that interventions will be typically:

- Deployed under the terms of an existing State Aid scheme approved by the EU DCMS successfully obtained EU approval for the current wave of Superfast projects, and is in the process of seeking approval for the Outside In programme

- For Public Sector purposes
  Some intervention projects fall into the category of GMW procuring services for the benefit of the public sector itself. Although there are benefits to the wider community, these are unavoidable side effects, and the project is justified on the basis of the public sector savings and benefits.

- De Minimis
  Individual recipients such as businesses or homeowners receiving aid of less than 200k Euros over three years are not considered to be in receipt of State Aid. Under the proposed new regulations, the de minimis threshold is likely to be higher. Vouchers are a good example of this category.

5.7. Commercial Risks

The Programme will manage key commercial risks:

- Opportunities may be too small for some bidders
  A series of small procurements may favour the incumbent and result in low levels of competition.

- Opportunities may be too large for some bidders
  Very large procurements could be difficult to resource for AltNets with limited capacity.

- Some procurements will have dependencies
  The sequence of procurements and their relationships with each other and with other projects will be considered carefully

- It may be necessary to create a market
  Where market competition is weak, it may be necessary to create a competitive tension, either to encourage new entrants, or to drive incumbents to extend existing networks.

- Labour and materials shortages may limit delivery speed
  There are indications that skills shortages could limit growth. Fears of major materials do not yet appear to be a significant barrier, but this could change.

- Opportunities in other areas may be more attractive
  Demand for digital infrastructure, and the funding for it, is likely to exceed the capacity to deliver it in the short term. Regions will therefore be competing against each other to attract delivery.

5.8. Risk Transfer & Payments

The transfer of risk will be assessed in respect of each individual project. In general, the supplier will take the risk for delivery and operation within a fixed price. The contracts that are procured will aim to set out a clear service demarcation, so that the transfer of risk is clearly articulated.

The GMW Programme team will continue to manage the public sector risks that cannot be transferred effectively to suppliers, including subsidy control and procurement risks, and the risks of overlap with other programmes.

Payment to suppliers will generally be made only on successful delivery of tangible outcomes evidenced by comprehensive testing. In some cases, recurring charges will be payable by a public or private 3rd party. The mechanism by which these charges will be met will be a key part of the business case for each individual project.

5.9. Contracting Model

For some projects, the delivery period and contract duration will be relatively short, and for these it will be appropriate for the Mid Wales Corporate Joint Committee or another single body such as Ceredigion County Council to hold the contract with the Supplier.

Where the project involves the long term provision of services to a customer, it is assumed that it will be more appropriate for those customers to hold contracts with the supplier, but that those contracts would be procured by Ceredigion County Council for GMW.

5.10. Personnel Implications

No personnel implications are envisaged for public sector bodies in respect of the draft projects identified at this stage.

Where Digital Infrastructure is put to use in services provided to public sector bodies, they are very likely to be provided through an intermediary. The contracts with these intermediaries are like those in use today, and they will therefore address any personnel implications in the usual way.

5.11. Commercial Case Summary

In general, there is a good commercial market for most of the works and services that GMW is likely to buy as part of its interventions. In many cases, there are established frameworks and other well tested routes to market. Constructing procurements to access them is therefore likely to be straightforward from a technical perspective.

However, a greater challenge is likely to be that of securing sufficient interest in the market in Mid Wales specifically. The region's market for some of the most important elements of Digital Infrastructure suffers from limited competition. It will therefore be particularly important to work to develop the market, attracting and retaining bidders for multiple projects. Procurement plans will need to address the potential shortage of

bidders, and to ensure that each procurement, and procurements collectively are attractive to bidders.

The projects themselves will need to be designed to bridge the gap in supplier business cases that is likely to exist as a result of the high costs and low returns of operating in a rural environment.

Projects involving joint ventures will present more challenging procurement and commercial approaches, but templates for these are available from other public sector bodies.

6. Financial Case

6.1. Overview

The total cost of the programme will be a function of the projects that are ultimately selected to take forward, and of the market pricing for services that are procured.

In the proposed Programme Model, the Programme will set a budget for its activities, and will manage to remain within this level, adapting volumes ordered to adjust for unexpectedly higher prices.

6.2. Funding sources

GMW funding will primarily be used to invest in new digital infrastructure, leveraged against a wide range of other sources.

The Programme will make extensive use of other public sector funding for digital infrastructure intervention, including DCMS schemes, Local Broadband Fund, Broadband Upgrade Fund, Local Government Digital Transformation Fund, and others.

Councils and other public sector bodies are likely to make their own direct investments in infrastructure, alongside the GMW Programme's investment.

The commercial sector is expected to make a substantial investment in digital infrastructure. The Programme's projects in many cases leverage public sector funding to close the business case to unlock commercial sector investment.

Citizens themselves will contribute to digital infrastructure through their own commitments to take new services. Although this is not typically seen as an investment, it is an important element of funding, since it drives commercial sector investment.

6.3. Capital

In general, the Programme's projects set out to deliver new digital infrastructure. The project management and delivery costs of that infrastructure will generally be classified as capital expenditure, along with the infrastructure itself.

In most cases, the GMW partners will not themselves own a physical asset but will instead have a right of use of a new infrastructure asset.

The estimated capital costs of the programme are shown in the table below.

Implementation Costs	Option 4 Preferred Way Forward Supported Collaborative Active Intervention	
Contractors	£	359,375
Council Staff	£	869,100
PM	£	871,000
Staff in kind	£	745,750
Supplier Costs	£	53,750
Subtotal	£	2,898,975
Investment Costs	Option 4 Preferred Way Forward Supported Collaborative Active Intervention	
Total GM Investment	£	34,972,500
Grand Total	£	37,871,475

Table 5: Capital Costs

6.4. Revenue

Digital Programme Team operating costs that do not qualify as capital expenditure will be met from partner revenue budgets.

The estimated revenue costs of the programme are shown in the table below. The figures assume an implementation phase of approximately 5 years.

The figures do not include the operating charges that will be met by 3rd party organisations and individuals, for example through network services contracts. Although these charges will be carefully considered in the business case for each project, they are not GMW costs.

Implementation Costs	Option 4 Preferred Way Forward Supported Collaborative Active Intervention	
Contractors	£	-
Council Staff	£	579,400
PM	£	-
Staff in kind	£	-
Supplier Costs	£	-
Subtotal	£	579,400
Investment Costs	Option 4 Preferred Way Forward Supported Collaborative Active Intervention	
Total GM Investment	£	-
Grand Total	£	579,400

Table 6: Revenue Costs

6.5. Financial Case Summary

It is assumed that the very great majority of costs will be incurred within the first 4 years of the Programme. No projects are currently envisaged that have a long term operating cost that would be met from the GMW budget itself.

The total value of potential projects is £38m. However, this figure includes projects that have a relatively low probability of success, or that

The total value of potential projects with a probability of success of more than 50% is £15m.

The total value of the GMW budget currently allocated to Digital Infrastructure is £11m.

7. Management Case

7.1. Overview

The case for GMW to actively participate in a range of different intervention types is clear, and indeed its constituent councils, Ceredigion and Powys already operate some Digital Infrastructure projects, including community fibre engagement. It is highly likely that the scale of the infrastructure issues to address will greatly exceed GMW's resources, and that the challenges and opportunities in respect of Digital Infrastructure will change significantly over time.

It is therefore essential to set in place a structured and flexible programme of activity to prioritise and manage a clear plan of action. The programme will be well governed and resourced, and carefully managed by a hybrid team of knowledgeable and capable people drawn from across the Growth Deal partnership, supported with specialist 3rd party resources.

The programme will maintain responsibility for all aspects of GMW's Digital Infrastructure planning and delivery, both in terms of internal delivery and of external engagement with other interested or related bodies.

It will be governed in line with the wider Growth Deal management structures. This is imperative if programme decisions about funds are to reflect the broad Growth Deal priorities, and are to be invested effectively to enable the provision of widespread digital infrastructure across Mid Wales.

The wider Growth Deal governance structure features strong and varied strategic, technical, commercial, and social and economic development representation and expertise. Through this, and complementary project level governance, the programme will:

- Ensure strategic alignment with national and local economic development vision and plans, and a shared view on the approach to Digital Infrastructure, the objectives we want to achieve, and desired benefits.

- Ensure we buy and deliver digital infrastructure that meets the needs of the businesses and citizens of Mid Wales, but also considers for example, the plans of neighbouring councils, the Welsh Government representing all Welsh local authorities, other Growth Deals and other interested and active parties.

Along with the clear governance and management benefits for which it is designed, a strong established programme for Digital Infrastructure also brings other benefits. It is a key requirement for government grant funding, and it is an attractive feature for suppliers. It therefore improves the likelihood, value and timing of a range of grant funding, and supports a more active market.

7.2. Governance model

The Digital Programme is one of the Growth Deal pillars and an economic development initiative. The Mid Wales Portfolio Business Case sets out the wider governance landscape within with the programme operates.

The structure of the governance model is shown in the diagrams below:

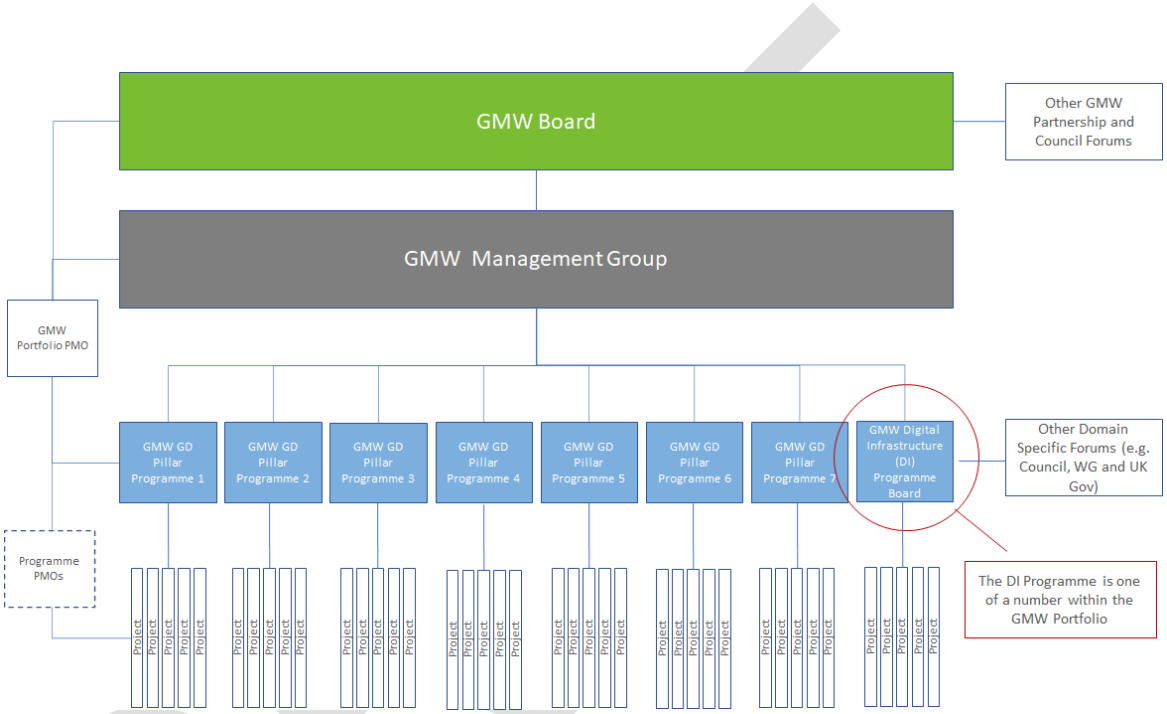


Fig 10: GMW Governance Model

The Growing Mid Wales Board will provide strategic direction and principles to guide the prioritisation, planning and delivery that will be overseen by officers at Management Group level, and undertaken at Programme level, with the Digital Infrastructure (DI) Programme responsible for defining, agreeing, and enacting its response to those principles.

The Management Group provides managerial direction to officers and advises the GMW Board in the fulfilment of their responsibilities. The Management Group also provides leadership to and management of officers within the various Growth deal programmes, by setting portfolio level objectives and priorities, and managing portfolio level resources. The Management Group will monitor the progress of the Digital Programme and will manage the strategic risks and issues that are escalated by the Digital Programme Board. The Group will make recommendations to the Board on behalf of the Digital Programme as required. The Group will also approve the procurement of consultants and advisers required to support the work of the Digital

Programme, as recommended by the Digital Programme Board. Any contractual arrangements that are required by the Digital Programme in the delivery of projects will also be approved by the Board (as appropriate to the scale and complexity of the project in question).

The Digital Programme will be overseen by the GMW Digital Programme Board which will agree, report on, and evaluate the delivery of the Programme's constituent projects.

The relationship between the GMW Board, the GMW Management Group and the GMW Programme Board is illustrated below.

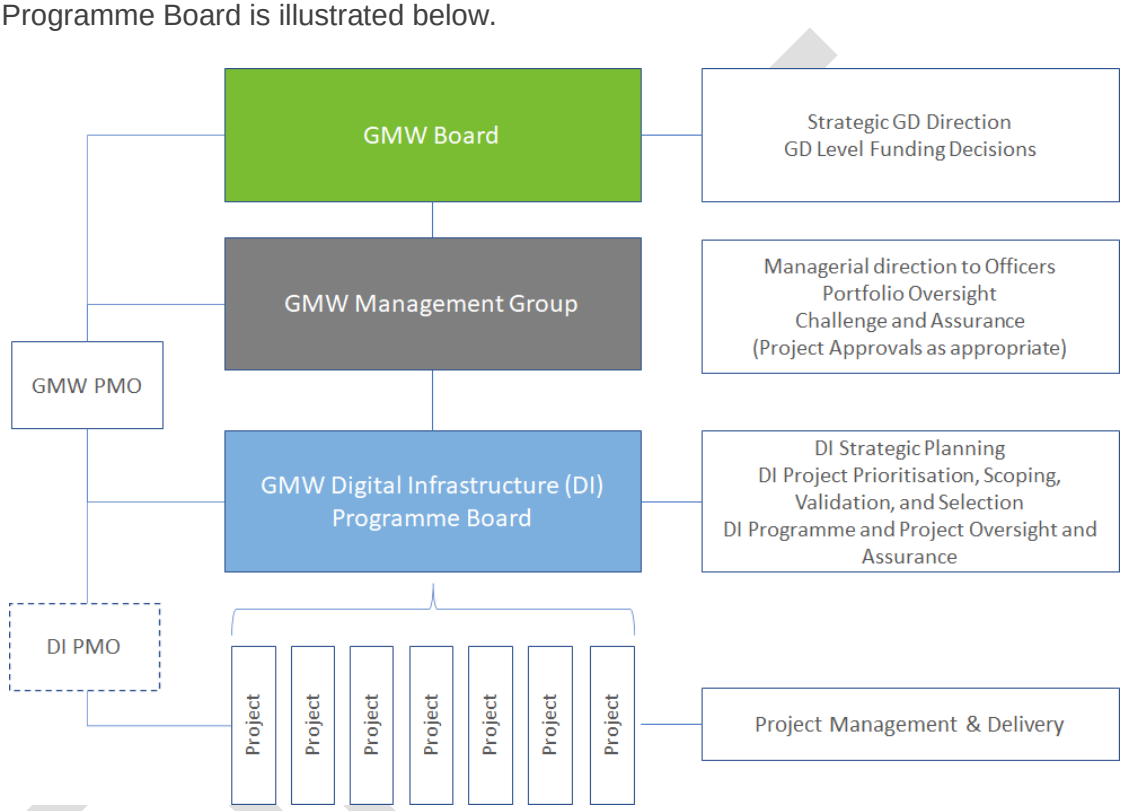


Fig 11: GMW/Digital Programme Governance Model

The Programme will draw on the expertise of the Digital Programme Board members to determine which projects should be progressed and developed to meet the Digital Programmes Investment Objectives and contribute to the achievement of the Portfolio Investment Objectives. The priority and sequence of projects, together with the scoping and validation of individual projects with be determined by the Digital Programme Board following the agreement of the Programme Business Case, as described in later sections.

The GMW Management Group, and where appropriate, the GMW Board will provide oversight and assurance of these decisions to support consistency and alignment across the Portfolio. The governance structure will therefore play a valuable role in challenging decisions and the proposed rationale.

The governance mechanisms and structure are intended to give the Digital Programme Board the degree of autonomy necessary to plan and respond in a flexible and agile manner. It will use the programme's digital experts and their knowledge to identify priorities, dependencies, and the relative strengths of and between each project, as well as ensuring that investment is targeted in the correct areas, in the correct order. The model is also proportionate in that only decisions requiring Portfolio involvement will be escalated to the GMW Management Group and GWM Board.

7.2.1. Programme Level Governance

The Digital Programme Board will initially focus on the development of the agreed business cases and subsequently oversee delivery, with a specific focus on the benefits and outcomes to be achieved.

The Programme's appointed Senior Responsible Officer (SRO) will lead the programme with board level support from the Deputy SRO and a range of key interested stakeholders, together with operational management from the Digital Programme Manager and individual Project leads The SRO will report and escalate appropriate updates, risks, issues and decisions to the GMW Management Group with support also from the Digital Programme Manager.

The composition of the Digital Programme Board is shown in the table below

Digital Programme Board	
Core Membership	
Role	**Function**
Senior Responsible Owner	• Appointed by the GMW Management Group. • Ensure the Programme Board remains focused on delivering the benefits and outcomes set out in the Programme Business Case
Deputy Senior Responsible Officer	• Appointed by the GMW Management Group. • Deputise for the Senior Responsible Owner in their absence.
Digital Programme Manager	• Plan the programme, making recommendations to the Programme Board. • Manage and monitor a Programme Plan for the Programme Board to track, control and deliver the programme outcomes and benefits.
PoMO Operations Manager	• Overall responsibility and accountability for the delivery of the programme and its projects. • Ensure strategic fit of programme objectives and benefits with relevant strategies and wider Growth Vision.
Senior Economy Officers from the Local Authorities	• Provide relevant or technical expertise/knowledge; • Provide a clear focus on benefits realisation; • Undertake any actions as agreed at the Programme Board.
Senior ICT Officers from the Local Authorities	• Provide relevant or technical expertise/knowledge. • Provide a clear focus on benefits realisation. • Undertake any actions as agreed at the Programme Board.

Digital Leads from UKG and WG Digital Officials	• Represent their partner organisation and act as link between partner organisation and Board. • Provide relevant or technical expertise/knowledge.
Partner Representatives	• Represent their partner organisation and act as link between partner organisation and Board. • Provide relevant or technical expertise/knowledge.
Non-Core Members (Attendance as required)	
Corporate Services	• Provide relevant or technical expertise/knowledge.
GMW Communications & Engagement Officer	• Ensure that benefits and outcomes are communicated as appropriate with relevant partners and stakeholders.

Table 7: Digital Programme Board Composition

Other Core/ Non-Core Members

The Programme Board will also include other 'core' and 'non-core' members. Core members will consist of Economy and Regeneration Officers from both Councils who will provide advice and expertise to ensure outcomes and benefits are focused open. Representation from both ICT teams will also be included as core members to provide balanced views and technical support.

In addition to Council Officers, it is recommended that representatives from appropriate public bodies will also form the core membership of the programme board, acting as representative users of the infrastructure and to provide feedback upon proposed project suitability and usability.

Non-core members of the group will consist of Council Corporate services to provide expertise upon topics such as procurement, legal and finance. These Officers will not be required to attend each Digital Programme Board meeting but will be invited when expertise is required, i.e. upon the development of Business Cases where input from Corporate Services is required to ensure progress.

The governance and programme delivery models will be implemented and developed further once this Programme Business Case has been approved and detailed programme planning commenced. Together they will provide a structured and disciplined, but flexible approach enabling the Digital Programme to respond to new and changing requirements.

7.2.2. Project Level Governance

The projects within the Digital Programme will range in scale and complexity. Some projects will require significant governance and management, others much less so.

Where warranted, each project within the Digital Programme will be managed via a Project Board with appointed SROs and project managers in place to oversee and manage delivery. Membership will initially be determined by the Digital Programme

Board with each project governed in line with Growth Deal requirements and the requirement of the individual project.

Digital Project Boards will provide oversight of each project and be focused on the development and delivery of the agreed business case, and subsequent delivery of projects in line with best practice as set out in each business case.

Each individual project will be led by a Project Manager, supported by a Project Team sized and with experience appropriate to the scale, value, complexity, and type of project. Each Project Manager will in turn report to the Digital Programme Manager.

7.3. Programme and Project Management

7.3.1. Programme Scope

As the Economic Case described, the scope of the programme will cover three types of digital projects:

Build: Projects that directly build new infrastructure, including ducts digging, fibre laying, mast construction or re-purposing, and other asset creation or re-use.

Enable: Process, Policies and Engagement: These projects focus upon putting in place the mechanisms that are needed to help accelerate Digital Infrastructure build, for example, easing supply side issues by removing or minimising typical deployment barriers; and addressing demand side issues.

Skills: skills projects that are needed to ensure that Mid Wales has access to the specific knowledge and expertise needed to grow our Digital Infrastructure footprint.

The three project types are not mutually exclusive and simply reflect the project's primary focus. Every project is therefore likely to have a combination of Build, Enablement and Skills elements.

The preferred option of collaborative active intervention also means that the programme's activity will span a range of levels from lobbying and mobilising others to act on our behalf through to the design, initiation, and management of large scale digital infrastructure creation projects by the Growth Deal itself, and collaboratively with other partners and authorities.

7.3.2. High-level Programme Stages

Set up and delivery of the programme will follow a series of structured stages and activities which began with the appointment of the Digital Programme Manager and PoMO in 2021 and will continue with confirmation of the remainder of the central hybrid team.

The team will develop the detailed programme approach, together with the programme delivery and resource plan, and begin more detailed project scoping activity for individual priority projects which will include market assessment and engagement. The programme stages are subject to further development but are expected to be structured as follows.

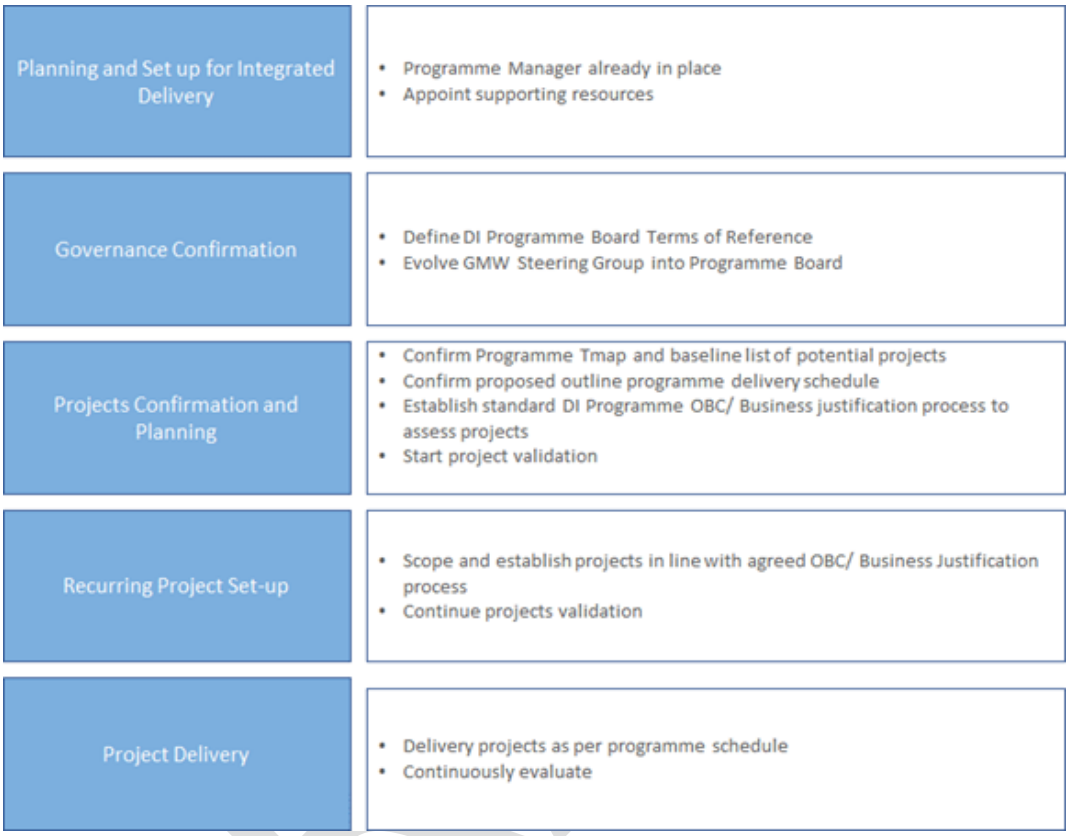


Fig 12: High level programme stages and activities

7.3.3. Project Selection

This Programme Business Case establishes the strong need for a programme to deliver Digital Infrastructure so that GMW can confidently mobilise a Digital Infrastructure planning and delivery function.

This Preferred Option is predicated on the case for a mode of intervention rather than individual projects. In so doing, it sets out the broad investment parameters and ambition for the Digital Infrastructure programme, and sets out a broad range of potential projects whose delivery will contribute to the acceleration of digital infrastructure across our region. This allows us to estimate potential cost and benefits and secure appropriate funding.

It does not however provide a detailed justification for the initiation of any of the individual proposed projects. The selection of actual projects will itself be done as part

of the programme's core activity i.e. each project will be assessed on its own merits before it is initiated.

Individual projects will only be initiated when the Programme team has established a clear and detailed justification. This ensures that the objectives, costs, benefits and risks associated with the project are understood before committing investment.

The majority of digital projects will be agreed at Digital Programme Board level, but there may be exceptions where the scale of some projects, or their level of interdependency with other GMW programmes means that additional approval from the GMW Board may be needed.

The programme will set in place a consistent and simple Outline Business Case (OBC) approach which will assess projects against the same Investment Objectives and CSFs as this Programme Business Case.

Too much governance can be as problematic as too little governance, and it is important that the effort committed to justifying each project will be proportionate to the project's complexity, cost and benefits. The programme will adopt a robust but flexible approach to managing GMW's Digital Infrastructure requirements; where projects are smaller in value and benefit, a lighter business justification will be applied, whereas a more detailed OBC will be applied where the cost, benefit and complexity of the project is likely to be much higher.

This allows the programme to apply the appropriate rigour, consideration and justification for the spend of public funds, and the Digital Programme Board will have a key role to play here.

In most cases, other than essential enablement projects, the projects with the highest return are those that will be prioritised by the programme. Those will typically be the projects that use Growth Deal funding as a lever to mobilise additional levels of funding from other sources. Since it is likely that the programme's scope will be limited by the financial resources available, projects will likely be commissioned on order of highest expected return, until the funding limit is reached.

In respect of the benefits calculation for individual projects, care should be taken over the assessment of GVA. The yardstick identified in the Economic Case that every £1 invested in Digital Infrastructure increases GVA by £8 over 15 years is relatively untested, and it will also be difficult to measure in practice. However, it is an important principle – the fundamental reason for improving the provision of Digital Infrastructure within Mid Wales – and so will be a consideration in project selection.

7.3.4. Project Approach

A collection of approximately 80 potential project opportunities have been identified during the completion of this Programme Business Case. Appendix A illustrates all identified projects according to type and approximate value.

These opportunities will be subject to further categorisation, grouping and prioritisation as part of the Projects Confirmation and Planning stage. Each project, where prioritised and approved, will therefore be subject to a standard scoping, initiation and delivery approach.

The approach covers a series of stages for scoping each project and the key project management deliverables that will be completed to ensure each project has a sound business case and proceeds in a structured and controlled manner. A Project Mandate, Project Brief (including Outline Business Case), and PID, including a detailed project plan, will be completed for each of the Digital Infrastructure projects.

The following diagram illustrates the process:

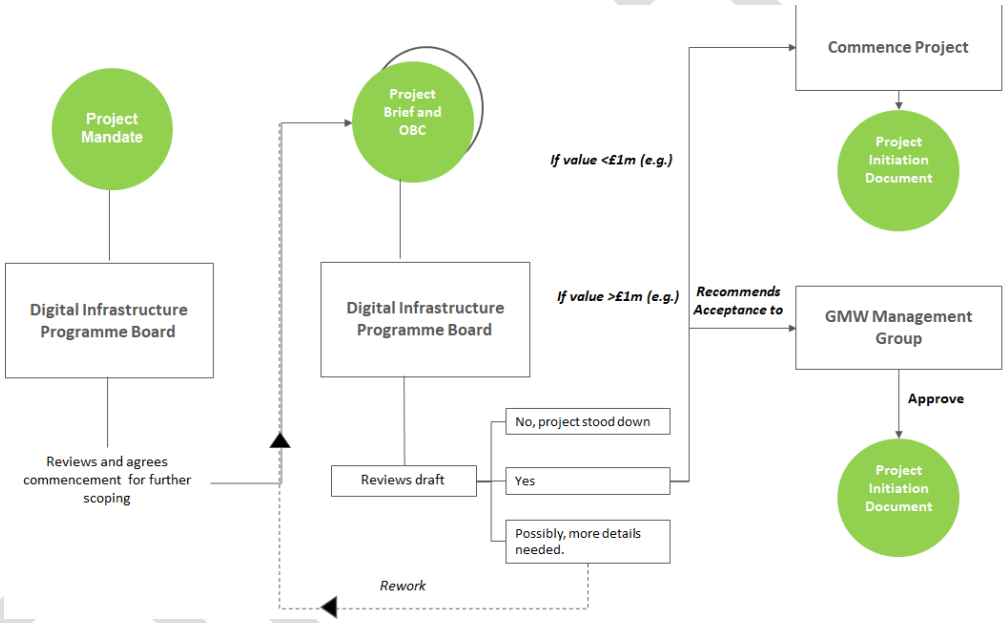


Fig 13: Project Review Process

Once agreed, the majority of projects are likely to include the following stages:

Specification: where appropriate, for example a technology, or build project: specifying, for example, the digital infrastructure technology or build services to be procured or delivered.

The project will determine all requirements for digital services and the associated support services, along with the key dependencies. It will structure a specification that is attractive to the market and which suppliers are capable of bidding against and delivering.

The project will engage key business stakeholders, to confirm the how and where specifically digital services will need to be deployed to achieve the outcomes and benefits set out in the Strategic Case.

At this stage the project will confirm the most appropriate procurement route to provide the service to meet the requirements and deliver best value. It will document the considerations, analysis and conclusions in the Procurement Plan.

The project will structure any procurement activity to make the contract attractive to suppliers. The detailed procurement pack will be developed and signed off ready for procurement launch.

Procurement: ensuring that the specified services are selected to deliver the best value for money.

The project will engage with appropriate suppliers in the market to ensure that any procurement will maximise viable competition and produce long term digital infrastructure service contracts that will offer best value.

The design and execution of any procurement will draw on lessons learned and material developed from the programme team's digital infrastructure involvement elsewhere to expedite progress and maximise our ability to deliver against our own and any grant funding stipulated timescales. In particular the team will use its knowledge of how the market has responded to similar procurements; what has worked well and not so well so that we can tweak our approach to inform and improve procurements for Mid Wales.

During each procurement, the team will test each bidder's approach and cost against a scenario. The following activities will be included in each:

- Managing supplier questions
- The evaluation of the bids
- Due diligence activity
- The definition of any Initial Order including the selection of any optional elements of the winning bid
- Contract Award

Implementation: delivery of the specified services.

Once each procurement has been completed and a contract awarded, the relevant project team, supported by the Digital Programme Team will oversee the implementation activity of the supplier and administer and manage the contracts in the manner required.

Other activity

Many projects may not require any element of procurement, and instead may focus heavily upon, for example, encouraging demand stimulation or lobbying, setting in place mechanisms to support the development of digital skills in the region, or the completion of funding bids to attract more GMW funding. Where this the case, the programme and relevant project team will still follow the project approach to ensure that the project is appropriately scoped and delivered.

7.3.5. Risk and Issues Management

Risks and Issues will be managed via the formal programme and project controls using a Risk Register, and in line with the GMW Portfolio approach.

Programme Risks

Programme Risks will be scored in accordance with their probability and impact. They will be operationally managed by the Digital Programme Manager and team, and reviewed by the Digital Programme Board.

In addition to describing the risk itself, the key features of the Risk Register are:

- An assessment of its impact/ consequence should it materialise (scaled from 1 – 5)
- An assessment of the probability of the risk materialising (scaled from 1-5)
- A scoring is made for both inherent (pre-mitigation) and residual risk (post-mitigation)

The RAG status of Risks will be classified as follows:

Risk Assessment Matrix							
			PROBABILITY				
			Rare	Unlikely	Possible	Likely	V Likely
		Score	1	2	3	4	5
CONSEQUENCES	Fundamental	5	5	10	15	20	25
	Major	4	4	8	12	16	20
	Moderate	3	3	6	9	12	15
	Minor	2	2	4	6	8	10
	Not significant	1	1	2	3	4	5

Fig 14: Risk Scoring Matrix

The register will also include

- Details of mitigating actions/ key controls
- A risk owner
- Progress update
- The date that the risk was last updated
- Whether the risk is open or closed.

The Programme Manager will review the risk register at least monthly to:

- Re-classify risks according to the latest position
- Identify any new risks
- Close risks that have been fully mitigated

Presentation of the risks will also include use of a Risk 'Dashboard' which will show status of risks by score.

Risks will be escalated according to their numerical rating. Escalation routes will vary according to the nature of each specific risk. Key strategic or high impact risks that affect or require Portfolio level input will be escalated to the GMW Management Group, and in exceptional circumstances, ultimately to the GMW Board.

Identified risks may come from a range of sources and the Digital Programme Manager will collate, record, manage and escalate risks as appropriate.

Project Risks

Project level risks will be operationally managed by the respective Project Manager, and overseen by each individual Project Board using the same approach. Any risks requiring strategic input or resolution will be escalated to the Digital Programme Manager for consideration by the Digital Programme Board.

Issue Management

Despite the implementation of established management and delivery techniques, it is inevitable that issues will arise in the delivery of the programme and its projects from time to time. It is therefore important that the programme has robust processes in place to:

- Allow issues to be escalated

- Establish the potential impact of each issue
- Enable a prompt assessment of each issue to be made
- Monitor progress as any action plans are deployed
- Record the resolution of issues.

To ensure that attention is focused on priority areas, it is essential that only genuine issues are formally raised as programme or project issues. Such issues may concern:

- An inability to meet a Milestone
- A projected cost over-run
- An inability to meet quality expectations.
- An inability to meet a strategic objectives

Issues will be raised as appropriate, discussed with the Digital Programme Manager for Programme level issues, and the relevant Project Manager for project level issues. The issue will be summarised in wither the Programme or Project issue register.

Accordingly, the Digital Programme or Project Manager will take responsibility for ensuring that project issues are addressed. Issue resolution will be progressed in consultation with the originator.

Outstanding issues will be reviewed on a fortnightly basis as a minimum, their impact re-assessed and will be re-classified in necessary. Issues will be resolved at project and Project Board level unless requiring escalation to, and intervention by, the Digital Programme Board, or GMW Management Board respectively.

Issues will only be classified as being resolved once the person raising the risk is satisfied with the response obtained. The relevant Manger will take responsibility for ensuring that issues are resolved in a timely manner.

7.3.6. Quality Management

The products to be delivered by this programme are highly diverse in their nature ranging from Programme Level Initiation documentation through to specifications and procurement plans for wide scale Digital Infrastructure build. To ensure that each product meets its required business need, the Digital Programme requires a structured approach to Quality Management.

The two elements of this approach are:

- The assurance of products
- The approval of products

Programme level assurance and approval

The Digital Programme Board will be responsible for assurance of all Programme-level documentation, as produced by the Digital Programme Team.

The Digital Programme Board will be responsible for approval of all Programme-level documentation, as produced by the Digital Programme Team. There may be exceptions where documentation may be escalated to the GMW Management Group due to the scale, complexity or political importance of a proposed programme activity or project.

Project level assurance and approval

Each project product should be assured by a group of representative stakeholders so that it can be confidently regarded as being fit for purpose prior to its formal acceptance.

Responsibility for undertaking the assurance process sits within the project team responsible for delivery of the product. Each project will be expected to plan review activities as an integral part of their project planning process. The manner in which such activities are to take place is again the responsibility of the respective project.

The conclusion of the review process for a product will be a recommendation to the relevant Project Board, (or Digital Programme Board, where, for example the scale and complexity is significant] that governs the project that the product should be formally accepted.

The Digital Programme Board will oversee the audit the effectiveness of assurance processes within the respective projects on a periodic basis.

Project Product Acceptance

Key to the governance arrangements for the Programme is ensuring that the respective projects accept responsibility for the products produced under their management. Each project is therefore required to formally accept each product produced prior to any deliverable being considered as ready for implementation by the Digital Programme Board

The status of documents with respect to their formal acceptance will be monitored by the relevant Digital programme Manager and overseen by the Digital Programme Manager on an ongoing basis.

7.3.7. Timescales

As the Strategic Case described, the digital landscape is highly fluid and dynamic; consumer behaviour, the market, and the activities of other bodies can all effect which projects GMW should and will initiate and when. It is therefore critical that the

programme remains flexible and responsive to these changes to ensure the best use of public funds at the right time.

The Programme Business Case and programme therefore provide a model for addressing the issues of Mid Wales' Digital Infrastructure. It is neither practical nor necessary to start all the proposed projects at the same time. Some projects are natural precursors for others, and the timing of some projects is dependent on planned initiatives from Welsh Government or Westminster. However, the programme's projects should be planned together to ensure that opportunities are not missed, and that every project is initiated at the proper time.

The projects we will undertake fall broadly into the following timescales:

- **Now, 0-12 months:** Projects with a high rate of return and with no prior dependencies, those with funding deadlines, those that lay the foundation for later projects, and those that have a long lead time for delivery will typically be prioritised. For example, delivery of fibre to hub sites are urgent because funding is typically time limited, and they improve the opportunities for vouchers. Voucher use is itself urgent because the funding stream for some voucher schemes is time limited, and because it is a long lead-time project. Hub site projects also provide the means for a propagation effect that sets in place the infrastructure which can be used by other projects.

- **Soon, 12-24 months**: Projects that are planned as a response to a forthcoming government initiative may not need to start, or be able to start immediately, respond to requirements that are expected within the next two years, for example, the DCMS Gigabit Britain programme and any changes to Superfast Cymru 2.

- **Later, 24 months and beyond**: Projects that are currently uncertain, or that depend on earlier projects should be kept in view until their scope becomes clearer. GMW will not always know exactly what will be required, but the programme's governance and operating model is designed to ensure a full pipeline of projects is maintained to address the evolving demands of the Digital Infrastructure problem.

7.3.8. Outline Programme Plan

The Outline Programme Plan is shown in Annex C. It will be further developed and maintained as the Programme develops the Projects.

7.4. Resources

A hybrid team of internal resources from across the two councils. Supported by specialist external support will be set in place from the outset. This combined team will provide the necessary expertise to deliver once for the region where possible, supported by local resource where it is needed.

7.4.1. Resource Model - Fixed and Variable costs

The resource model consists of the fixed costs for operating the programme as a whole, and the variable additional costs that relate to each project that is taken forward.

The fixed costs are the costs of a central programme team consisting of the Digital Programme Manager and small PoMO, accompanied by specialist support providing commercial management, engagement, programme and project design, and technical elements. This team will be responsible for establishing and planning the programme. The Digital Programme Manager currently reports to the Growth and Major Developments Service Manager and is responsible for supporting the delivery of projects to meet the objectives of both the Digital pillar and of the Growth Deal Portfolio.

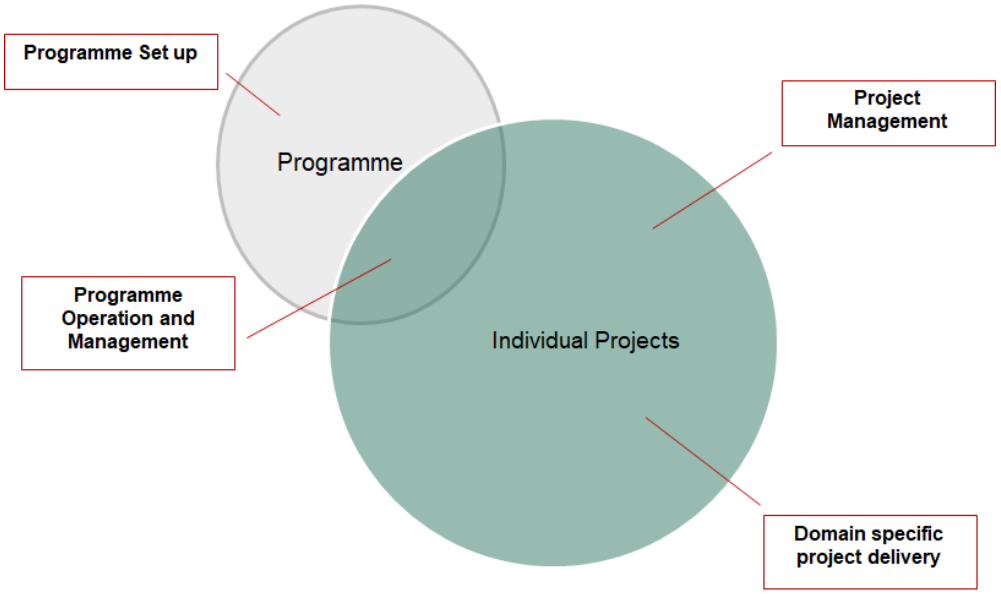
Once fully established, the team will also operate the programme. The costs for central programme level resources are largely fixed, though it is possible that it may need to grow if the number of projects becomes large.

The variable costs are the costs of the teams to support the individual projects that comprise the programme. Outline resource levels for priority projects have been identified as part of this Programme Business Case to determine high level costs. Further detailed planning for the projects to be taken forward will provide a more accurate assessment of the level, type and cost of resource for each project as its scope and requirements are developed.

GMW and its constituent councils will draw upon its internal teams to identify a pool of people with the correct economic development, planning, technology, street works, and communications skills to support the array of projects. It is highly likely that many of the same people will work across multiple projects so that knowledge can be shared and re-used across the council. Although these teams will typically provide their help as part of their current jobs, the cost of this is estimated for each project.

GMW will also appoint project managers to lead the individual Digital Infrastructure projects. External specialist support is very likely to be necessary at project level to specify, plan, procure, and deliver the requirements of the projects.

The costs for project level resources are determined as part of each project's Outline Business Case.



7.4.2. Hybrid model

Public sector programmes can often fail to full achieve their objectives because the organisation does not internally have the specialist knowledge required to scope, shape and deliver the programme. This is typically the case where the scope of the programme does not sit within the core business of local authority organisations.

Additionally, programmes can fail because they lack sufficient focus to really drive progress from the outset and maintain momentum. The participating councils have many competing operational demands, particularly given recent circumstances, which may draw attention and effort away despite the importance of the delivery of the strategy.

To address both risks, the programme will be managed internally, and delivered by a hybrid team of employees and where necessary, consultants with specialisms in the field to provide advice and support. This provides the programme with the one-time specialist skills that are needed. External support from resources whose sole responsibility is to provide the energy and drive needed to propel a programme forward will also be an advantage.

The hybrid model is broadly based on the Skills Framework for the Information Age (SFIA) levels. SFIA levels 1-4 are largely provided by employee resources, with some exceptions and the specialist activities of levels 5-7 are heavily supported or largely provided by the consultancy resources, again with some exceptions. These typically involve scoping, business case and specification, commercial and market engagement, technical, community engagement, and programme planning skills. There will clearly be

exceptions where GMW has individuals who possess the relevant experience and in-depth knowledge to deliver more specialist activity.

There may be times when GMW will use contractor resources to increase resource capacity, for example in project management and engagement. The model provides a mechanism for short term resource for activities that are uncertain, urgent, or temporary, where it is less cost effective to appoint a full-time member of staff, or where there is not time to do so.

The model therefore provides the capability, capacity and flexibility required for successful delivery, and has been shown to work well in the planning and delivery of many public sector Digital Infrastructure programmes.

7.4.3. Programme and Project Teams

Several roles have been identified for the Programme and supporting projects. These are summarised below:

Senior Responsible Officer

The Senior Responsible Owner (SRO) is a key role and must be filled by a senior individual, rather than multiple individuals. The appointed SROs will need to be appropriately trained and have undertaken the Better Business Cases Foundation training to ensure alignment with processes. The programme SRO will be accountable for each intervention and for ensuring that it meets its objectives and delivers the expected benefits.

The SRO will lead and champion the programme and will be empowered to take decisions within a limit of authority; for example, whether to delay or stop any part of the projects.

Deputy Senior Responsible Officer

The Deputy SRO will provide support to the SRO in all areas of responsibility. The Deputy will represent the views and actions of the SRO when unavailable or when deputising at governance meetings.

Digital Infrastructure Programme Manager

The Digital Programme Manager will be accountable to the Senior Responsible Owner for establishing the governance and management framework and for the day-today management of a programme/project, to deliver the outputs and desired outcomes, and realise the required benefits. The Digital Programme Manager has already been appointed and is now actively involved in the scoping and set up of the programme. The Digital Programme Manager will have set limits of financial authority.

Programme Management Office

A PMO for the full Growth Deal Portfolio has been appointed and the Digital Programme Manager will work with the PoMO to confirm the resources and support specifically required for the Digital programme.

Digital Infrastructure Project Managers

The Programme team will also be supported by Digital Project Managers, responsible for leading delivery of individual projects within the programme. The costs for project level resources are determined as part of each project's Outline Business Case. The number of Digital Project Managers is likely to be proportionate to the number of projects in progress, and will flex over time. Project Managers are likely to oversee more than one project, helping to capitalise on expertise and ensure projects are well aligned given the high level of dependency that may exist between some types of project.

Additional Subject Matter Expertise

The Programme team will also require input from a range of additional subject matter experts. GMW draws on other Growth Deal and council subject matter experts at the appropriate stages of the programme or individual projects.

GMW and each Council will draw upon its internal teams to identify relevant personnel with the correct include legal, procurement, technical, economic development, marketing etc., planning, street works, and communications etc. skills to support the array of projects. It is highly likely that many of the same people will work across multiple projects so that knowledge can be shared and re-used across the council. Although these teams will typically provide their help as part of their current jobs, the cost of this will be estimated for each project.]

Other project specific resources are being identified as projects undergo further scoping. The presence of external support as an integral part of the resourcing model means that skills and knowledge gaps can be plugged whilst GMW resources are sought, and more effective transfer of knowledge can take place once roles are filled.

External Support

As stated earlier, where necessary, consultants with specialisms in the field will be used to provide both programme and project level advice and specialist support. This provides the programme with the one-time specialist skills that are needed to specify, plan, procure, and deliver the requirements of the projects. External support from resources whose sole responsibility is to provide the energy and drive needed to propel a programme forward will also be an advantage.

7.4.4. Recruiting and developing the team

The Digital Programme Manager has already been appointed and is now actively involved in the scoping and set up of the programme. A PMO for the full Growth Deal Portfolio has been appointed and the PM will work with the PMO to confirm the resources and support specifically required for the Digital Infrastructure programme.

Other project specific resources are being identified as projects undergo further scoping. The presence of external support as an integral part of the resourcing model means that skills and knowledge gaps can be plugged whilst GMW resources are sought, and more effective transfer of knowledge can take place once roles are filled.

The programme is likely to last at least 10 years. The level of effort required and the type of interventions is likely to change significantly over time. The most intense period of effort is expected to be in the first 5 years.

Key PM and PMO roles are expected to be required for 4 years to ensure the programme achieves and maintains a level of momentum and impetus required to drive digital infrastructure initiatives forward quickly and accelerate provision and benefits.

7.5. Engagement

GMW and its Digital Programme will need the support of a range of internal and external individuals and bodies to make the right investment decisions that bring the most value, and to deliver projects across the region. Many of our stakeholders have representation within the governance model described earlier, but there are other key groups where engagement will be critical or highly beneficial to the success of the programme and individual projects. Amongst those stakeholder groups are:

- **Elected Members:** Digital Infrastructure plans already have strong political support within GMWs elected representatives. It is important that the programme builds on this support and that Elected Members to continue to see the benefits that investment in Digital Infrastructure will bring to the communities they represent across Mid Wales. The Programme will maintain a two-way conversation about priorities and updates and will use the established Partnership governance forums as the vehicle for these conversations.

- **Business Owners and Citizens:** A key feature of the Programme Business Case and of many of the proposed projects is the need to stimulate demand amongst users to ensure take up and deliver economic benefit. It represents an important area of innovation for the Programme. Through community engagement initiatives the Programme will continue to raise awareness of both the activities that GMW is undertaking to deliver Digital Infrastructure on their behalf, and ensure that people know which services are available, and are well positioned to use them.

- **Other GMW Regional and Ceredigion and Powys Initiatives:** The Digital Infrastructure programme is an enabler initiative. The connectivity it delivers must meet the needs of and be aligned with other GMW initiatives. Estates portfolio reviews, economic regeneration – places and people, environment and sustainability, and agile working are all examples of initiatives that the Programme will support. The Programme team must ensure a joined-up approach through GMW's broader governance to make sure that priorities are understood and responded to in Digital Infrastructure plans.

- **Brecon Beacons National Park**

- **Other Public and 3rd Sector Bodies:** Although GMW has a lead role in driving Digital Infrastructure for Mid Wales, other public and 3rd sector bodies have a vital part to play in delivering better Digital Infrastructure. In many ways their drivers that are similar to GMW's own; they have efficiency and effectiveness opportunities to capture from their own connectivity, they need citizens to have the connectivity to support new service delivery models, and they have connectivity budgets that can be spent differently to deliver better results.

- **Welsh Government:** Welsh Government is clearly a key complementary strategic and delivery body, and ally for the GMW Partnership. It is important that we increasingly take a joined-up approach to the provision of Digital Infrastructure more generally across Wales.

  GMW has already established good working relationships with Welsh Government facilitated programmes, including the Local Broadband Fund and the Broadband Delivery Task Force. WG is represented on the GMW Digital Steering Group.

- GMW and programme representatives will continue to participate in and contribute to the discussion at national level, through for example, the Welsh Government Digital Infrastructure Strategy Group, so that we can influence and shape national policy to the benefit of the citizens and businesses of Mid Wales.

- **PSBA:** The Welsh government-managed contract PSBA is a strategic platform that delivers competitively priced network connectivity to the public sector. GMW intends to make use of the contract for network services. It is assumed that the infrastructure that GMW drives for public sector sites will be consumed through PSBA. PSBA also offers a route to engage with other public sector partners.

- **Regional Initiatives:** GMW will play an active role in leading and facilitating Digital Infrastructure initiatives in Mid Wales. Through our Digital Infrastructure programme, we will continue to build a more coherent picture of how these many different initiatives work together to deliver widespread Digital Infrastructure coverage. We will work closely with our neighbouring Growth Deals in the North and in South Wales, and with councils across the border in England to ensure

that broader opportunities can be leveraged, and lessons learned from the programme can be quickly built upon in other parts of Wales.

- The Council will work closely with its neighbours through Welsh Government groups to optimise the use of voucher schemes to deploy full fibre in the County.

- **DCMS**: Much of GMWs investment in Mid Wales will be supplemented by other sources of digital infrastructure related grant funding. Government funds obtained through DCMS will be invested in line with DCMS requirements, and where appropriate, DCMS best practice guidance. DCMS is a strong supporter and enabler of local activity and investment, so GMW will optimise this relationship by communicating a clear strategy and plan of action and involve DCMS where it adds most value.

- **Suppliers**: GMW must maintain a strong relationships with the market; Mobile Network Operators (MNOs), Civils providers, utility companies will all play a role in the planning, build, and management of digital infrastructure, and in the removal of the current barriers to delivery. It is crucial that the programmes plans and times GMW initiatives to make sure activity is attractive to those who will supply services, and that suppliers have the capacity and capability available at the right time. The team will use existing Growth Deal, Welsh Government, and DCMS forums to continue to engage, but supplement this with regular Supplier events to share plans and garner input and support.

7.6. Business Change

The Strategic Case asserted that our programme is an enabler programme to provide the digital infrastructure that together with other factors will help deliver several public sector and economic development benefits.

Benefits will only be delivered if the public sector and local organisations make best use of the infrastructure, which will involve a degree of local business change.

Through community based campaign projects we will actively encourage the uptake of the service, and raise awareness of the potential of digital infrastructure at community events across the Mid Wales region. Our Digital Infrastructure SRO and Programme Board members, Programme Manager, supporting Digital Project Officers, and Digital Programme and Project teams will play key roles in engaging the wider community to create an effective change network to engage the community and drive support and action.

7.7. Programme Evaluation

The Digital Programme roadmap, and plan will be reviewed annually to evaluate progress and ensure that the objectives, the approach, and the proposed projects remain relevant, realistic, and achievable.

The Programme will:

- Review and the refresh the roadmap every year.
- Set in place a benefits framework to track and measure the key outcomes.
- Monitor the strategic environment for the programme and adapt the programme roadmap to reflect changes, for example in new initiatives from other public sector and commercial bodies.

The Programme Plan will be reviewed regularly to evaluate progress and ensure that the objectives, the approach, and the proposed projects remain relevant, realistic and achievable.

New GMW, Welsh Government and DCMS initiatives can change the shape or objectives of the Programme's individual projects. Initiatives intended to plug a perceived gap may overlap with initiatives that GMW has already set in place locally. Some initiatives may make it easier to deliver future projects and so change the scale or nature of GMW's involvement. Other initiatives may conflict with existing GMW delivery plans or even render a planned GMW project redundant. Welsh Government strategy and plans may act impact in the same way.

Major changes in the supplier market may also have a significant impact on the projects the Programme delivers and the approach taken, for example:

- New market entrants may bring more competition, widening the opportunities for engagement.
- New market entrants may bring new solutions, potentially changing the shape of, or even the need for action by the Programme.
- A surplus of demand from across the public sector, or wider customer bases, may cause variations in infrastructure and civils market capacity and availability, which in turn affects GMW's delivery timescales.

Given these dependencies, the Programme will also review both the Programme plan and individual projects regularly to ensure activity remains current in the light of changes in in regional or national Welsh and UK government economic and digital related strategy and policy, or in the activity and plans of either the supplier market, or those of other Welsh Growth Deals, or neighbouring Welsh and English councils.

7.8. Benefits Management

The Digital Infrastructure Programme will support and align with the broader benefits management mechanisms set up at GMW Growth Deal Portfolio level.

The programme team will help to establish the framework at programme level to provide a mechanism for tracking and measuring the outcomes and benefits that the programme has been set in place to achieve, and for supporting the exchange of Programme level data to demonstrate the contribution to the achievement of Portfolio strategic objectives overall.

The Programme will record and communicate its successes so that stakeholders have visible evidence of the improvements that the Programme delivers and the return on our investment.

Many of the primary outcomes that the Programme will deliver, especially GVA are very difficult to measure and attribute directly to digital infrastructure investment. There may be a lag before the Programme's effect is detectable, and improvements may be attributable to other initiatives of the Growth Deal, and other bodies

The main focus will likely be on the projects' outputs, in the form of the level of Digital Infrastructure provision that is delivered. These will be simpler to analyse, more immediate, and more directly relatable by stakeholders.

Each project will have specific targets, measurable with recognised industry data sources such as Ofcom's annual report and interim updates, and crowd sources such as those provided by thinkbroadband.com.

Linking this measurement with the ultimate outcomes and Growth Deal objectives will help to test and confirm the return of investment from each project, and will shape and inform decisions about future projects and levels of intervention.

Case study and questionnaire analysis will also be used to supplement the output analysis and to estimate the eventual benefits of the Programme.

The Programme will contribute to the body of knowledge around Digital Infrastructure benefits by sharing its findings with Welsh Government, other Welsh Growth Deals and councils, DCMS and other interested parties.

7.9. Management Case Summary

A central tenet of the Management Case is a structured but flexible model to allow GMW to adapt to changes over time without being constrained by a fixed and rigid plan and timeline. It is supported by a clear programme remit and scope that can flex in response to changes in our external environment or our requirements.

The Management Case also describes a strong governance model to provide the strategic direction, oversight, assurance, and informed challenge required to ensure the programme delivers against its strategic objectives, meets the digital needs of the region and offers value for money for the public purse. The governance model will be accompanied by robust and disciplined programme and project controls that ensure all aspects of planning and delivery are managed effectively according to best practice and Growth Deal Portfolio expectations.

The programme will apply a flexible resource model that draws on the expertise and experience of subject matter experts from a range of sources, ensuring that those skills needed for the longer term are resourced and built internally, with one time or digital infrastructure specialisms being provided by external subject matter experts where appropriate. In building an in-house capability GMW will also maximise the opportunity for re-use of internal resource across multiple projects making the resource model even more cost effective.

Effective stakeholder engagement will be an ongoing activity throughout the planning and delivery of the programme; ensuring that the needs of the constituent councils, the Growth Deal itself, partners and of course, the ultimate users of digital infrastructure are understood and represented. This will help to focus digital infrastructure deployment where it is needed most across our region.

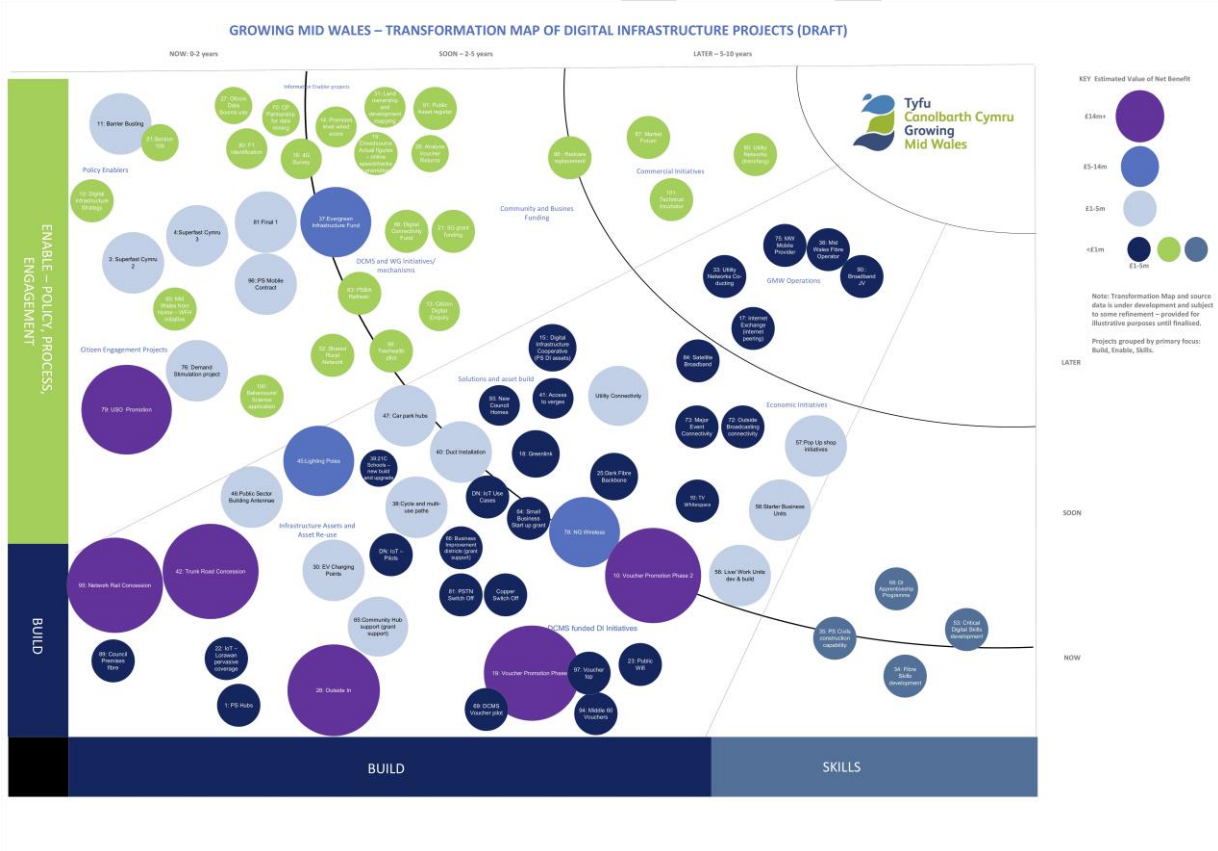
The Digital Programme Board and team will perform regular evaluation activity to ensure that the activities of the programme continue to meet our strategic objectives and expectations, and through regular benefits tracking, will be able to demonstrate that that the expected targets for digital coverage are achieved and levels RoI are realised.

Annex A: Draft Project Opportunities List

The Draft Projects List is shown in the attached file “GMW Projects Report v1.0”

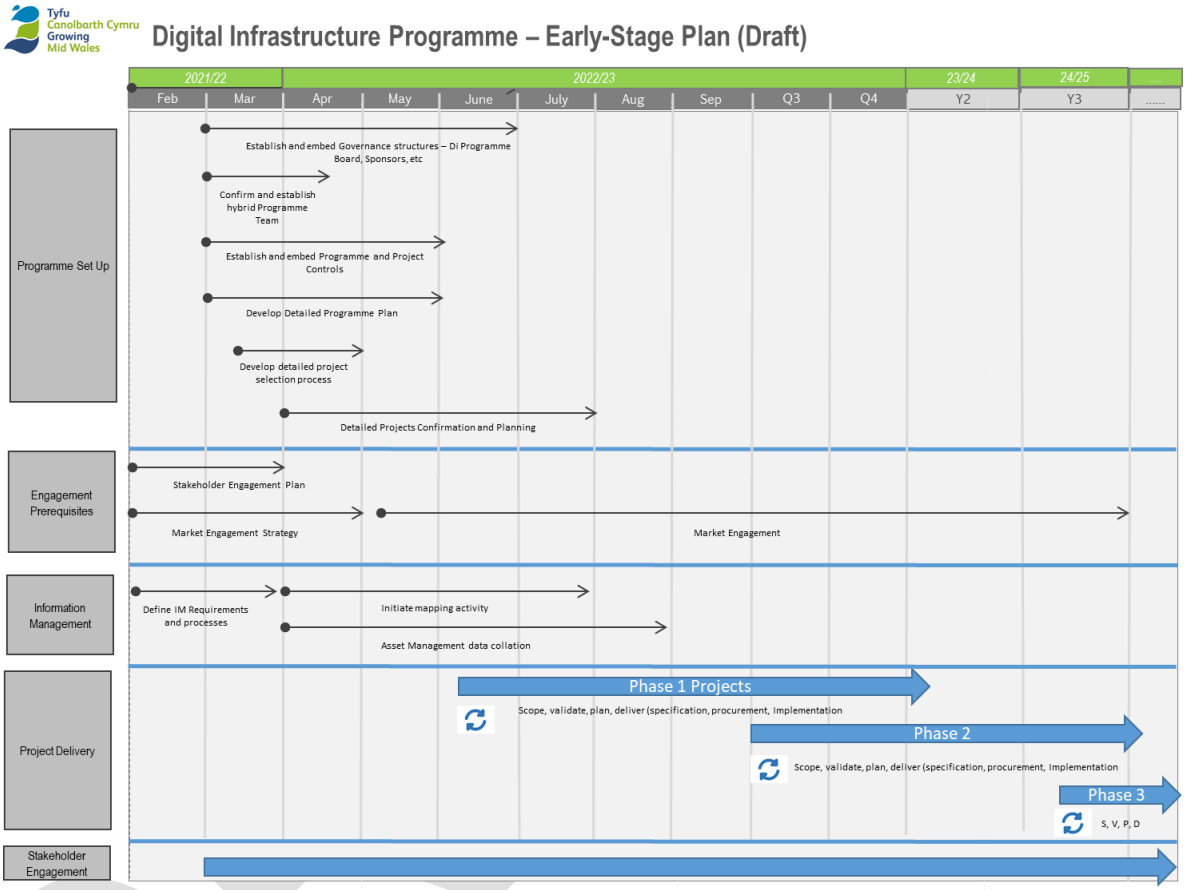
Annex B: Project Opportunities TMAP

The Transformation Map showing potential Projects by type and by estimated timetable and net benefits is shown below. A large format copy is provided as a separate file.



Annex C: Outline Programme Plan

The Outline Programme Plan is shown below. A large format copy is provided as a separate file.



Annex D: Stakeholders Consulted

Name	Organisation
• Carwyn Jones-Evans • Claire Miles • Reece Simmons • David Owen • Gareth Jones • Peter Williams	Growing Mid Wales Digital Steering Group
• Richard Sewell • Adam Butcher • Matthew Perryman • Peter Williams	Welsh Government
• Gareth Ashman • Susan Corcoran	Wales Office
• Gareth Jones	Swansea Bay City Deal
• Cllr Clive Davies	Ceredigion County Council
• Billy McClean	DCMS
• Nick Speed • Gareth Callen • Menvier Varn	BT
• Dominic Kearns	Fibrus
• Giles Phelps • Matt Chilcott • Justin Leese	Spectrum Internet (now Ogi)
• Claire Phelps	Simwood
• Ann Elias • Aled Huxtable • Jamie Potter	Network Rail