



# **The Marches Digital Strategy**

**A Report by Hatch Regeneris**



# **The Marches Local Enterprise Partnership**

## **The Marches Digital Strategy**

**October 2019**

**[www.hatchregeneris.com](http://www.hatchregeneris.com)**



# Contents Page

<b>1.</b>	<b>Introduction</b>	<b>2</b>
	The Marches Digital Strategy 2020-25	2
	Introducing The Marches	3
<b>2.</b>	<b>Why Digital?</b>	<b>7</b>
	Our Vision and Goals	9
	The Strategic Imperative	10
	Role of Digital Technology in The Marches	16
<b>3.</b>	<b>Making the Case: Digital Infrastructure</b>	<b>18</b>
	Digital Connectivity: Fixed Broadband	18
	Digital Connectivity: Mobile	28
	Stakeholder Sentiments	32
	Infrastructure: Strategic Implications	33
<b>4.</b>	<b>Making the Case: Digital Business</b>	<b>35</b>
	Core Economic Sectors	36
	Emerging Sectors	43
	Enabling Sectors	45
	Digitally-Dependent Businesses	46
	Enterprise and Innovation	54
	Key Stakeholder Sentiments	57
	Business: Strategic Implications	58
<b>5.</b>	<b>Making the Case: Digital People</b>	<b>60</b>
	Digitally Driven: Skills	60
	Digitally Driven: Social Inclusion	65
	Key Stakeholder Sentiments	67
	People: Strategic Implications	68
<b>6.</b>	<b>Making the Case: Digital Places</b>	<b>70</b>
	Digitally Driven: Growth and Regeneration	70
	Digitally Driven: Public Sector Services	75



	Digitally Driven: Natural Environment	77
	Digitally Driven: Transport	79
	Key Stakeholder Sentiments	81
	Place: Strategic Implications	81
<hr/>		
<b>7.</b>	<b>Making the Case – Digital Assets and Projects</b>	<b>84</b>
	Key Stakeholder Sentiments	86
	Assets and Projects: Strategic Implications	87
<hr/>		
<b>8.</b>	<b>A Digital Future – Delivery Framework</b>	<b>89</b>
	Strategic Framework	89
<hr/>		
<b>Appendix A - Consultees</b>		



# 1

## Introduction



# 1. Introduction

## The Marches Digital Strategy 2020-25

- 1.1 This document presents a new **Digital Strategy for The Marches Local Enterprise Partnership (LEP) area**, covering the period **2020-25**.
- 1.2 It sets out the narrative and foundation for a digital future across The Marches – one which is founded upon the ingredients which are key to thriving, technology-driven and productive places. Collectively, these factors will underpin a sub-regional economy which is competitive, inclusive, sustainable and primed for growth.
- 1.3 Critically too, the document provides the basis for the delivery of strategic imperatives set out with the National Industrial Strategy and Marches Strategic Economic Plan (SEP), helping to support the growth of key sectors, boost the local productivity and maximise opportunities for local people to succeed and prosper.
- 1.4 In the context of economies, institutions and communities which are undergoing rapid digitisation, it is critical The Marches is prepared for and willing to embrace digital technologies. A strategic response, encompassing both the private and public sector is therefore critical, to ensure the challenges most likely to hold back The Marches are addressed and the most prominent opportunities exploited.

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*The case for digital is compelling and, as detailed within this strategy, sets the stage for a new wave of applications and uses, in a variety of business, societal and environmental settings, across The Marches...*

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### Strategic Rationale

- 1.5 The rationale for the development of a Marches Digital Strategy is built on the following drivers:

- **The LEP's ambition to be a digital leader:** demonstrate exemplar digital application and adoption in an urban and rural context.
- **The background of national, sub-regional and local policy:** places considerable emphasis on digitisation and the importance of technology.
- **The need to feed into emerging policies:** particularly the emerging Marches Local Industrial Strategy (LIS).
- **The opportunity to build on strong existing digital assets and characteristics:** these are key to The Marches' relative advantages and distinctiveness.
- **The need to fully exploit the benefits of a digitised economy:** of growing importance as technology disrupts and drives new economic value, productivity and efficiency.
- **The value of understanding how locally important sectors interface with technology:** knowing how this is applied in the present and their firms' future digital needs.
- **The chance to showcase key digital assets:** observed through the lens of facilities, assets and digital infrastructure.
- **The opportunity to crystallise digital strengths and weaknesses:** setting out the rationale for intervention and prioritisation of LEP resources.



- 1.6 Above all, this document provides the basis for the LEP and its partners to set a proactive digital agenda; one which is founded on a willingness to shape, inform and act. With a Digital Strategy in place, The Marches is well-positioned to develop, stimulate and deliver digital activity.

## Introducing The Marches

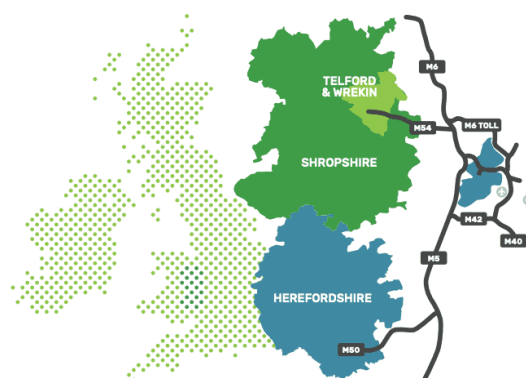
- 1.7 The Marches LEP lies at the heart of England, spanning a large area which links the West Midlands with the North West and Wales<sup>1</sup>. Economically diverse, industrially significant, home to revered natural landscapes and made up of historically significant settlements and new towns, The Marches reflect the best of the UK's heritage, whilst also being a symbol of bold and progressive economic change.

- 1.8 The LEP area comprises three local authorities which cover over 2,300 square miles:

- **Herefordshire County**
- **Shropshire County**
- **Telford & Wrekin**

- 1.9 The Marches features extensive rural areas, punctuated by important urban centres, such as Telford, Shrewsbury and Hereford, all of which have a valuable economic function. The economy is shaped by location and proximity to neighbouring areas, with a distinctiveness to the sectors and businesses which thrive in the north, south and centre of the LEP area. Intrinsic to the characteristics of The Marches are the exceptional quality of life, strong connectivity, entrepreneurial spirit and successful commercialisation of innovation and technology.

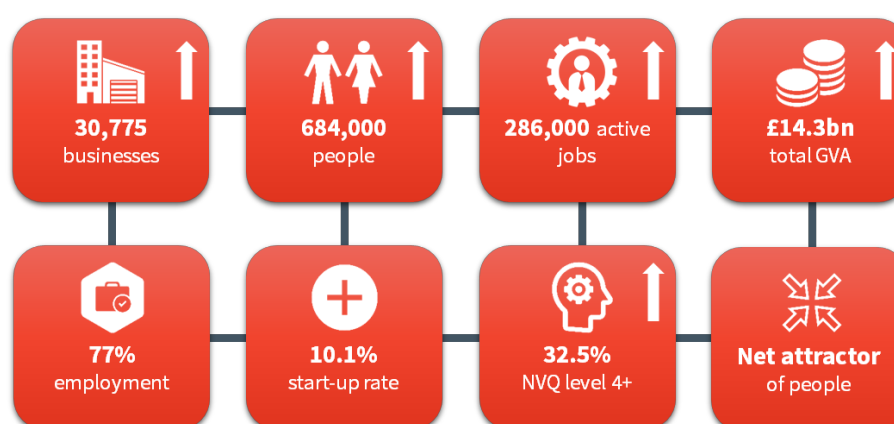
Figure 1.1 The Marches Geography



Source: The Marches Local Enterprise Partnership, 2019

## The Marches Economy

- 1.10 Some key hallmarks of The Marches, as an economy and place, are set out below<sup>2</sup>:



<sup>1</sup> By way of an example, the average journey time to Birmingham from Telford is one hour.

<sup>2</sup> Marches LEP Strategic Economic Plan Evidence Base, October 2018. Arrows denote growth trajectory.



1.11 Headline economic trends showcasing The Marches' growth include:

- **Significant population growth** – 2.4% increase in total population from 2014-2017
- **A rapidly growing business base** – 8.6% expansion in businesses from 2014-17
- **An expanding employment base** – rise of 2.7% in total employment
- **Increasing economic output** – experienced a 0.9% year-on-year rise in GVA
- **Low unemployment rates** – experienced sustained unemployment drops
- **A growing pool of skilled labour** – NVQ level 4+ numbers have increased by 1.1%
- **An attractive relocation proposition** – a net inflow of nearly 3,000 people
- **A differentiated local economy** – growth in specialised sub-sectors
- **Emerging standout strengths** – environmental activity and cyber security prospects

1.12 Beyond this, a key hallmark of The Marches is its unique blend of assets:



**Significant anchor employers** – the Marches is home to a number of sizeable and multinational firms, who play a significant economic role in and have extensive supply chains, including the Ministry of Defence, BAE Systems, Ricoh, Denso, GKN Land Systems, Caterpillar Remanufacturing, Muller Wiseman Dairies, Avara Foods and Cap Gemini.



**Exceptional natural space** – the Marches features natural landscapes which are internationally celebrated and attract visitors, residents and investors from far afield, including the Shropshire Hills and Wye Valley Areas of Outstanding Natural Beauty (AONB) and UNESCO World Heritage Sites such as Ironbridge Gorge.



**National and regional connectivity** – the Marches is served by extensive road and rail links, emphasising strong connections to the West Midlands, South West, North West and Wales, enabling the efficient movement of people, goods and intellectual property and making the area accessible to visitors.



**Higher education excellence** – the LEP area is blessed with a strong and varied higher education presence, including the University of Wolverhampton, the New Model in Technology and Engineering (NMiTE), Harper Adams and University Centre Shrewsbury, with each offering contemporary and innovative education and training provision.



**Strong partnerships** – the Marches benefits from robust governance constructs, which underpin public-private partnerships that are delivering an ambitious and progressive economic development agenda, whilst also strengthening the area's investment proposition.



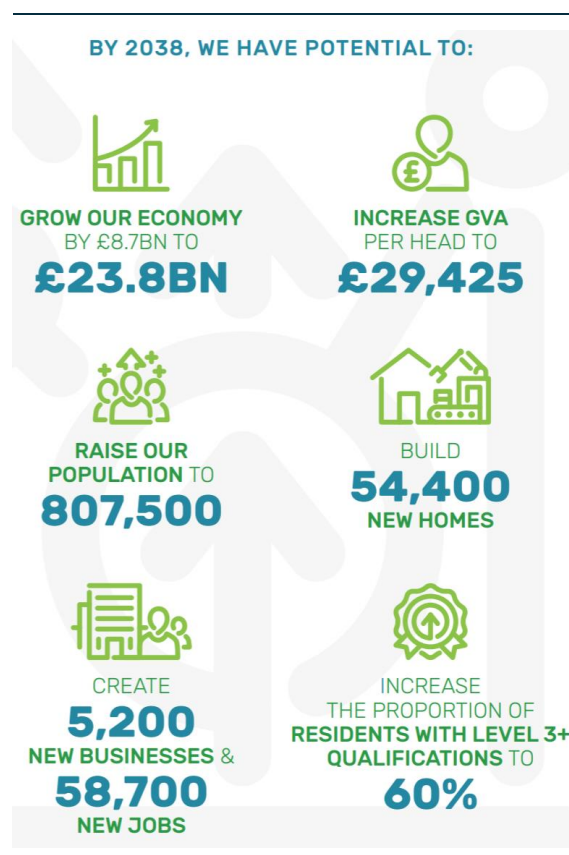
## Continued Evolution

1.13 Whilst The Marches is defined by its economic assets and characteristics, it is also undergoing a continued process of evolution, as both a place and sub-regional economy. The key drivers which are shaping and will influence The Marches in the future include:

- **Regeneration and growth** – a variety of regeneration schemes are helping to re-position The Marches, enhance its attractiveness and emphasise the importance of place-shaping and local character. This includes the development of new homes, commercial space and public amenity.
- **Inward investment** – the LEP area continues to attract inward investment and relocations, providing new and expanded employment opportunity and establishing a fresh wave of firms operating across a variety of sectors and industries.
- **Infrastructure enhancements** – infrastructure improvements lie at the heart of supporting more productive and liveable places, with a number of projects helping to enhance the physical and virtual movement of people, goods and services.
- **Labour force dynamics** – an appropriately educated and skilled workforce remains of paramount importance, with a number of initiatives and assets in place to enhance employability outcomes and ensure employer skills needs are met by local people.
- **Flagship projects** – ambitious investments in new and specialised facilities, such as a Centre for Cyber Security, are setting the tone for a new economic direction, which is targeting growth in priority sectors and seeking to drive up productivity levels.

1.14 Whilst The Marches is growing, complex and in many cases, comparatively well-positioned, it is operating in an increasingly competitive globalised economy. Intrinsic to this, are the disruptive and transformative effects of technology, heralding new forms of competitive advantage, the emergence of new sectors and creation of new types of employment.

**A full strategic consideration of these effects and development of an associated policy platform is therefore critical if The Marches is to succeed on a global stage and maximise the digital benefits for businesses and citizens.**



Source: The Marches Strategic Economic Plan, 2019



# 2

## Why Digital?

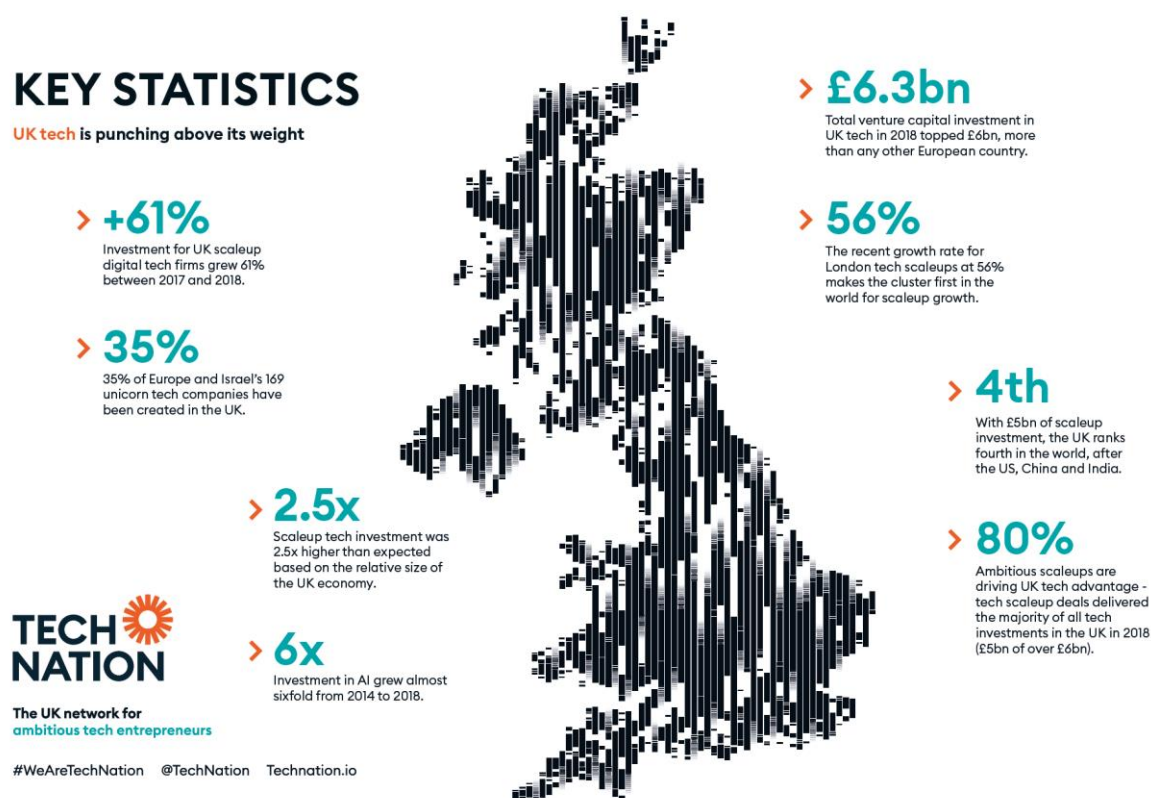


## 2. Why Digital?

- 2.1 The concept of digital has many connotations and means different things to different audiences. Regardless of the preferred definition, **digitisation is increasingly ubiquitous and touches on almost every aspect of daily life.**
- 2.2 Technology has and continues to have a transformational impact on society, with the pace of change ever increasing. This has led to new applications, the ability to access information immediately, established truly global connections, driven new forms of economic value and allowed transactions and services to be delivered in a virtual space. There are real risks associated with not embracing a proactive digitised approach.

*In the digital world we now inhabit, technology is embedded throughout, with digital infrastructure, the internet and virtual environments (such as 'the cloud') at the heart of this ecosystem. The importance of digital technologies is seen everywhere, often goes unnoticed and has unlocked economic, social and environmental opportunity...*

Figure 2.1 UK Tech Sector – Key Statistics<sup>3</sup>



Source: Tech Nation, 2019

- 2.3 The importance of digital technology is framed in a number of ways, with these increasingly relevant to a wide spectrum of sectors, industries and firms:

<sup>3</sup> Note – the UK Tech sector is defined by Tech UK, reflecting the broad spectrum of businesses (large and small) operating within industries that are making applied use of digital technologies. This is reflective of Tech UK's membership base and the increasing breadth of companies who are influenced, shaped and disrupted by technology.



- **Economic impact** – the 2018 Tech Nation report estimated the value of the UK's Tech economy to be worth £184 billion, growing at a rate nearly 3 times faster than the rest of the UK economy. A digitised economy is making a growing contribution to national prosperity, leveraging significant investment, driving innovation and is the cornerstone of scale-up businesses who are experiencing rapid growth<sup>4</sup>.
- **Global competitiveness** – the 2019 Tech Nation report highlights the global race to be digital and the pace of growth internationally, with the UK in close competition with the likes of the United States, Japan, South Korea, China and Germany. Technological development is synonymous with the UK, but this is not occurring in isolation.
- **Progressing environmental sustainability** – digital technology is driving a new wave of innovation and research, developing solutions for the world's most prominent environmental challenges in an integrated and smart way. The potential for widespread smart solutions, deployed on a grand scale, is substantive.
- **A societal leveller** – digital technologies have helped to increase the democratisation of societies, providing new and innovative ways for citizens to contribute to and shape processes, irrespective of locational and geographic limitations. In tandem with robust privacy and security measures, digitisation can accelerate inclusive growth, but the pace of change also makes the risk of a widening 'digital divide' a real concern.
- **A cross cutting enabler** – increasingly identified as cross-cutting factor or an economic enabler, digital technology is increasingly embedded within a broad cross-section of industries, facilitating the development of the fourth industrial revolution (Industry 4.0). It therefore needs to be viewed across a broader continuum, rather than as a standalone industrial sector.
- **Efficient public services** – government, central and local, is undergoing a continued programme of digital transformation, aimed at service delivery improvement, greater efficiency and supporting the delivery of more responsive and predictive services, placing additional power in citizens and businesses' hands. The potential to achieve more is significant.
- **Future movement of people and goods** – digital technology lies at the heart of enabling integrated, efficient and sustainable transportation systems, which make places more liveable, sustainable and economically productive. In addition, technology is helping to accelerate the advent of a new wave of private transportation, including low emission electric automobiles and autonomous vehicles.
- **Facilitating new ways of working** – digital technology is the cornerstone of enabling workers to operate more flexibly, in terms of form, function and location. High quality connectivity and the evolution of hardware has meant that people can work from home, on the move or in the office, with work-life-balance, productivity and environmental sustainability benefits as a consequence. This is a major opportunity within The Marches.

## Demand for Digital Technology

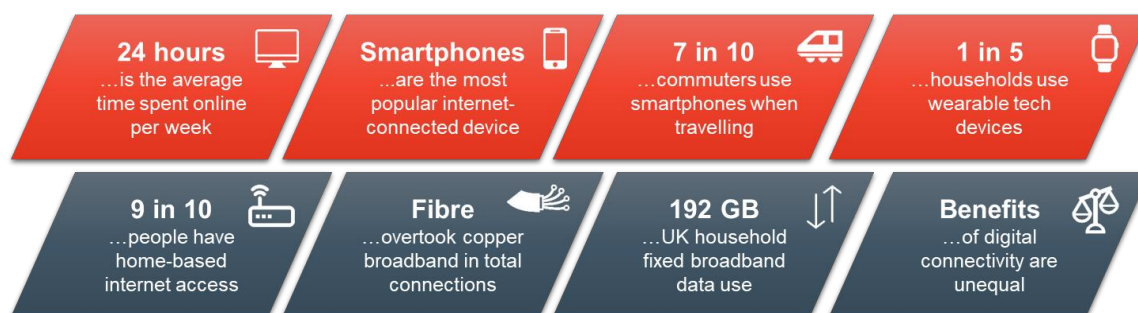
- 2.4 There is an ever-increasing demand for digital services and content, from businesses and consumers, making the case for technology focused strategy even stronger. Recent trends highlight the extent to which digital mediums are used on a day-to-day basis.

<sup>4</sup> 2018 figures have been quoted due to a lack of replicable data in the 2019 report.



- 2.5 The data tells a compelling story where, in the past decade, the use of technology devices, access to digitised information, consumption of digital content and online transaction of goods and services has grown exponentially. These trends are expected to continue, buoyed by improved digital infrastructure access and technological advancements, introducing new use cases and enhancing the digital experience even further.

Figure 2.2 Recent UK Digital Trends



Source: Ofcom Communications Market Report, 2018

## Our Vision and Goals

- 2.6 Building on this strategic rationale and acknowledging the overarching importance of 'being digital', this Digital Strategy sets out an ambitious vision for The Marches. This provides an intended point of destination, framing goals and interventions.

### Our Digital Strategy vision is:

***"The Marches will strive to develop an ambitious digital ecosystem, allowing the benefits of technology and connectivity to be captured fully by our businesses, people, places and natural environment, serviced by the highest quality and most appropriate digital infrastructure and technology."***

- 2.7 This vision informs a series of goals, that are designed to ensure the positive effects of digitisation are far-reaching, meaningful and position The Marches as a digital leader.

### Our Digital Strategy goals are:






## The Strategic Imperative

2.8 There are a number of national, regional and local strategies **which reflect the inherent importance and relevance of digitisation and technology**, within a policy context. These set out a strong commitment to developing and extending national competitive advantages and outline ambitious plans which seek to position technology at the heart of a truly digitised economy. They also advocate the benefits of digitisation through a societal and environmental lens, acknowledging the transformative effects of technology.

Importantly, they provide an emphatic foundation from which to develop a locally-relevant Digital Strategy, which draws upon a national, sub-regional and local policy imperative. Those with the greatest significance to The Marches are summarised below.

Table 2.1 Key Strategies and Policies Shaping the Digital Agenda

Policy	National	Overview
<b>UK Industrial Strategy, 2017</b> Her Majesty's Government 	<ul style="list-style-type: none"> <li>• The Industrial Strategy aims to deliver sustained economic growth, close regional performance disparities and boost the earning power of people across the UK.</li> <li>• The strategy is rooted in 'five foundations' which are the focus for boosting national productivity and harnessing the economic value of innovation and research:                             <ul style="list-style-type: none"> <li>• <b>Ideas</b> – making the UK the world's most innovative economy</li> <li>• <b>People</b> – creating good jobs and greater earning power for all</li> <li>• <b>Infrastructure</b> – a major upgrade to the UK's infrastructure</li> <li>• <b>Business Environment</b> – making the UK the best place to start and grow a business</li> <li>• <b>Places</b> – creating prosperous communities across the UK</li> </ul> </li> <li>• The Industrial Strategy commits to:                             <ul style="list-style-type: none"> <li>• Boosting the nation's digital infrastructure with over £1bn of public investment, including £176m for 5G and £200m for local areas to encourage the roll out of full-fibre networks.</li> <li>• Ensuring the economy becomes driven by AI and data to secure large-scale improvements in productivity and innovation.</li> </ul> </li> </ul>	Driving up digital skills, through a new entitlement for adults who lack core digital skills to access specified basic digital skills training free of charge and from new digital T levels, digital apprenticeships and degree apprenticeships.




Policy	Overview
<p><b>UK Digital Strategy, 2017</b> Her Majesty's Government</p> 	<ul style="list-style-type: none"> <li>• Links to the government's Industrial Strategy, building an economy that works for everyone, and ensures that wealth and opportunity are spread across the country.</li> <li>• Part of a policy framework which is designed to secure Britain's future economic success and competitiveness, post-Brexit, with government backing businesses to invest for the long term.</li> <li>• The strategy is founded on seven key strands: <ul style="list-style-type: none"> <li>• <b>Building world-class digital infrastructure for the UK</b></li> <li>• <b>Giving everyone access to the digital skills they need</b></li> <li>• <b>Making the UK the best place to start and grow a digital business</b></li> <li>• <b>Helping every British business become a digital business</b></li> <li>• <b>Making the UK the safest place in the world to live and work online</b></li> <li>• <b>Maintaining the UK government as a world leader in serving its citizens online</b></li> <li>• <b>Unlocking the power of data in the UK economy and improving public confidence in its use</b></li> </ul> </li> </ul>
<p><b>Future Telecoms Infrastructure Review, 2018</b> Department for Media Culture and Sport</p> 	<ul style="list-style-type: none"> <li>• The Future Telecoms Infrastructure Review details the changes that need to be made to the UK telecoms market and policy framework to ensure the government meets its goals of universal national fixed broadband coverage by 2033 and 5G coverage to the majority of the population by 2027.</li> <li>• The review commits to securing nationwide full fibre connectivity by making the UK globally competitive by: <ul style="list-style-type: none"> <li>• <b>Addressing deployment barriers and reducing costs</b></li> <li>• <b>Providing easy access to passive infrastructure in telecoms and other utilities, to support market entry</b></li> <li>• <b>Stable and long-term regulation that encourages competitive network investment</b></li> <li>• <b>Full fibre connectivity for all through an 'outside in' approach to deployment</b></li> <li>• <b>Maximising the number of people who switch to a full fibre future</b></li> </ul> </li> <li>• To review sets ambitions for the UK to become a world leader in 5G, suggesting its deployment will be driven by competition and efficiency benefits and also create opportunities for existing and new wireless technology providers.</li> <li>• The report also notes the growing convergence of fixed and wireless technologies with an integrated approach necessary to support the deployment of 5G and offer the speed and seamless access required by end users.</li> <li>• The review's recommendations are deliberately stretching and will require substantive inroads in full fibre connectivity versus the current national position, in order for these to be achieved.</li> </ul>



Policy	Overview
Regional/Sub-Regional	
<p><b>Midlands Engine Strategy 2017</b></p> <p>Her Majesty's Government</p> 	<ul style="list-style-type: none"> <li>• The Midlands engine stems from the Government's Industrial Strategy and represents a place-based focus on stimulating sustained growth increasing productivity.</li> <li>• It has an extensive geography, capturing areas within The Marches.</li> <li>• The partnership has five key objectives that are the focus for the Midlands Engine: <ul style="list-style-type: none"> <li>• <b>Improving connectivity in order to raise productivity</b></li> <li>• <b>Strengthening skills in order to make the Midlands a more attractive location for businesses</b></li> <li>• <b>Supporting enterprise and innovation in order to foster a more dynamic regional economy</b></li> <li>• <b>Promoting the Midlands nationally and internationally in order to maximise trade and investment in the region</b></li> <li>• <b>Enhancing quality of life in order to attract and retain skilled workers, as well as to foster the local tourist economy</b></li> </ul> </li> <li>• The government is keen to establish 5G testbeds in the region, placing the Midlands at the vanguard of the next wave of digital technologies, in tandem with modernising digital infrastructure and using digital technology to improve the delivery of training locally.</li> <li>• This has led to the West Midlands becoming the UK's first large-scale 5G testbed, clustered around Birmingham, Coventry and Wolverhampton,</li> <li>• The regional digital strengths are acknowledged, including cyber security clusters in Malvern, Hereford and Nottingham, and the games development clusters in Leamington Spa and Coventry.</li> <li>• The report also acknowledges Marches strengths, such as the presence of Capgemini and HMRC in Telford.</li> </ul>
<p><b>Marches Strategic Economic Plan, 2019</b></p> <p>The Marches LEP</p> 	<ul style="list-style-type: none"> <li>• The Marches Strategic Economic Plan sets out the vision and priorities for the area, highlighting the local assets that will drive the area forward as well as the barriers preventing The Marches from reaching its full potential.</li> <li>• The vision for the area covers eight key components, all of which are shaped by digital capability and connectivity: <ul style="list-style-type: none"> <li>• <b>A place that is open for business</b></li> <li>• <b>At the forefront of changes in how people live and work</b></li> <li>• <b>A growing place attracting more people to come</b></li> <li>• <b>A destination not a boundary</b></li> <li>• <b>A pioneer in digitally driven health and social care solutions</b></li> </ul> </li> </ul>



Policy	Overview
	<ul style="list-style-type: none"> <li>• <b>A global centre for advanced manufacturing</b></li> <li>• <b>An inclusive place that enables all residents to thrive and develop</b></li> <li>• <b>A collaborative and proactive place</b></li> </ul> <p>The strategy recognises the significant technological change that Marches economy is set to experience through enhanced digital connectivity, with the development of new emerging technologies (5G, artificial intelligence, Internet of Things (IoT), virtual reality, augmented reality, mixed reality and smart grids).</p> <p>The strategy also notes the importance of digitisation relative to skills, and the changing needs of employers.</p> <p>A fundamental element of the strategy is to support businesses and residents to adapt and make most of the opportunities stemming from a more digitally connected future.</p>
<p><b>The Marches Three Year Skills Plan, 2017</b></p> <p>The Marches LEP</p> 	<ul style="list-style-type: none"> <li>• The Skills Action Plan complements The Marches Strategic Economic Plan and its core ambition is to ensure a skilled and flexible workforce is in place to support the area's growth agenda.</li> <li>• The action plan recognises a demand for higher level skills, where the area is under-represented by higher skilled occupations and a below average level of workers with a degree qualification or higher.</li> <li>• In order to combat skills shortages and gaps the education offer needs to better align with the skills of priority sectors.</li> <li>• The plan also notes the need to develop a strong base of digital skills, necessitated in a contemporary workplace.</li> <li>• The plan has also acted as a precursor to the development of the Marches Skills Advisory Panel in 2019, which is designed to support the LEP in understanding its current and future skills needs and labour market challenges.</li> </ul>
<p><b>Local Broadband Plans</b></p> <p>Connecting Shropshire, Fastershire, Superfast Telford</p>	<p><b>Local</b></p> <ul style="list-style-type: none"> <li>• Each local broadband programme across The Marches retains a Local Broadband Plan.</li> <li>• These are directing public sector infrastructure investment and a broader range of interventions to address market failures and secure enhanced superfast, full fibre and mobile coverage.</li> <li>• They also have a focus on adoption, securing take-up and impact exploitation, supporting initiatives that will ensure residents and businesses benefit fully from digital infrastructure access.</li> <li>• Each are subject to review and align closely with government policy and initiatives.</li> </ul>



Policy	Overview
<p><b>Invest Herefordshire – Herefordshire’s Economic Vision</b></p> <p>Herefordshire Council</p> 	<ul style="list-style-type: none"> <li>• The vision recognises digital infrastructure and capacity as a major economic challenge for the area (fixed and mobile connectivity).</li> <li>• It sets out the Council’s response to these challenges, including a package of infrastructure investments.</li> <li>• The vision notes the need to increase the level of skills in the workforce as a fundamental component to secure long term economic growth and a shift towards high performing and high value-added sectors.</li> <li>• The document sets out seven key aims that will deliver the vision, alongside a series of projects against each which will bring these into fruition.</li> </ul>
<p><b>Economic Development Strategy, 2016</b></p> <p>Telford and Wrekin Council</p> 	<ul style="list-style-type: none"> <li>• The report sets out the council’s vision and strategy for the economic development of the area.</li> <li>• Notably, the strategy commits to: <ul style="list-style-type: none"> <li>• <b>Growing opportunity and high employment sectors</b></li> <li>• <b>Transforming physical and digital connectivity</b></li> <li>• <b>Improving the skills and talent pool within the borough</b></li> </ul> </li> <li>• The strategy advocates Telford’s physical and digital connectivity as being a key part of the area’s strong offer to inward investors and supports economic activity and growth, whilst providing access to national and international markets.</li> </ul>
<p><b>Economic Growth Strategy, 2017-2021</b></p> <p>Shropshire Council</p> 	<ul style="list-style-type: none"> <li>• The strategy sets out the council’s commitment and ambition to grow the economy of the county through six key priority actions.</li> <li>• The strategy commits to targeting growing and underrepresented sectors, including several with an overt digital focus such as creative and digital industries, environmental science and tech and advanced manufacturing, engineering, agri-food and Agri-tech.</li> <li>• The strategy notes the need to work with the health and higher education sectors on opportunities for us to become an area renowned for advancements in health and social care technologies.</li> <li>• It also commits to ensuring that mobile connectivity and broadband provision across Shropshire supports the council’s growth ambitions and fulfils the requirements of residents and employers.</li> </ul>



## Best Practice – Digital Strategy Exemplars

2.9 There is **compelling evidence of digital strategies being implemented to good effect elsewhere**, further exemplifying the rationale to ‘think digital’. These span the UK and demonstrate the value of a progressive policy making approach and the need to be mindful of intense competition across other LEPs and city regions.

2.10 The table below identifies a series of strategies **which are a useful reference point** and include examples of policy making driving an aggressive digital agenda forward. Critically too, these feed into complementary strategies, including economic development policies, which strive towards growth and productivity gains. They also provide a flavour of where there are overlapping issues and opportunities and hint at the traction that these reports have gained.

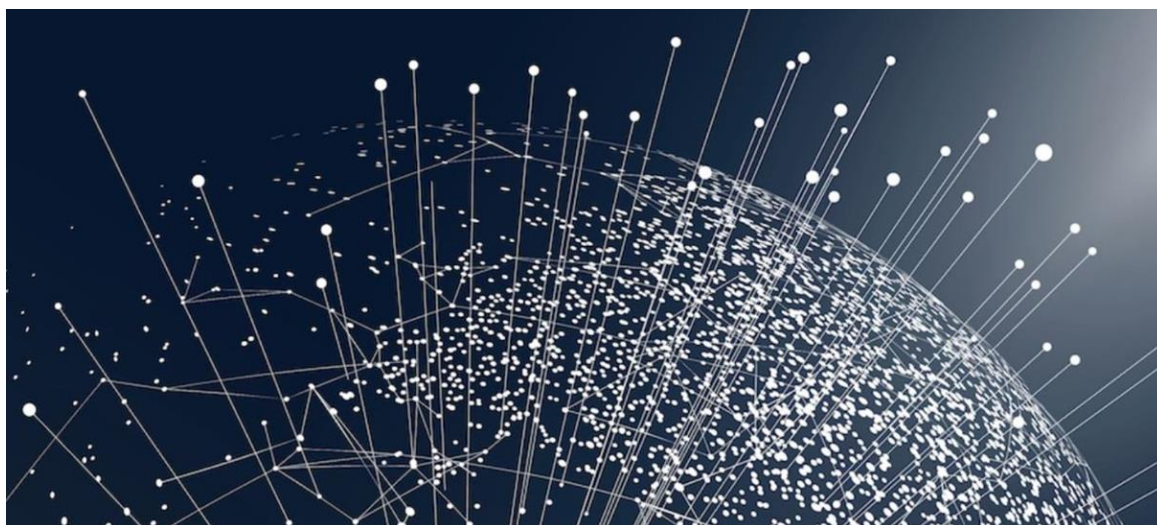
*Other strategies further strengthen the rationale for a compelling Digital Strategy in The Marches – one which is ambitious and seeks to deliver lasting impact...*

Table 2.2 Digital Strategy Exemplars	
Digital Strategy	Examples of Success and Momentum
Her Majesty's Government UK Digital Strategy	<b><i>Setting a nationwide digital course...</i></b> <ul style="list-style-type: none"> <li>Directly aligns with the UK Industrial Strategy.</li> <li>Makes a compelling case for far-reaching national level ambitions.</li> <li>Sets out the links between technology, growth and productivity.</li> <li>Makes the case for the universal digitisation of the economy – sectors, industry and skills.</li> <li>Positions digital technologies as being critical to innovation.</li> </ul>
Greater Manchester Digital Strategy 2018-2020	<b><i>Delivering action and tangible outcomes...</i></b> <ul style="list-style-type: none"> <li>Sets out seven measures/indicators of success and targets to measure performance</li> <li>Outlines a series of actions that will be undertaken against each theme of the strategy</li> <li>Led to the Greater Manchester Combined Authority releasing a tender to connect 1,300 public sites with full fibre infrastructure.</li> </ul>
West Midlands Combined Authority Digital Strategy	<b><i>Developing digital leadership capacity...</i></b> <ul style="list-style-type: none"> <li>A tangible signal of intent and regional digital ambitions.</li> <li>Devised an Urban Challenge Award to procure technology-based solutions to one of four key urban challenges (wellbeing, housing, youth unemployment and digital citizenship).</li> <li>Successful in bidding to become the UK's first wide-scale test bed for 5G technology – awarded £25m by the government's Urban Connected Cities programme.</li> <li>Pushing towards the appointment of a Chief Digital Officer.</li> </ul>
Cambridgeshire and Peterborough – Digital Sector Strategy	<b><i>Collaboration through consensus...</i></b> <ul style="list-style-type: none"> <li>Sets out nine key domains of activity, with a series of recommendations targeted at both the public and private sector.</li> <li>Broad reaching consultation to develop consensus on priorities.</li> <li>Leverages the scale of a broad geographical area, acknowledging the distinctiveness of the county's cities, towns and rural areas.</li> </ul>



## Role of Digital Technology in The Marches

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- 2.11 This Digital Strategy has been developed through **an in-depth review of digital technologies and their relevance to The Marches**. A thematic approach is used to baseline The Marches' digital capabilities and distinctiveness, demonstrating its cross-cutting relevance, whilst balancing a compelling research base with local stakeholder perspectives.
- 2.12 The Strategy also observes the DCMS's Connected Growth manual, which provides a framework for assessing place-based digital characteristics<sup>5</sup>. This ensures a holistic review of key digital factors that underpin The Marches' economy.
- 2.13 The analysis is built around the following themes:
- **Digital Infrastructure** – assessing digital connectivity across The Marches.
  - **Business** – a review of how technology is impacting on key sectors, innovation and the extent to which The Marches is home to the most digitally-dependent businesses.
  - **People** – looking at the influence of digital on skills and the extent to which people are excluding from the benefits of access.
  - **Places** – exploring the role of digital in the context of contributing to the success and vitality of places across The Marches.
  - **Digital Assets and Projects** – establishing a baseline of assets and activities that are propelling the digital growth forward.
- 2.14 The evidence base considers current conditions and the digital characteristics of The Marches. It also takes a forward-facing perspective, taking stock of the rapid pace of technological change, further digital disruption and new use cases.

<sup>5</sup> <https://www.gov.uk/government/publications/connected-growth>



# 3

## Digital Infrastructure



### 3. Making the Case: Digital Infrastructure

- 3.1 The quest for globally competitive and future-proof digital connectivity has been a high priority agenda for some time, with a blend of private investment and public stimulus accelerating the rollout of fixed fibre-based technologies and the latest incarnation of mobile services. Government and private sector focus on extending coverage is stronger than ever, with an emphasis on closing the 'digital divide' and leveraging the potential of public sector assets, beyond direct and gap funded investment models.
- 3.2 Whilst access to high speed and seamless connectivity is now the expected norm, utilisation is also key. The benefits of digital infrastructure access can only be maximised through the widespread adoption of connectivity, including the take-up of fixed and mobile broadband.

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*Digital infrastructure is a key ingredient in dynamic, successful and digitised places. It is a key enabler that facilitates the deployment of technology in a variety of settings...*

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#### Digital Connectivity: Fixed Broadband

- 3.3 Fixed broadband is the cornerstone of digital infrastructure connectivity across The Marches. Reaching homes and businesses, it also backbones mobile networks and wireless connectivity, which service communities across the LEP's three local authority areas.
- 3.4 Public sector bodies have played a progressive and active role in securing investment to extend superfast and ultrafast broadband coverage, through co-investment with Building Digital UK (BDUK), voucher-led grant programmes, European funding and extensive work to stimulate commercial activity. This has yielded significant rewards, delivering fibre into unviable areas and pushing it deeper into rural locales.

Table 3.1 Marches Broadband Projects

<p><b>Fastershire</b></p> 	<p><b>Fastershire</b> is a partnership between Herefordshire Council and Gloucestershire County Council to bring faster broadband to the two counties, with funding from central government's Broadband Delivery UK matched by the local authorities. The ultimate aim is that by the end of 2019/20 there will be access to fast broadband for all who need it. The project also includes social and digital inclusion activities, and a targeted business support programme (Faster Business).</p>
<p><b>Connecting Shropshire</b></p> 	<p><b>Connecting Shropshire</b> is a programme bringing faster broadband to areas where it isn't economically viable for commercial companies to provide it. The aspiration is to deliver superfast broadband to all premises in the Shropshire Council area by 2021, support businesses and residents to optimise the use of broadband, attract commercial investment, promote take-up and work with the Mobile Network Operators to extend 4G and 5G coverage.</p>



**Superfast Telford**

**Superfast Telford** is the Council's broadband programme which aims to change the way people live, work, learn, socialise and do business for the better. Through public and private investment, it is delivering improved broadband to homes and businesses that would not have benefitted through commercial provision alone. The project is complemented by a number of national schemes aimed at connecting unserved premises and the Council continue to explore ways to secure further investment.

Source: Connecting Shropshire, Fastershire, Superfast Telford, 2019

- 3.5 Fixed digital infrastructure remains an integral part of the overall connectivity mix, shifting towards the rollout of full fibre networks, which deliver gigabit speeds and underpin next generation mobile and wireless connectivity.

## Current Connectivity

- 3.6 Fixed broadband connectivity across The Marches can be analysed by observing:
- **Universal Service Obligation (USO)** – premises obtaining less than 10 Mbps (download) and 1 Mbps (upload)<sup>6</sup>
  - **Superfast broadband** – premises obtaining speeds of 30 Mbps (download) or greater.
  - **Full fibre broadband** – premises which are capable of accessing gigabit speeds<sup>7</sup>.
- 3.7 Current fixed connectivity paints a mixed picture yet is in a constant state of flux:

Table 3.2 Fixed Broadband Coverage (% Premises)			
Local Authority	USO Coverage	Superfast Coverage	Full Fibre Coverage
Herefordshire	93	89	20
Shropshire	96	94	6
Telford and Wrekin	99	98	3
<b>The Marches</b>	<b>96</b>	<b>94</b>	<b>10</b>
England	98	97	9

Source: Thinkbroadband, September 2019

- 3.8 Fixed connectivity across The Marches is strong with full fibre coverage broadly in line with the national average and superfast somewhat lagging. USO broadband coverage is considerable but issues are most pronounced in Herefordshire, however. Within each local authority, coverage is more variable and largely reflects the relative rurality and topography of each. Telford and Wrekin has the highest levels of superfast and USO coverage, yet Herefordshire benefits from twice as much full fibre coverage versus the national average.
- 3.9 The Marches exhibits other characteristics with respect to fixed broadband connectivity:

<sup>6</sup> The USO will give people in the UK the right to request a decent and affordable broadband connection with eligible homes and businesses able to request a connection, where the cost of building it is no more than £3,400. The USO threshold speed is 10 Mbps (download) and 1 Mbps (upload).

<sup>7</sup> Note – the government's 2025 full fibre targets are likely to mean that a technology agnostic approach will be adopted, with the emphasis on gigabit speed capability rather than prescribing full fibre connections.



- **Herefordshire** – no Virgin Media presence, yet Openreach has a sizeable full fibre footprint. Despite this, some 7% of premises still achieve speeds below legal Universal USO levels.
- **Shropshire** – has distinctly lower levels of full fibre coverage, lagging the national average, but benefits from a similar number of premises being below the USO.
- **Telford and Wrekin** – has high superfast coverage in line with its more urban characteristics, driven by Virgin Media’s footprint, yet has the lowest full fibre coverage.

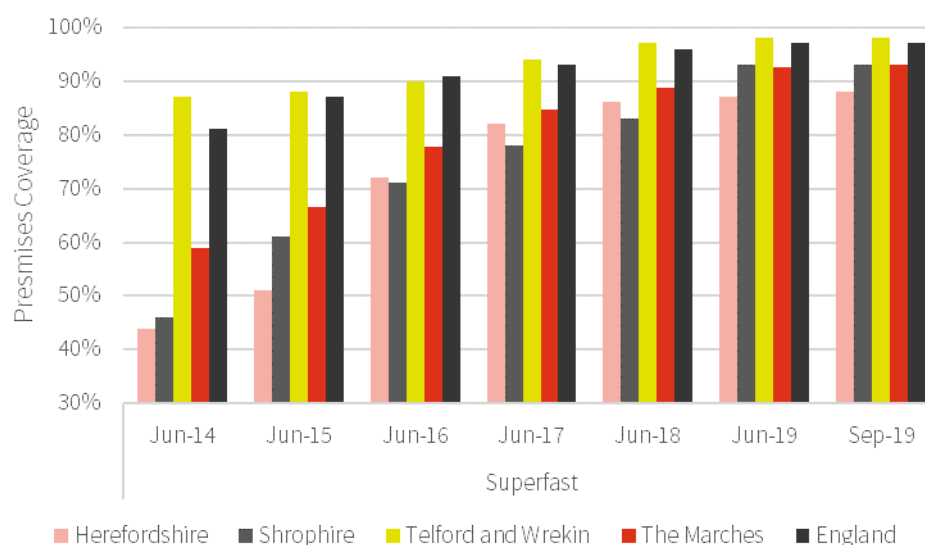
3.10 Putting The Marches’ coverage in greater context, its performance is reasonably strong amongst selected comparator LEPs from across the UK. The LEP has the joint second highest level of superfast coverage, joint third USO coverage and second highest full fibre coverage – impressive considering the relative rurality of The Marches and the very high levels of European investment in Cornwall and the Isles of Scilly.

Table 3.3 Fixed Broadband Coverage (% Premises)			
LEP	USO Coverage	Superfast Coverage	Full Fibre Coverage
Cornwall and Isles of Scilly	96	92	37
Cumbria	96	93	5
Greater Lincolnshire	95	92	3
Heart of the South West	96	93	8
<b>The Marches</b>	<b>96</b>	<b>94</b>	<b>10</b>
New Anglia	97	94	3
Stoke-on-Trent and Staffordshire	98	98	4

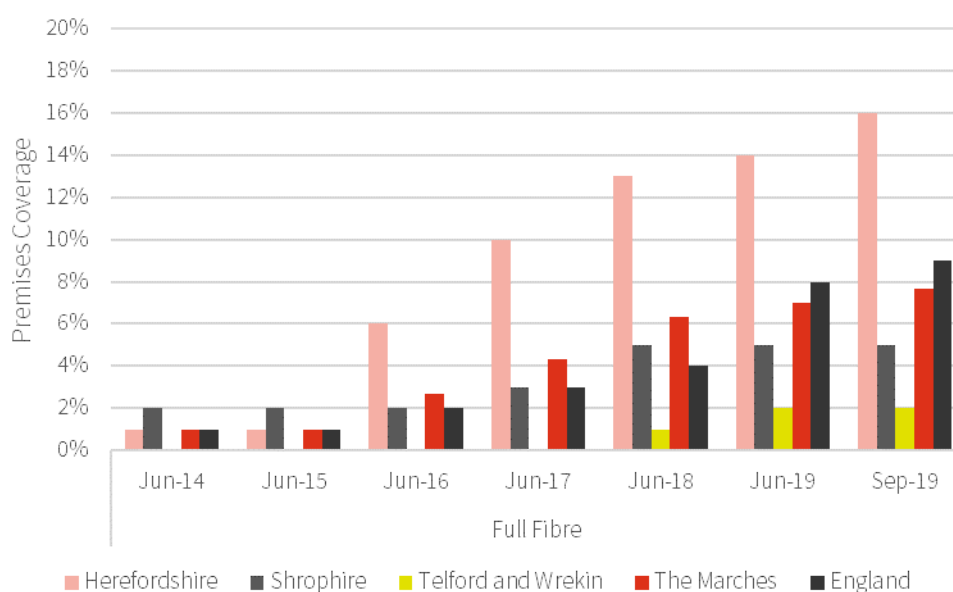
Source: Thinkbroadband, September 2019

3.11 The continued improvement of fixed broadband access over time, across The Marches, is evident. Superfast broadband coverage has seen strong levels of improvement in the past 5 years, with a skew to areas where public sectors funds have been deployed.



**Figure 3.1 Superfast Broadband Coverage (% Premises) – Jun 2014-19**


Source: Thinkbroadband, September 2019

**Figure 3.2 Full Fibre Broadband Coverage (% Premises) – Jun 2014-19**


Source: Thinkbroadband, September 2019

- 3.12 Full fibre coverage has shown steadier signs of improvement, albeit from a very low base. The Marches is positioned in line with the English average, driven largely by extensive full fibre improvements in Herefordshire.

### Spatial Fixed Broadband Coverage

- 3.13 Whilst mapping fixed broadband coverage across The Marches is difficult, the spatial distribution of connectivity 'hot spots' and 'not spots' is an important consideration in understanding the areas which remain without suitable connectivity. They help to illustrate the scale of remaining



connectivity challenges (i.e. non superfast and USO speeds) and the increasingly dispersed nature of these locations.

- 3.14 Whilst market failures continue to be addressed and fibre coverage makes further inroads into increasingly rural areas, the presence of ‘not spots’ remains a significant concern. This includes rural and urban locations, albeit with a heavy skew towards the former. In some cases, these ‘not spots’ are at risk of a more exaggerated digital divide, as full fibre investment increases network capability in areas where existing performance is already strong. This picture sets the scene for future intervention and market stimulation.
- 3.15 In terms of overall patterns of coverage, urban areas offer the strongest levels of connectivity, with a growing density of full fibre networks in some rural areas too (particularly Herefordshire). Particularly challenging locations include the Welsh borders and where topography forms a natural barrier to deployment. In conjunction with looking at the absolute numbers of homes and businesses affected by connectivity challenges, the geographical spread of fibre footprint helps to make the case for future intervention by the public sector.

## Fixed Broadband Adoption

- 3.16 Whilst service availability is an important factor in determining how businesses and citizens may benefit from high speed broadband connectivity, it is important to acknowledge actual service take-up across The Marches. Although the incentive to sign-up to high speed broadband is perhaps stronger than ever (service availability, ISP choice, pricing), the decision to connect remains subject to individual choice.
- 3.17 A variety of campaigns have been initiated (to significant success) helping to increase awareness of service availability and promote the benefits of using higher speed broadband, led by Internet Service Providers (ISPs) and local broadband projects. Whilst not definitive, these have yielded strong broadband take-up across The Marches, although with some degree of variability<sup>8</sup>.

### **BDUK Phase 1:**

- Connecting Shropshire (61%), Fastershire (60%), England BDUK average (58%)

### **BDUK Phase 2:**

- Connecting Shropshire (41%), Fastershire (30%), Superfast Telford (61%), England BDUK average (39%)

- 3.18 There is an opportunity to more fully understand take-up across The Marches and leverage the value of this to stimulate further commercial investment, as well as understand which locations and end users have yet to access higher speed services and target interventions appropriately.
- 3.19 Additionally, whilst these figures are encouraging, there is a need to push for greater take-up across The Marches, such that a much larger pool of homes and businesses are benefitting from digital access. Exploitation is what will ultimately drive economic, social and environmental impacts however, with the need to stimulate take-up and engage target audiences, such that are aware and willing to engage fully with new digital technologies and applications.

<sup>8</sup> Data for Connecting Shropshire, Fastershire and Superfast Telford & Wrekin reflects September 2019 position . Data sourced from respective broadband projects.



## **Future Network Upgrades**

- 3.20 Across The Marches, both the public and private sectors continue to respond to the need for connectivity improvements. Driven by technological advancements, policy stimulus, new use cases and a supportive regulatory environment, investment continues apace, including the accelerated deployment of full fibre.
- 3.21 Partners across The Marches are in the process of developing and delivering strategies which will address fixed connectivity challenges. These are seeking to tackle the remaining superfast 'not spots' in conjunction with pursuing a full fibre agenda, with an acceptance that a mix of interventions are required, rather than a single activity or solely direct investment. The breadth of this is summarised below.



Table 3.4 Planned and Contracted Broadband Activity

Commercial Activity	Openreach
	<ul style="list-style-type: none"> <li>● <b>Fibre First programme</b> – targeting accelerated and more widespread rollout of full fibre networks nationwide, targeting 3 million homes and businesses by 2020.</li> <li>● <b>New build programme</b> – seeking to make it easier and cheaper for developers to deploy full fibre on new build sites, with developments of 30 dwellings or more being the focus.</li> <li>● <b>Community Fibre Partnerships</b> – a scheme aimed at connecting communities that remain out of reach of commercial and public sector deployments, leveraging co-investment.</li> </ul>
	Virgin Media
	<ul style="list-style-type: none"> <li>● <b>Project Lightning</b> – an ongoing programme delivered nationally with an emphasis on existing network extensions, rather than standalone network builds, using technologies capable of speeds in excess of 350 Mbps.</li> <li>● Aims to connect 4 million additional properties by 2020, funded through £3bn of investment.</li> <li>● Includes some new build elements, where full fibre technologies will be deployed.</li> </ul>
Commercial Activity	Other
	<ul style="list-style-type: none"> <li>● <b>Open Fibre Networks Limited</b> – full fibre provider targeting new build development sites, with a small footprint across The Marches (centred on Telford). Circa 20-30,000 premises connected in the UK, but little known about future expansion plans.</li> <li>● <b>ITS</b> – delivers a variety of broadband services, harnessing full fibre and wireless technologies. Small footprint around Hereford, providing full fibre to Skylon Park. Little information available on future network extensions.</li> <li>● <b>AirBand</b> – considerable activity and footprint across The Marches, deploying fixed wireless networks capable of speeds up to 100 Mbps. Target areas are largely rural, and extensions are being funded by the Connecting Shropshire and Fastershire programmes, although this has now extended to commercial (Rural Optic) deployments.</li> <li>● <b>Secure Web Services Broadband</b> – provides extensive wireless broadband coverage across Shropshire, capable of delivering speeds of up to 30 Mbps. Network improvements have increased its reach to over 40,000 premises.</li> <li>● <b>CityFibre</b> – are exploring opportunities to invest in full fibre across Herefordshire, with an emphasis on urban locations, consistent with their commercial model.</li> <li>● <b>Zzoomm</b> – early stage discussions underway with start-up full fibre provider, targeting towns and suburbs with gigabit connectivity solutions.</li> <li>● <b>Full Fibre Ltd</b> – supplier has constructed an extensive full fibre network in Leominster with support from Fastershire and are now in the early stages of fibre network deployment in Shrewsbury.</li> </ul>



Public Sector Activity	<b>BDUK contracts</b>	<ul style="list-style-type: none"> <li>• <b>Connecting Shropshire</b> – has two contracts with Openreach and AirBand to extend the reach of superfast broadband to areas which are commercially unviable. Airband have been contracted to connect a further 14,000 premises by 2021, Openreach a further 4,000 premises by Autumn 2019. Once complete and assuming commercial coverage is delivered, the project expects countywide superfast coverage to stand at 97%. The Council seeks to understand market intentions and localised demand for full fibre. Where there are business cases we will work with the market and within current intervention programmes.</li> <li>• <b>Fastershire</b> – Herefordshire Council is the accountable body for Fastershire and is currently managing three major supplier contracts with Openreach (Hereford City), Gigaclear (Rural Areas) and Airband (small rural clusters). The Airband Contract will also deliver some areas within Shropshire and Telford. The Council also manages the Marches &amp; Gloucestershire Broadband Grant on Behalf of the Marches Authorities and Gloucestershire. This provides grant funding for bespoke connectivity for business that remain outside of the contracts that are in place. The planned activity will see c.97% superfast coverage in Herefordshire by the end of 2021 with well over 50% of the county's rural properties benefitting from full fibre access. The next iteration of the Fastershire Broadband Strategy which determines the way in which public subsidy is used in Herefordshire is currently under review and is likely to be adopted by the council in October 2019.</li> <li>• <b>Superfast Telford</b> – rollout of fibre broadband technologies across the local authority area, with Openreach contracted to connect approximately 9,000 premises outside of commercial reach. No further contracts have been let, with the Council focusing on understanding remaining connectivity challenges and working with the marketplace.</li> </ul>
	<b>Marches and Gloucestershire Broadband Grant</b>	<ul style="list-style-type: none"> <li>• Bespoke grant scheme part funded by the European Union, which covers up to 100% capital installation costs of high-speed broadband connections, to a ceiling value of £25,000. The grant is aimed at SMEs who can demonstrate eligibility and an economic case for upgrading their broadband connection and is time-limited. Delivery is likely to be extended, subject to ERDF approval.</li> </ul>
	<b>Local Full Fibre Networks and Rural Gigabit Connectivity Programme</b>	<ul style="list-style-type: none"> <li>• Government backed programme seeking to accelerate the deployment of full fibre networks across the UK, leveraging public sectors sites and assets to deliver commercial investment. £740m of total funding available to support challenge fund projects and voucher schemes to secure full fibre connections. In Shropshire, a number of primary school (22) and GP (11) sites are due to be connected to full fibre, via direct DCMS, Department for Education and NHS intervention.</li> <li>• <b>Rural Gigabit Connectivity Programme</b> – commenced in May 2019, running until March 2021, informed by the Future Telecoms Infrastructure Review. Adopts an 'outside in' approach, which seeks to ensure the final 10% of premises (nationally) are addressed at the same pace as the rest of the UK.</li> </ul>



Includes a series of investment strands, including a voucher scheme (up to £3,500 per SME and £1,500 per residential premise) and community hub strand. Within Shropshire, work is underway to assess opportunities for public sector anchored rural hubs augmented by targeted voucher deployment. Elsewhere, opportunities arising from the programme are expected to be limited.	
<b>Gigabit Voucher Scheme</b>	<ul style="list-style-type: none"> <li>• <b>Gigabit Broadband Voucher Scheme</b> is designed to support the delivery of full fibre connectivity in urban and rural areas. Eligible homes may apply for funding towards the cost of installing full fibre broadband to their premises when part of a group project. Applicants with can use vouchers worth up to £2,500 for each SME and £500 per residential premise to deliver a minimum speed of 100 Mbps, meaning urban centric deployments are more likely to come forward.</li> </ul>
<b>Better Broadband Scheme</b>	<ul style="list-style-type: none"> <li>• Extended to December 2019, the scheme offers a subsidised basic broadband connection to anyone unable to get download speeds of at least 2 Mbps, and who will not benefit from superfast broadband roll out within the next 12 months. Eligible premises that can have the costs of their connection subsidised, so their first-year costs are no more than £400.</li> </ul>
<b>Marches and Gloucestershire Viable Clusters Project</b>	<ul style="list-style-type: none"> <li>• This project, which is expected to be part funded by the Rural Development Programme for England (RDPE) will deliver superfast broadband to an additional 10,000 premises across shared LEP geographies. The project is anticipated to require up to £10.4m of funding and is subject to due diligence and the undertaking of a compliant procurement process.</li> </ul>
<b>Market Stimulation and Policy Work</b>	<ul style="list-style-type: none"> <li>• A blend of strategic work aimed at stimulating the digital infrastructure marketplace and developing policy that leads to commercial investment. All Councils are active in this capacity, working to maximise enhanced connectivity through new build projects, revised planning policies, statistical coverage analysis and proactive supplier engagement. Local authorities have also extended engagement to mobile providers (i.e. Mobile UK) to better understand mobile connectivity challenges and exert a greater degree of influence, where possible. The importance of this work is recognised across all local authorities as an effective way to secure commercially led connectivity enhancements.</li> </ul>
<b>USO</b>	<ul style="list-style-type: none"> <li>• The USO will provide a significant number of homes and businesses across The Marches with the opportunity to request access to a broadband connection capable of speeds (download) of 10 Mbps or more (in some cases this is expected to enable to delivery of full fibre and 4G mobile solutions). Subject to consultation, legislation and implementation by Ofcom, applicants will be able to access up to £3,400 to help connect their premises, covering the whole or partial cost. It is likely that technologies deployed (and speeds achieved) will be on a case-by-case basis. There is a need to better understand the potential impact of the USO and direct local interventions accordingly.</li> </ul>



	<p><b>Prime Ministerial Announcements</b></p> <ul style="list-style-type: none"><li>• The recent election of a new Prime Minister has triggered a renewed commitment to accelerating the digital agenda, including further digital infrastructure investment with a desire to see the UK fully fibred by 2025, 8 years ahead of the FTIR aspirational target. Whilst the announcement has been received with a degree of optimism, the implications of the announcement are not yet known. Of particular relevance is the response from broadband providers, which highlights four key challenges which need to be overcome in order for the target to be deliverable (planning reform, removal of the fibre tax, new build connections and resolving labour supply constraints).</li></ul>
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Source: Connecting Shropshire, Fastershire, Superfast Telford, BDUK, ISP Review, 2019



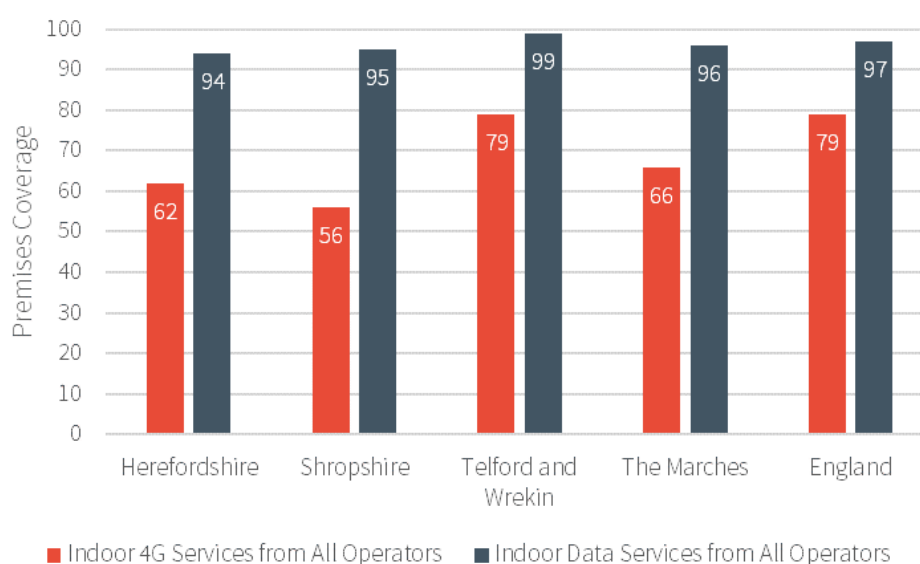
## Digital Connectivity: Mobile

- 3.22 Mobile connectivity is an integral component of The Marches' digital infrastructure offer. It provides the basis for seamless communication and increasingly, access to broadband speeds equivalent to those achieved through fixed networks. It is also likely to be the bedrock of agile working across the area's expansive and diverse geographies, in the future.
- 3.23 Whilst coverage has been largely determined by commercial operators with the opportunity for public sector intervention far more constrained than has been the case with fixed broadband access and the conditions of regulation, the government has taken on a more prominent role in plugging mobile not spots and advancing the rollout potential benefits of a 5G rollout.

### Existing Coverage

- 3.24 Mobile connectivity across The Marches can be analysed in a number of different ways, to assess the quality and extensiveness of mobile coverage. The following measures are observed:
- **Indoor 4G premises coverage (all 4 operators)<sup>9</sup>**
  - **Indoor data services premises coverage (all 4 operators)**
- 3.25 The Marches lags mobile coverage nationally on both measures, with a deficit more exaggerated when looking at indoor 4G coverage. This is driven by lower coverage across Shropshire and Herefordshire, with each being largely rural and topographically challenging. By contrast, Telford is broadly in line with national averages. Indoor data services coverage is much improved, with 96% of premises receiving service across The Marches.

Figure 3.3 Mobile Connectivity (% Premises Coverage)



Source: Ofcom, Connected Nations, 2019

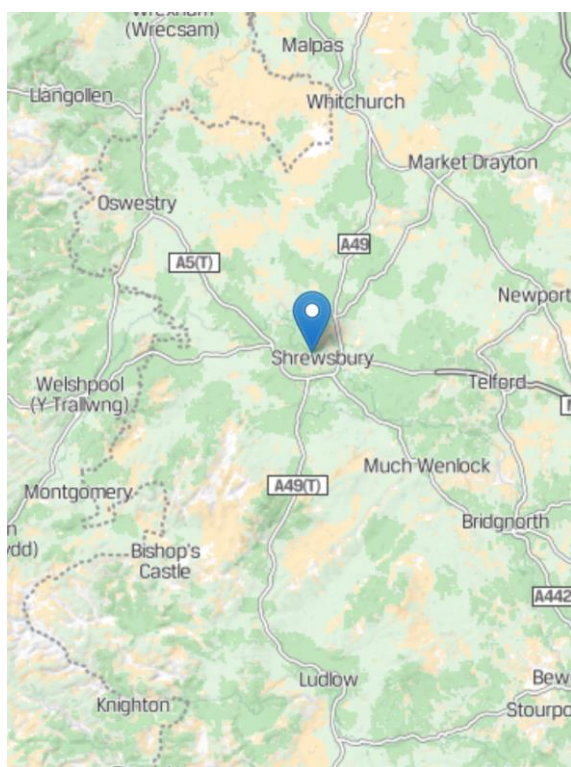
<sup>9</sup> Indoor 4G coverage provides the best proxy for an acceptable quality mobile service needed for everyday use.



## Mapping Coverage

- 3.26 Mapping helps to show the extent to which areas remain out of reach of mobile services including fast and reliable 4G coverage. Across The Marches, coverage is strongest in urban and densely populated areas (denoted by dark green shading), whilst many rural locations suffer from relatively poor coverage (orange and white shading). In some instances, coverage is limited to basic voice and data transfer, acting as a significant constraint on communication and day-to-day business activities.

Figure 3.4 EE Indoor Data Coverage (North)



Source: Ofcom, 2019

Figure 3.5 EE Indoor Data Coverage (South)



Source: Ofcom, 2019

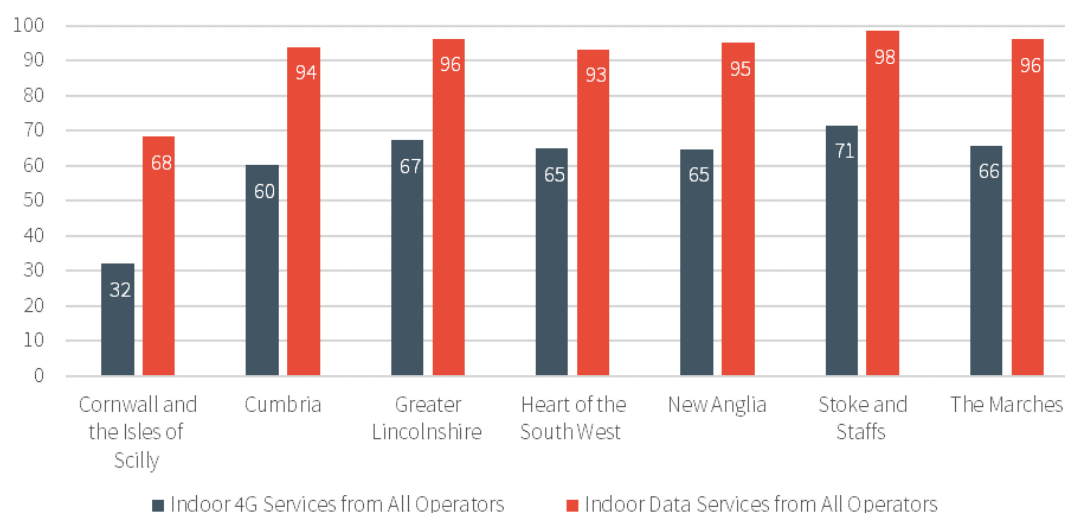
- 3.27 Despite these challenges, mobile operators are continuing to make investments, upgrade equipment and in some cases share infrastructure, leading to incremental coverage improvements and even investment in rural areas. These are positive steps forward and provide an opportunity to initiate a step-change, that is commercially driven and targeting more rural and remote communities. Indeed, this is an area of significant interest in a national and local government policy context, where through regulation and close market engagement, there may be more opportunities to further asset sharing, strengthening the commercial case and pushing high speed mobile coverage deeper into rural areas.
- 3.28 Despite this, homes and business across The Marches are constrained by issues such as signal latency, which remains an issue and the UK's competitiveness based on mobile speeds still lags some European competitors<sup>10</sup>. Also, of note are issues associated with network capacity limited by available bandwidth, which is sometimes overlooked in favour of coverage challenges, but remains a significant constraint on day-to-day business and social activities nonetheless.

<sup>10</sup> OpenSignal, State of Mobile Networks (UK), 2018



- 3.29 In the context of comparator LEPs, The Marches is middling in terms of mobile connectivity. Whilst it places well ahead of Cornwall and the Isles of Scilly, the LEP has poorer levels of mobile coverage than Stoke-on-Trent and Staffordshire and Greater Lincolnshire LEPs, with 4G accessibility more exaggerated in its differentiation.

Figure 3.6 Comparative Mobile Connectivity (% Premises Coverage)



Source: Ofcom, 2019

## Looking Ahead

- 3.30 The UK is preparing for a shift towards the switch on of 5G, as the next incarnation of mobile technology nears nationwide deployment. 5G represents a transformational step change in mobile connectivity, providing a platform for a new generation of applications. This includes large-scale IOT and 'smart' technology deployments, which are expected to benefit firms operating across a broad spectrum of sectors.
- 3.31 With support from the government, regulator and commercial impetus, 5G is beginning to make an impact. Recent spectrum auctions have positioned mobile operators to deliver 5G networks and also increase the reach and capacity of 4G, with the latter remaining a matter of importance when considering mobile 'not spots' and its supplementary role to fixed broadband connections. Indeed, mobile providers are adopting a twin track approach, as the deployment of 'infill' 4G connectivity also provides a platform for future 5G upgrades.
- 3.32 The role and future coverage of 5G across The Marches has yet to be defined, albeit it is likely that deployments will be prioritised in urban locations first. These 5G networks will also be reliant on a deeper density of full fibre infrastructure, highlighting the interdependency of fixed and mobile technologies. The current trajectory suggests that areas will not see significant roll out of 5G until 2021, largely in higher density areas.
- 3.33 Beyond this, a further wave of deployment is likely to be shaped through:
- Locations where the commercial rationale is enhanced through network provider interaction, such as the more effective sharing of assets
  - Where significant fixed infrastructure capacity uplifts facilitate 5G (i.e. full fibre)



- Where new use cases can be demonstrated with practical applications – this includes those featured as part of active 5G trials and where business needs place an immediate requirement for 5G network upgrades

- 3.34 The government is actively accelerating the delivery of 5G. To date, this has led to the funding of 5G testbeds and trials, to assess feasibility and further develop the use case. This follows an initial wave of investments, which sought to understand 5G deployments in a variety of contexts. There is an opportunity for The Marches to engage in this space, as new opportunities emerge.
- 3.35 Whilst commercially-led 5G installations have yet to be initiated in The Marches, pilot projects offer insights into the potential impact of 5G and the benefits to business, and citizens. An example is the 5G Rural First project, which is being delivered in conjunction with government funding and features Harper Adams University as one of the primary partners. The project seeks to develop the use case for 5G (and the speed and quality of connection it offers) in the context of smart farming techniques, radio broadcasting, utilities and environmental management (internet of things) and the development of Dynamic Shared Spectrum.
- 3.36 In terms of 4G infill and providing ‘not spot’ communities with improved speed and access, the Shared Rural Network (SRN) programme offers positive prospects for rural areas in particular. The SRN has seen mobile operators (EE, Vodafone, O2 and Three UK) confirming a new agreement that will see a new infrastructure company be established to help build masts in remote areas. The agreement is a significant step forward in terms of industry collaboration and is reliant upon regulator endorsement before geographic coverage can be extended to up to 95% of the UK by 2022.
- 3.37 Also, of note (and this applies to some extent to fixed broadband services too), is the observed variation between quoted speeds and customer service experience<sup>11</sup>. Whilst this remains a point of focus for Ofcom, it is also worthy of the attention of local agencies, where unreliable or poor-quality provision is marring end-user experiences and productivity.

## Other Networks and Assets

- 3.38 The Marches also benefits from the presence of other assets, which provide valuable online access. This includes Wi-Fi hotspots across cities, towns and villages. Higher profile examples include the Faster City network in Hereford, which was established by the city’s Business Improvement District (BID), with funding from Fastershire, to increase appeal to visitors. These networks allow businesses to communicate with customers and provide access to bespoke local information. Other public Wi-Fi networks are backboned by the likes of BT, Virgin Media and local Councils.
- 3.39 The Marches is also punctuated by a patchwork of leased lines and private broadband circuits, largely serving business customers, seeking more secure and stable connections. These are difficult to map, and the true extensiveness is unclear but provide further capacity which may be harnessed for the benefit of communities and residential customers. In some cases, smaller business may be better served by more efficient consumer products with there being an opportunity to promote migration potential (i.e. broadband voucher schemes).
- 3.40 Local Authorities across The Marches also harness digital infrastructure to deliver key services. This includes area wide public sector networks, which connect schools, libraries, health services, traffic management infrastructure and emergency services provision. At present, local

<sup>11</sup> Data inconsistencies associated with mobile and fixed broadband coverage were recently noted in House of Commons report (Environment, Food and Rural Affairs Committee, An Update on Rural Connectivity, September 2019)



authorities across The Marches do not own significant digital infrastructure assets (such as ducting, dark fibre etc). However, there remains some scope for public assets to be leveraged to support the rollout of fixed and mobile infrastructure.

### Case Study: Faster City (Hereford)



Visitors and businesses in Hereford are now be able benefit from free Wi-Fi access across the city centre, as part of the Faster City project.

The network was launched by Hereford City Life, the consumer facing brand created by the Hereford Business Improvement District (HBID) and is a joint partnership with the Fastershire broadband project.

The network allows shoppers and businesses access to the internet without restrictions and paves the way for smart infrastructure upgrades, such as the rollout of interactive signage.

## Stakeholder Sentiments

3.41 Stakeholders from across The Marches reported the following observations regarding digital infrastructure connectivity:

- **Repeatedly cited digital infrastructure and connectivity as being a continued constraint on the economy and wider application of smart solutions** – the numbers affected by these challenges remain considerable and correlates largely with the presence of fixed and mobile ‘not spots’.
- **Rural ‘not spots’ remain a concern and some areas still struggle with very poor baseline speeds**, which need to be addressed or else the digital divide be extended further – this shouldn’t be secondary to a full fibre and 5G agenda.
- **There is a need to consider mobile connectivity in equivalence with fixed broadband**, with the expectation to be seamlessly connected greater than ever. In some areas, mobile services offer basic voice functionality only.
- Local authorities and BDUK have made considerable strides in terms of addressing market, pushing fibre deeper into remote areas and championing an ambitious digital agenda – **this should continue, and efforts made to maximise opportunities associated with government investment programmes.**
- **Public sector bodies should seek to make themselves as attractive to commercial investment as possible**, particularly in relation to the use of public sector assets, effective communication and process and putting policies in place to ensure new developments are fully fibred from the outset.
- The **penetration of full fibre in rural areas across The Marches is a key distinguishing feature**, which should be built upon and actively promoted.
- **A clear strategy needs to be developed (akin to a Local Broadband Plan) across The Marches**, accepting that each local authority has differing priorities and a nuanced focus, which will ensure that a consistent approach to direct investment and market stimulation is taken, where there are opportunities to work as a collective.



- **Digital infrastructure delivery needs to be considered as part of a systems approach**, whereby technologies deployed is capable of supporting digitised systems and processes which will be increasingly important in the future.

## Infrastructure: Strategic Implications

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- The Marches has seen significant improvements in digital infrastructure coverage, with each local authority seeing fibre-based coverage increase on all measures. Deployment continues and plans are in place to meet government coverage targets.
- The private and public sectors have taken a leading role in delivery, with a proactive and progressive approach adopted by The Marches' three broadband projects.
- The Marches coverage picture remains mixed, dependant on geography and the nature of technologies deployed, with 'not spots' still prevalent when considering both fixed and mobile coverage.
- 'Not spots' need to be viewed in the context of actual numbers (premises affected) as well as coverage (%) in order to articulate the scale of remaining challenges.
- There is a need to continue to bridge the 'digital divide', providing equitable access to high speed services and 4G, whilst accelerating the rollout of full fibre and 5G.
- In light of positive changes and trends across The Marches, competition remains stiff with comparator LEPs making significant strides in improving digital connectivity.
- Take-up data, whilst limited, suggests that high speed broadband is attractive to homes and businesses across The Marches and the need to incentivise adoption remains high.
- There is considerable scope for the private and public sector to continue to directly invest in digital infrastructure, given the strength of the national policy position, but this must be mindful of not hindering the willingness of the market to deliver.
- The public sector has an opportunity to make effective use of policy making, buying power, estates and assets to enhance the commercial imperative and increase deployment – significant returns may come from an indirect intervention approach.
- Trials and pilots (i.e. 5G) will help to make the case for further investment and local bodies will have a significant role in helping to demonstrate use cases, practical applications and tangible evidence of demand to bring deployments forward.



# 4

## Digital Business



## 4. Making the Case: Digital Business

4.1 In the context of the LEP's Strategic Economic Plan, which sets stretching growth targets and considers the opportunity to embed digital across Marches enterprise, it is important to form a fuller understanding as to how technology is influencing sectors and industry.

4.2 Here we set out the relevance of digital technologies, through the prism of the LEP's target sectors<sup>12</sup>:

- **Core economic sectors**
- **Enabling sectors**
- **Emerging sectors**

4.3 Each of these sectors are utilising digital processes and undergoing some form of digitisation. Indeed, it's important to note that some of these processes and impacts are 'sector agnostic' and apply across the economy as a whole. To this end, the drivers for deploying digital technologies are synthesised into achieving two main outcomes:



- ***Doing the same things in better and more efficient ways...***
- ***Providing the means to incorporate new processes and ways of doing things...***

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*Digital technologies are intrinsic to business, interwoven with many aspects of their daily operations. They are increasingly at the heart of growth, competitive advantage, innovation and the development of new products and service models. Indeed, digitisation across many sectors is a necessity and not a choice...*

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Table 4.1 Industry 4.0 – Delivering Revenue, Cost and Efficiency Gains

Additional revenue from: 	Lower cost and greater efficiency from: 
Digitising products and services within the existing portfolio	Real-time inline quality control based on Big Data Analytics
New digital products, services and solutions	Modular, flexible and customer-tailored production concepts
Offering big data and analytics as a service	Real-time visibility into process and product variance, augmented reality and optimisation by data analytics
Personalised products and mass customisation.	Predictive maintenance on key assets using predictive algorithms to optimise repair and maintenance schedules and improve asset uptime
Capturing high-margin business through improved customer insight from data analytics	Vertical integration from sensors through MES to real-time production planning for better machine utilisation and faster throughput times
Increasing market share of core products	Horizontal integration, as well as track-and-trace of products for better inventory performance and reduced logistics
	Digitisation and automation of processes for a smarter use of human resources and higher operations speed
	System based, real-time end-to-end planning and horizontal collaboration using cloud-based planning platforms for execution optimisation
	Increased scale from increased market share of core products

Source: PWC, 2016

<sup>12</sup> Sector definitions are taken from The Marches Strategic Economic Plan (2019)



- 4.4 Beyond these key sectors, digital technologies also have a key role to play in the context of innovation, enterprise and entrepreneurship. The implications of digitisation and the extent to which this can improve The Marches' credentials is also explored below.

## Core Economic Sectors

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- 4.5 The Marches SEP provides a robust evidence base to understand the current position of The Marches economy and its key sectors. As well as detailing emerging and enabling sectors, the SEP identifies three 'core economic sectors':

- **Advanced Manufacturing**
- **Business & Professional Services**
- **Food & Drink**

- 4.6 The characteristics of these sectors are detailed overleaf, setting out the key drivers and themes influencing digitisation within these locally-important industries.

### Core Sector: Advanced Manufacturing

#### Sector Digitisation

- 4.7 Manufacturing industries have embraced innovation through digital practices and invested heavily in R&D leading to the widespread deployment of technology and automated process. These are intrinsic to the UK's competitive advantages in advanced manufacturing and are a focus for the government's Industrial Strategy, with significant productivity potential.
- **Jobs:** 26,800
  - **GVA Contribution:** £2.3bn
  - **GVA Growth:** 14%
  - **Key Businesses:** Wiggins Special Metals, Ricoh, BAE and GKN
- 4.8 The manufacturing industry is set to be overhauled by the introduction of Industrial Digital Technologies (or Industry 4.0) including automation, robotics, connectivity and data analytics. Automation has the potential to boost the UK's productivity by 22% and accelerated levels of investment in robotics could raise manufacturing GVA by 21% in the next 10 years<sup>13</sup>.
- 4.9 The sector implications within The Marches are therefore significant. But, AI and automation present significant threats to the sector too. Applying PwC's analysis to The Marches, this would see a decrease in manufacturing employment of 25% by 2037 – equivalent to 6,700 employees<sup>14</sup>.
- 4.10 Indeed, research by PwC suggests that the result of such technological disruption across a broad range of sectors may have a net neutral consequence, as new types of employment are created as a result. Examples of this include the greater need for robotics maintenance, programming and design related roles, as the prominence of automation grows. These will have an emphasis on higher level occupations, orientated around technical skills.
- 4.11 In the context of advanced manufacturing industries, however, the level of exposure to job replacement is expected to be significantly higher, offset by employment growth in other sectors

<sup>13</sup> Her Majesty's Government, Made Smarter Review, 2017

<sup>14</sup> PWC, UK Economic Outlook, July 2018



(with the biggest beneficiaries expected to be health, scientific and technical, communications, hospitality and education industries where roles require more creativity and social intelligence).

4.12 The degree of regional exposure has also been explored through research. This suggests that The Marches is amongst the UK's most vulnerable regions when considering the effects of robotisation, where the potential for significant labour disruption is considerably higher than the knowledge and service driven economies of London and the South East<sup>15</sup>. The implications of this will need careful consideration, with the need for locally-led interventions as the economy re-orientates around growth sectors. Key areas which will necessitate attention include:

- Retraining of existing employees with the skills needed for changing and new roles
- A realignment of skills and training provision to the needs of digitised employers
- Increased emphasis on continued professional development and acumen that will enable employees to adapt to changes in the future

4.13 At a firm level, The Marches has a number of large employers operating within the manufacturing sector. **These businesses are at the front-line in terms of thinking smarter, applying new technologies and harnessing the power of automation to increase competitiveness.**

- **Ricoh** – brings breakthrough technologies to help businesses innovate and grow. The company has delivered several industrial innovations based on implementing new technologies and accumulating technologies, producing new devices and components, production and logistics systems and image processing methods.
- **BAE Systems** – is piloting Industry 4.0 approaches in their manufacturing processes, such as the use of collaborative robots, designed to support people with complex manufacturing of combat aircraft. The technology allows the worker to make strategic decisions while delegating to the cobotic arm repetitive, machine-driven tasks which require consistency.
- **GKN** – integrating Industry 4.0 principles into its machines and business functions. These include remote monitoring and control, predictive analysis, active quality management, connected supply chains and remote support.
- **Wiggins Special Metals** – a world leader in the invention, production and supply of high-nickel alloys for critical engineering, with a global footprint and market reach. Through investment in R&D and deployment of new technologies, new alloy solutions are improving the reliability and efficiency of coal, natural gas, and nuclear power generation units, while also lessening their environmental impact

4.14 Digital technology has already and is continuing to have a transformational impact on the manufacturing sector, which is shaping industry across The Marches. According to SME's Manufacturing in the New Industry 4.0 Era Survey (2018), 43% of manufacturers believe the industry is already seeing significant changes due to digital technology.

4.15 It's clear that digital solutions are very much on the agenda for the industry with almost half of all manufacturers planning to invest in smart digital solutions within the next 2 years<sup>16</sup>. That said, other research points to the fact that many manufacturers are lacking in understanding around the application of Industry 4.0<sup>17</sup>.

<sup>15</sup> Oxford Economics, How robots change the world, 2019

<sup>16</sup> SME, Smart Manufacturing Report 2018

<sup>17</sup> Irwin Mitchell, Industry 4.0 Insights into the next industrial revolution 2017.



## Digital Technology Solutions

- 4.16 Industry 4.0 investments are already significant within the sector, with PWC research suggesting that global industrial products companies will invest over £700 bn per year through to 2020 in Industry 4.0 approaches<sup>18</sup>. PWC's global industry survey finds that many of these businesses expect Industry 4.0 investments to yield a return within two years or less, given investment of around 5% p.a. of their annual revenue. Beyond these financial returns, other benefits coveted by manufacturing businesses as a result of smart solutions include increased productivity, improved operations, better decision making, increased competitiveness and improved access to data.<sup>16</sup>
- 4.17 The major focus for investment within this sector and across The Marches is:
- **Digital technologies such as sensors or connectivity devices:**
    - **Integrated planning & scheduling for manufacturing** – systems combining data from within the enterprise, from sensors all the way through to resource planning systems, improving asset utilisation and product throughput time.
    - **Predictive maintenance of key assets** – using predictive algorithms to optimise repair and maintenance schedules and to improve asset uptime.
    - **Cloud based planning systems** – providing real-time end-to-end planning and horizontal collaboration, improving efficiencies and reducing inventories.
    - **Track and trace devices** – technology embedded throughout leading to better inventory performance and reduced logistics cost.
  - **Software and applications**
    - Such as manufacturing execution systems (MES) which are used to track the transformation of raw materials to finished goods.
  - **Training employees and driving organisational change**
    - Harnessing software platforms, robotics AI and augmented reality to deliver innovative and safer training solutions.
    - Opening up new opportunities for remote working and more flexible working patterns through cloud-based applications and dynamic personnel scheduling.

<sup>18</sup> PWC Global Industry 4.0 Survey 2016



**Local Case Study: Bauomat (UK) Ltd**

Based in Telford, Shropshire, Bauomat is an established robotic and automation systems integrator who provides fully automated systems for a variety of industries. Bauomat has over 20 years of experience in automation and works closely with all leading robot manufacturers, producing a range of standard systems for all applications, while also offering the capability to design and manufacture bespoke systems to suit customer specifications.

Bauomat has an expansive knowledge of all varieties of welding and has also produced machining, joining and handling systems for industry leaders such as Bentley and JCB, and has provided systems to industries such as aerospace, rail and high energy.

All Bauomat systems are shipped as turnkey solutions with all parts assembled at Bauomat's factory in Telford, Shropshire. Everything from the enclosures and tooling, to the programming and commissioning is designed in-house using the latest software and manufactured by their team of engineers and fitters.

## Business & Professional Services

### Sector Digitisation

- 4.18 Digitisation and Industry 4.0 doesn't just affect manufacturers, it can have a transformational impact across the whole economy – particularly in professional and service-based industries. Digital technology has been touted as a key driver in productivity, particularly given its role as an 'enabler' which interfaces with many other sectors in the economy.

- 
- **Jobs:** 47,000
  - **Businesses:** 7,470
  - **GVA Contribution:** £3.4bn GVA - 24.3% of Marches GVA
  - **Key Businesses:** Capgemini, Staffline Group and ReAssure
- 

Research also suggests that improved digital capabilities in UK businesses increased their revenues by 4.4% and reduced their costs by 4.3%<sup>19</sup>.

- 4.19 Through enhanced connectivity and more comprehensive digital practices, professional service companies can and will be able to better collect a greater amount and more meaningful data to enhance the services they provide. This, in turn, facilitates:

- **'Internet of Services'** – internal and cross-organisational services which are offered and used by businesses which are driven by big data and cloud computing.
- **Better collection of data** to tailor services in more bespoke ways to customers.
- **Smart Products** that incorporate self-management as well as communication capabilities that support decentralised decision-making and autonomous operations. Smart Products are cyber-physical systems, equipped with sensors providing information about their environment and, for example, their current use and status. The data is linked to an actuator able of triggering autonomous reactions to changes<sup>20</sup>.

<sup>19</sup> The UK's £92 billion Digital Opportunity, Oxford Economics 2015

<sup>20</sup> Industry 4.0 - The Capgemini Consulting View - Sharpening the Picture beyond the Hype 2014



4.20 There are several notable professional service firms across The Marches LEP implementing Industry 4.0 and digitised practices:

- **Capgemini** – Based in Telford Capgemini are a global leader in consulting, technology services and digital transformation. Capgemini is at the forefront of digital led innovation to address the opportunities of businesses across all sectors in the evolving world of cloud, digital and platforms.
- **Staffline Group** – A prominent outsourcing organisation to both Government and commercial customers with a focus on food, logistics, defence and e-retail sectors. The group has sought to accelerate growth in recruitment through the use of digital platforms which stimulates the attraction of worker and drives candidate resourcing.
- **ReAssure** – major life and pensions consolidator based in Telford, the company is actively embedding technology within its systems and processes, to enhance the integration and management of blocks of pension, insurance and investment business units.

### Digital Technology Solutions

4.21 Smart services are an avenue of the Industry 4.0 revolution where significant value has already been leveraged and more value is set to be realised in the future. Facilitated by the connectivity and rich data that is borne out of the shift to Industry 4.0 practices, smart services bring new service offerings and digitally enabled service delivery. Some of the major practical practices that have come from this shift are:

- **Real time data capture and communication** – through the use of smart products and systems which better capture large volumes of detailed data, allows the performance and effectiveness of services to be better captured.
- **Business Intelligence Software** – allows for large amounts of business-based data to be captured and transformed into intuitive dashboards to better inform performance and aid decision making.
- **Cloud Services** – aides business resilience and allows for seamless collaboration to take place. Cloud services can reduce the costs typically associated with business data storage and can increase the productivity, scalability, and performance.
- **Artificial Intelligence** – can automate and deliver added rigour to both back office and client facing functions, substantially improving performance and reducing errors of tasks involving large volumes of information and data.
- As well as the range of practical technology solutions that industry 4.0 processes deliver, they also provide a range of benefits to the day to day functionalities of professional service businesses, including:
  - **Improved flexible working**
  - **Cloud computing**
  - **Access to a large labour pool**
  - **Reduction in travel**
  - **Driving homeworking levels, delivering rural job growth and the retention of young families in rural areas**



## ■ Remote learning and training opportunities

### Case Study: Purple Frog Systems



Founded in 2006, Purple Frog Systems are based in Telford and service clients across the UK and rest of the world providing companies with bespoke support on how to better manage their data and generate business intelligence. Purple Frog are a Microsoft Partner and one of the leaders nationally in terms of delivering business intelligence solutions where they service some of the country's leading names such as Barclays Capital, Confused.com and NatWest.

Whilst undertaking a large proportion of their business outside of The Marches area, Purple Frog have strong ties to the area and are committed to the evolution of digital activity across the LEP. Here, they currently lead and sponsor the Microsoft Data Platform Group Birmingham which delivers free DBA and BI focused sessions as well as having strong ties to the University Centre Shrewsbury where they are supporting the development of a new digital master's degree.

## Food & Drink

### Sector Digitisation

- 
- **Jobs:** 9,150
  - **Job Change (2011-2016):** 6.3%
  - **Key Businesses:** ABP Food Group, Avara Foods, Müller and Heineken
- 
- 4.22 The food and beverage sector is an area of the economy where major benefits through digital practices are being realised and are set to be further exploited into the future. These enhancements are being found through the digitalisation of processes and systems and the development of new tools and machines in production – each of which have implications for businesses trading in this sector across The Marches.
- 4.23 Conventional food and drink manufacturing is typically handled in a centralised manner, with individual elements of the process completing discrete tasks. As the sector has begun to incorporate new Industry 4.0 processes, a series of efficiency and productivity benefits that have begun to be realised, albeit that many of these are only accessible to larger businesses with the ability to summon the levels of capital required to invest in the technology.
- 4.24 There are several prominent food and drink companies across the LEP currently deploying Industry 4.0 and digitised practices:
- **ABP Food Group** – Beef Processing company has invested in digital solutions to support centralised HR and payroll systems. This has helped cut administrative-processing time, allowed the organisation to comply with UK tax and national insurance regulations, auto-enrolment and real-time information standards, leading to £150k annual savings.
  - **Avara Foods** – One of the area's largest food manufacturers has recently invested heavily in automation technology through a £36m expansion and refit programme.
  - **Heineken** - The company has started to introduce augmented reality to improve its maintenance processes and has introduced digital processes to bring more flexibility to



the production process, allow for more customised production and add more consistency to their final product.

### Digital Technology Solutions

4.25 The implementation of digital technologies and smart applications within the sector and across The Marches includes (but isn't limited to) the following:

- **Sensor technologies** – providing intelligent identification systems which enable better traceability and support manufacturers in issuing product recalls as quickly as possible. For example, radio frequency identification (RFID) labelling tracks crops right from harvesting to packaging and allows manufacturers to trace the origins of the cargo.
- **Intelligent labelling** – using wireless labelling, software applications and cloud platforms, intelligent labelling allows consumers to scan product labels with their smart phones to ensure the product's authenticity or to obtain information regarding ratings, customer loyalty programs (such as customer cards) or product videos. Via Near Field Communication (NFC)-enabled devices, intelligent labels provide demographic information, location, likes, social shares and the exact amount of data retrievals, allowing firms to test food life extension and waste mitigation strategies.
- **Data management** – optimisation in the collection of data from every machine in the production line to ensure that performance issues can be identified early and solved with minimal delay to the production process.
- **Single unit production** – fulfilling niche personalised customer orders through the use of automation and sensor technologies, creating more seamless and profitable customisation of food and drink products.
- **More sociable hours** – adopting sensor technology to achieve a more consistent production process which can be monitored remotely. This frees up working hours to concentrate on more technical tasks, circumvents the need to monitor product quality over-night and helps to attract a younger, more skilled workforce into the profession.

#### Case Study: The Hands Free Hectare



The Hands Free Hectare (HFHa) project at Harper Adams University, in partnership with precision farming specialist Precision Decisions Ltd, is the first project globally to cover the full crop production process using fully automated technology.

The project has been enabled as part of the 5G Rural First project, which is being delivered in conjunction with government, Cisco, and universities from across the UK. The project seeks to make the case for rural 5G applications, driving demand and stimulating commercial investment in rural areas, that would otherwise not be forthcoming.

The project focuses on transforming farming processes through the adoption of cutting-edge technologies. Using only drones and autonomous vehicles, the project harnesses digital technology to complete the whole process from planting, tending and harvesting the crops, acting as a global exemplar for what the future of the sector is set to achieve. The research provides a base from which to consider a broader range of technical applications and make the case for technology to become increasingly integrated within a locally important sector.



## Emerging Sectors

4.26 The table below provides an overview of the emerging sectors across The Marches and their digital credentials. These sectors are of significance to The Marches in terms of their rate of growth, relative specialisation and productivity potential.

4.27 The table below offers a snapshot of the current scale of the sector, the key digital influences that are (or will) impact the sector and the key opportunities these are expected to provide.

Table 4.2 Emerging Sectors – Digital Credentials

Environmental Technology	Cyber Security and Resilience	Agri-Tech	Innovative Health and Social Care
<b>Sector Scale</b> <b>Jobs:</b> 8,300 <b>Companies:</b> 450 <b>Sales:</b> £1.1bn 53 anaerobic digesters in The Marches (2011/12)	<b>Sector Scale</b> <b>Jobs:</b> 12,500 (Defence and Security) 11,000 (Public administration and Defence)	<b>Sector Scale</b> <b>Jobs:</b> 475 (Manufacture of agricultural and forestry machinery) 8 times the national concentration	<b>Sector Scale</b> <b>Jobs:</b> 23,500 (Human Health Activities) 7,000 (Social work activities) 10,500 (Residential care activities)
<b>Digital Influences</b> <ul style="list-style-type: none"> <li>• Data Analytics</li> <li>• Blockchain<sup>21</sup></li> <li>• Automation Technologies</li> <li>• Sharing Technologies</li> <li>• Sensors</li> <li>• Dematerialisation</li> <li>• Mobile Ubiquity<sup>22</sup></li> </ul>	<b>Digital Influences</b> <ul style="list-style-type: none"> <li>• Increased digital/Industry 4.0 across the economy &amp; society</li> <li>• Regulatory and due diligence</li> <li>• Consistent device development &amp; design</li> <li>• Data sharing<sup>23</sup></li> </ul>	<b>Digital Influences</b> <ul style="list-style-type: none"> <li>• Sensor technology</li> <li>• Intelligent labelling and packaging design</li> <li>• Automation Technologies</li> <li>• Connected tractors</li> <li>• Single unit specialisation</li> <li>• Transparency of production</li> </ul>	<b>Digital Influences</b> <ul style="list-style-type: none"> <li>• Data Analytics</li> <li>• ‘Telecare’, including virtual appointments and check-ups</li> <li>• Monitor efficiencies in workforce performance</li> <li>• Monitoring the use and efficacy of specific treatments</li> <li>• Provisions for mobile working</li> </ul>

<sup>21</sup> Blockchain is a digital record of transactions. Individual records (blocks) are linked together in single list (chain) and are used for recording transactions but have many other applications too.

<sup>22</sup> Environmental Defense Fund (2018) Business and the Fourth Wave of Environmentalism

<sup>23</sup> Industry 4.0 and Cybersecurity (2017) – Managing risk in an age of connected production



Environmental Technology	Cyber Security and Resilience	Agri-Tech	Innovative Health and Social Care
<p><b>Digital Opportunities</b></p> <ul style="list-style-type: none"> <li>• Lower resource consumption</li> <li>• Decrease pollution and greenhouse gas emissions</li> <li>• Reduce waste streams</li> <li>• Improving bottom line</li> <li>• Alignment of business and environmental goals</li> </ul>	<p><b>Digital Opportunities</b></p> <ul style="list-style-type: none"> <li>• Efficiency and cost avoidance</li> <li>• Systems operability, reliability and integrity</li> <li>• Data protection</li> <li>• Remediation of attack effects</li> </ul>	<p><b>Digital Opportunities</b></p> <ul style="list-style-type: none"> <li>• Preventative maintenance</li> <li>• Provision of additional services</li> <li>• Emergence of new platforms</li> </ul>	<p><b>Digital Opportunities</b></p> <ul style="list-style-type: none"> <li>• Supporting service users and patients manage their own care</li> <li>• Integrated health and social care</li> <li>• Widespread use of sensors and IoT for dynamic patient monitoring and diagnosis<sup>26</sup></li> <li>• Integrate public, social and private sector actors</li> <li>• Improve procurement systems</li> <li>• Increase capacity of workers to innovate<sup>27</sup></li> </ul>

<sup>24</sup> Industry 4.0 in agriculture: Focus on IoT aspects

<sup>25</sup> Breaking Barriers (2017) The Digital Future for Health and Social Care

<sup>26</sup> This is the focus of Herefordshire Council's 'Things Connected' Digital Catapult, featured later in this report.

<sup>27</sup> The Marches LEP is conducting research looking at Innovative Healthcare Analysis and Research, which will position local implications and opportunities.



## Enabling Sectors

- 4.28 Beyond its emerging sectors, The Marches economy is represented by a range of enabling sectors which have high levels of employment, characterised by entry level jobs, lower productivity and are the foundation of the local economy. Whilst these enabling sectors are not at the forefront of economic growth, they are actively harnessing digital practices and technology to enhance business practices and further productivity.

Table 4.3 Enabling Sectors – Embracing Digital	
Sector	Emerging and Future Digital Practices
<b>Visitor Economy<sup>28</sup></b>	<ul style="list-style-type: none"> <li>Virtual Reality</li> <li>Augmented Reality</li> <li>Improved data collection on visitor numbers and experience</li> </ul>
<b>Retail</b>	<ul style="list-style-type: none"> <li>Internet of things</li> <li>Additive manufacturing – waste reduction</li> <li>3D Printing</li> <li>Robotics</li> <li>Automated delivery</li> <li>Big data and Personalisation</li> <li>Cloud computing</li> <li>Virtual Reality</li> <li>Augmented Reality</li> </ul>
<b>Logistics</b>	<ul style="list-style-type: none"> <li>Vehicle automation</li> <li>Robotics</li> <li>Big data and inventory/fleet management</li> <li>Industry Internet of Things</li> <li>Sensors</li> </ul>
<b>Construction</b>	<ul style="list-style-type: none"> <li>Continued Adoption of BIM</li> <li>Big Data</li> <li>Cyber physical systems – asset performance and monitoring</li> </ul>
<b>Health &amp; Social Care<sup>29</sup></b>	<ul style="list-style-type: none"> <li>Sensors</li> <li>Smart/implantable drug delivery mechanisms</li> <li>Digital therapeutics</li> <li>Genome sequencing</li> <li>Machine learning</li> <li>Blockchain and Decentralised health records</li> <li>Peer to peer support networks</li> </ul>
<b>Education</b>	<ul style="list-style-type: none"> <li>Digital courses</li> <li>Virtual learning</li> <li>Cloud computing</li> </ul>
<b>Voluntary, Community and Social Enterprise</b>	<ul style="list-style-type: none"> <li>Peer to peer support networks</li> <li>Big data</li> </ul>

<sup>28</sup> Digitalisation in Tourism In-depth analysis of challenges and opportunities (2018) Aalborg University

<sup>29</sup> Kings Fund (2016) The digital revolution: eight technologies that will change health and care



## Digitally-Dependent Businesses

4.29 To better understand the core digital companies that are likely to be early digital adopters, vanguards and at the forefront of new technology, it is valuable to consider the size, growth, specialisation and spatial distribution of the most digitised businesses. This helps to paint a more in-depth picture of digitisation across The Marches, focusing on the businesses which are most digitally-dependent.

4.30 As seen within the core, emerging and enabling sectors, there are important digital practices occurring across the entire economy. However, there are a sub-set of sectors which are considered to be at the forefront of digital adoption<sup>30</sup>. These are:

- **Data Services**
- **Digital Consulting**
- **Digital Publishing**
- **Digital Hardware Manufacturing**
- **Software Development**
- **Telecommunications**

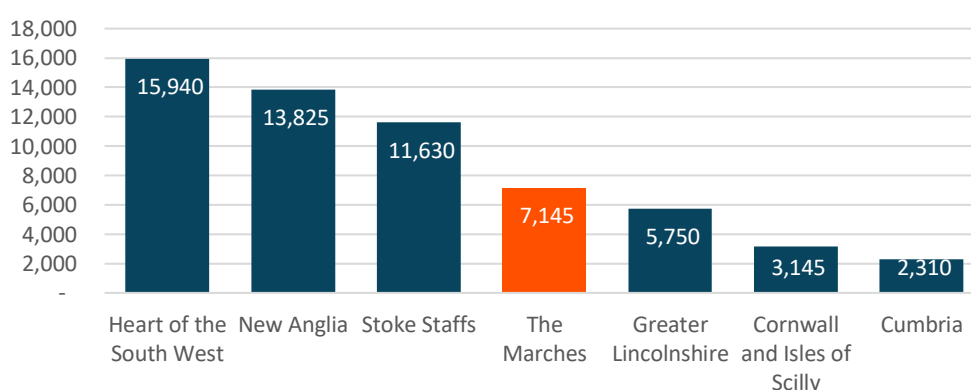
The Marches' digitally -dependent business footprint in numbers (2017):

- A total of **1,340** trading digital businesses...
- Employing some **7,145** people...
- Achieving digital employment growth of **5%** over the past five years...
- And growth of **21%** in digital businesses over the past five years...

## Digitally Embedded Employment

4.31 There are some 7,145 people employed by inherently digitally businesses across The Marches. However, The Marches is middling in size terms relative to the comparator areas where it is the fourth largest digital economy.

Figure 4.1 Total Digital Employment (2017)



Source: BRES (2017)

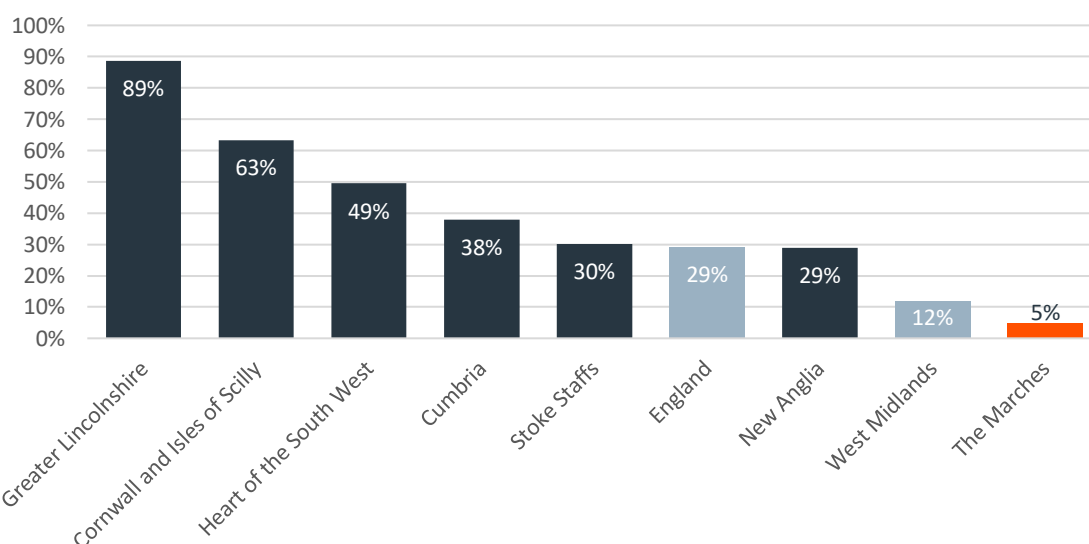
4.32 The Marches also trails behind comparator areas and the national picture in terms of digital employment growth. Over the past five years, the number of people employed in the digital sector has grown by 5%, well below the level seen nationally (29%). This suggests more modest

<sup>30</sup> Sectors identified using Tech Nation's Digital Tech definition.



levels of growth amongst the existing digital business base and lower levels of digital business formation, with the underlying reasons for this likely to be varied (access to infrastructure, business support and suitable skills likely to be key factors here).<sup>31</sup>

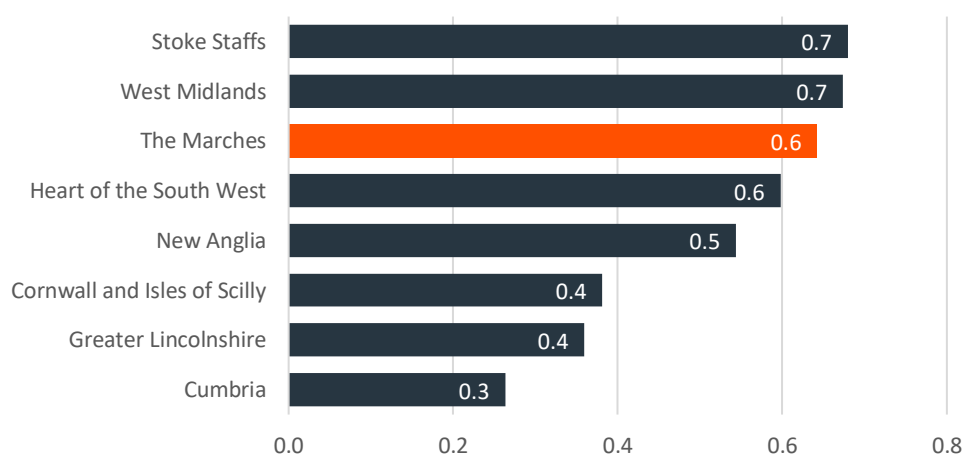
Figure 4.2 Digital Sector Employment Growth (2012-17)



Source: BRES, 2017-2012

- 4.33 The level of specialisation observed within The Marches also helps to position the area's digital dependence<sup>32</sup>. By this measure, comparator areas have less concentrated digital sectors than the national position, with The Marches possessing an LQ of 0.6 – the third highest of the comparator LEPs selected.

Figure 4.3 Digital Sector Specialisation (LQ)



Source: BRES, 2017-2012

<sup>31</sup> It should be noted that some firms do not undergo growth by choice. Examples of this are so-called lifestyle businesses where a certain rate of growth is desirable or there are motivations to stay within the VAT threshold.

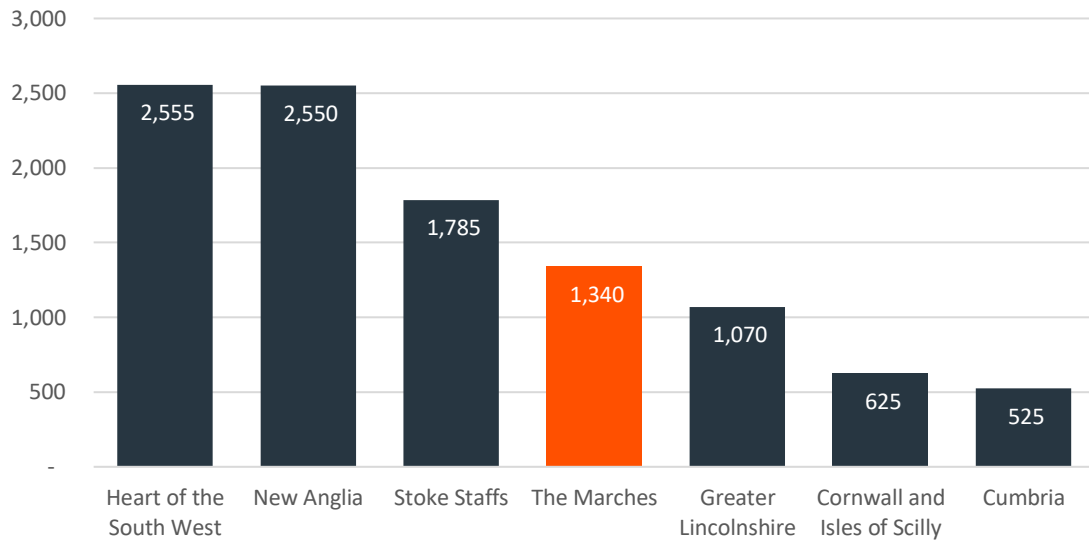
<sup>32</sup> Location Quotient (LQ) is a helpful measure of concentration of activity in one area, compared to another. In this case sector characteristics in the respective areas have been compared to England where a LQ higher than 1.0 indicates a greater degree of specialisation to the national average.



## Digitally Embedded Businesses

- 4.34 There are currently around 1,340 digital businesses trading across The Marches, which positions the area in the middle of the comparators selected in terms of the sector's scale.

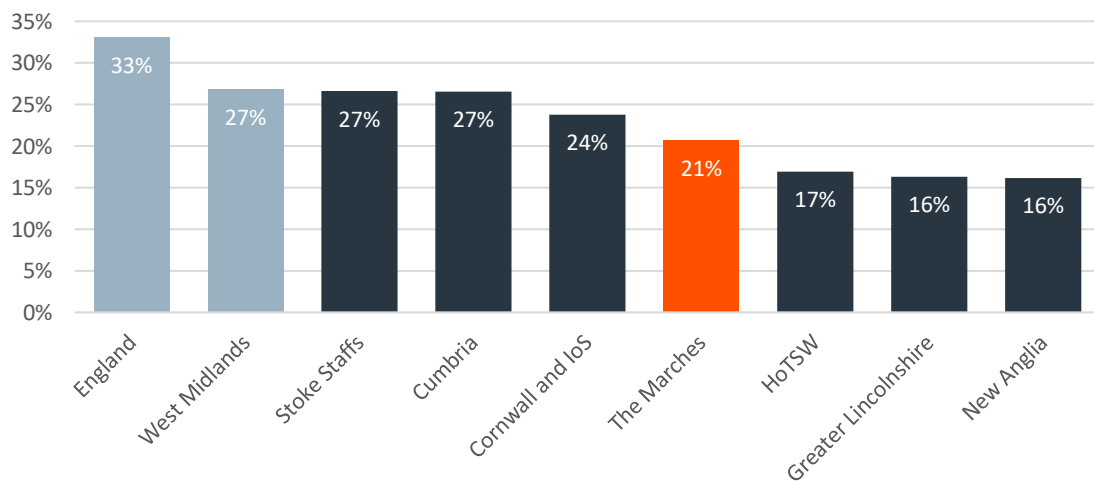
Figure 4.4 Total Digital Businesses (2018)



Source: UK Business Count (2018)

- 4.35 There has been a 21% increase in the business base across The Marches, which is almost double seen across The Marches economy as a whole (11%). That said, digital growth has lagged behind the national (33%) and West Midlands (27%) position. Much of the growth in the digital economy has been driven by small start-ups.

Figure 4.5 Digital Sector Business Growth (2012-17)

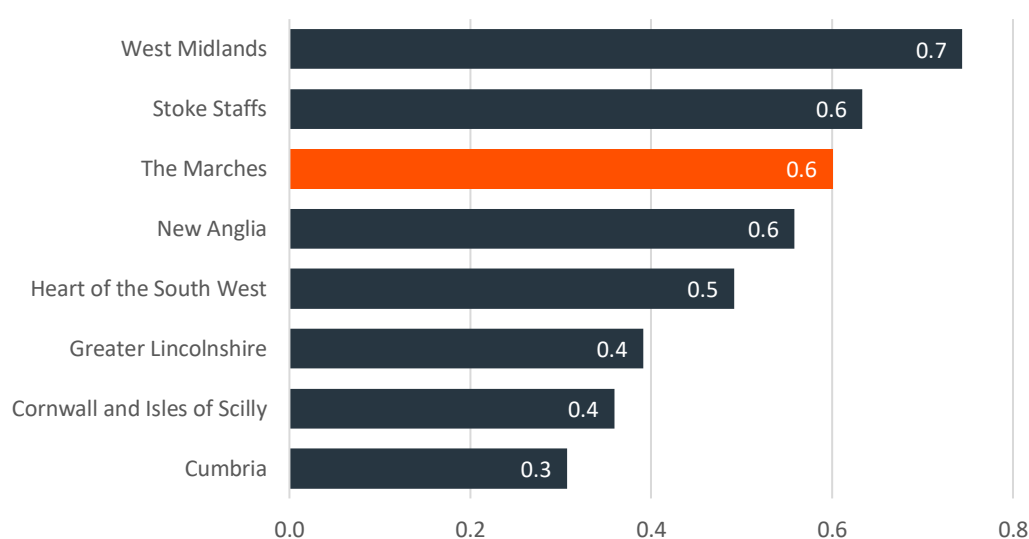


Source: UK Business Count (2018, 2013)

- 4.36 The Marches has a lower concentration of digital businesses relative to the national position. That said, it has exhibited a more favourable position relative to comparator geographies, having the third highest concentration of digital businesses.



Figure 4.6 Digital Sector Specialisation (LQ)



Source: UK Business Count (2018)

## Digitally-Dependent Business Locations

- 4.37 Whilst the majority of digital businesses across The Marches are located in urban areas, a unique characteristic of The Marches digital economy is the degree to which digital business activity takes place in a rural setting. Indeed, some 42% of digital companies are located in rural areas, over three times the level seen nationally. Advances in the provision of digital infrastructure have likely played an important part in supporting the growth of these firms and this provides a framework from which to shape future digital infrastructure rollouts and interventions.

Table 4.4 Digital Economy - Urban/Rural Split

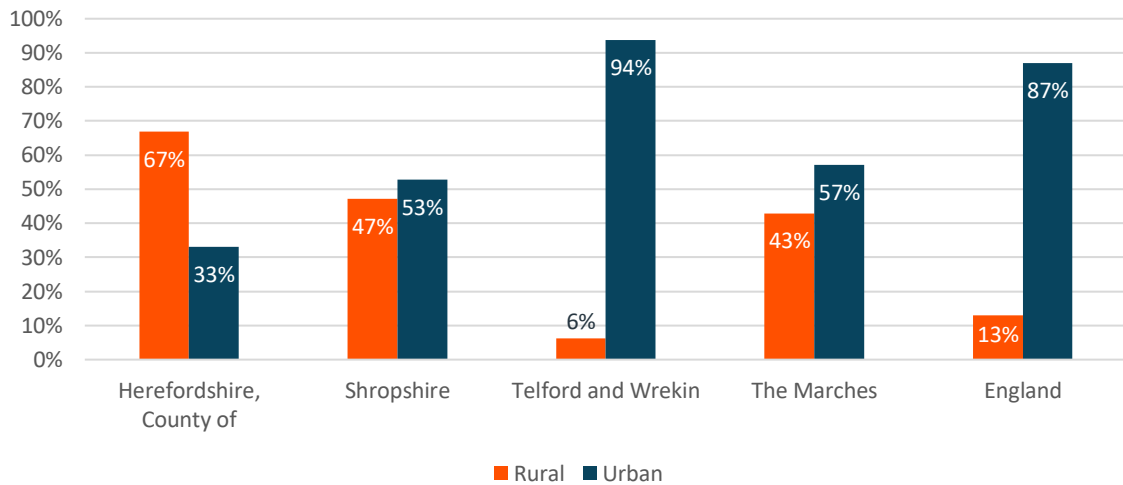
	Digital Companies	The Marches	England
Rural	790	42%	13%
Urban	1,084	58%	87%
Total	1,874	100%	100%

Source: Companies House, 2019

- 4.38 Whilst the Marches digital sector is predominantly rural at the LEP level there is considerable variation between the LEPs constituent authorities. Here, Herefordshire and Shropshire have a digital economy that is far more skewed to its rural areas, where as Telford and Wrekin has a more urban focused digital economy than the national average.



Figure 4.7 Digital Economy – Urban Rural Split by LA

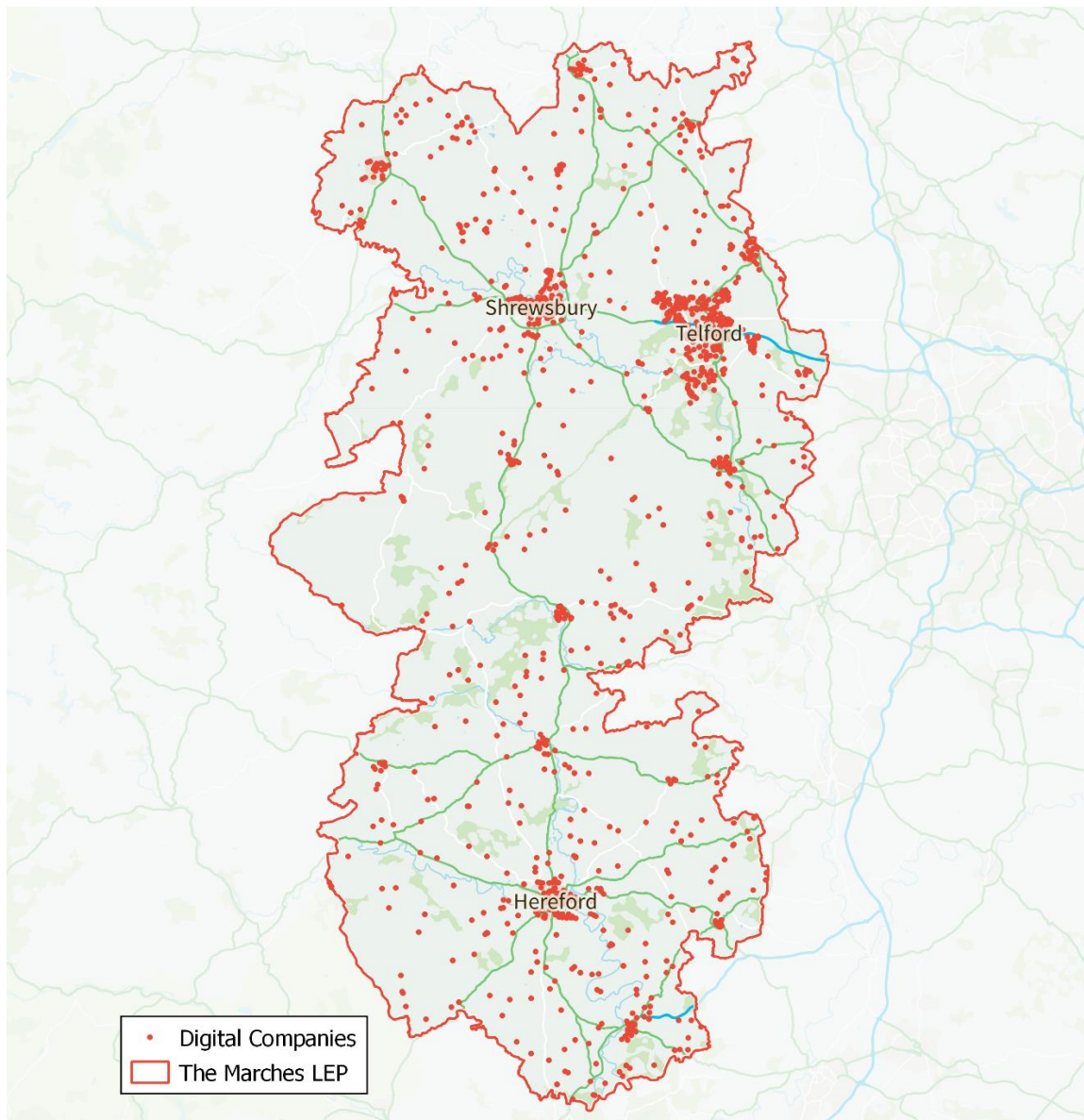


Source: UK Companies House, 2019

- 4.39 Major clusters of digital activity exist across The Marches, largely within urban settlements – Hereford, Telford and Shrewsbury. There are also smaller agglomerations of digital businesses located along the A49, with concentrations visible in Leominster, Ludlow and Church Stretton. A notable degree of digital activity is also visible across rural areas of The Marches. The extent to which rural areas have been able to accommodate digital business activity is likely to have been accelerated by investments in digital infrastructure and evolving working practices, including the ability to work flexibly and in a home-based environment.



Figure 4.8 The Marches – Location of Digital Embedded Companies



Source: Companies House 2019



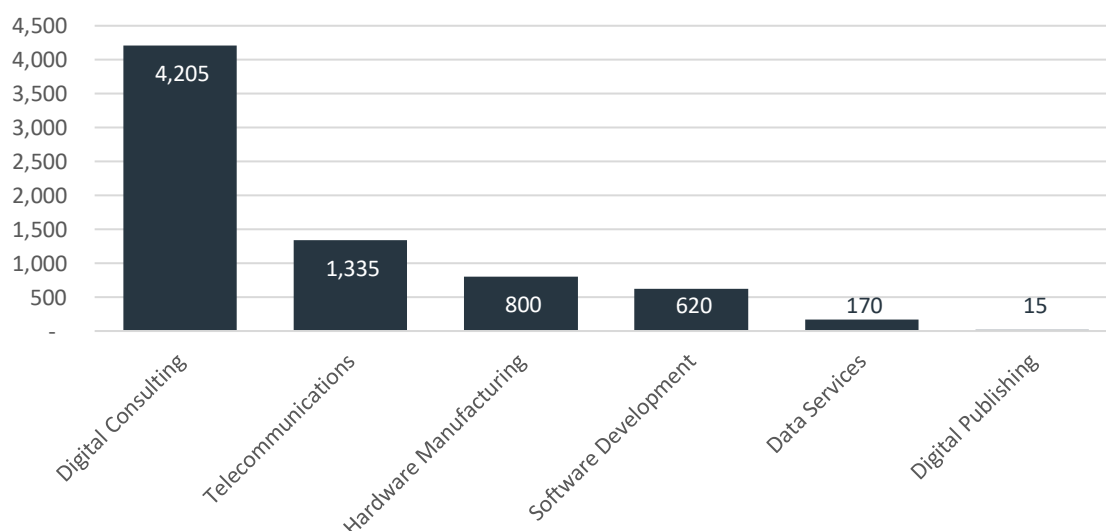
## Digitally-Dependent Sub Sectors

- 4.40 Within these digitally embedded sectors, there are a number of sub-sectors which are driving employment and define The Marches' digital distinctiveness.

Table 4.5 Sub Sector Groupings	
Sub-Sector	Overview
Digital Consulting	<ul style="list-style-type: none"> <li>Planning and design of computer systems</li> </ul>
Software Development	<ul style="list-style-type: none"> <li>Development, production, and supply of ready-made interactive software</li> </ul>
Telecommunications	<ul style="list-style-type: none"> <li>Operating, maintaining or providing access to facilities for the transmission of voice, data, text, sound, and video using telecommunications infrastructure</li> </ul>
Hardware Manufacturing	<ul style="list-style-type: none"> <li>Includes the manufacture, assembly and repair of electronic computers</li> </ul>
Data Services	<ul style="list-style-type: none"> <li>Operation of web sites and search engines and provision of data hosting infrastructure</li> </ul>
Digital Publishing	<ul style="list-style-type: none"> <li>Publishing of computer games for all platforms and publishing of ready-made (non-customised) software</li> </ul>

- 4.41 The Marches' largest digital sub sector employer is digital consulting, which employs 4,200 people and represents almost 60% of all digital jobs.

Figure 4.9 The Marches Digital Sub Sector Employment

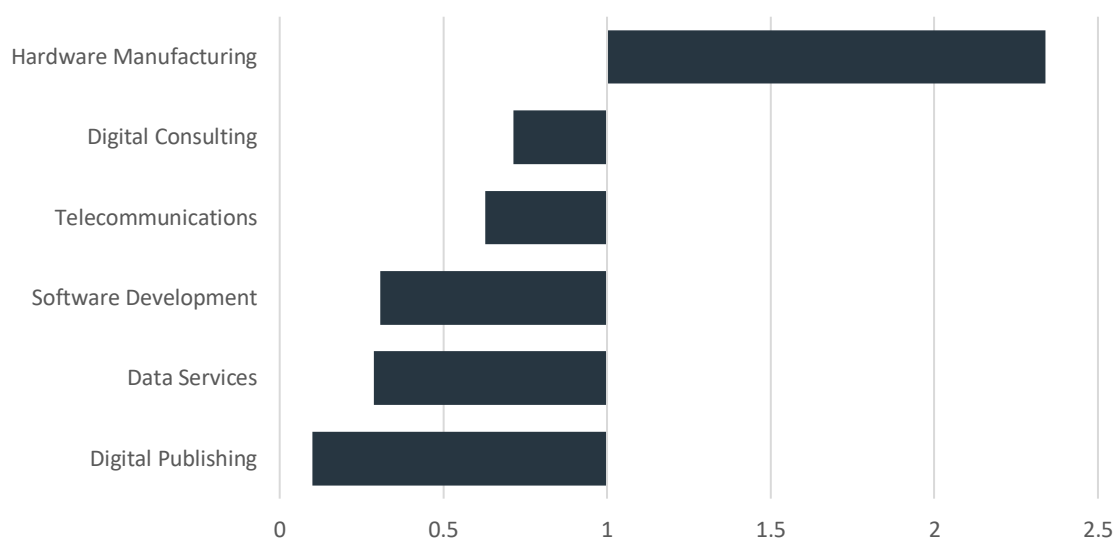


Source: BRES, 2017

- 4.42 It is clear that The Marches has significant specialisation in Hardware Manufacturing, where it has over twice the concentration of employment activity than that seen nationally. This reflects the area's attributes as a strong advanced manufacturing location.



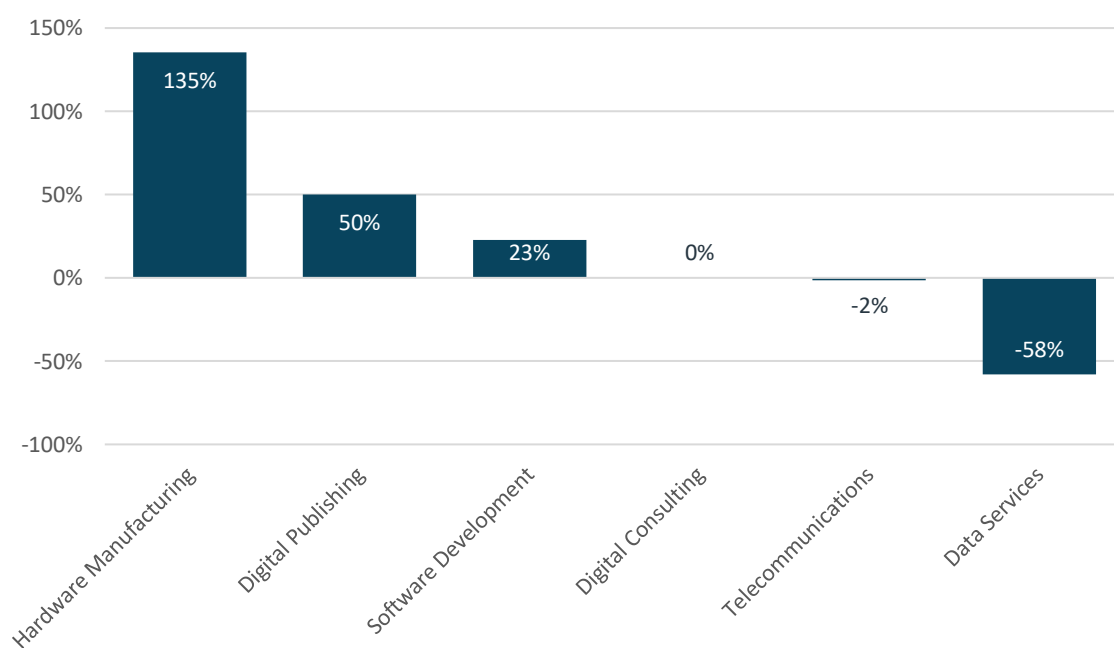
Figure 4.10 The Marches Digital Sub Sector Specialisation (LQ)



Source: BRES, 2017

- 4.43 Recent growth in the digital sector has in a large part been driven by the hardware manufacturing, digital publishing and software development sectors.

Figure 4.11 The Marches Digital Sub Sector Growth 2012-2017



Source: BRES, 2017



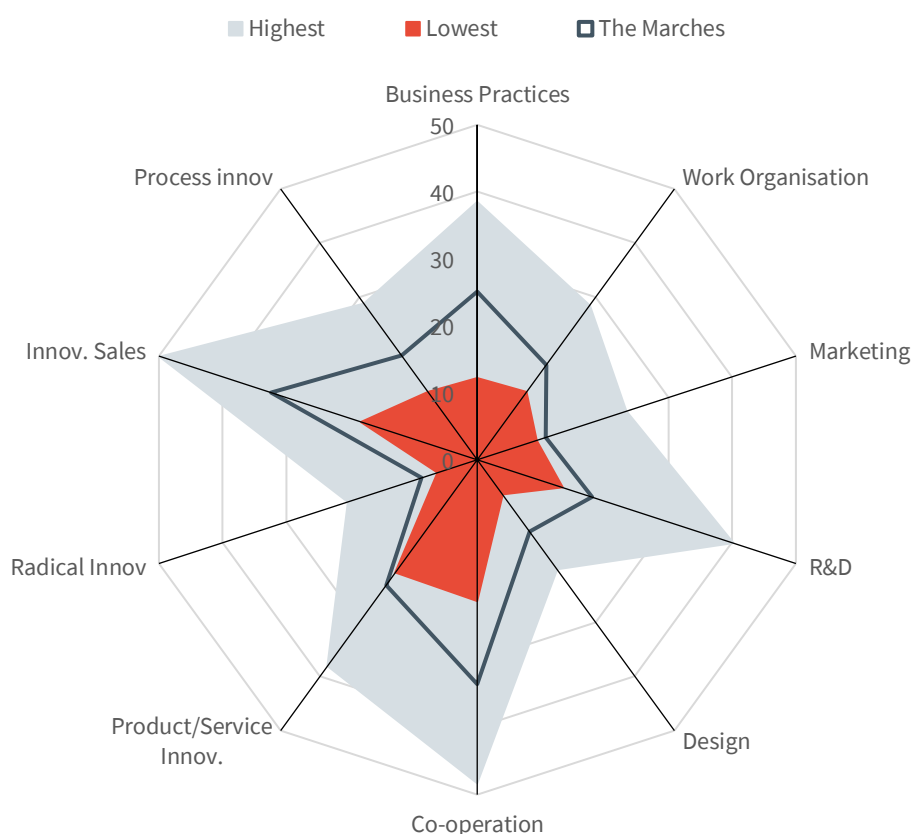
## Enterprise and Innovation

- 4.44 Digital technologies are increasingly fundamental to established businesses, driving growth and new market opportunity. They are also a stimulant of innovation and research, enabling a new wave of start-ups and entrepreneurs to emerge and play an important economic function. In the context of a national push towards innovation and the rebalancing of sub-regional economies, digital technologies have an important role to play<sup>33</sup>.

### Innovation Benchmarking

- 4.45 Enterprise Research Centre research provides a relative measure of innovation for each of England's LEP areas. Looking at performance against all 10 innovation measures, The Marches is either middling or trailing in innovation terms.

Figure 4.12 The Marches - LEP Innovation Benchmarks: 2014-16



Source: Enterprise Research Group, 2019

- 4.46 However, given the socio-economic and rural characteristics of The Marches, it is in many respects more meaningful to compare these rankings against the study comparator areas (Table 4.6). Here, the LEP is in the top three of comparator areas against four innovation measures. Notably, The Marches is the highest of all comparator areas in terms of co-operation, indicating that the area that has high levels of knowledge diffusion and firms seeking to maximise the potential of colocation with other innovative firms.

<sup>33</sup> Deloitte, [Innovation in Europe](#), 2019



Table 4.6 LEP Innovation Rank vs Comparators (2019)

Business Practices	Work Organisation	R&D	Co-operation	Product/ Service Innovation	Process innovation
New Anglia 26.4	Heart of the South West 21.1	Heart of the South West 21.2	<b>The Marches 33.5</b>	Heart of the South West 25	Cumbria 20.5
<b>The Marches 25.1</b>	Stoke-on-Trent and Staffordshire 18.1	<b>The Marches 18</b>	Heart of the South West 31.3	Stoke-on-Trent and Staffordshire 24.8	New Anglia 19.2
Cumbria 23.1	Cornwall and Isles of Scilly 18	Cornwall and Isles of Scilly 16.3	New Anglia 29.2	<b>The Marches 23.2</b>	Stoke-on-Trent and Staffordshire 17.6
Heart of the South West 20.6	Greater Lincolnshire 17.5	Cumbria 16.2	Stoke-on-Trent and Staffordshire 26.9	New Anglia 22.8	Heart of the South West 17.3
Stoke-on-Trent and Staffordshire 20.4	<b>The Marches 13.6</b>	Greater Lincolnshire 15.7	Cornwall and Isles of Scilly 26.3	Cornwall and Isles of Scilly 21.6	Greater Lincolnshire 14.6
Cornwall and Isles of Scilly 18.1	New Anglia 12.7	New Anglia 14.8	Greater Lincolnshire 25.7	Cumbria 21.3	<b>The Marches 12.5</b>
Greater Lincolnshire 17.5	Cumbria 12.5	Stoke-on-Trent and Staffordshire 13.8	Cumbria 22.1	Greater Lincolnshire 20.9	

Source: Enterprise Research Group, 2019

4.47 The Marches best performing areas in terms of innovation are:

- **Business Practices – Rank 13 of 39** this measure relates to firms' adoption of new organisational processes over the 2014 to 2016 period. Examples of this type of innovation include: supply chain management, business re-engineering, knowledge management, lean production, quality management.
- **Design Investment – Rank 19 of 39** this benchmark accounts for firms' investment in all forms of design related to the development or implementation of new or improved goods, services and processes.
- **Collaboration – Rank 16 of 39** records whether innovating firms worked with other partners on their innovation activity over this period.
- **Process Innovation – Rank 14 of 39** measures firms' innovation in both manufacturing and business processes by calculating the proportion of firms introducing new or significantly improved processes during the 2014 to 2016 period.

## Enterprise and Start-Ups

- 4.48 Digital technologies also offer a platform from which small businesses can evolve and entrepreneurs thrive, in sectors and industries that aren't necessarily those which are considered to be digitally dependent. In many cases, technology is enabling early-stage firms to operate more efficiently, retain flexibility and grow rapidly<sup>34</sup>.
- 4.49 The Marches is characterised by a mature business base with low churn and has strong rates of business survival. The Marches has the highest rate of businesses still trading two years after start-up (80.2%) of any comparator LEP and offers a supportive business environment, with a corresponding low business death rate (9.1% in 2016 – the lowest of any of the comparator LEPs).

<sup>34</sup> Forbes, [Technology Is Driving Entrepreneurial Growth, And We're Not Just Talking About Silicon Valley](#), 2017



## Cyber Security

- 4.50 A key consideration for all businesses is growing presence of cyber threats. As a consequence of technological progress and more day-to-day business activity moving to online platforms, cyber security risks are a prescient concern for businesses operating across many sectors, but particularly for those that are most digitally dependent.
- 4.51 The importance of effective cyber security measures to the national economy and businesses trading within The Marches is considerable, with a national strategy in place to ensure the country's cyberspace presence is secure and resilient<sup>35</sup>. The strategy is positioned around a series of overarching themes:
- **Deter** – taking offensive action to ensure the UK is impenetrable to cyber criminals.
  - **Defend** – ensuring government, business and citizens can defend cyber-attacks.
  - **Develop** – utilising national expertise and skills to address future cyber threats.
  - **Governance** – UK government policies, organisations and structures are coherent.
- 4.52 Within The Marches, threats to businesses include theft of intellectual property, installation of insidious malware or spyware, targeted spamming and interference with systems and processes which are reliant on IT and online/cloud-based services. Such threats are skewed towards smaller businesses, who may be ill prepared for increasingly sophisticated cyber-attacks.
- 4.53 The Marches is at the forefront of cyber security research and implementation, with a legacy of military security presence in the sub-region. Additionally, the development of the Cyber Quarter – Midlands Centre for Cyber Security is leveraging expertise and research capacity to ensure local businesses are prepared for cyber threats and that local innovators are able to access space to develop ideas, services and products.

### Case Study: Cyber Quarter – Midlands Centre for Cyber Security



The Cyber Quarter – Midlands Centre for Cyber Security aims to provide a single hub for cyber security needs for small or large businesses. It will provide cyber consultancy, security testing, R&D and Continuous Professional Development (CPD) training services all under one roof – at Skylon Park in Hereford (the Marches' only Enterprise Zone).

It will support businesses seeking security assessments of their services/processes, help in getting compliant to industry standards like ISO or GDPR and those who want their systems or products to be tested for vulnerabilities. The centre also will provide a bespoke CPD training portfolio for upskilling and reskilling in the cyber domain that can be catered around the needs of the organisations.

The centre is backed by the University of Wolverhampton's Cyber Research Institute, which brings extensive skills and expertise in cyber security and is a joint venture with Herefordshire Council and part-funded by The Marches LEP and EU. The centre is due to open in 2020.

<sup>35</sup> Her Majesty's Government, UK National Cyber Security Strategy, 2016-2021



## Key Stakeholder Sentiments

4.54 Stakeholders from across The Marches provided the following perspectives on how technology is playing a role within local businesses, the opportunities it presents, and challenges faced:

- **A better understanding is needed of how and where to obtain support** and find solutions relevant to the businesses who are keen to exploit digital technologies (especially SMEs), making more effective use of the Growth Hub.
- **The LEP has an important role to play in advocating digitisation** and driving the agenda forward locally, taking a proactive role whilst marketing distinctiveness effectively.
- **There are a series of initiatives that have generated significant value for local businesses** and provide the foundation to do more of the same and at a larger scale (examples being Faster Women projects, Cyber Security training).
- **Business sees considerable value in a spokesperson or ‘digital champion’** that has a close relationship with enterprise and can bridge the gap between the LEP’s goals and the practicalities of operating a business in The Marches.
- **The practical application of digital technologies is expansive across The Marches**, with uses ranging from small scale investments to the checking of products, precision engineering, remote monitoring and enhanced business processes.
- **Technology is enabling more sociable working hours**, incentivising flexible working practices, enhancing recruitment prospects and attracting younger people to local jobs.
- **Digital technologies are an important driver of improved productivity** and there is an opportunity to harness them to enhance the vitality of rural communities, attracting new forms of enterprise and younger generations of talent.
- **The Marches’ digital distinctiveness is catalysed by the deployment of technology in rural settings**, where firms are starting, innovating and growing, ins spite of certain locational disadvantages.
- **Digital infrastructure connectivity is seen as absolutely fundamental**, with fixed and mobile connectivity still a constraint on an employee’s ability to function remotely, be productive when travelling and on the implementation of new technologies.
- **Cost barriers are a threat to digital technology adoption** and the case for investment needs to be clearly made where the operational and behavioural shifts are significant.
- **There is a widely-accepted recognition that the adoption and use of digital technology is rapidly becoming sector agnostic**, with digital disruption applicable across The Marches economy as a whole – small businesses will need support focused on the rationale for adoption and need for increased adaptability to change.
- **Some larger and Tier 1 firms, report issues stemming from the lack of digital credentials in their SME supply chain**, where such businesses may be more predisposed to cyber security threats, data breaches and technical malfunctions – a threat and potential opportunity in a Marches context.
- **Cyber security is a tangible threat to the local economy**, with there being a pressing need to ensure the public and private sectors are aware of risks and developing strategies to deter and defend against cyber-attacks.



## Business: Strategic Implications

- **Businesses trading across core, emerging and enabling sectors are all subject to digital transformation in one form or another and need to be prepared to exploit maximum benefit and understand the effects of change.**
- **Small businesses are exposed to opportunities and challenges associated with digitisation and are likely to require support such that they fully exploit benefits and mitigate against commercial threats.**
- **The most digitally embedded businesses are a powerful symbol of digitisation across The Marches, are likely to require best in class connectivity and form the basis for a more developed growth/clustering proposition.**
- **The ability to automate tasks is introducing the potential for impressive productivity gains, informed by greater efficiency, whilst also opening up new methods of working.**
- **Widespread technological adoption may lead to negative economic consequences too, such as the loss or replacement of employment as a result of automation and AI but will also open up new forms of employment and wealth creation – the level of exposure is different with variable outcomes for The Marches’ key sectors.**
- **High levels of cooperation innovation indicate that The Marches is a fertile area to use digital approaches, whilst strengths in business practice innovation and manufacturing process innovation implies that firms across The Marches are integrating digital processes and are receptive to new digital opportunities.**
- **There is an opportunity to further embed technology and digital processes within The Marches’ start-up and entrepreneur community, where its effect can be significant.**
- **Whilst a mature business base is a sign of a strong business environment, well-established businesses may have more issues in terms of integrating new digital processes that come to the fore.**
- **Political uncertainty and potential changes to immigration are critical factors that will influence investments in technology as well as access to skilled labour, particularly international workers who have a base of high-quality digital skills.**
- **Technology offers the potential to attract and retain younger people within local industry, incentivised by improved work-life-balance and place-of-work flexibilities.**
- **In some sectors, digital technology adoption requires intensive upfront investment, particularly within those that are product focused, meaning costs barriers are considerable.**
- **Before investing in technology and digital processes, companies require confidence in digital infrastructure, which forms the basis for maximising benefits and growth.**
- **There is reluctance within some sectors to invest without a proven test case of the technology and a concern that digitisation will not provide a return on investment – more could be done to improve confidence levels and encourage research.**
- **Without sufficient protection and widespread awareness of cyber security threats, the benefits of businesses becoming digitised are likely to be lost.**



# 5

## Digital People





## 5. Making the Case: Digital People

- 5.1 As with other digitised economies across the UK, The Marches is reliant upon the presence of a digitally savvy labour market. This spans a broad spectrum of skills, including an ever-increasing necessity for strong fundamental digital skills, as well as specialised technical qualifications.
- The success of local sectors and The Marches economy will be reinforced by a qualified and accessible labour market, which offers the types of digital skills that employers need to enable growth and generate higher levels of productivity...*
- 5.2 As such, digital skills are seen as a core component of an individual's employability, being applicable across the full spectrum of local industries, within a wide variety of job settings and embedded in operational tasks.
- 5.3 Digital skills definitions vary but can be broadly defined by the need for basic/core competency skills and more technical acumen. The government recognises the need for a baseline level of digital competency, reflected within its Essential Digital Skills Framework<sup>36</sup>. This defines digital skills across five categories of aptitude:
- **Communicating**
  - **Handling information and content**
  - **Transacting**
  - **Problem solving**
  - **Being safe and legal online**
- 5.4 Beyond this, other definitions reflect the technical and specialised nature of digital skills, which imply a need for higher level qualifications and are increasingly sector specific<sup>37</sup>. Examples of these include:
- **Skills Framework for ICT** (SkillsFuture) – presents specific skills required for ICT roles
  - **Digital Competencies** (ESCO) – skills database from the European Commission, which categorises the occupations for which 'digital competencies' are necessary

## Digitally Driven: Skills

### The Need for Digital Skills

- 5.5 The skills agenda sits at the forefront of government economic development policy, as a driver of productivity, employment opportunity and global competitive advantage. Digital skills are recognised by the government as “critical across the majority of sectors and occupations”<sup>38</sup>, where such skills are entry requirements for two thirds of UK occupations. As such, digital skills are a key foundation within the national Digital Strategy.
- 5.6 The ubiquitous nature of digital technology, that influences all aspects of work and life as well as the fast pace of technological change, means that there are new and ever evolving demands

<sup>36</sup> Department for Education. Essential Skills Framework, 2019

<sup>37</sup> Nesta, Four steps to define digital skills, 2018

<sup>38</sup> DCMS, Connected Growth: Manual for Places, 2019



on people from all backgrounds and skill levels. As such, effective investment in digital skills and training will have a transformative impact on The Marches economy.

- 5.7 Digital technology also provides a new platform from which education and skills programmes are being delivered – The Marches is no different in this regard. Digital learning is helping to mitigate challenges that are presented in The Marches, such as rural accessibility issues and enabling continued adult education to be more flexibly pursued. Moreover, remote learning can enable curricula to be more adaptive and reflect the pace of the modern business environment.

## Digital Skills Supply

- 5.8 Whilst it is difficult to infer the degree to which skills and qualifications are truly relatable to ‘digital skills’, conditions across The Marches signify the capabilities of the local workforce. Whilst local labour access is vital in the context, inherently digitisation opens up access to a global workforce, which

## Qualifications Profile

- 5.9 Compared to the UK average, there is a shortage of high-level skills in The Marches, driven by a lower proportion of residents with NVQ Level 4 qualifications. There is a slightly higher proportion of residents with no and Level 1 qualifications, which further suggests the supply of skills within The Marches may not be in keeping with growth and productivity ambitions. This is important as there is an expectation that as digital disruption will lead to jobs that are more technical in nature and reliant on a higher level of baseline qualifications.

Figure 5.1 Qualification Profile 2017



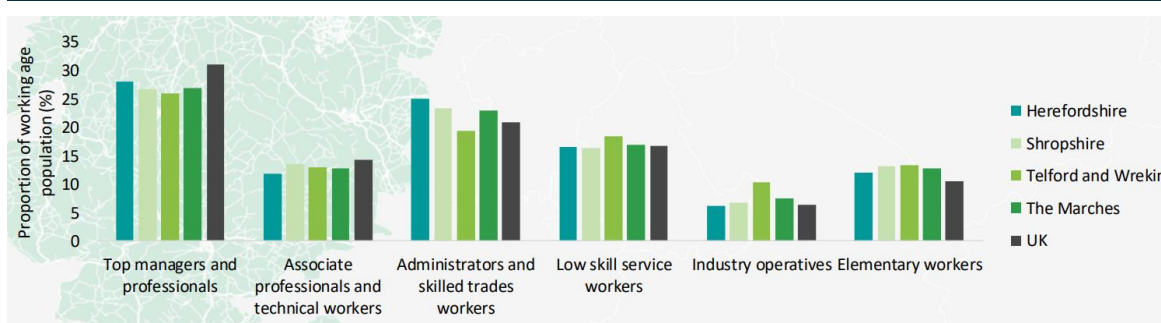
Source: The Marches LEP (2018) SEP Evidence Base

## Occupations Profile

- 5.10 The occupational breakdown of residents across The Marches area largely matches the labour market skills profile of the area with a lower proportion of residents in high level occupations and a higher proportion of residents employed in elementary occupations. That said, these occupations, reflected within the area’s sectoral profile, will be shaped by digital technologies.



Figure 5.2 Occupations Profile 2017

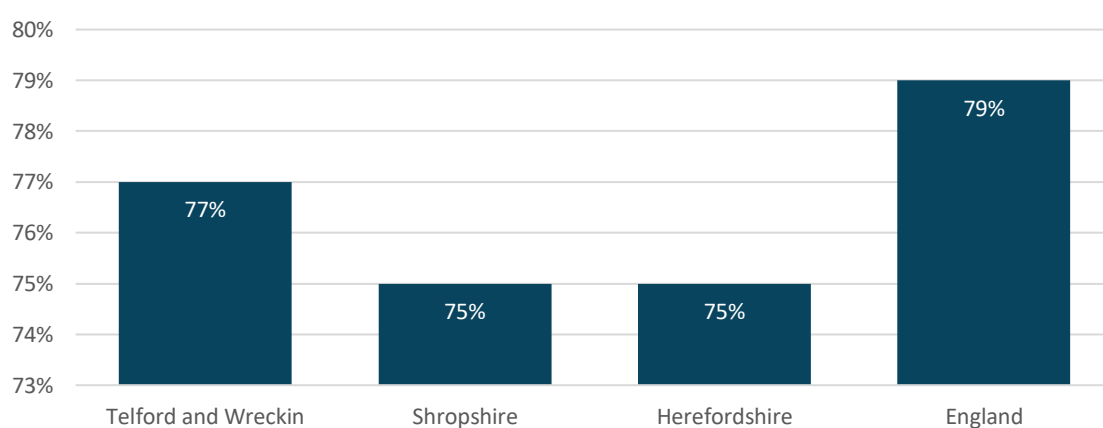


Source: The Marches LEP (2018) SEP Evidence Base

## Digital Skills

- 5.11 The Get Digital Basic Digital Skills UK Report (2017) provides a summary of basic digital skills levels, which allows a more definitive view to be developed within The Marches.
- 5.12 Basic digital skills are made up of four basic elements<sup>39</sup>:
- **Problem Solving** – find solutions to problems using digital tools and services
  - **Communicating** – communicate, collaborate and share online
  - **Handling Information & Content** – find, manage and store digital information and content securely
  - **Transacting** – apply for services, buy and sell, and manage transactions online
- 5.13 By this measure, each of The Marches constituent areas trails behind the national picture as demonstrated below in Figure 5.3.

Figure 5.3 Residents with Basic Digital Skills (2017)



Source: Get Digital Basic Digital Skills UK Report 2017

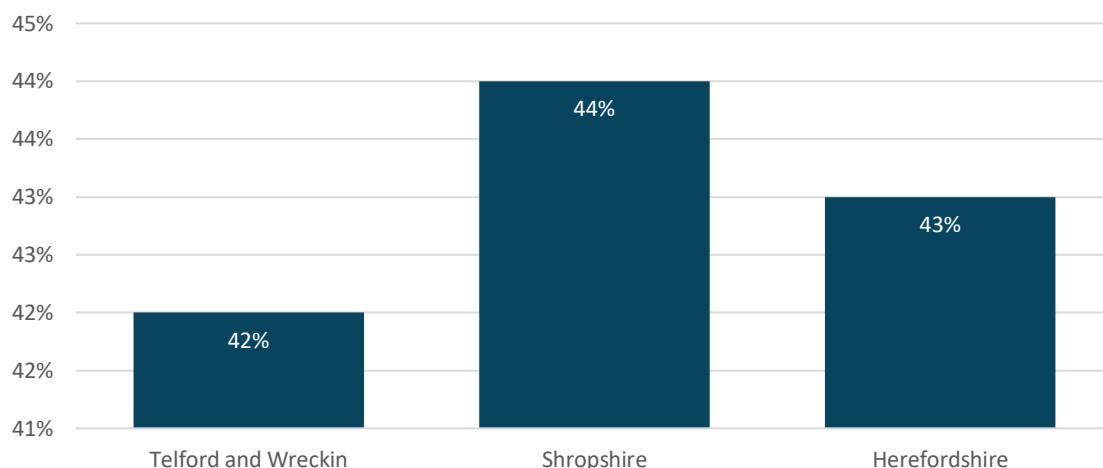
- 5.14 Basic Digital Skills Used data shows the percentage of adults that say they have used all four basic digital skills in the last three months, providing an indication of how engaged the resident

<sup>39</sup> Basic Digital skills are defined by Doteveryone, Lloyds bank the Department of Education and DCMS to fully reflect the range of skills people need to safely benefit from, participate in and contribute to the digital world of today and the future.



population is and the degree to which they are reaping the benefits of digital skills. The Marches local authorities rank as 'slightly above average' in terms of performance, suggesting those with the requisite skills are more likely to put them to use for the benefit of both work and life.

**Figure 5.4 Basic Digital Skills Used (2017)**



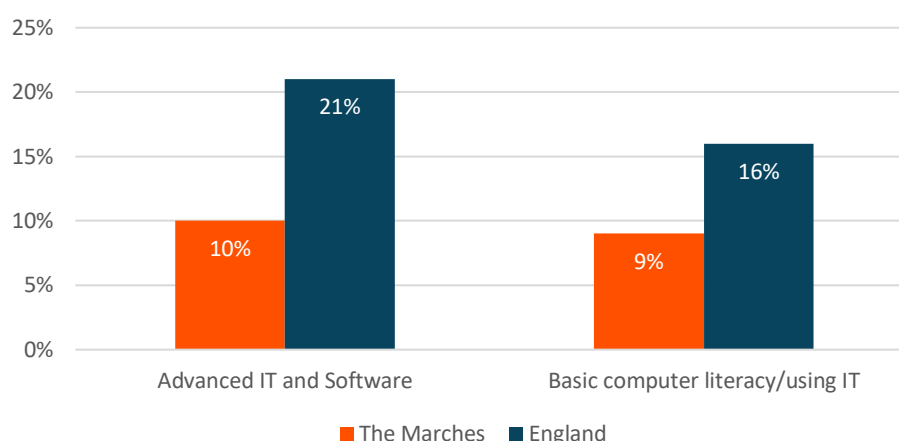
Source: Get Digital Basic Digital Skills UK Report 2017

## Demand for Digital Skills

### Skills Gaps and Shortages

- 5.15 The demand for skills is often reflected in the presence of skills gaps and shortages. Both represent a potential constraint on employer recruitment, availability of suitably skilled labour and liable to hinder the ability of The Marches economy to grow. Whilst enhanced digital infrastructure connectivity enables access to a wider (and remote) skills base, there remains a prescient need Marches residents to be digitally proficient, to satisfy demand from employers.
- 5.16 The Marches has issues associated with the imbalance of resident qualifications and occupation requirements, particularly where higher skills are concerned. This is an area where there are notable skills gaps present. Of all employers in The Marches surveyed by the UK Commission for Employment and Skills (UKCES) in 2015, 9% had skills shortage vacancies for managers, compared to the 4% average for all LEPs. This message is further reinforced by evidence which shows that 13% of employers surveyed in The Marches reported skills gaps, compared to the LEP average of 12%. At this level of occupation, digital competencies (in some cases technical) will be a core skillset sought by employers.
- 5.17 That said, evidence provided from The Marches Skills Plan suggests that shortage of digital and IT skills across The Marches is less acute, relative to the national picture (Figure 5.5). A similar trend is apparent for Basic IT skills, where 9% of employers across The Marches report these as a skill commonly missing in job applicants compared to 16% nationally. Given the aforementioned lower level of recruitment into managerial, professional and associate professional roles however, this trend may simply reflect a lower level of demand for these skills. Despite this, these findings reinforce the increasing need for a baseline level of digital proficiency and the need to address basic skills deficiencies.



**Figure 5.5 Skills commonly lacking amongst applicants (% of employers) 2016**

Source: The Marches LEP and Hereford Enterprise Zone Skills Plan – Evidence Base (2016)

### Vocational Skills

- 5.18 Vocational skills and training programmes are central to national policy and are a response to issues associated with constrained labour supply. They are designed to facilitate clearer employment pathways and ensure employers are actively developing the skillsets that are important to their function and future growth. Apprenticeships are the centrepiece of this.
- 5.19 There are currently 3,930 Information and Communication Technology (ICT) apprenticeships across the West Midlands. This represents 4.1% of the total apprenticeship base, a marginally large degree than that seen nationally. Despite possessing a slightly greater concentration of ICT apprenticeships, the growth of ICT apprenticeships has been marginally slower across the West Midlands (+18%), relative to that seen nationally (+20%). However, the surge in popularity of those seeking skills in this area is significant, with an 18% growth in ICT apprenticeships relative to no growth experienced for all apprenticeships. This has implications for The Marches.

**Table 5.1 ICT Apprenticeships**

	ICT Apprenticeships		All Apprenticeship
	% of Total Apprenticeships	% Change 2012/13 - 2017/18	% Change 2012/13 - 2017/18
West Midlands	4.1%	18%	0%
England	3.9%	20%	1%

Source: Department for Education, 2019

### Tackling the Digital Skills Deficit

- 5.20 There is an active digital skills agenda across The Marches, with an increasing focus on the need to embed digital competencies across the curriculum and within workplace-based training. In this context, digital skills are regularly identified as a core employee attribute, in a similar vein to 'soft' employability acumen, given the relevance to roles across organisations large and small.
- 5.21 In partnership with the LEP and government agencies, schools, colleges and universities are delivering a variety of activities to ensure future and existing workforces are digitally attuned. This includes a focus on embedding core digital skills within the curriculum, as well as



introducing bespoke digital courses, designed to serve the more technical needs of employers across The Marches. Within this, digital technologies are being leveraged to:

- Provide e-courses and distance learning content to reach wider audiences
- Develop digital apprenticeships which can be delivered remotely through employers
- Employ real world teaching task where digital technology is deployed
- Support research, entrepreneurship and spin outs of digital intellectual property

### Case Study: Coding for Non-Computer Science Graduates



The project is designed to work closely with the local employer base to address an identified skills shortage of digitally-skilled, industry-ready graduates in Shropshire and beyond. Led by the University Centre Shrewsbury, the project is responding to the needs of the local business base and an evolving economy, where digital skills are intrinsic.

The project will create an innovative conversion MSc in Data Science /machine learning/AI and entrepreneurial skills with course content designed by industry experts and working in partnership with the University of Chester.

Course content will be taught in an innovative, flexible way, ensuring accessibility for hard to reach groups, particularly returning to work mothers and remote, home-based workers (rural isolation being a concern).

## Digitally Driven: Social Inclusion

### Digital Inclusivity

- 5.22 The inclusiveness of economies is a key area of national policy concern, with a focus on ensuring on all citizens have the opportunity to benefit from economic prosperity and a high quality of life. Digital technologies have a fundamental and increasing role to play in enabling inclusion, in different geographic and socioeconomic contexts, opening up new opportunities to access education, employment and strengthen community cohesion. This is reflected within EU policy, which acknowledges the economic and social value of digital inclusion<sup>40</sup>.
- 5.23 Given the rural make-up of The Marches, digital inclusion remains an issue of paramount importance, with investments in infrastructure aimed at bridging the ‘digital divide’. Indeed, Lloyds bank estimates that nationally, closing the digital skills gap could unlock £85bn in turnover every year<sup>41</sup>.

### Localised Characteristics

- 5.24 Digital exclusion represents the inability for individuals to access online products or services or to use simple forms of digital technology. This issue disproportionately affects vulnerable people, low-income groups, the elderly and the more marginalised communities in our society. As such, this creates a strong correlation between digital exclusion and social exclusion.

<sup>40</sup> European Commission, [Digital Single Market Strategy](#), 2019

<sup>41</sup> Lloyds Bank (2018) UK Business and Charity Digital Index



- 5.25 The Tech Partnership provides intelligence looking at the likelihood of digital exclusion in a local area and the key issues driving it. Overall, the likelihood of digital exclusion across The Marches is significant, highest in Shropshire and Herefordshire. Underlying factors driving digital exclusion are infrastructure coverage (fixed and mobile), basic digital skills, age and income.

Table 5.2 Digital Exclusion Rank – (Rank 1-5)

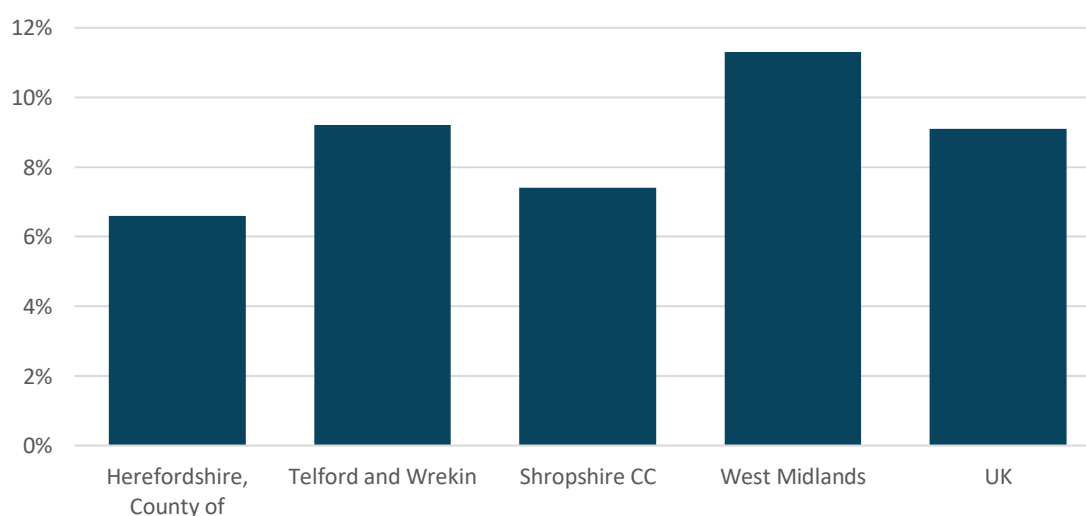
	Overall Exclusion	Infra-Structure	Offline	Basic Digital Skills	Digital Skills Used	Age	Education	Income	Health
<b>Telford and Wrekin</b>	Medium	3	4	3	4	2	4	5	3
<b>Shropshire</b>	High	5	5	5	3	5	3	3	3
<b>Herefordshire</b>	High	5	2	5	3	5	3	4	3

Source: Tech Partnership (2017)

Note: A ranking of 1 means least likely to be digitally excluded. A ranking of 5 means most likely to be digitally excluded.

- 5.26 This paints a mixed picture of digital exclusion outcomes across the Marches, with Telford & Wrekin earning an overall score of ‘medium’ and Herefordshire and Shropshire scored as having a ‘high’ risk of digital exclusion. The factors driving this include the extensive of infrastructure connectivity, a relative lack of basic digital skills and an older demographic profile. Within Telford & Wrekin, lower income levels pose the greatest risk to digital exclusion.
- 5.27 The Marches outperforms the rest of the West Midlands and the UK in terms of the proportion of residents who have either never used the internet or have not accessed the internet in the past 3 months (Figure 4.6)). Whilst Telford and Wrekin (9%) is alongside the picture seen nationally, both Herefordshire (7%) and Shropshire (7%) have a smaller proportion of residents who have been ‘offline’ for over 3 months or never used the internet at all.
- 5.28 Collectively, this suggests there may be a sizeable proportion of The Marches population who are unable or unable or unwilling to engage with online activities.

Figure 5.6 Proportion of Residents who last used the internet over 3 months ago/Never used (2019)



Source: ONS, 2019



## Key Stakeholder Sentiments

5.29 Stakeholders from across The Marches provided the following perspectives on digital skills and the role of technology in addressing social inclusion challenges:

- **The LEP is integral to supporting a progressive and responsive digital skills agenda**, bringing employers, educators together to ensure digital skills reach prerequisite levels.
- **The pace of technological change makes it difficult for the curriculum to keep up** with industry standards, with alternative solutions needed to bridge this gap.
- Whilst e-learning is key to overcoming physical and cost barriers, as well as promoting broader inclusivity, **it is not realistic for it to fully substitute face-to-face learning**.
- **Higher education institutions are key to reversing the migration of graduates out of the area** and need to develop curricula that reflect the local needs and priority sectors – the development of Digital Master’s Degree being a prime example.
- **It’s increasingly difficult to find people locally with the requisite digital skills to fulfil business needs**, leading to recruitment from farther afield – this is enabled through a mobile global workforce.
- **Reskilling and upskilling of the existing workforce is essential** in order to meet employer demand and be ready to deliver more digitally focused roles, important in the context of demographic changes too.
- **Attracting talent to rural locations may necessitate higher salary offers**, which in turn constrains SME investment into training and development.
- Whilst schools, further and higher education institutions are actively working to embed digital skills within the curriculum and deliver an expanded online learning experience, **there is a sense that collaboration with business hasn’t always been optimal and a new engagement vehicle is needed**.
- **There is a need to rebalance the emphasis between academic and vocational employment pathways**, with an expanded role for apprenticeships helping to address skills gaps and recruitment challenges.
- **The education system should be encouraging the development of innovative and ‘blue sky’ thinkers**, capable of longer-term visioning, understanding the future role for digital technologies and applications which will give The Marches a competitive edge.
- **The Marches’ higher education institutions have an important civic role to play**, which will help to retain the best digital talent and embed digital perspectives across the wider population.
- **Digital technologies are vital tool in helping to address social inequality and overcome locational disadvantages**, with further investment in infrastructure access and support programmes needed to enable meaningful change.



## People: Strategic Implications

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- **There is a potential mismatch between the skills requirements of key sectors and the supply of skills within the local labour market, with the evolving shape of the local economy and digitisation of all industries a key driver of change.**
- **There is a need to build on extensive research, the direction set by the Skills Plan and positive action delivered to date, developing a proactive systemic response to ensure employer digital skills needs are fully articulated and embedded across the curriculum.**
- **The demand for digital skills is not isolated to firms which are the most digitally dependent, rather businesses trading across different sectors require a certain baseline of digital skills proficiency.**
- **Labour market constraints are a tangible challenge for local businesses, with access to digital skills being a prominent factor, meaning firms are forgoing opportunities to deliver better, more efficient services and generate value from online markets.**
- **Local residents in The Marches are trailing in terms of basic digital skills competency, which presents challenges in ensuring that all residents and businesses have the capacity to benefit from digital opportunities.**
- **There is more to be done in terms of increasing the role that vocational employment pathways play in delivering a strong supply of digitally skilled people to local labour market, including raising the availability and take-up of apprenticeships.**
- **A lack of digital capability poses a significant threat to social inclusion and the ability for people to improve their quality of life and employment prospects – digital infrastructure connectivity is the first step to mitigating these challenges.**
- **There is evidence to suggest that local people are actively engaging with the internet and online platforms, implying there is a strong foundation from which to encourage a deeper level of digital participation.**



# 6

## Digital Places





## 6. Making the Case: Digital Places

6.1 Technology is already playing an integral part in the design and function of places, making them more dynamic, interactive, future-proof, safer, inclusive and sustainable.

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*Digital technologies also have an important role to play in the shaping of places across The Marches, whether they be urban centres, market towns or rural communities...*

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6.2 Digitisation also opens up new opportunities to address challenges in different geographies and locations, harnessing the power of technology to mitigate impacts, design new solutions and democratise. There is also a compelling base of evidence emerging internationally, adding further weight to this argument<sup>42</sup>.

### Digitally Driven: Growth and Regeneration

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#### The Digital Imperative

6.3 The Marches is evolving – growing and changing the physical composition of places and spaces across the three local authority areas. This evolution is seen most tangibly through:

- **Growth** – the creation of new settlements and expansion of existing communities, primarily driven by new housing and commercial development.
- **Regeneration** – the revitalisation and re-use of existing sites, creating new identities, spaces, uses and economic functions.

6.4 Within this shaping of new and revived places, the role of digital technology is intrinsic. Its function is seen from design to delivery, informing best practice, innovation and supporting the curation of residential, business and public realm spaces. The delivery of such sites provides an opportunity for these to adopt a best-in-class digital offer, helping The Marches to set itself apart, with residents and businesses reaping the rewards.

6.5 Some examples of how digital technology can be integrated as a core ingredient of growth and regeneration across The Marches include:

- **Delivering the highest quality digital infrastructure to new development sites** – installing high specification fixed and mobile connectivity to serve new homes and commercial developments, increasing attractiveness, commercial viability and introducing the potential to extend connectivity to wider areas<sup>43</sup>.
- **Harnessing the potential of smart technologies** – integrated with high speed digital infrastructure, the implementation of smart technologies, including IoT, sensors and use of open data, supporting more inclusive, sustainable and productive neighbourhoods<sup>44</sup>.
- **Using technology to adopt a more democratic approach to place making** – digital technologies offer the chance to increase civic participation in new development and

<sup>42</sup> Nesta, [Six pioneers in digital democracy](#), 2019

<sup>43</sup> DCMS, New Build Developments: Delivering gigabit-capable connections, 2018

<sup>44</sup> McKinsey, Smart cities: Digital solutions for a more liveable future, 2018



regeneration design and consultation, reflecting local views whilst promoting greater accountability at key points along the design and planning process<sup>42</sup>.

- **Embedding smart solutions in social housing** – ensuring affordable and social housing stock is connected to digital infrastructure, enabling residents the chance to make equitable use of digital information, services and smart technologies<sup>45</sup>.

- 6.6 The digital characteristics of a place therefore determine their relative attractiveness to residents and businesses and the extent to which such locations benefit from competitive advantages. They are also increasingly recognised within the planning system, where there is a strong recognition of the value of digitised communities and the need to develop policies which incentivise digital investment<sup>46</sup>.

## The Marches' Growth Focus

- 6.7 There is an active programme of regeneration and new development underway across The Marches, incorporating brownfield and greenfield sites. The growth objectives set out within the SEP illustrate the scale of development that is underway or planned, largely focused on areas categorised as urban centres and opportunity towns.

- 6.8 Across these locations, there is a desire to balance growth with sustainability and the protection of the area's natural assets. The thrust of economic development policy is orientated around key sectors, creating high value employment and ensuring local people are well-placed to benefit from growth.

- 6.9 Physical regeneration is a key component of this, with a range of plans seeking to create new employment space, improve the public realm, upgrade infrastructure and enhance amenity.

- 6.10 The delivery of housing is of centre stage too, with urban centres and opportunity towns all contributing towards ambitious targets, emphasising affordability, quality and sustainability.

- 6.11 Key growth and regeneration across The Marches are summarised in the table below and help to position the opportunity to embed digital infrastructure and solutions within each. In some instances, this is already occurring, but in other locations and where plans remain in a state of development, digital technologies offer an opportunity to create places that are distinct and liveable.

Figure 6.1 Urban Centres and Opportunity Towns



Source: Marches Strategic Economic Plan, 2019

<sup>45</sup> Cyan Technologies, [Digital Transformation Of Social Housing](#) – Top Five Trends, 2019

<sup>46</sup> Future Cities Catapult, [Building a 21<sup>st</sup> Century Digital Planning System: A Quick Start Guide](#), May 2019



Table 6.1 Key Growth and Regeneration Locations

Location	Summary
<b>Hereford</b>	<ul style="list-style-type: none"> <li><b>Hereford</b> is undergoing a wide-ranging programme of growth and regeneration. Hereford 2020 is a City Centre focused regeneration project, with the aim of making the city a great place to live, work and visit. The city has also seen its status as a retail destination increase through redevelopment activity and is expected to accommodate considerable housing growth.</li> </ul>
<b>Bromyard, Ledbury, Leominster, Ross-on-Wye</b>	<ul style="list-style-type: none"> <li>Each <b>opportunity town</b> plays an important economic role, serving surrounding communities, with distinct strengths. Development and regeneration opportunities include urban expansion, significant housing growth, infrastructure improvements, the creation of expanded/new employment space and development of the visitor economy.</li> </ul>
<b>Skylon Park Enterprise Zone</b>	<ul style="list-style-type: none"> <li><b>Skylon Park</b> is The Marches' designated Enterprise Zone with a defence and security sector focus. It has been subject to multi-million-pound investments in infrastructure and site clearance and now subject to substantial commercial development and will be the home of the University of Wolverhampton's Centre for Cyber Security.</li> </ul>
<b>Shrewsbury</b>	<ul style="list-style-type: none"> <li>Ambitious and transformative redevelopment of <b>Shrewsbury City Centre</b>, driven forward as part of the Big Town Plan. This will create a 21<sup>st</sup> Century destination and commercial hub, rethinking how the town functions, with an emphasis on high quality design. Flagship developments include the Flaxmill and Riverside schemes and housing growth will continue to change the town's physical footprint. The North West relief road is also expected to unlock development sites in northern/western parts of the town.</li> </ul>
<b>Bishop's Castle, Bridgnorth, Ludlow, Market Drayton, Oswestry, Whitchurch</b>	<ul style="list-style-type: none"> <li>These <b>opportunity towns</b> act as economic hubs, serving significant rural catchments. Development and regeneration are being pursued, including urban expansion, house building, infrastructure improvements, and the development of expanded/new employment space.</li> </ul>
<b>Telford</b>	<ul style="list-style-type: none"> <li>As one of the UK's fastest growing areas for new housing development, <b>Telford</b> is continuing to expand and build on its New Town legacy. A £250m programme of regeneration aimed at reaffirming Telford's role as a regional retail/leisure/conference hub has taken place and the town will deliver circa 17,000 new homes by 2031.</li> </ul>
<b>Dawley, Ironbridge, Madeley, Newport, Oakengates, Wellington)</b>	<ul style="list-style-type: none"> <li>Each <b>opportunity town</b> plays an important economic role, serving surrounding communities, with distinct strengths. Development and regeneration opportunities include the redevelopment of Ironbridge Power Station, housing growth, infrastructure improvements and the creation of expanded/new employment space.</li> </ul>

Source: Marches Strategic Economic Plan, 2019



**Case Study: Leominster Full Fibre Rollout****FullFibre.**

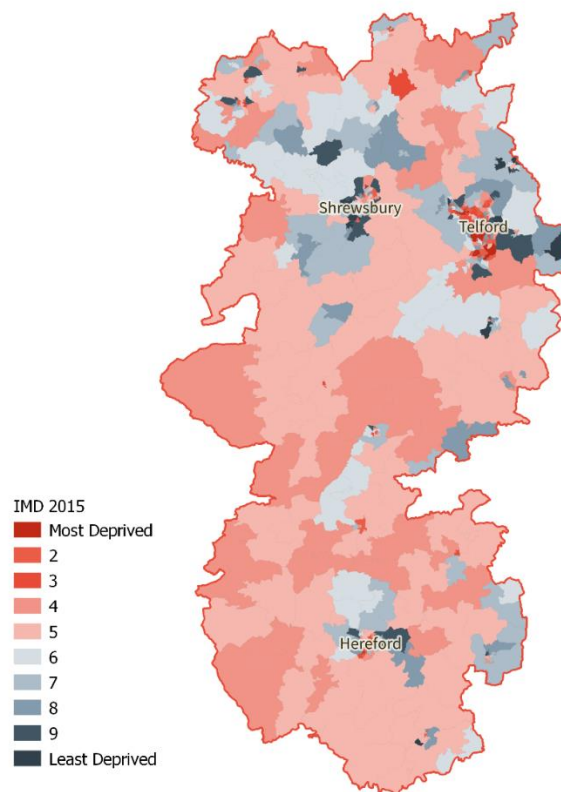
The Opportunity Town of Leominster in north Herefordshire was one of the only locations outside Hereford City to have benefitted from BT's commercial deployment of superfast broadband. While the town has had a relatively good level of coverage of Fibre to the Cabinet services, a number of businesses located on the Leominster Enterprise Park and Southern Avenue Industrial Estate did not benefit from this wave of investment.

Through the ERDF funded Marches and Gloucestershire Business Broadband Grant, Fastershire have partnered with Full Fibre Ltd to bring fibre to the premises to town, serving neighbourhoods across Leominster. This comes on the back of the supplier extending its rollout plans, benefitting a large number of businesses and homes.

**Regenerating Deprived Areas**

- 6.12 The continued presence of acute deprivation across The Marches is of critical concern and in some cases, tied directly to active regeneration efforts. The drivers of this are varied, with a number of factors influencing individual prospects and quality of life.
- 6.13 Across The Marches, there are pockets of high and very high deprivation, found within urban and rural settings, with some communities featuring within the 10% most deprived areas nationally. Of note are the high levels of rural deprivation extending across the Welsh border and very high levels in parts of Telford, where deprivation is entrenched.

Figure 6.2 The Marches Deprivation Map



Source: UK Indices of Multiple Deprivation, 2015



- 6.14 There are opportunities to apply digital connectivity and technology to mitigate against deprivation challenges and enhance the quality of life for people in these locations<sup>47</sup>. Most immediately, this informs the rationale to address connectivity ‘not spots’ and close the digital divide, targeting locations where connectivity levels are poor and deprivation challenges acute.
- 6.15 Potential responses to localised deprivation issues, underpinned by innovative and smart digital technologies include:
- **Improved online access to essential services** – particularly those delivered by public bodies, such as healthcare, general advisory services, HMRC and the DVLA, enabling improved access to information and decision-making.
  - **Improved access to training** – including courses offered exclusively via online platforms, which offer upskilling opportunities and serve people who are seeking to continue their professional development.
  - **Improved access to employment** – including job vacancy and recruitment data and the ability to apply for jobs remotely, increasing scope for gaining meaningful employment.
  - **Improved community cohesion** – through access to community-based information, services and peer-to-peer support, including jobs clubs, special interest groups and more bespoke information, such as incidence of crime and environmental quality.

#### Case Study: Landau ‘Together’ Project



Communities across Shropshire and Telford & Wrekin will benefit from a £3.3m project aimed at tackling poverty by supporting people into work and training. The programme will see people in deprived communities who are struggling to find jobs receive one-to-one help and support to gain confidence and learn new skills.

Led by training and employment organisation Landau Limited, the project will be delivered in Shropshire and Telford & Wrekin and is designed to help people overcome a wide range of challenges in their lives and communities. This includes providing people with the digital skills they need to succeed and gain meaningful employment, arming them with the competencies needed to function in an increasingly digitised economy.

Landau’s ‘Together’ project is part of the Building Better Opportunities programme funded by the European Social Fund and the Big Lottery Fund, which has worked with the LEP to identify local priorities and address them through targeted action.

<sup>47</sup> NHS, [Digital inclusion project brings healthcare technology to the homeless](#), 2019



## Digitally Driven: Public Sector Services

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### Digital by Default

- 6.16 The large majority of public sector institutions have been or are actively pursuing a digitisation agenda, orientated around the realisation of internal and external benefit, as well as the need to deliver efficient services with lesser resources. The Marches is no different and the rationale to invest in digital processes and services is stronger than ever. Broadly, the adoption of technology offers the chance to<sup>48</sup>:

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*Digital technologies present a multitude of opportunities to public sector bodies – from central government and national agencies to emergency services, the NHS and councils...*

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- **Rethink the design and delivery of services** – in the context of changing end user needs, behaviours and communication and transaction mediums.
- **Achieve efficiencies through the digitisation of services** – by implementing technology driven approaches, yielding direct costs savings.
- **Better integrate complementary services** – to improve efficiency, lower costs and avoid increase organisational resiliency.
- **Enhance the end user experience** – by providing tailored and reactive services which provide transparent and immediate access to information and key services.
- **Operate as a disruptor** – leading agendas, challenging traditional delivery models and developing the next wave of game-changing public goods and services.
- **Encourage and develop an entrepreneurial workforce** – which are up-skilled, empowered, willing to experiment and outcome driven.

### Digitised Local Services

Public sector bodies across The Marches are actively driving forward the digital imperative, with a focus on commercialisation of assets, increasing the transparency of decision-making and in response to central government directives. This is evident across local authorities and Clinical Commissioning Groups in particular, illustrating a commitment to digital disruption.

In some cases, these organisations are acting as vanguards, championing innovation and working collaboratively with private sector partners. The rationale for furthering digitisation efforts remains strong, with efficiency and quality of public services at the core. The extent to which public bodies across The Marches have developed a digitally orientated approach is reflected within the examples below.

<sup>48</sup> Accenture, [Digital Technologies: The future of public services](#), 2016



Table 6.2 Example Digitisation Activities

Organisation	Example Activities
Herefordshire Council	<ul style="list-style-type: none"> <li>• <b>Corporate Digital Strategy (2018-23)</b> in place, setting out a series of objectives and principles designed to guide projects and service delivery focus.</li> <li>• <b>History Digital Project</b> aims to digitise historic material from local libraries, making resources more widely available to local people.</li> <li>• <b>Digital Catapult pilot</b>, aimed at improving the lives of elderly residents across the county, which will detect, and report falls, building on improved broadband connectivity, funded through the Catapult's Things Connected for Local Authorities Programme.</li> <li>• <b>Open Data</b> platform provides access to a variety of Council information, made available through the Open Government Licence.</li> </ul>
Herefordshire Clinical Commissioning Group	<ul style="list-style-type: none"> <li>• Herefordshire and Worcestershire Clinical Commissioning Group's <b>Local Digital Roadmap</b>, which sets out proposals to use digital technologies to transform diagnostics and clinical support services, maximise back office efficiencies and support self-care and patient independence.</li> </ul>
Shropshire Council	<ul style="list-style-type: none"> <li>• <b>Digital Transformation Programme</b> with the aim of delivering highest quality services at lowest cost, employing technology and digital processes, including a portfolio of projects from social care, business transformation and technology.</li> <li>• <b>Digital IT Strategy</b> which sets out a vision for the Council to deliver services using digital platforms to enhance value for money, increase customer focus and increase reliability.</li> <li>• <b>The 'Broseley Project'</b> is a pilot aimed at reducing loneliness and allowing people to remain independent for longer, in partnership with the Lady Forester Centre, University Centre Shrewsbury, NHS and tech companies (Amazon, Hitachi and Microsoft).</li> <li>• <b>Open Data</b> platform provides access to a variety of Council information, made available through the Open Government Licence.</li> </ul>
Shrewsbury and Telford Hospital Trust	<ul style="list-style-type: none"> <li>• The creation of a <b>digital warehouse</b>, holding patients records electronically, allowing for more efficient and accurate access to vital patient information and the removal of manual processes, allowing staff to monitor safety, outcomes, patient experience, and deliver quality care.</li> </ul>
Telford & Wrekin Council	<ul style="list-style-type: none"> <li>• <b>Digital Strategy (Telford Online)</b> sets out the council's commitment to digital transformation, built around a series of digital principles including promoting self-service, increasing organisational resiliency, delivering value for money and embedding digital by default.</li> </ul>



- **Telford Our Town** – digital archiving project, funded by the Heritage Lottery Fund, with past and present images presented on an interactive ‘digital table’.
- **Open Data** platform provides access to a variety of Council information, made available through the Open Government Licence.

Source: Herefordshire, Shropshire, Telford & Wrekin Councils, Herefordshire Clinical Commissioning Group, Shrewsbury and Telford Hospital Trust, 2019

### Case Study: Things Connected Project



Herefordshire Council is working with Tendertec to develop a sensor based real time fall alert system. The project is one of two in the UK being developed for the current Things Connected for Local Authorities programme run by the Digital Catapult.

The system is designed for a variety of environments and if successful will improve the ability of the care system to monitor and respond to vulnerable people in need of immediate assistance. Digital sensors will use AI to learn more about the individual behaviour to help predict the risk of falls as well as combatting under reporting. Better information and more rapid response can markedly reduce the need for hospital admissions, which it is hoped will improve quality of life and reduce the cost burden on the public sector.

## Digitally Driven: Natural Environment

- 6.17 The Marches is a predominantly rural LEP, punctuated by urban centres, market towns and a patchwork of villages. Within these rural areas are prized landscapes, protected natural ecosystems, a wealth of natural resources and a productive landmass which underpins agriculture and land management activities.
- Technology has and continues to influence the management and custodianship of the natural environment, with digital technologies playing a central role in creating more sustainable and productive places...<sup>49</sup>*
- 6.18 The increasing influence of digital technology is observed through the ways by which rural businesses, across a broad spectrum of sectors, function and how technology has become increasingly interwoven within day-to-day operations. As noted earlier, a prime example of this are shifts seen in the agricultural sector, with the growing prominence of Agri-Tech and technology driven farming applications, disrupting traditional process, eliminating inefficiencies and improving the overall stewardship of the land.
- 6.19 Beyond farming practices, digital technology has a broad spectrum of applications relevant in a Marches context. These include:
- **Enabling more efficient use of energy** – such as the adoption of smart grids, installation of sensors and integration IoT devices to conserve, monitor and promote more reactive use of heating and electricity.

<sup>49</sup> Arup, [A new era for sustainability: could digital technology align humanity and nature?](#), 2019



- **Increasing the cost effectiveness and attractiveness of sustainable energy** – advancements in digital technologies helping to drive down the costs of sustainable energy sources (such as wind and solar).
- **Driving more effective land management** – through the use of data, analytics and technology enabled applications, conservation of natural assets and landscapes can be improved, introducing a greater degree of accuracy and preventative measures.
- **Increasing citizen and business engagement levels** – digital technologies making information and data more accessible, facilitating positive behaviour change and through increased awareness of environmental issues.
- **Promoting the natural environment as a tourism resource** – digital mediums communicating the virtues of the natural environment, opportunities to access local attractions and the importance of conservation.

## Local Digital Applications

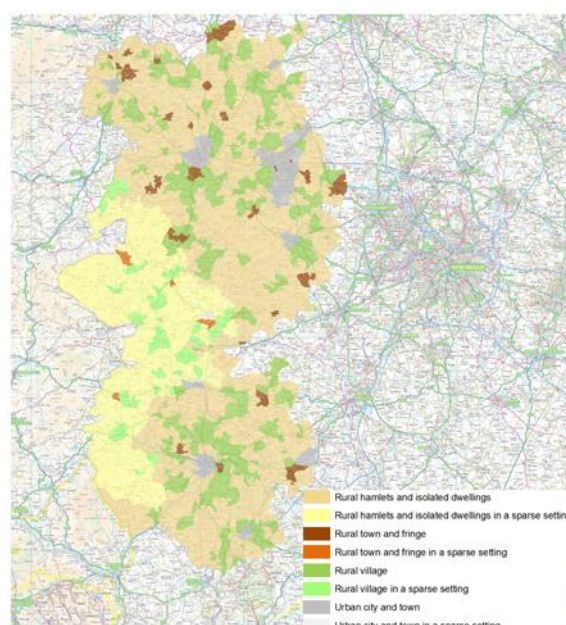
6.20 The Marches' natural environment is diverse, complex and protected. It is covered by several areas of outstanding natural beauty (AONB) – Wye Valley, Malvern Hills and Shropshire Hills, with the latter set to become a National Park. The Rivers Severn and Wye are key assets and shape the surrounding landscapes and maintain an important role in the context of energy, transport and tourism.

6.21 The area is also home to a variety of renewable energy installations, including solar, wind, and renewable sources of heat. These are playing a significant role in lowering carbon footprints, delivering energy security and reducing greenhouse gas emissions levels. Local authorities across The Marches are also pursuing a progressive waste agenda, leading to disposal shifts and greater levels of recycling amongst homes and businesses.

6.22 There are a number of initiatives occurring across The Marches which signify the important role that digital technologies are playing, linked to the conservation and enhancement of the natural environment. This includes:

- **Business Energy and Efficiency Programme** – a business support programme aimed at enabling firms to assess and implement energy efficiency measures, designed to lower costs and reduce carbon footprints, available to businesses across The Marches.
- **Herefordshire Affordable Warmth Strategy** – focused on providing affordable warmth to the county's residents and to prevent fuel poverty, reducing associated health risks and public service burden, harnessing the potential of renewable heat sources and drawing on national initiatives (such as the Renewable Heat Incentive).

Figure 6.3 The Marches – Rural Classification



Source: Department for Environment Food and Rural Affairs, 2019



- **2019 Smart Grid Expo** – hosted at Telford’s International Centre, brought together professionals from across the energy technology industry, showcasing products, technologies and services power distribution, management and monitoring, linking closely to the town’s high-tech industrial heritage.
- **Innovative Product Support Service** – European funded project which supports businesses through the early stages of developing new products and processes and targets firms operating in certain sectors where innovation is critical to growth, including those operating environmental and low carbon fields.

### Case Study: Weston Park Enchanted Glen



The Park has taken steps to deploy the latest incarnation of digital technologies to augment its role and offer as a locally important tourist destination.

Families are able to experience the latest augmented reality technology, enabling children to follow the trails through Temple Wood, within an augmented setting.

Working with Stoke-on-Trent based video and production company Inspired Film and Video and app developers ohh-AR, the experience harnesses an app-based technologies and creative storytelling, having proven to be extremely popular with visitors in 2018.

## Digitally Driven: Transport

- 6.23 Transportation – personal and mass transit – has been shaped greatly by advances in digital technology. This is seen in the development of transport modes, delivering greater reliability, efficiency and the ability travel longer distances. It is also facilitating the deployment of digital solutions, which support improved safety, sharing of real-time information and the growth of app-based services, which can be accessed remotely via digital devices.
- Technology has a major role to play as the transport sector now stands on the brink of great change, where digital innovation is driving improvements, efficiencies and user-orientated delivery models...*
- 6.24 Within The Marches, accessibility and the effectiveness of the transport network is of critical importance to the vitality of the sub-regional economy. Transport infrastructure is under increasing pressure from demand and the capacity of existing networks, in conjunction with accommodating growth that is underway or earmarked across The Marches. Some of the most important routes and access points are framed by a series of strategic transport corridors:
- **North-South Spine**
  - **East-West Central**
  - **North-West Frontier**
  - **Wales and Marches to Midlands**
- 6.25 Each has its own issues and there is a role for digital technology to help address these and improve connectivity, journey times and reduce congestion. This is of particular importance when considering the largely rural and dispersed nature of The Marches, where access can be problematic and the commercial returns on running public transport networks are challenging.



6.26 Some of the key trends observed within the transport sector include<sup>50</sup>:

- **User centred mobility services** – travellers have increased control over public transport services, including more demand-responsive services that are underpinned by new business models.
- **Integrated and intelligent transport networks** – which sense demand, provide real-time information and offer optimised performance and asset monitoring capabilities.
- **Pricing and payments** – most evident in the digitisation of tickets, e-payments and the introduction of pay-as-you-travel options.
- **Automation and safety** – improvements will be driven cognitive technologies and machine learning, increasing safety, preventative solutions and liability ownership.
- **Public and private innovation** – increased collaboration to meet the mobility challenges of the 21<sup>st</sup> Century, with private sector entrants taking advantage of digital technologies to scale globally.

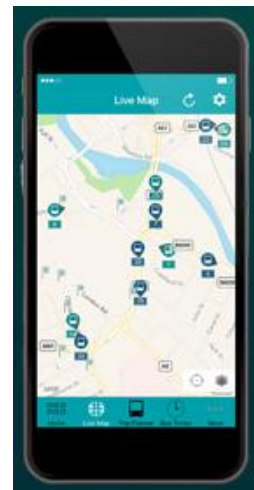
6.27 The case for digital technologies being deployed to alleviate transport connectivity challenges is also evident at a regional level, as part of the Midlands Connect initiative<sup>51</sup>. Within this, a technology strategy is being developed to support the region's economic growth ambitions and to tackle congestion and carbon emissions. Examples include a region-wide move to deploy smart ticketing, enabling improved integration and an improved customer experience.

## Local Digital Applications

6.28 Across the Marches, digital solutions are being deployed in a transport context, introducing smart capabilities and harnessing improvements made in fixed and mobile infrastructure coverage. Some examples are summarised below, highlighting the spectrum of applications and different use cases for digital technologies:

- **Review of Shropshire bus services** – exploration of Uber-style bus services offered elsewhere across the UK, using ArrivaClick delivery model, which allows users to order transport, using sophisticated technologies and algorithms to optimise routing and pick-ups/drop-offs.
- **Arriva bus app** – the app provides users of Arriva's bus services across The Marches with access to real-time information, including route maps, a trip planner, live maps, timetables, electronic ticketing and general service updates.
- **Transport for Wales/West Midlands Railways Wi-Fi** – the large majority of train services running on these networks offer complementary Wi-Fi to passengers, providing internet

Figure 6.4 Arriva Bus App



Source: Arriva, 2019

<sup>50</sup> Deloitte, Transport in a Digital Age: Disruptive Trends for Smart Mobility, 2015

<sup>51</sup> Note – Midlands Connect is currently undertaking a Technology Strategy review.



access to business and leisure users, access to real-time journey information and a variety of online content.

- **Driverless vehicles** – councils across The Marches are exploring the opportunity to invest in autonomous vehicles in areas where congestion issues remain paramount, such as key urban centres, where driverless vehicles would interoperate seamlessly with sensors and IoT technologies, offering a form of automated transport.

## Key Stakeholder Sentiments

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- **Digitised places will play a major role in The Marches' growth proposition**, acting as a magnet for investment, attracting new talent and supporting a more integrated approach to public service delivery.
- **Enhanced digital connectivity has the potential to relieve congestion in the LEP's urban centres**, opportunity towns and key transit routes, through making home working commonplace and diminishing the need to travel in lieu of virtual workspace.
- **Key institutions, such as Harper Adams and University Centre Shrewsbury, the University of Wolverhampton and NMiTE provide The Marches with competitive advantages** and can support the development of new technological applications and innovation in an agricultural and environmental context.
- **There is a role to play for the LEP and public sector in ensuring growth and regeneration captures the full benefits of digital technology**, through effective policy making and proactive engagement with developers.
- **Access to high speed fixed and mobile connectivity is even more crucial to supporting land management and sustainability projects**, which are likely to overlap with remote rural communities and 'not spots'.
- **Public bodies need to do more to champion the virtues of digitisation** and open up new ways for collaborators to support this, communicating procurement opportunities and interfacing effectively with customers.
- **In some cases, The Marches is leading the way nationally**, piloting approaches that are a demonstrative of innovative capacity, strong partnerships and an integrated approach.

## Place: Strategic Implications

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- **There is a need to ensure key growth and regeneration sites capitalise on the commercial imperative to deliver full fibre infrastructure to new developments, whilst also leveraging this to extend connectivity to areas surrounding growth sites.**
- **The LEP should seek to develop its position on how technology assets and connectivity can be harnessed to promote growth opportunity and market the distinctiveness of sites across The Marches, with links to inward investment activity.**
- **There is a strong rationale to integrate digital infrastructure with smart technologies, to create smarter and better-connected communities which engage citizens, businesses and harness open data.**



- **Digital technology offers a platform from which to enhance the quality of the natural environment and its viability as a resource and tourism asset.**
- **There is an opportunity to leverage the capabilities of digital businesses across The Marches to support the design and delivery of public sector programmes.**
- **Alternative approaches need to be found to securing the investment necessary to deliver innovative and technology driven initiatives, in the absence of European funding.**
- **Digital technologies offer the chance to optimise transport modes and also supplement the need to travel – the LEP and partners should be bold in exploring opportunities to deploy technologies to overcome challenges such as congestion and rural isolation.**



# 7

## Digital Assets and Projects





## 7. Making the Case – Digital Assets and Projects

- 7.1 Helping to define The Marches' digital distinctiveness, are its **key assets and existing or emerging projects**. These demonstrate the extent to which the private and public sectors are investing in digital technology and provide a foundation from which to grow the LEP's digital capabilities. They also illustrate the sheer breadth of activity taking place across The Marches and represent a cross-cutting commitment to further the adoption of digital technology.
- 7.2 The tables below summarise noteworthy assets and projects which articulate digital strengths.

Table 7.1 Marches LEP - Digital Assets and Planned Investments

Assets	
<b>Digital Skills and Training</b>	<ul style="list-style-type: none"> <li>• <b>Harper Adams University</b> – a variety of courses which deliver digital skills and training relevant to land-based industries, home to facilities including the Global Institute for Agri-Tech Economics and the Agri-Tech Innovation Hub (Agri-EPI Centre).</li> <li>• <b>University of Wolverhampton</b> – digital presence emphasised by the announced Centre for Cyber Security in Hereford and the Telford e-Innovation Centre.</li> <li>• <b>University Centre Shrewsbury (University of Chester)</b> – provision of courses with a digital skills focus and home to the Digital Solutions Research Centre.</li> <li>• <b>Further Education Institutions</b> – a network of nearly 70 Colleges, Sixth Forms and private training providers offering courses which are digitally focused and orientated around local sector requirements.</li> <li>• <b>Marches Centre of Manufacturing and Technology</b> – state-of-the-art centres in Bridgnorth and Shrewsbury, providing dedicated learning space and access to CNC, metrology, automation and robotic technology.</li> <li>• <b>Herefordshire and Worcestershire Group Training Association</b> – works with the manufacturing, processing, finance, legal and service sectors providing training for workplace competence and qualifications.</li> <li>• <b>New Model in Technology and Engineering (NMiTE)</b> – new engineering focused university under development in Hereford, which utilises an innovative and future-facing curriculum, emphasising work-based learning and developing skillsets to tackle real world challenges.</li> </ul>
<b>Business Support Provision</b>	<ul style="list-style-type: none"> <li>• <b>Marches Growth Hub</b> – virtual and physical hubs signposts to business support services and relevant projects, including those which are distinct to digital business growth, entrepreneurship, skills and training.</li> <li>• <b>Chambers of Commerce (Herefordshire &amp; Worcestershire/Shropshire)</b> – works to support the local business community and its membership base, including digital and tech enterprise via targeted business support.</li> <li>• <b>Federation of Small Businesses</b> – acts on behalf of small business members across The Marches and is an active advocate of digitisation and analysing the benefits of business technology adoption.</li> </ul>



	<ul style="list-style-type: none"> <li>• <b>Country Land and Business Association</b> – member-led business support organisation representing rural interests, with a strong legacy of championing digital connectivity and rural business access.</li> <li>• <b>Network of libraries</b> – offering access to business support, flexible workspace and IT facilities and locations across Herefordshire, Shropshire and Telford and Wrekin.</li> </ul>
<b>Networks and Events</b>	<ul style="list-style-type: none"> <li>• <b>Marches Environmental Technology Network (MetNet)</b> – now completed project which provided support, events and networking for businesses within the environmental sector or those looking to diversify.</li> <li>• <b>Meres &amp; Mosses Environmental Business Network</b> – aims to enhance the environmental performance and profitability of Shropshire businesses by sharing technical knowledge and understanding.</li> <li>• <b>Business Futures Forum</b> – provides support and information for Herefordshire businesses looking to increase their efficiency and profitability while enhancing their environmental sustainability.</li> <li>• <b>Tech Severn Conference</b> – Shropshire technology-based event in its third iteration, with a focus on technology enabled care, digital health, modern methods of construction and environmental technology.</li> <li>• <b>Tech Nation (Midlands)</b> – access to Entrepreneur Engagement Managers, events, stories and useful resources relevant to the Midlands tech cluster.</li> <li>• <b>Faster Business</b> – in conjunction with the Herefordshire Rural Hub offers free workshops to help rural businesses develop online business essentials in a contemporary operational context.</li> <li>• <b>Women in Rural Enterprise (WIRE)</b> - national business support network; promoting, supporting and developing its membership of rural businesswomen from Harper Adams University in Shropshire.</li> <li>• <b>Sevenside Housing Digital Dens</b> – social housing landlord managing over 5,000 properties in Shropshire, providing café style facilities to enable tenants to get online, access information, training and jobs.</li> <li>• <b>Coding clubs</b> – facilitated across The Marches through schools, libraries and local interest groups, developing coding skills across age groups.</li> <li>• <b>Love Digital</b> – an annual event, sponsored by Marches Growth Hub, aimed at helping small businesses across Herefordshire to bolster their knowledge of digital technologies and communications.</li> <li>• <b>Meet-ups</b> – formal and informal digital and tech meet-ups taking place across The Marches, marketed through Eventbrite and other forums.</li> </ul>
<b>Cluster Growth Locations</b>	<ul style="list-style-type: none"> <li>• <b>Skylon Park Enterprise Zone</b> – at the heart of The Marches’ evolving cyber security and cluster, with enterprise zone status to incentivise tech and security start-ups, business relocations and inward investment, with new development plots and an on-site business support presence.</li> <li>• <b>Ni-Park Research and Innovation Park</b> – a new business innovation park in Newport which is set to be the international centre for the innovation of advanced agricultural technologies, led by Telford &amp; Wrekin Council in partnership with Harper Adams University.</li> </ul>



<b>Workspaces</b>	<ul style="list-style-type: none"> <li>• <b>Telford e-Innovation Centre</b> – business accommodation facility, supporting the creation and development of technology and innovative businesses and sits alongside the University of Wolverhampton’s Telford Innovation Campus, Business and Technology Centre (BTC) and Telford Conference Centre.</li> <li>• <b>Capgemini Phoenix Midlands Delivery Centre</b> – situated in Telford, includes office space comes with more than 1,400 work stations, meeting and collaboration points, meeting rooms and a tech hub.</li> <li>• <b>Marches Centre of Manufacturing and Technology</b> – includes an Engineering Club that gives SMEs the opportunity to make use of our technology, conference facilities and business incubation space.</li> <li>• <b>Ni-Park Research and Innovation Park</b> – once complete, is expected to provide a range of flexible space for technology-focused firms including start-ups, small and larger businesses.</li> <li>• <b>Marches Growth Hub</b> – in locations such as the Hereford Business Solutions Centre, small business have access to incubation space and meeting room facilities, as well as on-site business support.</li> </ul>
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#### Some Key Digital Projects

<b>Agri-tech Growth and Resources for Innovation (AGRI)</b>	<ul style="list-style-type: none"> <li>• Aimed at businesses based in The Marches region, which covers Herefordshire, Shropshire and Telford and the Wrekin, that are operating in, or wish to expand into, the food manufacture, drink manufacture, agricultural technology and food and drink logistics sectors.</li> </ul>
<b>Broadband Delivery Activity</b>	<ul style="list-style-type: none"> <li>• Variety of initiatives occurring across The Marches, led by local authorities and the LEP, focusing on investment, policy and market engagement activities<sup>52</sup>.</li> </ul>
<b>Digital Enterprise</b>	<ul style="list-style-type: none"> <li>• University of Wolverhampton led project which will match the digital needs of SMEs with technology solutions, complementing proposals for a cyber-security centre in Hereford.</li> </ul>
<b>Marches Centre for Cyber Security</b>	<ul style="list-style-type: none"> <li>• A joint venture between Herefordshire Council and the University of Wolverhampton, the centre will offer high quality research facilities through the Cyber Security Research Institute as well as providing office space for cyber businesses and advanced training facilities.</li> </ul>
<b>Faster Women/Faster Farmers</b>	<ul style="list-style-type: none"> <li>• With funding from the Government Equalities Office, Fastershire has run two <b>Faster Women</b> projects to support Herefordshire and Gloucestershire women to develop the digital and internet skills required to setup and develop their businesses.</li> <li>• The <b>Faster Farmers project</b> offers free support to agricultural and land-based businesses to help farmers exploit new digital technology and methods of working to expand and grow their business. Applicants can also request free and tailored one-to-one advice.</li> <li>• Faster Communities</li> </ul>

## Key Stakeholder Sentiments

- Assets and projects provide an ideal platform from which to **scale up activity and sharpen the support offered to digitally-focused businesses.**

<sup>52</sup> See digital infrastructure chapter for more information.



- **There are opportunities to strengthen links between industry and education institutions** to champion innovation and ensure The Marches is a leader in technology-driven research.
- **The LEP should strive to secure testbed and digital trial projects to further catalyse digital activity where robust business cases can be made** and generate a digital identity for the area, addressing challenges linked and exploiting opportunities in a rural and urban context.
- **Digital investment is typically fixated on funding drivers and programme returns** and there should more consideration of wider agglomeration and societal benefits when making digital investment decisions.

## Assets and Projects: Strategic Implications

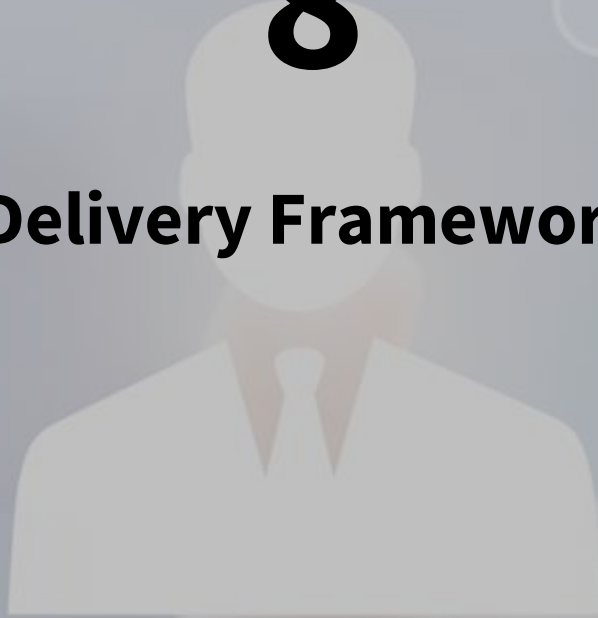
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- **The Marches is home to digital technology assets which are truly distinct and set it apart from other areas – it is already at the forefront of cyber security and Agri-Tech.**
- **There is an opportunity to make the most of investments being made as part of the Midlands Engine, ensuring The Marches' role in this is clear and distinct.**
- **Known digital challenges across The Marches need to be matched with assets and projects, which have the capability to address these issues but may have a limited reach at present.**



# 8

## Delivery Framework





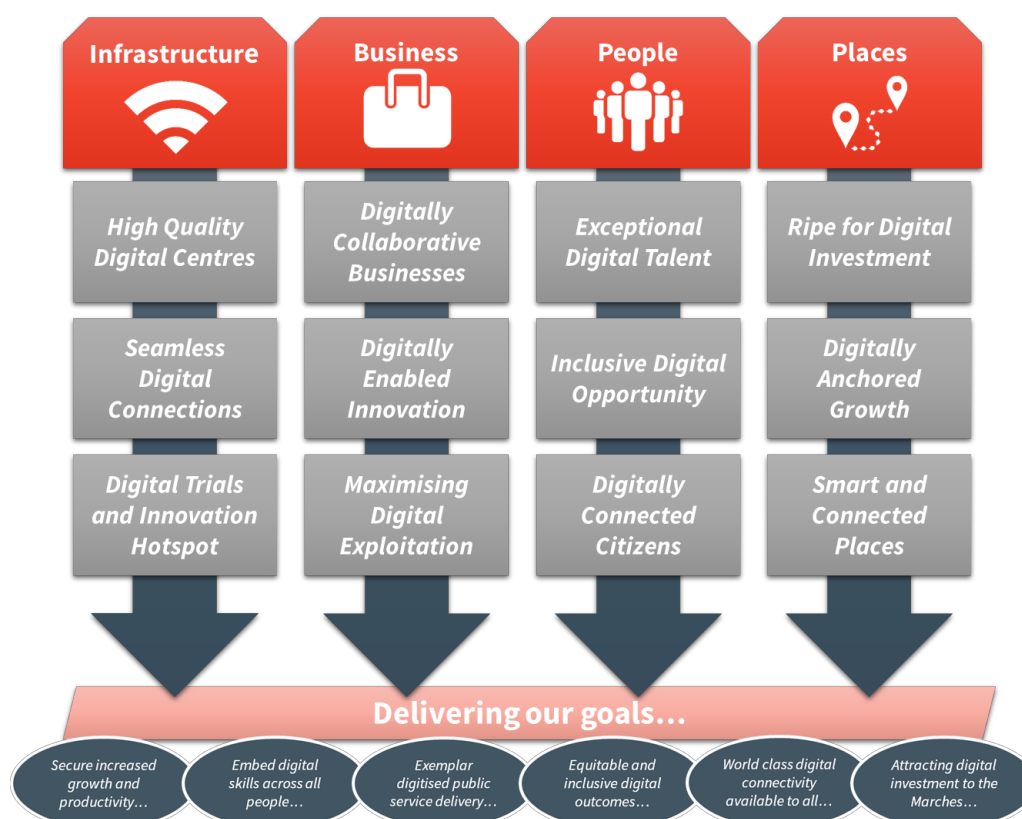
# 1. A Digital Future – Delivery Framework

- 1.1 Earlier chapters of this document set out a compelling base of evidence, describing the relevance of digital technologies across The Marches, relative to infrastructure, business, people and places. Through its cross-cutting influence and the tangible benefits derived from digitisation, **the rationale for the LEP to intervene is clear and emphatic.**

## Strategic Framework

- 1.2 In order to facilitate change, the LEP must take an **outward-facing and action-orientated approach**, underpinned by a series of priorities which tie back to the strategy’s vision and goals. Here, the case for action is taken a step further, orientated around a strategic framework, which will influence decision-making, trigger investment and effect collaboration.
- 1.3 Critically, the framework is centred on the intended role of the LEP and where it can most effectively facilitate change. Interventions are therefore built around where the LEP will be able to influence, directly and indirectly, within the parameters of partnership and collaboration.

Figure 1.1 Digital Strategy – Strategic Framework





Source: Hatch Regeneris, 2019

- 1.4 This frames a **series of actions** which are set out below. These provide a starting point from which more specific interventions can be designed, business cases developed and identifies potential partners, who will be fundamental to delivery and securing investment.
- 1.5 The actions also advocate **collective ownership**, are linked to intended successful outcome and also suggest how progress can be monitored over time.





Priority	Suggested Actions	Marches LEP Role	Funding Sources/Partners	What Does Success Look Like	Measuring Success
Infrastructure					
<b>High Quality Digital Centres</b> 	<ul style="list-style-type: none"> <li>Encourage commercial full fibre and 5G connectivity in key urban centres, opportunity towns and growth locations to underpin vitality and key economic development</li> </ul>	<ul style="list-style-type: none"> <li>Observe data and market review</li> <li>Commercial provider engagement</li> <li>Business case development</li> </ul>	<ul style="list-style-type: none"> <li>BDUK/DCMS – including voucher schemes</li> <li>The Marches LEP</li> <li>Local authorities</li> <li>Private sector</li> <li>(broadband providers and MNO's)</li> <li>Public Works Loan Board</li> </ul>	<ul style="list-style-type: none"> <li>Commercial commitment for full fibre coverage. Accelerated delivery of full fibre across urban and rural areas</li> <li>5G service deployment initiated across all providers</li> <li>Adoption of full fibre and 5G services increasing</li> </ul>	<ul style="list-style-type: none"> <li>Full fibre coverage (%)</li> <li>5G coverage (%)</li> <li>Service take-up (%)</li> <li>Investment/contract future commitments (premises numbers)</li> <li>Commercial provider future commitments (premises numbers)</li> </ul>
	<ul style="list-style-type: none"> <li>Build on rural full fibre footprint where possible, extending competitive advantages that make The Marches distinctive</li> </ul>	<ul style="list-style-type: none"> <li>Partnership assembly</li> <li>Demand stimulation and aggregation</li> <li>Direct investment</li> <li>Lobby Government</li> </ul>			
<b>Seamless Digital Connections</b> 	<ul style="list-style-type: none"> <li>Plug remaining superfast speed gaps where market failures persist, and communities remain out of reach of fibre networks</li> <li>Influence extended 4G rollout and encourage a clear upgrade path for future technologies (5G)</li> <li>Augment fixed and mobile network coverage with accessible public Wi-Fi hotspots</li> </ul>	<ul style="list-style-type: none"> <li>Observe data and market review</li> <li>Commercial provider engagement</li> <li>Business case development</li> <li>Partnership assembly</li> <li>Demand stimulation and aggregation</li> <li>Direct investment</li> <li>Lobby Government</li> </ul>	<ul style="list-style-type: none"> <li>BDUK/DCMS – including voucher schemes</li> <li>The Marches LEP</li> <li>Local authorities</li> <li>Private sector</li> <li>(broadband providers and MNO's)</li> <li>Public Works Loan Board</li> </ul>	<ul style="list-style-type: none"> <li>Rollouts to eliminate superfast 'not spots' across The Marches underway</li> <li>Mobile (4G) access available across all providers</li> <li>Adoption of superfast and 4G services increasing</li> </ul>	<ul style="list-style-type: none"> <li>Superfast coverage (%)</li> <li>Service take-up (%)</li> <li>Mobile (4G) available across all 4 providers</li> <li>Investment/contract future commitments (premises numbers)</li> <li>Commercial provider future commitments (premises numbers)</li> </ul>
<b>Digital Trials and Innovation Hotspot</b> 	<ul style="list-style-type: none"> <li>Establish a series of digital innovation trials which support the needs of local industry, develop new technology use cases and solve technical challenges</li> <li>Encourage standalone commercial investment in The</li> </ul>	<ul style="list-style-type: none"> <li>Development of challenge and trial rationale</li> <li>Commercial provider engagement</li> <li>Business case development</li> <li>Partnership assembly</li> </ul>	<ul style="list-style-type: none"> <li>BDUK/DCMS</li> <li>The Marches LEP</li> <li>Local authorities</li> <li>Private sector</li> <li>(broadband providers)</li> <li>Catapults</li> <li>Universities</li> </ul>	<ul style="list-style-type: none"> <li>At least one technical trial underway, with links to local businesses, public sector bodies and universities</li> <li>Proof of concepts emerging with scope for wider adoption</li> </ul>	<ul style="list-style-type: none"> <li>Trials underway (number)</li> <li>Trial progress status (%)</li> <li>Commercial investment secured (£)</li> </ul>






Priority	Suggested Actions	Marches LEP Role	Funding Sources/Partners	What Does Success Look Like	Measuring Success
	Marches, establishing the LEP as hub of digital innovation		<ul style="list-style-type: none"> <li>WMCA</li> <li>UK5G</li> </ul>	<ul style="list-style-type: none"> <li>Demonstration to sector and wider business community of opportunities</li> </ul>	
<b>Business</b>					
<b>Digitally Collaborative Businesses</b> 	<ul style="list-style-type: none"> <li>Foster enhanced relationships between digitised businesses to stimulate research and investment opportunities</li> </ul>	<ul style="list-style-type: none"> <li>Partnership assembly</li> <li>Sharing of research, data analytics and case studies</li> </ul>	<ul style="list-style-type: none"> <li>DCMS</li> <li>The Marches LEP</li> <li>Local authorities</li> <li>Growth Hub</li> <li>Universities</li> </ul>	<ul style="list-style-type: none"> <li>Increased digital business engagement leading to new services and products</li> <li>Growth Hub at the heart of a digital business support ecosystem</li> </ul>	<ul style="list-style-type: none"> <li>Evidence of business collaboration/co-investment</li> <li>Growth Hub digital support programme access (analytics)</li> </ul>
	<ul style="list-style-type: none"> <li>Position the Growth Hub front and centre as the conduit for digitally focused business support, advice access to finance and training</li> </ul>	<ul style="list-style-type: none"> <li>Business case development</li> <li>Direct investment</li> </ul>		<ul style="list-style-type: none"> <li>Suitable business support offer in place</li> </ul>	<ul style="list-style-type: none"> <li>Digital business external funding secured (£)</li> </ul>
<b>Digitally Enabled Innovation</b> 	<ul style="list-style-type: none"> <li>Strengthen partnerships between universities, the public sector and digital vanguards to drive digital innovation and research</li> </ul>	<ul style="list-style-type: none"> <li>Strategic influencing</li> <li>Partnership assembly</li> <li>Sharing and coordination of research, data and analytics</li> </ul>	<ul style="list-style-type: none"> <li>DCMS</li> <li>The Marches LEP</li> <li>Local authorities</li> <li>Private sector</li> <li>Catapults</li> <li>Research Councils</li> <li>Universities</li> </ul>	<ul style="list-style-type: none"> <li>Public private partnerships are driving projects and initiatives underpinned by technology</li> <li>Evidence of digital adoption across all business sectors driving innovation</li> </ul>	<ul style="list-style-type: none"> <li>Active consortium digital innovation projects (number)</li> <li>Improvement in public sector business base innovation characteristics</li> </ul>
	<ul style="list-style-type: none"> <li>Target digital initiatives around areas where businesses demonstrate innovation deficiencies</li> <li>Further develop Skylon Park as a nationally significant cyber security hub and cluster, attracting tenants and new development</li> <li>Develop opportunities around digital health and assisted living expertise that is embedding into University Centre Shrewsbury and Shropshire Council</li> </ul>	<ul style="list-style-type: none"> <li>Promotion and marketing</li> <li>Business case development</li> <li>Direct investment</li> </ul>		<ul style="list-style-type: none"> <li>Skylon Park has an established reputation with a growing cyber security business cluster</li> <li>Digital health and assisted living projects underway and/or deployed</li> </ul>	<ul style="list-style-type: none"> <li>Skylon Park tenant businesses (number)</li> <li>Deployment of digital health/assistance projects (number)</li> </ul>





Priority	Suggested Actions	Marches LEP Role	Funding Sources/Partners	What Does Success Look Like	Measuring Success
<b>Maximising Digital Exploitation</b> 	<ul style="list-style-type: none"> <li>Advocate and promote the impacts and benefits of digital exploitation to The Marches business base (all sectors)</li> <li>Incentivise SMEs and start-ups to make active investments in technology to improve productivity</li> <li>Promote availability of fixed and mobile infrastructure upgrades in such locations</li> <li>Ensure businesses are taking substantial cyber security precautions and are aware of cyber threats</li> </ul>	<ul style="list-style-type: none"> <li>Strategic influencing</li> <li>Partnership assembly</li> <li>Sharing of research, data, analytics and case studies</li> <li>Promotion and marketing</li> <li>Business case development</li> <li>Direct investment</li> </ul>	<ul style="list-style-type: none"> <li>BDUK/DCMS</li> <li>The Marches LEP</li> <li>Local authorities</li> <li>Growth Hub</li> <li>Universities</li> <li>UK5G</li> </ul>	<ul style="list-style-type: none"> <li>Promotional campaigns underway advocating digitisation benefits and communicating infrastructure availability</li> <li>Early stage businesses implementing digitally enabled solutions</li> <li>Strong and increased business take-up of high-speed broadband</li> </ul>	<ul style="list-style-type: none"> <li>Penetration of campaigns (social media analytics)</li> <li>Funding awarded to SMEs (£)</li> <li>Business digital infrastructure service take-up (%)</li> <li>Level of engagement with Growth Hub and Midlands Centre for Cyber Security</li> </ul>
<b>Exceptional Digital Talent</b> 	<ul style="list-style-type: none"> <li>Accelerate awareness and take-up of vocational routes to employment, delivering digitally skilled talent to meet needs of local employers</li> <li>Conduct research to assess the digital skills requirements of the future and understand job replacement implications</li> <li>Broker engagement between employers, education institutions and the labour market to develop a digitised curriculum and advocate local employment opportunities</li> <li>Progress the development of a Digital Skills Partnership</li> </ul>	<ul style="list-style-type: none"> <li>Brokerage</li> <li>Partnership assembly</li> <li>Sharing of research, data analytics and case studies</li> <li>Promotion and marketing</li> <li>Business case development</li> <li>Commissioning</li> <li>Direct investment</li> </ul>	<ul style="list-style-type: none"> <li>DFE</li> <li>The Marches LEP</li> <li>Local authorities</li> <li>Private sector</li> <li>Catapults</li> <li>Research Councils</li> <li>Universities</li> <li>Further Education</li> <li>Schools</li> </ul>	<ul style="list-style-type: none"> <li>Increased take-up of apprenticeships relative to key and digitally embedded sectors</li> <li>Delivery of research which identifies future skills requirements of local employers</li> <li>Ongoing development of digital curriculum which permeates schools, further education and universities</li> </ul>	<ul style="list-style-type: none"> <li>Apprenticeship take-up (number)</li> <li>Apprenticeship providers (number)</li> <li>Research published (number)</li> </ul>



Priority	Suggested Actions	Marches LEP Role	Funding Sources/Partners	What Does Success Look Like	Measuring Success
<b>Inclusive Digital Opportunity</b> 	<ul style="list-style-type: none"> <li>Support outreach efforts which target locations where digital inclusion levels are poor and are holding back individual potential</li> </ul>	<ul style="list-style-type: none"> <li>Partnership assembly</li> <li>Sharing of research, data, analytics and case studies</li> <li>Promotion and marketing</li> <li>Business case development</li> <li>Direct investment</li> </ul>	<ul style="list-style-type: none"> <li>The Marches LEP</li> <li>Local authorities</li> <li>Catapults</li> <li>Research Councils</li> <li>Universities</li> <li>Further Education</li> <li>Schools</li> </ul>	<ul style="list-style-type: none"> <li>Digital inclusion levels are steadily improving as a result of intervention and greater participation with technology</li> <li>Areas of acute deprivation have access to improved connectivity</li> </ul>	<ul style="list-style-type: none"> <li>Digital inclusion projects (number)</li> <li>Digital inclusion performance</li> <li>Deprivation level mapping</li> <li>Fixed and mobile broadband coverage (%)</li> </ul>
	<ul style="list-style-type: none"> <li>Ensure infrastructure rollouts extend to areas suffering from acute deprivation, where reasonably practicable</li> </ul>				
<b>Digitally Connected Citizens</b> 	<ul style="list-style-type: none"> <li>Pursue public sector digitisation programmes aimed at improving service delivery, extending reach and increasing democratisation</li> </ul>	<ul style="list-style-type: none"> <li>Partnership assembly</li> <li>Sharing of research, data and analytics</li> <li>Promotion and marketing</li> <li>Business case development</li> <li>Direct investment</li> </ul>	<ul style="list-style-type: none"> <li>The Marches LEP</li> <li>Local authorities</li> <li>Universities</li> <li>Further Education</li> <li>Schools</li> </ul>	<ul style="list-style-type: none"> <li>Councils and public sector bodies have implemented innovative digital service delivery solutions</li> <li>Fast and reliable public Wi-Fi hotspots serve users across public estates</li> </ul>	<ul style="list-style-type: none"> <li>Delivery of digital transformation programmes (number)</li> <li>Public Wi-Fi networks operational (number)</li> <li>Public Wi-Fi network usage (number)</li> </ul>
	<ul style="list-style-type: none"> <li>Maintain and enhance public Wi-Fi networks, aiding quality of connectivity and access to information and services</li> </ul>				
<b>Place</b>					
<b>Ripe for Digital Investment</b> 	<ul style="list-style-type: none"> <li>Develop compelling inward investment messaging, orientated around digital assets, growth locations and rural distinctiveness</li> </ul>	<ul style="list-style-type: none"> <li>Influencing</li> <li>Sharing of research, data, analytics and case studies</li> <li>Promotion and marketing</li> <li>Business case development</li> <li>Commissioning</li> <li>Direct investment</li> </ul>	<ul style="list-style-type: none"> <li>BEIS</li> <li>The Marches LEP</li> <li>Local authorities</li> <li>Private sector</li> <li>Growth Hub</li> <li>Universities</li> </ul>	<ul style="list-style-type: none"> <li>The Marches digital offer is woven into inward investment material and messaging</li> <li>Successfully attracting new digital companies and existing firm expansion</li> <li>Digital 'tsar' or in place</li> </ul>	<ul style="list-style-type: none"> <li>Inward investment secured (£)</li> <li>Firm relocation and expansion (numbers)</li> <li>Digital technology events hosted (number)</li> </ul>
	<ul style="list-style-type: none"> <li>Build on existing events and initiatives to showcase The Marches digital business base and digital specialisms</li> <li>Appoint a digital 'tsar' who is able to champion The Marches and strengthen links between the LEP and business, showcasing the extensiveness of digitisation</li> </ul>				



Priority	Suggested Actions	Marches LEP Role	Funding Sources/Partners	What Does Success Look Like	Measuring Success
<b>Digitally Anchored Growth</b>  	<ul style="list-style-type: none"> <li>Ensure new developments across all brownfield and greenfield sites are connected at the highest specification</li> <li>Enshrine digital commitments across policy (particularly planning), to ensure technology is deployed as cost effectively as possible</li> </ul>	<ul style="list-style-type: none"> <li>Partnership assembly</li> <li>Influencing Brokerage</li> <li>Sharing of research, data analytics and case studies</li> </ul>	<ul style="list-style-type: none"> <li>The Marches LEP</li> <li>Local authorities</li> </ul>	<ul style="list-style-type: none"> <li>All new developments are fully fibred and have access to seamless mobile connectivity</li> <li>Holistic approach to supporting digital infrastructure deployment across council teams (planning, transport)</li> </ul>	<ul style="list-style-type: none"> <li>New premises receiving full fibre (number)</li> <li>Full fibre coverage (%)</li> <li>Pipeline developer commitments</li> <li>Planning consent data</li> </ul>
		<ul style="list-style-type: none"> <li>Effective use of procurement and influencing of local authority contracts to position The Marches at the forefront of digital technology adoption through deployment of smart technologies</li> <li>Governance and data policies implemented to coordinate the use of open data and mitigate cyber threats</li> <li>Public sector driving smart technology deployment (hackathons/procurement)</li> <li>Leverage digital technologies to develop innovative transport modes and improve the efficiency of existing transit links</li> </ul>	<ul style="list-style-type: none"> <li>Partnership assembly</li> <li>Influencing Brokerage</li> <li>Sharing of research, data and analytics</li> <li>Commissioning</li> <li>Direct investment</li> <li>DCMS</li> <li>The Marches LEP</li> <li>Local authorities</li> <li>Private sector</li> <li>Universities</li> <li>DFT</li> <li>Catapults</li> </ul>	<ul style="list-style-type: none"> <li>Smart strategies in place across key public sector agencies</li> <li>Open data platform and governance model agreed and implemented</li> <li>Public sector leveraging local digital firms to develop technical solutions</li> </ul>	<ul style="list-style-type: none"> <li>Open data access (number)</li> <li>Hackathons run (number)</li> <li>Procurement contracts awarded (number)</li> </ul>



## Appendix A - Consultees

A.1 The following organisations have helped to shape the findings and recommendations within the Digital Strategy:

- **Automotive Sector Consultant**
- **Bennett Briegal/Shropshire Business Board**
- **Bridgnorth Aluminium**
- **Fraggleworks**
- **Harper Adams University**
- **Herefordshire Council**
- **Marches Care Ltd**
- **Muddy Boots Software**
- **National Farmers Union**
- **Shrewsbury Colleges Group**
- **Shropshire Council**
- **Swan Brewery**
- **Telford & Wrekin Council**
- **The Marches LEP**
- **University Centre Shrewsbury**
- **University of Wolverhampton**





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