WEST OF ENGLAND DIGITAL PLAN

WEST OF ENGLAND
Combined Authority

West of England
LOCAL ENTERPRISE PARTNERSHIP

CONTENTS

West of England Combined Authority and North Somerset

MAYOR'S FOREWORD

Technology is moving at breakneck speed and changing the way people in the West of England live, work and go about their daily lives.

Not only can more and more people communicate with anyone anywhere at any time, all via devices in their back pockets but with Artificial Intelligence, we are also seeing the advance of perhaps the most revolutionary of technological innovations in all our lifetimes – more so than even the World Wide Web.

The choice facing elected politicians is about harnessing those changes, in ways that benefit the people we represent, or being left behind. It's why, since being elected Metro Mayor, I've set a mission to make West of England region I'm so proud to represent, one of the most digitally connected regions in the whole country. I firmly believe we have the talent, drive and determination that can put us at the forefront of this Digital Revolution.

But, this won't be easy – in fact, it will be hard, because there are some pretty big challenges we need to overcome to get there. Some of the most beautiful places to live in our rural towns and villages are let down by poor access to the online world which is vital for success today. In a world where 69% of all job interviews now take place online, that really matters. And right now, not everyone in our part of the world has access to the digital skills they need to take, or especially in this severe cost-of-living crisis, can afford a device or the ongoing costs to get connected.

That's why the needs of West of England residents must be at the heart of this Digital Plan. Ensuring local people and firms in our neck of the woods are equipped to play a full part in, and benefit from the digital transformation we're seeing is absolutely vital.

I am also proud to showcase our distinctive strengths and assets, as well as underline where we need to do more.

Because in our part of the world, we have a lot to shout about. Think about the fact we have one of the most powerful supercomputers focused on AI, and named after Brunel himself, coming to Bristol next year.

Or that we've been the nation's 5G logistics testbed, seen via the incredible links between Avonmouth Docks and the Gravity smart campus in Somerset – soon to be home to the biggest gigafactory in the whole country! And we are working hard to harness the power of the Severn Estuary to kickstart the age of tidal – right here in the West.

We have four brilliant universities and a nationally-recognised tech and innovation centre, and talent in abundance. We have a competitive advantage in areas like aerospace and research, all helping to attract investment from big firms like ARM and Dyson, and the best talent.

I will never tire of saying what a great place the West of England region is to live, study and work. But maximising our digital potential will be key to achieving our vision of the competitive, digitally connected and fairer region I know we can be. I hope that this document makes clear how we are going to go about to do just that, and embrace the incredible opportunities that lie ahead.

Dan Norris
Metro Mayor of the West of England

This Digital Plan offers us all an opportunity to bring to life fresh ideas, create new and different ways to deliver better services, and unlock better outcomes for people and place.

By working together to deliver our digital ambitions we can creatively and collaboratively tackle our region's biggest challenges.

SUMMARY PLAN ON A PAGE

A snapshot of the challenges we need to address, our priorities and our strategic objectives that together shape our approach and what we aim to achieve.

Digital Leadership – The region demonstrates visionary, proactive leadership which provides confidence to partners and encourages collaboration and delivery partnerships		
Challenges	**Priority Area**	**Strategic Objectives**
Many communities do not have the connectivity they need. Without the right infrastructure people risk being left behind as digital infrastructure supports people's lives, our economy and regional ambitions.	**Digital Infrastructure** – The region is digitally connected, with access to world-class digital infrastructure that is fast, secure and reliable	• Meet and exceed 85% gigabit connectivity by 2025 across the West of England • Maximise number of premises which have at least superfast coverage by 2026 • Maximise 4G and 5G coverage and capacity • Boost community-based connectivity
People on the wrong side of the digital divide are more likely to experience poor outcomes that affect quality of life. Improving digital skills will help residents secure good jobs, progress in work and benefit from digitisation.	**Digital Inclusion & Skills** – Our people and businesses can get online, use digital services and have the skills required for digital transformation at all levels	• Reduce digital exclusion • Improve digital skills at all levels
Many businesses face barriers to digital adoption from skills through to finance. Helping our businesses to overcome these barriers will help them thrive, boost productivity and create new opportunities for local residents.	**Digital Growth** – Our businesses and third sector organisations are digitally capable and can maximise digital opportunities	• Increase the breadth and depth of tech adoption of digital transformation across our businesses and third sector organisations • Increase utilisation of emerging technologies amongst our businesses so they can secure competitive advantages
Residents want public services to be safe, easy to use and designed around them. Using digital technologies and data we can deliver innovative, cost-effective public services that meet the needs of people across the region.	**Digital Public Services** – The region delivers best in class digital public services to provide a better experience for residents	• Improve the experience of using digital public services • Unlock the power of data across the public sector to deliver better outcomes for our residents
There are many challenges we need to address. Digital can play a positive role in tackling our challenges across the region (and beyond). By responsibly using tech we can deliver social value, sustainability and vibrant, inclusive places.	**Digital Tech for Good** – Our digital innovation ecosystem is harnessed to address key regional and global challenges	• Put the West of England on the map as THE place for cutting edge digital research, innovation and investment that finds solutions to key regional challenges

INTRODUCTION

Digital technologies have revolutionised almost every aspect of our lives in recent years – changing the way we work, socialise, shop and go to school or college.

This revolution accelerated during the pandemic when public, private and voluntary sector organisations put services online at a pace never seen before and more people than ever took up digital services. We now live in a digital world.

This digital world offers significant benefits and opportunities, including:

- Enabling people to work in new ways and access better jobs
- Enabling people to access education, training and skills opportunities
- Enabling people to reduce their out-goings and tackle the cost-of-living crisis
- Enabling businesses to become more productive, innovative and resilient
- Enabling public sector organisations to improve the delivery of key public services and reduce costs
- Providing new tools to tackle challenges such as congestion, pollution, climate change and biodiversity loss

However, there are risks and challenges to overcome. We need to ensure our digital transformation is ethical, fair and sustainable.

Not everyone has access to the services and skills they need to take advantage of the opportunities brought by digital technologies. Ensuring all our residents, businesses and wider organisations can operate effectively in this digital landscape is therefore essential to our economic recovery and long-term prosperity. That is the focus of this plan.

How will a plan help?

This plan has been developed by the West of England Combined Authority and its partners to facilitate the process of digital transformation across the area. The plan sets out our collective ambition for the region and will guide our activities and investment plans, providing us with a clear direction and purpose as well as sending a clear signal of our ambition to potential partners and investors.

What does this plan cover?

The Plan covers the whole of the West of England Local Enterprise Partnership (LEP) area which includes the West of England Combined Authority area and North Somerset.

Whilst the plan includes our ambitions to extend levels of connectivity in the region, we recognise that to be a truly great digital region, we must look beyond connectivity and consider how we make the best use of these new technologies to benefit our people. The plan therefore also includes our priorities to ensure:

- Everyone can get online and use digital services and our economy has the skills required for digital transformation at all levels
- All our businesses and third sector organisations are digitally capable and can maximise digital opportunities
- The region delivers best in class digital public services to provide a better experience for residents
- We work with our digital innovation ecosystem to address key regional and global challenges such as net zero and nature recovery

Digital transformation impacts and enables almost everything that we are trying to achieve. For this reason, our Digital Plan supports our other strategies and plans, as well as those of our partners locally and nationally.

REGIONAL STRENGTHS

The West of England has a strong, internationally recognised digital ecosystem which benefits from being one of the biggest tech hubs in the country and the largest tech workforce in the South West.[1]

We are well-connected and innovative. Boasting four prestigious universities, over 46,000 businesses and the UK's most productive tech cluster.[2] Our region is home to 1.1 million people, and with over 91 different languages spoken, we have a truly diverse, global outlook.

Our distinctive digital and tech sectors burst with innovation and creativity and have a wealth of expertise. We have capabilities in everything from fintech and immersive creative through to artificial intelligence (AI), quantum and biotech. This region is often highlighted nationally as a 'Tech for Good' hub, based on the prominence of organisations aiming to have a positive societal impact.[1]

In parallel we have an outstanding reputation as a creative hub and the chosen location for some of the best-known creative brands and businesses in the UK.[3] It is this intersection of creativity, digital expertise and innovative culture that creates the ideal conditions

for developing solutions to key regional challenges (such as reaching our net zero targets and ensuring we have enough homes for our people) and fostering deeper relationships between our people and our places. Tech-focused networks, such as TechSPARK and Tech South West, help bring people together, spark collaboration and new ideas, and raise the region's profile through large annual conferences.

We are at the heart of the UK telecoms R&D ecosystem playing a leading role in unlocking the potential of next-generation technologies for everything from sustainable transport to social care. Our region hosts the UK Telecoms Innovation Network, a £10m collaborative hub for developing new mobile and broadband technology.

Through our involvement in a wide range of government-funded R&D programmes the West of England is at the forefront of efforts to revolutionise wireless technologies. This includes delivering projects demonstrating the value of 5G (such as improved public safety[4], more efficient port operations[5] and boosting digital connectivity[6]), and driving the development of future 6G networks.[7]

We are at the forefront of world-class AI research and innovation. Bristol is set to host Isambard-AI, one of the world's first, large-scale, open AI supercomputers and the UK's

first Artificial Intelligence Research Resource (AIRR). This new national facility will lead on maximising AI's game-changing potential and safe use of the technology.

Across the West of England there are well-established world-class training facilities, business support, digital tech hubs, incubators, accelerator programmes, shared development spaces, testbeds and open data platforms. These include:

- The University of Bath's Institute for Coding
- The University of the West of England's Health Tech Hub
- Tech for Growth – a fully-funded initiative providing tailored support for small businesses
- Bristol Robotics Laboratory
- The SetSquared start-up accelerator which has supported over 4,000 entrepreneurs[3]
- Science Creates – a Bristol-based deep tech ecosystem supporting more than 100 companies[3]
- University of Bristol's Smart Internet Lab
- South Gloucestershire's UMBRELLA project – an open industrial Internet of Things
- Bristol City Council's Open Data Platform

- Bristol Digital Futures Institute

- Oracle's Cloud Development and HP Labs

This digital innovation ecosystem provides us with a unique set of capabilities which, when combined with our digital infrastructure, skills and digital businesses, puts us in an unrivalled position to act as a launchpad for digital transformation. We want to unlock the potential of digital technology to benefit our region, not just in terms of economic growth and productivity, but also to generate social value and a more sustainable future.

Our high capacity for growth and innovation is reinforced by strong foundations. Programmes, such as FutureBright, are enabling local people to upskill and reskill, improving access to good jobs and the availability of in-demand skills. The West of England Growth Hub, alongside programmes like Made Smarter West of England, are making it easier for local businesses to adopt digital technologies, adapt and grow.

The West of England is a place where highly-skilled people live, ideas flourish, and businesses grow.[8] We are not starting from scratch, but we want to go further. We want to help bring these elements together to support our vibrant regional ecosystem and amplify their collective impact.

West of England 5G Logistics Programme

Strength in Numbers

3

3 URBAN CENTRES – BRISTOL, BATH AND WESTON-SUPER-MARE

4

4 LOCAL AUTHORITIES: BATH & NORTH EAST SOMERSET, BRISTOL, NORTH SOMERSET AND SOUTH GLOUCESTERSHIRE

£40bn

£40BN ECONOMY – THE BRISTOL AND BATH REGION IS AN ECONOMIC POWERHOUSE FOR THE UK[8]

AMBITIOUS INTERNATIONAL REGION

1.1M POPULATION, OVER 46,000 BUSINESSES, 91 LANGUAGES SPOKEN[4]

4

4 TOP UNIVERSITIES, 86,000 UNDERGRADS AND POSTGRADS IN THE REGION[8]

WEST OF ENGLAND COMBINED AUTHORITY AND REGIONAL COUNCILS HAVE ALL SIGNED THE LOCAL DIGITAL DECLARATION
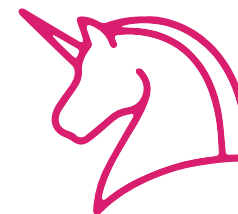
HOME TO THE 3RD LARGEST TECH CLUSTER IN THE UK[8]

TOP 10 UK TECH CITY

BRISTOL IS RANKED AS A TOP 10 UK TECH CITY BY THE DATA CITY[9] AND BY TECH NATION AS A TOP 20 EUROPEAN CITY FOR TECH INVESTMENT[10]

NO.1

BRISTOL NO. 1 CITY IN UK FOR TECH JOBS – COMPTIA 2022 UK TECH TOWN INDEX[11]

HOME TO 5 UNICORNS, COMPANIES VALUED AT OVER $1BN[3] – GRAPHCORE, OVO ENERGY, PAX8, PISCO & VERTICAL AEROSPACE

20 YEARS AHEAD

OUR REGION IS AIMING TO BE CARBON NEUTRAL BY 2030, 20 YEARS AHEAD OF THE UK TARGET. WE HAVE ALREADY REDUCED EMISSIONS BY 38% SINCE 2005[8]

WHERE DO WE WANT TO GET TO?

This plan has been designed around five priorities that were developed and agreed by the Combined Authority and its partners. These are all underpinned by the need for Digital Leadership which supports the delivery of all five priority areas.

Priority Areas

Digital Leadership
The region demonstrates visionary, proactive leadership which provides confidence to partners and encourages collaboration and delivery partnerships

Digital Infrastructure
The region is digitally connected, with access to world-class digital infrastructure that is fast, secure and reliable

Digital Inclusion and Skills
Our people and businesses can get online, use digital services and have the skills required for digital transformation at all levels

Digital Growth
Our businesses and third sector organisations are digitally capable and can maximise digital opportunities

Digital Public Services
The region delivers best in class digital public services to provide a better experience for residents

Digital Tech for Good
Our digital innovation ecosystem is harnessed to address key regional and global challenges

OUR FRAMEWORK FOR DELIVERY

In this section we set out for each priority:

Why the priority is important to us

▼

Where we are now

▼

What we aim to achieve

▼

What we will focus on to achieve these aims

▼

The actions that the Combined Authority will take

However, we start by setting out our approach to the Digital Leadership cross-cutting theme, which underpins all five priorities.

Digital leadership

The region demonstrates visionary, proactive leadership which provides confidence to partners and encourages collaboration and delivery partnerships

As a region we have committed to an ambitious plan which puts our region on the map as a digital pioneer. To deliver this agenda, we must work in collaboration with Government, regional partners, and investors as well as residents and businesses.

Up until now, partners in the region have been working hard to pursue the digital agenda, but a lack of strong digital leadership and common cause has meant their efforts were uncoordinated. We know that if we all pull together in the same direction, we can achieve so much more than when we act alone. Therefore, strong digital leadership has been identified as a cross cutting theme which underpins all five of our priority areas.

Under this theme, our collective ambitions are to:

- Bring together long-lasting partnerships between key stakeholders in our digital ecosystem to foster a culture of collaboration across sectors and boundaries

- Mobilise public, private, third sector and community-based partners to support the West of England's digital transformation

- Secure the funding and investment needed to achieve our digital ambitions

- Cement our region's standing as a global centre of digital innovation excellence

- Ensure our digital transformation is ethical, fair and sustainable

The Combined Authority will:

Now

1. In partnership with our unitary authorities and other stakeholders, develop a detailed implementation plan (see page 46) to support delivery of this Digital Plan

2. Convene a Digital Transformation Board to:
   - Provide strategic external input into the delivery of the plan
   - Share intelligence and future opportunities
   - Share learning from elsewhere, nationally and internationally
   - Promote partnerships, collaborative activity and digital opportunities within and outside the region
   - Speak with one voice on behalf of the region

3. Put in place the resources to deliver with a regional Digital Office to:
   - Own and manage the implementation plan
   - Maintain a digital evidence base

   - Foster collaboration with local residents and businesses
   - Set clear targets and performance measures that reflect priorities
   - Support regional coordination and joint working through establishment of working groups where necessary
   - Promote adoption of common policies and good practice
   - Track impact of interventions

Next

4. Seek funding to host a digital summit to raise the profile of the region as a global centre of digital innovation excellence and bring together different views and aspirations so our digital transformation benefits a more diverse group of people and communities

5. Develop a West of England Digital Charter – a set of practical and ethical guidelines for data-enabled technology deployed in public services or the public realm in the West of England to ensure digital transformation puts people first and is ethical and fair[12]

CASE STUDY

Bristol's Social Housing Broadband Project

As part of the Bristol City Council One City Plan to address Digital Inclusion, Bristol City Council is working with telecoms companies to roll out ultrafast broadband (faster than 300 mbps download) in its social housing stock.

An initial pilot, initiated in late 2018, involved the Council working with suppliers to deliver better broadband into five social housing tower blocks (approximately 200 dwellings). This initial focus was on developing an approach or blueprint that introduced competition, greater choice and a better deals for tenants.

As well as delivering better broadband for the people living in the blocks, the pilot enabled the Council to:

- Find solutions to the many technical challenges involved in installing fibre in multi-dwelling units (MDUs)
- Develop and implement standardised wayleaves and contract agreements which could provide a template for future use

Bristol City Council are now rolling out this approach in controlled stages applying the lessons learnt during the pilot on a city-wide scale. They are targeting the remaining 4,000 council-owned flats in blocks and working with suppliers to offer open access gigabit broadband connections to an additional 24,000 homes (houses rather than flats) across Bristol.

The Council are also exploring new broadband packages for disadvantaged people, such as pay as you go packages, and entry level deals – to get as many people online as possible, which also supports their aims for addressing digital divide and digital poverty.

Good connectivity needs to be available for everyone everywhere

Digital Infrastructure

Everyone in the region is digitally connected, with access to world-class digital infrastructure that is fast, secure and reliable

Why is this important to us?

Our people require fast and reliable digital infrastructure to support all aspects of their life and be able to respond to the cost-of-living crisis. Digital connectivity matters and for many people it is now considered a fourth utility, especially in areas with little or no public transport. We need to ensure our residents are well-connected in all respects.

Similarly, our businesses expect world-leading digital infrastructure so they can adopt cutting-edge digital technologies to make them more productive and competitive. Nationally, research indicates that many small businesses consider that their broadband speeds are insufficient, and that poor connectivity is a barrier to growth.[13]

Digital technologies and data also provide us with opportunities to tackle the big challenges of our time including climate change,

For some areas across our region location is a barrier to good connectivity

transport and caring for the elderly. Our digital infrastructure will need to be resilient to a changing climate (such as flooding or overheating) and can play a role in helping us adapt.

Digital connectivity is a foundation of our economy and underpins our wider ambitions – without the right infrastructure we risk being left behind in a digital world.

Where are we now?

Whilst at a regional level, Gigabit connectivity (>1000mbps) is higher than the national average and superfast connectivity is on a par with the national average, 3.19% of premises (17,200) do not currently have superfast broadband and of these 18.5% (3,190) have speeds of less than 10mbps.[14] Rural areas are more likely to have no access to fixed broadband, and when they do have access, it is more likely to be slower. Whilst people living in deprived areas, which are usually urban, tend to have higher speeds but are at more risk of digital exclusion due to the affordability of high speed broadband and devices.

This means that for some, location is a barrier to good connectivity. There is a risk that with current deployment patterns, areas with good levels of connectivity will see further improvements and those communities with poor levels of connectivity will continue to be left behind. We need to mitigate this risk. As the economic and wellbeing benefits of moving from poor to decent levels of connectivity are greater than moving from decent to higher speed connectivity, ensuring our communities have at least superfast coverage is a key part of our plan.

There is also significant regional variation in coverage. Whilst coverage in Bristol has already exceeded the Government target for 85% Gigabit coverage by 2025 and South Gloucestershire is close to achieving this,

Bath and North East Somerset and North Somerset are not expected to meet this target without some form of coordinated intervention.[14] Despite this challenge, we aim to surpass this target and achieve region-wide gigabit capable coverage.

Data from Ofcom reports current levels of 4G connectivity across the region provided by at least one mobile provider is around 99% both outdoors and indoors.[14] However, this statistic may not represent the experiences of the public. Further work is therefore required to understand the true level of connectivity and the spread of signal strength across the four major mobile carriers. 5G coverage across the region by one operator is better than the national average, but coverage by multiple operators is slightly worse than the national average, with better coverage in Bristol and South Gloucestershire.[14]

The infrastructure position is constantly changing as both commercial and publicly funded initiatives roll out new infrastructure. Research suggests that in this complex delivery environment, there are opportunities to achieve greater levels of connectivity by:

- Capitalising on other investments such as new housing developments and the roll out of electric vehicle charging sites

- Reducing the cost and risk for investors (both public and private) by sharing information and plans, coordinating activities and integrating digital infrastructure into wider works[15]

CASE STUDY

Digital Connectivity Infrastructure Accelerator Pilot

With funding from government and local partners, the DCIA project brings together Local Authorities with major mobile telecoms industry partners (Three, BT Wholesale and Cellnex Connectivity Solutions) to increase the roll out and densification of 5G across the region.

Working with Sitenna as our platform partner, the project will investigate how digital asset management platforms can support and increase the use of local authority owned assets as host sites for the range of hardware needed to achieve improved 5G coverage. This Accelerator project is an important first step towards accelerating 5G roll out using publicly owned assets.

Meeting the Combined Authority's targets will require rapid roll out of both fixed and mobile broadband. Mobile (i.e. 5G/4G) broadband will help connect more rural and 'hard to reach' communities and will be key to addressing the final 3% of properties and businesses currently without suitable connectivity.

The approach adopted in our government-funded Digital Connectivity Infrastructure Pilot could offer a broader public/private collaboration model going forward. Similarly, other research suggests that community ownership models can offer connectivity solutions in areas left behind by large, incumbent telecommunication companies.[16] We therefore want to establish new ways to provide social or public broadband, opening up access to services that would otherwise not be available to help more people get better broadband.

Given the importance of digital infrastructure, the decision was taken to procure specialist consultancy support to deliver a robust actionable plan for accelerated digital infrastructure roll out across the region. The work was delivered in two stages:

1) discovery and evidence review;

2) apply review findings to develop an action plan. This work is now complete and the findings have informed the development of this plan and a focused Regional Digital Infrastructure Action Plan.

What do we want to achieve?

We want to:

- Meet and exceed the national 85% gigabit connectivity by 2025 target

- Maximise the number of households and business premises which have at least superfast coverage by 2026

- Maximise 4G and 5G coverage

- Boost community-based connectivity

What will this mean for our residents?

This will mean:

✔ Improved quality of life through access to digital products and services

✔ Improved access to good quality jobs and training

✔ More world-class businesses, inward investment and higher growth so our region is an amazing place to live and work

CASE STUDY

Community-based connectivity and support in libraries

In rural areas across our region, libraries are often the only infrastructure in small market towns and villages. They act as community hubs, providing free, warm and safe spaces for communities to gather. Many libraries offer regular, creative opportunities for their communities to take part in through pop up exhibitions, creative workshops and artists in residence. These shared experiences between people and families help break down social isolation, boost a sense of wellbeing and build life skills.

Libraries across the West of England also provide vital support for people who have no or limited connectivity at home or access to a computer. In South Gloucestershire, libraries provide free use of computers and access to the internet. In 2019/20 alone these computers were used for 91,000 hours. Trained staff and volunteers are on-hand to assist, offering individual support to people who need specific help, such as getting online, using emails, etc.

Our libraries collaborate to develop services, working as part of the LibrariesWest Consortium which spans the southwest of England or with national partners, such as the Good Things Foundation.

Digital Infrastructure: The region is digitally connected, with access to world-class digital infrastructure that is fast, secure and reliable

Strategic objectives	Focus areas – what will we focus on to achieve this	Our actions (we will…)
Meet and exceed the national 85% gigabit connectivity by 2025 target **Maximise the number of households and business premises which have at least superfast coverage by 2026**	**Attracting investment** – Working as a region to create an attractive market in which to invest in digital infrastructure and minimise roll out costs **Embedding digital infrastructure** – Maximising the impact and value for money of other major infrastructure initiatives to embed digital infrastructure and connectivity **Coordinating delivery** – Coordinating deployment of connectivity, with a focus on 'hard to reach' and deprived areas **Advice and information** – Providing advice and information to residents and businesses about how to improve connectivity	**Now** • Deliver the Regional Digital Infrastructure Action Plan • Utilise the West of England Digital Office to: – Monitor market activity and maintain a real-time view of infrastructure build programmes (including BDUK) – Consolidate data, plans and intelligence and share with potential investors and partners to support investment in the region – Engage with providers and identify barriers to the roll out of digital infrastructure such as access to land, street works and planning – Identify strategic opportunities to support suppliers, aggregate demand and exploit opportunities to increase coverage such as mapping assets, new housing builds and Electric Vehicle charging networks • Develop an online Digital Connectivity Portal to provide guidance and info about connectivity for residents (e.g. access to Government Gigabit Broadband Vouchers) and telecoms providers **Next** • Develop a full business case for public sector investment which maximises the contribution from private, market and government investments
Maximise 4G and 5G coverage and capacity	**Mobile connectivity** – Collecting local data for mobile signal strength and availability to identify any signal not spots and determine best way to address them **5G roll out** – Making 5G available to unlock innovation and applications in all areas of society	**Now** • Conduct further research to understand the true level of regional coverage and develop recommendations any improvement measures • Embed the lessons learnt during the WofE Digital Connectivity Infrastructure Accelerator Pilot to better support 5G roll out and utilisation of public sector assets
Boost community-based connectivity	**Public access** – Promoting broadband provision in public spaces and community buildings Community led broadband – Supporting alternative, community-led broadband delivery models	**Now** • Identify opportunities and mechanisms to expand broadband access in community spaces, such as libraries and public access wifi, especially in areas with little or no access to decent connectivity • Promote available information to help community groups access guidance about developing local, community-led broadband projects

Connecting people so they can enjoy the benefits of online access

Digital Inclusion and Skills

Our people and businesses can get online, use digital services and have the skills required for digital transformation at all levels

Why is this important to us?

A lack of digital skills and access can have a huge impact on a person's life. People on the wrong side of the digital divide are more likely to:

- Experience poorer health outcomes
- Suffer increased social isolation and loneliness
- Find it harder to access jobs and education
- Pay more for services and bills and experience financial exclusion
- Lack a voice or visibility in the modern world as government services and democracy move online[17]

Furthermore, digital exclusion is higher amongst existing disadvantaged groups such as older people, people on low incomes, people from lower socio-economic groups, people not working and people with a disability – which further exacerbates existing inequalities.

As well as being an important tool for addressing digital exclusion, improving digital skills (at all levels) can help our residents to find and secure work, progress in work and benefit from digital jobs. Equally, improving digital skills in our workforce will benefit our businesses, who are facing skills gaps which affect their productivity and ability to grow. Looking to the future, people in education today will enter a labour market that is likely to have been significantly re-shaped by emerging technologies. The UK Industrial Strategy Council predicts that, unless action is taken, in 2030 the most widespread under-skilling will be in basic digital skills.[18]

Where are we now?

In 2020, 5% of adults (44,000) in the West of England were non-internet users compared with 8% across the UK.[19,20] Since then the number of non-internet users nationally has reduced from 8% to 1%.[21] It is likely the West of England will reflect this trend though data is not available to confirm.

The main barriers to digital inclusion were skills, accessibility, lack of interest in the internet/need, concerns about safety and security, affordability of connections and devices and the availability of decent connections.[22] As a multi-faceted issue, many organisations (such as libraries, community groups and community learning) are already playing a vital role in supporting people to overcome digital

CASE STUDY

Tea and Tech

Free 'Tea and Tech' sessions are taking place across North Somerset to help residents learn how to get online and get the most from today's digital world – and grab a cuppa whilst there! Residents facing digital exclusion through not being able to afford SIM cards and mobile data can also access them for free thanks to a scheme available through North Somerset Council's library service. The UK National Databank provides free SIMs and mobile data (as well as talk minutes and texts) to people in need through the Good Things Foundation's network of local community partners, including North Somerset libraries. It's like a food bank, but for internet connectivity data.

exclusion in our area. However, the support available varies across the region and there may be gaps in coverage.

Digital skills are also becoming increasingly important in the workplace. National research shows that digital skills are an essential entry requirement for two-thirds of UK occupations and these occupations account for 82% of online job vacancies. However, 52% of the workforce lack the essential digital skills for work – the hidden middle.[18]

Further, 27% of employers nationally required advanced digital skills and 60% expected this to increase in the next five years.[23] Local data shows that the number of digital jobs in the region have increased since 2010 and the majority (57%) of these jobs now lie outside the 'digital sector', underlining how important digital skills are to all sectors of our economy.[24] Of the people employed in digital jobs in 2016, 83% were male and over 60% were under the age of 45 – highlighting the need to increase diversity.

Partners in the region have been proactive in tackling the digital skills challenge and key initiatives include: The West of England Institute of Technology, Bristol Talent, Digital Engineering and Innovation (DETI), The Digital Skills Investment programme and Workforce for the Future.

Spectrum of Digital Skills

Digitally excluded | Essential digital skills for life and work | Advanced digital skills

The hidden middle
Lacking the digital skills needed to thrive in the workplace

Image reference courtesy of FutureDotNow

What do we want to achieve?

We want to:

- Reduce digital exclusion, focusing on those most affected

- Improve digital skills at all levels so that:

  - Residents have the foundation skills they need to get online (such as the ability to turn on a device, connect to Wi-Fi and use an app)

  - Residents have the digital skills needed for life (such as the ability to manage finances online, buy goods or services and set up an email account)

  - Residents have the digital skills needed for work (such as the ability to join virtual meetings, or check pay information and book annual leave online)

  - Residents and businesses can benefit from advanced digital skills

What will this mean for our residents?

This will mean:

- ✔ Improved quality of life through participation in the digital world

- ✔ Improved access to the skills, advice and services that people require

- ✔ Improved access to good quality jobs and training

- ✔ Local businesses able to address their digital skills gaps and vacancies

- ✔ Our region has a resilient thriving economy

CASE STUDY

Digital Skills Investment Programme

The Digital Skills Investment Programme (DSIP) is a key part of the West of England Combined Authority's Recovery Plan. The programme is worth £2m and will support access to digital skills training, helping build capacity to increase access to and take-up of adult education opportunities, and will provide innovative, bespoke training courses to address digital skills gaps (including Digital Bootcamps).

In the words of one participant:

"For me, this course was exactly the right content at exactly the right time. Following redundancy in 2020 and an on-going job search where I repeatedly made the final interview but not the chosen candidate, I decided that some upskilling to stay on the right side of the 'digital divide' would be helpful. When I saw the ad for the bootcamp it seemed that it might well be the answer. The cohort of students were friendly and from a mix of professional backgrounds and we were all able to contribute and learn from each other. The tuition was outstanding and covered core planned elements as well as topics requested. Group work on practical tasks and projects was valuable experience."

Digital Inclusion and Skills: Our people and businesses can get online, use digital services and have the skills required for digital transformation at all levels		
Strategic objectives	**Focus areas – what will we focus on to achieve this**	**Our actions (we will...)**
Reduce digital exclusion	**Place-based collaboration** – Convening and bringing together key partners to create a local ecosystem to support digital inclusion **Easy to access support** – Embedding digital inclusion support into existing services such as employability, financial inclusion, housing and health **Be evidence-led** – Using data and insights to improve our understanding of how digital exclusion affects/impacts on people across our region and using data to target our interventions more effectively **Holistic approach** – Developing comprehensive solutions which overcome the main barriers (including lack of interest, confidence/anxiety around the use of digital equipment and infrastructure, skills, connections and devices, cost etc.)	**Now** • Establish a West of England Digital Inclusion Programme • Form a regional 'digital exclusion/inclusion taskforce' in partnership with unitary authorities, other key strategic partners such as the Department for Work and Pensions, skills training providers, the third sector and community groups to collaborate, share good practice and fix the digital divide – Focus on what we can do now, using pilots to 'learn by doing', and build on what we know works to widen access to services, equipment and data (e.g. scale North Somerset's Data bank initiative and Bristol's recycled laptop scheme so they are available across the region) – Map existing provision and services to identify gaps and opportunities to further improve digital inclusion services and support – Identify joint bidding opportunities with multiple partners and secure additional funding and resources – linked to relevant external agency funding and support (including Skills Connect, Mayoral Priority Skills Fund, Flexible Skills Fund, Adult Education Budget) – Sign-post existing support and services via an online portal and existing engagement routes, such as resident newsletters, to make it easier for residents to access (e.g. information about cheaper broadband and social tariffs, how to access refurbished laptops, and free support sessions with trained volunteer Digital Champions) **Next** • Coordinate regional action, building on existing initiatives, to enhance and widen provision of practical support for residents to improve access to services, equipment/devices, and data – Build on existing evidence, such as Bristol's annual Quality of Life Survey) to monitor current levels of digital exclusion and better understand specific regional challenges

Digital Inclusion and Skills: Our people and businesses can get online, use digital services and have the skills required for digital transformation at all levels

Strategic objectives	Focus areas – what will we focus on to achieve this	Our actions (we will…)
Improve digital skills at all levels	**Foundation digital skills** – Ensuring people have the foundation digital skills to get online **Essential digital skills for life and work** – ensuring people have the essential digital skills to thrive in the workplace **Advanced digital skills** – ensuring people have the higher level and advanced skills needed to drive digital innovation and produce new technologies that will grow our economy **Workforce skills** – ensuring that digital skills provision aligns with the needs of regional employers (from across all sectors) and employers are supported to upskill their workforce (including public sector employers)	**Now** • Continue to integrate digital skills into a wide range of Combined Authority employment and skills programmes, guidance and support – identifying progression routes via various projects and programmes • Provide residents with digital skills for life and work through the Combined Authority employment and skills programmes and wider work across the West of England. **Next** • Work with education providers and employers to identify local digital-skills gaps and develop focused solutions and simplified progression pathways into key digital roles • Simplify access to digital skills training across the region, increase visibility and understanding, and help people and businesses understand which courses are most suitable through the Skills Connect support service and accompanying online directory • Provide personalised wraparound support to help target groups under-represented in digital roles and/or disproportionally affected by lockdown measures access training and support progression to further digital training or digital roles

Chipping Sodbury, South Gloucestershire

Digital Growth

Our businesses and third sector organisations are digitally capable and can maximise digital opportunities

Why is this important to us?

Evidence shows that businesses which adopt digital technologies are more productive than those that do not.[25] Therefore, ensuring all our businesses are digitally capable is vital to securing our regional prosperity and creating decent jobs for our residents.

Research conducted by Sage shows that technology has become fundamental to the survival, resilience and growth of small and medium enterprises (SMEs).[26] Their research shows that 8 out of 10 SMEs depend on tech to start, survive and grow. Over the past year, SMEs have increased their use of tech across all aspects of their business, to improve relationships with customers, employees and suppliers. Their research suggests that technology is driving performance of SMEs in new ways and is directly contributing £216bn to the UK economy.

However, large gaps in digitalisation remain, caused by challenges in adopting tech and points of friction in using new tech well. The biggest factors stopping SMEs from investing more in tech are:

- Fears over returns on investment, especially during the current cash flow crunch

- Lack of awareness of the right solutions

Once tech is adopted, there are still points of friction such as:

- Problems learning new skills

- Issues integrating digital tools together

Locally, our businesses have ambitious technology and change programmes, but these can be affected by systemic challenges, including lack of leadership support, limited budgets, talent and skills gap, and integration with existing legacy systems. If these adoption challenges were overcome, tech could help SMEs remain resilient in the face of challenges ahead.

The report also highlighted that 30% of SMEs do not understand data protection regulations and 1 in 5 report concerns regarding cyber security as a significant barrier to adopting new technology. With nearly 40% of UK businesses and 30% charities reporting having cyber security

CASE STUDY

Made Smarter West of England

Made Smarter is designed to assist 80 local small-medium enterprises (SMEs) to understand and overcome operational challenges, in their production processes through digital technologies. This will help businesses in the region to innovate, creating new opportunities in the process. It will also boost productivity, creating more value for customers. Participating businesses are offered a fully funded bespoke assessment, financial and skills support.

breaches or attacks in the last 12 months, this could be a significant threat to the region.[27]

The Sage research identified data as the single most important area of untapped potential for SMEs. Accelerated by the pandemic, many areas of technology which generate data, such as websites (80%), social media accounts (73%), accountancy software (76%) and HR software (48%) have been adopted widely by SMEs – across sectors – and continue to see high levels of investment. In contrast, the adoption of tech to collect

and use data in their business, e.g. data analytics software, lags significantly behind (just 24%). The Sage report suggests that SMEs need more support to understand how data works (i.e. the algorithms which sit behind so much analysis) and more tools which allow them to gain insight from their data.

Looking to the future, the research also found widespread enthusiasm for new tech, which could boost growth in the future. These emerging technologies included 5G-enabled tech, Virtual/Augmented Reality, Crypto and Robotics.

Where are we now?

Whilst local data about the scale and pace of digital adoption is limited, we know that the wider Gloucestershire, Swindon, Bristol and Bath area is ranked 11th out of 41 other comparable areas for digital adoption.[28] We also know that 57% of all digital jobs in the West of England are now found outside the 'digital' sector.[29] Together, these statistics suggest we may be starting from a position of relative strength.

Businesses in the region benefit from a number of existing initiatives to support their digitisation including: Tech for Growth, Digital Boost, Made Smarter West of England, and the DETI programme. These initiatives are

central to testing digital solutions for business in real life scenarios.

The region's businesses and universities are also at the forefront of innovation in next-generation communications networks, including 5G. In collaboration with the University of Bristol's Smart Internet Lab, the Combined Authority is trialling new applications of 5G through innovative 'testbeds' – in conjunction with business around the region.

What do we want to achieve?

We want to:

- Increase the breadth and depth of tech adoption across our businesses and third sector organisations

- Increase the utilisation of emerging technologies amongst our businesses so they can secure competitive advantages

What will this mean for our residents?

This will mean:

✔ Improved access to good quality jobs and training

✔ More world-class businesses, inward investment and higher growth so our region is an amazing place to live and work
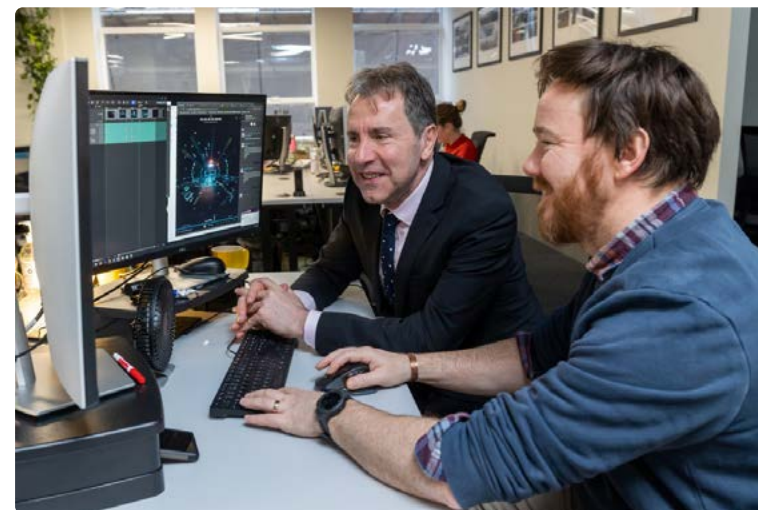
Helping local businesses to be digitally savvy so they can be successful and thrive

CASE STUDY

5G Logistics

The West of England Combined Authority led a consortium of 12 partners, including The Bristol Port Company and the University of Bristol Smart Internet Lab, to demonstrate how 5G can increase efficiency and productivity for the logistics sector.

The project was one of 22 projects funded by the UK Government under its 5G Testbeds and Trials Programme, which supports innovators exploring new uses of 5G to help improve people's lives and boost businesses.

The 5G Logistics testbed operated in and beyond the West of England, with a primary test zone at Bristol Port and a secondary test zone covering a nearby junction. The third area was 45km away at the Gravity Smart Campus in Somerset (acting as a Freezone). The three areas were connected by fibre to create a super-fast and secure private network.

The project trialled mobile edge computing (MEC) – an alternative to cloud computing. This, coupled with 5G's ability to handle huge amounts of data, enables faster communications speeds, increased security and the potential to tailor the network to meet numerous business needs at once – creating new opportunities for ports, Enterprise Zones, business parks, local authorities and (eventually) smart cities.

By supporting smaller players to develop tailored 5G private networks and services, we are helping to diversify supply – meaning our businesses can take up these game-changing communications networks sooner.

Digital Growth: Our businesses and third sector organisations are digitally capable and can maximise digital opportunities

Strategic objectives	Focus areas – what will we focus on to achieve this	Our actions (we will...)
Increase the breadth and depth of tech adoption across our businesses and third sector organisations	**Technology adoption** – Inspiring businesses and third sector organisations to do more with digital technologies, drive business growth and take advantage of the benefits of technology adoption – especially those SMEs who do not see themselves as a 'tech business' **Data utilisation** – Helping businesses to understand their data and the tools to gain insight from it **Cyber resilience and data protection** – Helping small and medium sized businesses strengthen their cyber security and data protection practices and protect themselves and their data from online cyber attacks	**Now** • Offer businesses tailored support, expert guidance and support programmes to increase productivity, accelerate innovation, boost digital adoption, and develop new products/services (e.g. Tech for Growth, Create Growth Programme and Made Smarter West of England) • Provide production-based businesses with support to introduce the right technology (e.g. Made Smarter West of England) • Signpost businesses to relevant national services (e.g. Digital Boost, National Cyber Resilience Centre) **Next** • Identify requirements for new tailored support packages aligned to specific sectors and technologies • Develop new tailored support packages aligned with specific sectors and technologies (especially sectors aligned with regional challenges such as construction, energy, transport and health)
Increase utilisation of emerging technologies amongst our businesses so they can secure competitive advantages	**New and emerging technologies** – encouraging businesses to embrace the opportunities these more advanced technologies offer to fuel innovation, growth and market opportunities **Create the conditions for innovation** – boosting access to digital and shared infrastructure to help reduce time, cost and risk of developing new products and services.	**Now** • Increase engagement between businesses and the region's innovation ecosystem and digital innovators who are developing the foundational technologies of tomorrow (such as quantum, artificial intelligence, future telecoms and green technologies) by: – Developing an online showcase of digital R&D assets setting out clearly the R&D activity, collaboration opportunities and how to get involved – Promoting the showcase through the Growth Hub, Invest Bristol & Bath (IBB) and Digital Transformation Board **Next** • Bring together and link up our digital innovation assets (such as digital twins, simulation and emulation tools, synthetic environments, testbeds and living labs) to form a regional connected network by: – Working with partners to identify assets to be linked – Designing and implementing interoperable systems and processes

We aim to design and deliver best in class public services

Digital Public Services

The region delivers best in class digital public services to provide a better experience for residents

Why is this important to us?

Our residents rightly expect a user experience from the public sector which is comparable to what they experience in other parts of their lives. Residents, businesses and visitors want services to be easy to use, safe and designed around them. However, they also want a choice in terms of how they access services, therefore digital services need to be joined up with other channels (such as telephone and face to face) for people who cannot or decide not to participate digitally.

Digital transformation also offers benefits to the public sector in terms of:

- Supporting efficient and effective service delivery – saving money without compromising on outcomes

- Helping us to innovate and try new things

- Helping us to tailor and target services towards those who need support the most

- Helping us to link together unrelated services to provide seamless and comprehensive services

- Making our services simple, easier to access and more straightforward to use

Most importantly, public services that are designed around the needs of the people who use them, joined up and easy to access will ensure that people are not excluded or have an inferior experience because they do not have the technology, skills or desire to use services online.[30]

Public sector digital transformation and continuous improvement is also underpinned by the effective use of data. Every day local government organisations are constantly managing and responding to information. Harnessing this connected information ecosystem can have enormous benefits, offering valuable insights on the wide range of activities that authorities perform. Whether it's supporting the most vulnerable people in our communities, revitalising our high-streets, fixing the roads, designing better bus routes or helping local businesses to grow, data can help us do this more effectively.[31]

By treating data as a strategic asset and using data more effectively, we can be more agile, innovative and cost effective and deliver better, cheaper and more responsive

services. Better use of data, and data-enabled technologies such as artificial intelligence (AI), also means better decision making as policies can be tailored and delivered more effectively, and we can better monitor whether policies are delivering their intended effects and targeted at the right people. However, there are many barriers to the better use of data. These include:

- Real and perceived legal and security risks

- A lack of incentives, skills or investment to drive effective governance and overhaul data infrastructure

- A lack of consistency in the standards and systems used across the public sector

To maximise these benefits we also need user-friendly, interoperable, secure systems, platforms and services that support modern ways of working. At the same time, we must be wary of the harms – intended or unintended – from an information and technology ecosystem that does not act responsibly, ethically, inclusively, and legally. The public sector is an integral part of this ecosystem. We have a duty to ensure we manage, share and use data and use digital technologies responsibly.

We need to keep inclusion at the heart of all we do and ensure no one is left behind as we embrace a digital first approach. By

placing user needs, insight and data at the heart of our digital transformation, we have the potential to deliver well-designed cost-efficient and effective services with enhanced transparency and public accountability.

Where are we now?

In the West of England, the Combined Authority and our four Unitary Authorities have all signed up to the Local Digital Declaration, a public pledge along with hundreds of other councils to both meet high standards for technology and digital services, and adopt a digital culture and ways of working. Whilst this demonstrates our collective ambition for the future of local public services, we know there is much more to be done, especially in the management of our information ecosystem.

Transformation of public services in the current climate is a significant undertaking. We want to create the right conditions for this to happen by providing the capacity to consider new ways to deliver services and working with our world-class innovation cluster to investigate innovative, digitally-enabled service delivery solutions. We need public service leaders who understand what is possible and how to achieve it, a workforce with the right skills, and people who are confident in digital ways of working.

To take this forward we will work collaboratively, supporting our constituent council partners, to leverage our collective know-how, access other funding sources and ensure that the maximum impact, and value for money, can be delivered from the resources available to us.

By working together strategically across the public sector, we hope to accelerate our digital transformation by:

- Working across boundaries to address common problems

- Testing and piloting new approaches

- Sharing learning

- Developing common standards and interoperable systems

- Achieving economies of scale

What do we want to achieve?

We want to:

- Improve the experience of using digital public services

- Unlock the power of data across the public sector to deliver better outcomes for our residents

What will this mean for our residents?

This will mean:

✔ Improved quality of life because digital public services are inclusive, easier to use and efficient

CASE STUDY

Technology Enabled Care

Bristol, North Somerset and South Gloucestershire Integrated Care system received £679,000 from the NHSX Digitising Social Care Fund to roll out a project to use care technologies to improve people's independence and reduce unplanned hospital admissions. The money was used to:

- **Roll out acoustic monitoring devices** – which detect unusual sound patterns raise the alarm if it senses unusual movement

- **Roll out Digital social care records** – which allow information to be easily shared amongst organisations such as the NHS and North Somerset Council. Sharing of electronic care records supports hospital admissions and discharges from and to care homes

- **Pilot innovative systems** – which collect and link health data, including wearable technologies. Collection of this data helps professionals to spot when someone's health deteriorates and identify other risks to that person. This means it can help prevent falls and reduce the risk of that person having to go into hospital unexpectedly, helping people stay as independent as possible for as long as possible

CASE STUDY

Future Transport Zone

The Future Transport Zone (FTZ) aims to better integrate public transport across the region. It is built on an approach of trialling new interventions in the West of England, then incorporating the best solutions into the region's wider transport plans when future funding becomes available. This includes key digital innovations such as:

- **Transport Data Hub** – Taking a human-centred design approach (ISO 9241-210:2019), the Hub will make it possible for the transport community to find, share and add data with ease – fostering collaboration, support innovation and giving greater confidence in data-driven plans, policies and decisions

- **Journey planning, ticketing and payment platform to enable sustainable travel** – A new mobile app and website will integrate journey planning tools with payment and ticketing, enabling travellers to plan, pay for and undertake end to end journeys within a single platform. This one-stop-shop will include all types of transport, significantly increasing the convenience of journeys that use more than one mode of transport, and making it easier for people to use public transport

The FTZ programme demonstrates our focus on improving people's experience of using transport services and using data to deliver better outcomes for residents and the region.

Digital Public Services: The region delivers best in class digital public services to provide a better experience for residents

Strategic objectives	Focus areas – what will we focus on to achieve this	Our actions (we will…)

Improve residents' experience of using digital public services	**Collaboration** – Finding opportunities to work with each other and with partners to solve common problems, achieve economies of scale and learn from one another
	
	User centred design – ensuring our digital services are focused on the needs of our residents, are easy to use and accessible
	
	Outcomes and whole-life value – ensuring our services are focused on delivering the right outcomes and whole-life value, rather using new technology simply because we can
	
	Trustworthy and safe – ensuring our services are secure, safe for people to use, and digital technologies (such as artificial intelligence) and data are used ethically to develop trusted services and improve decision making
	
	In-house digital skills – making sure we are equipped with the Digital, Data and Technology essentials needed to pioneer local government transformation.
		Now
		• West of England Combined Authority to embed Local Digital Declaration principles and catalyse organisational and service transformation
		• Convene a digital public services working group to support collaboration and learning
		• Identify common barriers to implementing the Local Digital Declaration, Government Digital Service Standards and related digital, data and technology management standards
		• Develop proposals and secure funding for joint development projects and collaborative solutions which add value, such as:
		  – adopting common standards and interoperable systems
		  – ensuring procurement practices promote trusted, safe and secure services
		  – testing and trialling new approaches and evaluating and sharing outcomes
		  – cross boundary projects where this adds value
		
		Next
		• Develop proposals to deliver digital skills training to public sector staff and representatives to develop our in-house Digital, Data and Technology (DDaT) capabilities
		• Explore and support adoption of innovative technologies (including mobile/wireless) and unlock their potential to enhance public sector service delivery across sectors such as health, social care and transport

Digital Public Services: The region delivers best in class digital public services to provide a better experience for residents

Strategic objectives	Focus areas – what will we focus on to achieve this	Our actions (we will…)

Unlock the power of data across the public sector to deliver better outcomes for our residents	**Quality, availability and access** – Improving data quality and consistency with a clear understanding of what data is held and where, better data collection, and efficient data-sharing between organisations
	
	Standards and assurance – Driving the adoption of standards for data, leading to greater consistency, integrity and interoperability, and enabling data to be used widely and effectively across the region
	
	Capability, leadership and culture – Developing world-leading capability in data and data science across the region so that leaders understand its role, expert resource is widely available, staff at all levels have the skills they need, and a 'data-sharing by default' approach tackles the culture of risk aversion around data use and sharing
	
	Ethics and public trust – Developing a robust ethical framework of transparency, safeguards and assurance which builds and maintains public trust in the government's use of data
		Now
		• Convene a data sharing working group to bring together public sector partners to:
		  – Identify and map the most significant data assets controlled by public sector partners
		  – Identify opportunities and challenges where sharing data could make a significant impact
		  – Identify the barriers to sharing relevant data (e.g. different standards, legacy systems, security risks, cultural barriers etc.)
		  – Develop proposals to address barriers
		  – Agree data sharing standards and protocols aligned with those established by the UK Data standards authority
		  – Conduct a training needs analysis to understand the digital, data and technology capabilities of public sector staff and representatives
		
		Next
		• Based on the activities of the working group develop a West of England Information & Data Sharing Framework
		• Develop proposals to further enhance our in-house data and analytical capabilities
		• Establish a data sharing partnership, working with local leaders, citizens and sector experts to strengthen innovative use of data, transparency and outcomes

Remote control manufacturing robot, National Composites Centre

Digital Tech for Good

> Our digital innovation ecosystem is harnessed to address key regional and global challenges

Why is this important to us?

Tech for good is about utilising technology to improve social, environmental and economic outcomes. Digital solutions have the potential to address global challenges at the local level. Advances in data, analytics and connectivity are enabling a range of digital applications which help us to track and understand our environment as well as develop solutions. These digital systems have applications across a range of challenge areas including:

- Addressing net zero, climate adaptation and nature recovery

- Better, more sustainable transport solutions for local residents and businesses

- New ways of creating vibrant communities and sustainable, affordable, liveable homes in the right places

- Enhancing peoples' quality of life, health and wellbeing

- Boosting growth in productivity, incomes and access to decent, well-paid jobs

- Responding to the challenges facing the delivery of health and social care services

Ultimately our focus is on how we utilise digital technology to create a sustainable economy, increase productivity and generate societal benefits such as better healthcare and protecting the environment.

Our region has a wealth of assets and expertise that means we stand at the forefront of many of these challenges. By focusing our efforts on how we use technology to deliver better outcomes, not only do we address key challenges facing the region, but we create opportunities for our businesses and entrepreneurs to grow and create more opportunities for our residents.

Where are we now?

The West of England is the place to innovate, grow and create. We are a world leading technology cluster and internationally recognised as a technology hub. We are home to a highly collaborative ecosystem, uniting people from diverse backgrounds and drawing on different areas of expertise, with R&D, academia, industry and the public sector working together. The region hosts a number of R&D centres including Oracle's Cloud

© Imad Faruque, QET Labs, University of Bristol

Development, HP Labs, and the University of Bristol Smart Lab team which in 2018 staged the world's first public trial of 5G.

The region's four universities play a central role in strengthening the region's digital and tech sector, from establishing SETsquared (Global #1 University Incubator) to the new Temple Quarter Enterprise Campus. Our universities collaborate closely with businesses in life sciences, cyber security, quantum and robotics including several autonomous vehicle projects. The universities also produce a constant stream of highly-skilled graduates with one of the highest graduate retention rates in the country.

Our thriving creative industry hub, supported by the West of England Cultural Compact, is innovatively channelling digital technology to be at the forefront of placemaking, community making and regeneration.

The TechSPARK Chair's Report highlights that Bristol and Bath forms the second densest population of B Corps outside of London – a reflection of our region's "purpose-led, innovative roots". Our vibrant Tech for Good cluster across Bristol and Bath is already delivering positive impact. Their work is supported by thriving networks such as Tech4Good South West and the unique Bristol Digital Futures Institute, which is transforming the way we create new digital technology

for inclusive, prosperous and sustainable societies.

We have numerous examples of working with partner organisations to tackle challenges and deliver better outcomes. This includes sharing and applying data in new ways to inform regional initiatives, local plans and help us make the right decisions. For instance, using environmental data via the West of England Nature Partnership to inform our response to the ecological emergency, or Met Office data to prepare regional climate resilience plans.

The region already benefits from a range of smart capabilities and assets that would support digital efforts to tackle key challenges including:

- The DETI programme – Digital Engineering Technology and Innovation

- The Bristol Network (B-NET), the Bristol Operations Centre and the Open Data Platform

- The UMBRELLA project – an award-winning Industrial Internet of Things (IoT) research and development testbed in South Gloucestershire. The testbed allows pioneers in digital technology to innovate and test new applications, processes, products, services and business models to ascertain their usefulness and viability before taking them to market

CASE STUDY

Demonstrating the potential of creative technology

Bristol+Bath Creative R+D (B+BR+D) is a five-year collaboration that aims to raise the bar for the region's creative industries, forging connections and opportunities in Bristol and Bath, one of the most vibrant creative clusters in the UK.

This is a first-of-a-kind partnerships between the region's four universities (UWE Bristol, Bath Spa, the University of Bath and the University of Bristol) and digital creativity centre Watershed. It is part of a wider Creative Industries Cluster Programme (CICP) run by the Arts and Humanities Research Council (AHRC).

Responsible innovation has been at the heart of the B+BR+D project – a belief in creativity, inclusivity, co-creation, climate action and sharing. In 2023 they were awarded 'Demonstrator' funding for a project which aims to consolidate B+BR+D's learning, investigating how this might impact new 'spill over' sectors. From May 2023 B+BR+D will be running a six-month pilot focusing on the potential impact of creative technology on the green economy, and more specifically on climate activism.

Building on their existing partnership with the addition of the West of England Combined Authority, this project aims to bring existing climate and creative networks together, leading to the funding of six R&D projects.

We want to support digital innovation across a diverse and inclusive network of institutions, communities, local businesses and individual entrepreneurs. Existing capabilities and assets could be augmented by a regional network of well-connected community hubs, living labs and makerspaces, as well as data-focused hackathons and innovation events.

Given our status as a world leading technology cluster and technology hub, to further cement and amplify our region's position as the UK's engine for digital innovation we must ensure our region has the digital infrastructure, facilities and know-how it needs to power challenge-led innovation.

What do we want to achieve?

We want to:

- Put the West of England on the map as THE place for cutting edge digital research, innovation and investment that finds solutions to key regional challenges such as net zero, transport, housing, productivity, health and well-being

What will this mean for our residents?

This will mean:

✔ Improved quality of life now and for future generations

CASE STUDY

Digital Engineering Technology & Innovation (DETI) engineering more sustainable products

To reach our net zero by 2050 target and help the UK shift more quickly to a low-carbon economy, we need to reduce and remove carbon emissions from the products we produce and use. Digital technologies can help to achieve decarbonisation, but we need more engineers with digital skills to achieve our goal.

DETI, led by the National Composites Centre (NCC), was a two-year programme that helped companies develop the tools, technologies and ways of working needed to engineer better, more sustainable products more quickly and at lower cost. Courses have helped upskill current employees, and working with schools, inspire a new generation of engineers and develop a diverse, inclusive digital-ready workforce.

Through a series of demonstrator projects, the NCC showed businesses how to address common digital transformation challenges, such as using immersive technologies and concurrent engineering techniques to speed up the product design process, and harnessing 5G and quantum computing to securely control manufacturing robots remotely and in real time. Businesses in the region now have access to 10 industrial testbeds where they can trial technologies and de-risk their own digital transformation.

DETI is a crucial part of enabling a future where the West of England is the place to design net zero products, helping businesses become more productive and resilient, and creating high value jobs and employment opportunities for local people.
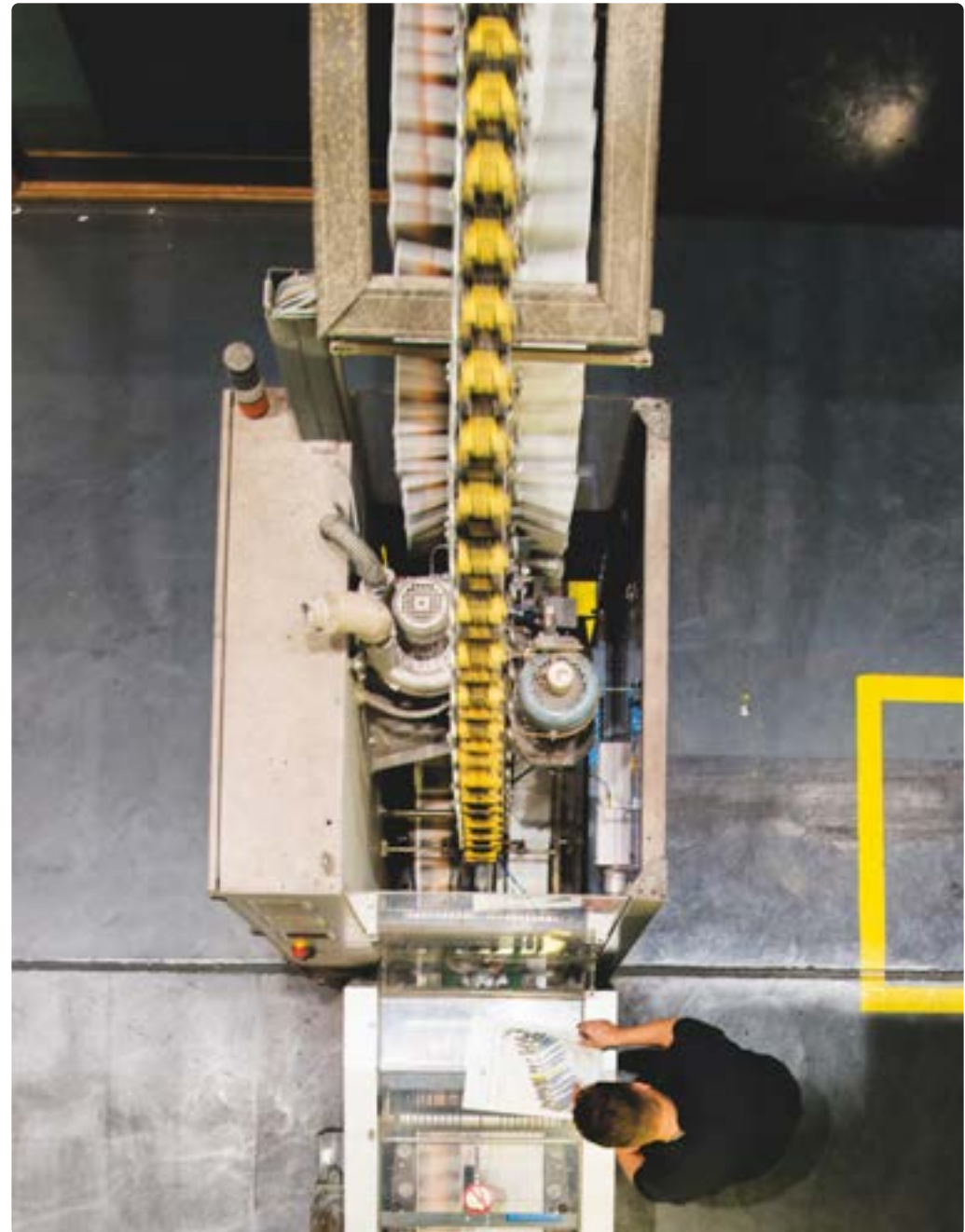
CASE STUDY

UMBRELLA – A living lab at the heart of innovation

Launched in 2021, UMBRELLA is a world-leading open, programmable smart city and industrial Internet of Things (IoT) network located in South Gloucestershire. Built in partnership by South Gloucestershire Council and Bristol Research Innovation Labs (Toshiba Europe Ltd), it is designed to help evolve ideas into market-ready products and services.

Our unique network promotes research, innovation and testing by connecting several testbeds and bridging the gap between the laboratory and the real-world. Bringing together state-of-the-art IoT enabling technologies in one place gives developers and researchers access to:

Over 200 multi wireless, multi sensor, edge computing devices and robotic nodes deployed along 7.2km of roads

- Five innovation hubs (Bristol & Bath Science Park, National Composites Centre, UWE Bristol, Bristol Robotics Lab and Future Space)
- Smart city sensing and wireless testbed
- Smart campus
- A digital twin simulator
- Two 5G nodes

This toolkit offers a way to develop and de-risk technologies across a broad range of IoT use cases, such as future mobility, zero carbon technology, healthcare, etc., promote investment, explore new business models, and develop future skills and knowledge.

UMBRELLA is easily accessible via a single portal anywhere in the world with an internet connection. There is a wiki-based collaboration site to support skills development and learning, enabling users and developers to contribute, share know-how, and learn from others. Furthermore, a vibrant open research and development community has emerged, spanning individual entrepreneurs, academic researchers, public sector and private industry, to support innovation in the West of England and beyond.

We are proud that UMBRELLA has won multiple awards:

- Connected Britain – The Industrial Innovation Award 2022
- Local Government Chronicle Awards 2022
- Smart City Expo Awards 2021
- IoT Global Awards 2021

Digital Tech for Good: Our digital innovation ecosystem is harnessed to address key regional and global challenges

Strategic objectives	Focus areas – what will we focus on to achieve this	Our actions (we will...)
Put the West of England on the map as THE place for cutting edge digital research, innovation and investment that finds solutions to key regional challenges such as: • **Net zero and climate change** • **Transport** • **Housing** • **Health and well-being** • **Enhancing productivity** • **Nature recovery**	**Innovation ecosystem** – Cultivating our region wide digital innovation ecosystem through: • **Research and Development** – Supporting targeted R&D in relation to the use and deployment of digital technologies to address key regional challenges • **Harnessing data** – Opening up non personal data in a safe and secure way, where it is of value to our residents • **Testing and trialling** – utilising experimentation spaces, such as IoT networks, testbeds and living labs to solve problems, test ideas and mature solutions • **Community involvement** – empowering our communities to get involved and develop pioneering community based initiatives • **Supply chains** – ensuring our supply chains are digitally capable and able to help us deliver our objectives • **Horizon scanning** – identifying future opportunities and challenges for place-based digital transformation	**Now** • Track, evaluate, prioritise and share insights about emerging opportunities, challenges and technology developments related to regional priorities • Work with partners in sectors such as transport, energy, housing and health to develop sector specific proposals to develop digital solutions to key regional challenges **Next** • Building on the work of the proposed West of England data sharing taskforce and existing open data platforms, create a regional open data portal (including mapped data) covering key challenge and opportunity areas (e.g. transport, health, environment and wildlife). This should include: – Reviewing open data publication, governance and assurance, and decision making processes – A plan to measure the impact of published data – Increasing the number of open data sets available, encouraging regional partners to publish, alongside engagement events focused on solving regional challenges with open data • Embed and promote the West of England Digital Charter to ensure tech/data ethics and responsible use are incorporated into programmes supported by the Combined Authority • Pilot a Future Digital Innovation Challenge Fund linked to key regional challenges • Develop a programme of community engagement events to empower residents, including hackathons and data jams to bring together the collective know-how of innovators to develop solutions • Support the provision of well-connected community hubs, living labs and digital makerspaces that support digital and community hubs where digital solutions can be designed, tested and developed

IMPLEMENTATION

How we will work together

Whilst the Combined Authority has led the development of this plan, implementation will require the collective effort of everyone in the region. Our role is to use our convening powers to bring together and empower partners to tackle the priorities set out in this plan and we will do this by bringing together our Digital Transformation Board. We will also take the strategic view and look for opportunities to coordinate and fill gaps in delivery.

Securing funding and projects suitably aligned to our strategic ambitions can pose a challenge. We aim to get ahead of the curve by playing to our strengths, proactively shaping and creating suitable projects we need to deliver rather than passively waiting for them to come to us.

Our focus will be on adding value to, rather than duplicating the work of others. We will champion local initiatives, such as the Future Ambition Board which is bringing together local partners and businesses to ensure that Bath & North-East Somerset is fair, green, creative and connected. Equally, as a strategic organisation, we must also challenge and hold our partners to account to ensure that collectively we deliver for the region. Alongside other Mayoral Combined Authorities, we have the ear of Government and will use this to make the case for investment and if necessary wider reforms where they will help us to deliver our priorities.

As we move forward, towards implementation, we will adopt the following values:

- Be ambitious in our approach
- Utilise an evidence based/intelligence led approach
- Build on good practice and learn from each other
- Work in an open way with our partners with a commitment to genuine partnership working
- Champion equality, diversity and inclusion to ensure everyone can benefit from our digital transformation

Implementation plan

This plan sets out our strategic objectives and a set of high level actions that we will take to achieve them. To support the practical delivery, a detailed implementation plan will follow setting out actions, responsibilities and resources required to deliver. This will be the primary tool for managing the delivery of this plan.

Our implementation plan will be reviewed regularly in line with the pace of digital change and regional priorities.

Monitoring and evaluation

We will put in place a clear reporting process in line with the Combined Authority's Monitoring and Evaluation Framework. This will include using readily-available data, as well as new data collection and analysis. As actions are developed, we will refine our measures of progress. The reporting process will be reviewed annually and will include project evaluations for specific schemes that are implemented as part of this Digital Plan.

Priority Area	Objective	Indicator of progress
Digital Infrastructure: The region is digitally connected, with access to world-class digital infrastructure that is fast, secure and reliable	Meet and exceed 85% gigabit connectivity by 2025 across the West of England	% of premises Gigabit capable in the West of England and by Unitary Authority
	Maximise number of premises which have at least superfast coverage by 2026	% of premises with Superfast 30 coverage in the West of England and by Unitary Authority
	Maximise 4G and 5G coverage and capacity	4G coverage (and capacity when data is available) in the West of England and by Unitary Authority
		5G availability in Bristol (and West of England when data becomes available)
	Boost community-based connectivity	Public accessibility of wifi in locations where purchase not required in the West of England
Digital Inclusion and Skills: Our people and businesses can get online, use digital services and have the skills required for digital transformation at all levels	Reduce digital exclusion	Digital Exclusion indicators to be developed, potentially including access to devices, access to internet, uptake of social broadband tariffs, and affordability of training
	Improve digital skills at all levels	Digital skills indicator to be developed, potentially including proportion of adults with digital skills and school provision
Digital Growth: Our businesses and third sector organisations are digitally capable and can maximise digital opportunities	Increase the breadth and depth of tech adoption across our businesses and third sector organisations	Sample indicators include digital occupations as a share of all jobs and annual investment in ICT equipment
	Increase utilisation of emerging technologies amongst our businesses so they can secure competitive advantages	Indicator to be developed
Digital Public Services: The region delivers best in class digital public services to provide a better experience for residents	Improve the experience of using digital public services	Indicator to be developed: likely to include proportion of services delivered digitally and to a high standard (based on user feedback)
	Unlock the power of data across the public sector to deliver better outcomes for our residents	Indicator to be developed, potentially including proportion of local authority services making data publicly available (where possible), and proportion of staff at local authorities who have received digital training
Digital Tech for Good: Our digital innovation ecosystem is harnessed to address key regional and global challenges	Put the West of England on the map as THE place for cutting edge digital research, innovation and investment that finds solutions to key regional challenges	Indicator to be developed

CASE STUDY

Bristol Digital Futures Institute

Bristol Digital Futures Institute (BDFI) is an interdisciplinary cross-faculty research institute at the University of Bristol that pioneers transformative approaches to digital innovation. BDFI is developing in-depth and systematic understanding of sociotechnical futures to drive the creation of digital technologies for inclusive, prosperous and sustainable futures. Digital technologies have changed our world.

Global connectivity, smart technology and automated systems are already part of our daily lives. This brings opportunities and challenges. We need to better understand how technologies and people are shaping the future together. Rather than waiting for the future to happen, we need to get ahead of it. This demands a new way of working.

BDFI is bringing together academics from across disciplines with our 28 partners and other collaborators from sectors ranging from telecoms to charity, finance to film, charity to government to:

- **Create knowledge** – across academic disciplines and in partnerships with industry and communities

- **Make it real** – create and implement new technology using experimental research platforms

With £31.5m investment from Research England plus £75m+ co-investment from partners, donors and the University, the Institute is developing a range of globally unique sociotechnical research facilities on the Temple Quarter Enterprise Campus. When complete in 2023, the first phase will include specialist facilities including the world's first reality emulator – a powerful sector-agnostic multisensory digital twin with immersive capabilities which enable iterative co-creation of digital solutions. Other facilities include the Neutral Lab, XR Suite, Instrumented Auditorium, Virtual Production Studio and a range of work and partnership areas, training and meeting rooms. Further facilities will follow in 2026.

GLOSSARY OF TERMS

Artificial intelligence (AI) – AI are machines which act intelligently, typically making predictions or decisions about multiple aspects of the world in which we live.[32]

Biotech / Fintech – new technology associated with the delivery and use of sector-specific products and services, e.g. healthcare and financial services.

Broadband – the 'always-on' way of connecting a computer to the internet using a copper, cable, fibre or wireless connection, often defined by the speed it can receive information (data) from the internet (measured in megabits or gigabits per second, often abbreviated to Mbps/Gbps).[33]

Community-based connectivity – provision of broadband or wifi connectivity in community centres and public spaces (such as libraries and village halls).

Digital connectivity – all-encompassing term used to describe mobile or fixed connections to the internet.[33]

Digital infrastructure – physical and software-based infrastructure necessary to deliver digital goods, products and services, such as data centres, broadband fibre, etc.

Digital poverty – exclusion of people from joining in digital aspects of life and society due to a lack of finance, skills and/or

connectivity,[34] similar to **digital exclusion** which is where an individual lacks internet access and/or has low levels of digital skills or confidence.[35]

Gigabit capable – An internet connection capable of download and or upload speeds of at least 1 gigabit per second.

Incubation and accelerator workspaces – Shared work spaces that support early stage businesses.

Internet of Things (IoT) – a network of physical objects ("things") that are embedded with sensors, software, and other technologies all of which collect and share data over the internet about the way they are used and about the environment around them. These devices range from ordinary household objects to sophisticated industrial tools.

Interoperability – The ability of two or more components or systems to work with and/or exchange information other products or systems.

Makerspaces – Creative spaces where people can gather to collaborate, make, learn, explore and share. They often have 3D printers, software, electronics, craft and hardware supplies and tools, and more. Sometimes also referred to as hackspaces and Fab Labs.[36]

Open data – data that anyone can access, use or share. When big companies or governments release non-personal data, it enables small businesses, citizens and medical researchers to develop resources which make crucial improvements to their communities.

Quantum technology – emerging technology that works by harnessing the principles of quantum mechanics (the physics of sub-atomic particles) paving the way for systems that can solve complex real world problems that the best computers we have today cannot.

Tech for Good – intentional use of technology to develop and scale solutions to societal challenges.

Testbeds – dedicated spaces providing the infrastructure and equipment needed to safely explore, evaluate and de-risk new ideas and technologies.

Third sector – covers organisations that are neither public sector nor private sector, also known as the 'not-for-profit' industry, includes voluntary and community organisations (such as charities, self-help groups and community groups), social enterprises, mutuals and co-operatives.

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