



# Liverpool City Region

## Digital Strategy 2021-2023



**LIVERPOOL  
CITY REGION**  
COMBINED AUTHORITY

**METROMAYOR**  
LIVERPOOL CITY REGION

## Foreword

It didn't take a once in a century pandemic for us to understand the importance of digital technology to all of our lives – that's why it has long been the aim of the Combined Authority to ensure that the Liverpool City Region is the most digitally connected in the country.

What the pandemic has arguably done, however, is to accelerate underlying trends and bring into sharp focus just how important the digital sphere is to every aspect of our modern lives.

It is what has enabled many people to continue working from home, our children and young people to continue to study, our retail sector to continue to operate. And it is, of course, supremely important to business and industry, as well as our healthcare sector, now more than ever.

That's why we, as a Combined Authority, have produced this Digital Strategy and Action Plan for the whole Liverpool City Region, working with the Local Enterprise Partnership and the six constituent local authorities. We've also worked with industry-led sector boards, academic institutions, and a host of other partners, including the voluntary and community sector, to develop a city region-wide approach to digital activity.

Taken together, these documents highlight the scale of our ambition, showcase our distinctive assets and capabilities and underline where we need to do more.

Maximising our digital potential will be key to achieving our vision of a globally competitive, environmentally responsible and socially inclusive Liverpool City Region. This Strategy and Action Plan are key elements in ensuring that we do that.



**Steve Rotheram, Metro Mayor of the Liverpool City Region**



**Cllr. David Baines, Liverpool City Region Combined Authority Portfolio Holder for Digital Connectivity & Inclusion**

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# 1. Purpose

Even before the onset of Covid-19, “digital” was a key focus for the Liverpool City Region (LCR), however the criticality of digital know-how, access, and solutions for all aspects of modern life have all clearly been brought into even sharper relief since...

The ongoing pandemic has meant that, like it or not, digital connectivity, skills, activities, and services are now a necessity for almost every aspect of most people’s daily lives, disrupting all business sectors, and catalysing digital adoption at a previously unimagined pace. While this is undoubtedly creating opportunities, not least for our digital and creative sector itself, there are also serious concerns about negative impacts in terms of further widening the “digital divide” and associated inequalities - particularly with regard to education, employability, and wellbeing - for those in our most disadvantaged communities.

This has made it even more timely and important to bring together disparate strands of digital-related activity into a collective strategy and action plan that provides City Region scale, focus and impact to deliver necessary change. Underlining this, the public engagement exercise undertaken in December 2020/January 2021 reported 100% agreement – of which 94% was strong agreement - for producing this LCR Digital Strategy and Action Plan, which, as shown below, set out six key themes through which we will jointly realise our ambition.



This is not the start of our journey, however it does for the first time bring together the many workstreams underway or planned, and directly links them to a series of key priorities and actions for the three-year 2021-2023 period. This integrated approach to digital themes and activities will in turn help us realise the vision set out in the draft [Local Industrial Strategy](#) (LIS), to deliver a competitive, clean and inclusive City Region, plus ensure alignment with the new UK Digital Strategy being produced by the [Department of Digital, Culture, Media & Sport](#) (DCMS).

The Strategy and Action Plan highlight the nature and scale of our ambition, showcase our distinctive assets and capabilities, and identify where we need to do more to maximise our opportunities and overcome identified challenges. They are not intended to be exhaustive, but rather act as a framework to inform all aspects of digital-related activity across the LCR, not least our [Strategic Investment Fund](#) (SIF), and the work and priorities of our constituent Local Authorities.

We hope that they will similarly influence the digital and other strategies and activities of other LCR anchor institutions and stakeholders across all sectors - public, private, and voluntary. Equally they are intended to help shape and facilitate discussions, advocacy and partnership development with government, industry and other bodies, plus help to secure public funding and private investment to deliver current and future initiatives.

The Strategy and Action Plan have been produced on behalf of the City Region by the [Combined Authority](#) (CA), working with the [Local Enterprise Partnership](#) (LEP) and following significant input from the six Local Authorities. The CA has also actively engaged the LCR's industry-led Sector Boards, academic and research institutions, plus other key stakeholders and partners, including voluntary and community organisations, and via a public engagement exercise. This reflects the aim to develop a Liverpool City Region wide approach to digital priorities and actions, rather than simply a Combined Authority Strategy. We all have a critical role to play in moving the digital agenda forward, and envisage that the development and delivery of different strands and activities will be led by different organisations and sectors as required.

Last but not least, we recognise how fast-paced the digital landscape is, so intend the Strategy and Action Plan to be living, breathing documents that serve as catalysts for real world delivery and evolve in line with technological and other local and external developments. To that end, they cover a relatively short 3-year timespan, and we will review our actions and approach regularly in order to seek to ensure that we are at the forefront of digital policy and practice.

## 2. Digital Infrastructure & Connectivity

### Why is this Important?

Access to fast, reliable and affordable internet connectivity has never been so essential. Just as the Covid-19 pandemic has demonstrated that digital skills are a form of basic literacy, it has equally highlighted that **digital connectivity is a form of critical infrastructure and a fourth core utility**, facilitating the ability to learn, work, shop and socialise, as well as providing access to vital public information and services.

Modern, future-proofed digital infrastructure, both fixed and wireless, is a key enabler of every strand of this digital strategy and a signature priority for the Metro Mayor and Combined Authority. More broadly, it is an important part of the UK's [National Infrastructure Strategy](#), which sets out the Government target for 85% of premises to benefit from “gigabit-capable broadband” by 2025.

In tandem, digitalisation is a core focus within the draft LCR LIS, which recognises the **direct correlation between digital connectivity investment and economic performance**, as have numerous other studies<sup>1 2</sup>. Whilst quantifying the economic impacts of connectivity is challenging, not least because commercial operators are incentivised to promote its benefits, one study estimates that the impact of a UK-wide Fibre-to-the-Premises (FTTP) broadband ISP network by 2025 is a £59billion<sup>3</sup> uplift in Gross Value Added (GVA).

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<sup>1</sup> e.g. Ericsson 2011 study: doubling speed adds 0.3% to GDP; 2018 Ofcom analysis of 35 OECD countries over a 15 year period found average UK GDP annual growth of 0.47% 2002-2016 resulting from digital infrastructure investment; SQW DCMS 2013 UK Broadband Impact Study found 20x net economic impact per £1 of public investment; Stockholm's 3-fold €1.8Bn ROI from digital infrastructure investment over 20 years

<sup>2</sup> Moore's Law: computer power doubles/price halves every 18 months; Nielsen's Law = 50% speed/bandwidth increase every year; Metcalfe's Law: as a network grows, the value of being connected to it grows exponentially, while the cost per user is the same or less.

<sup>3</sup> “Full fibre broadband: A platform for growth. A Cebr report for Openreach”. October 2019.

The Liverpool City Region therefore requires universal, fast, resilient digital infrastructure in order to support post-pandemic recovery, as well as underpin the transformational innovation-led growth inherent in our ambitious target of R&D investment equivalent to 5% of LCR GVA (enshrined in our [2020 Economic Recovery Plan](#)), which is almost double the UK target of 2.4% GDP. This reflects the fact that ultrafast fibre, 5G delivery, and the adoption of new digital technologies and practices (please see section 4 below), are vital for business survival, competitiveness and productivity, as they enable firms to exploit new processes, perform routine tasks more quickly, develop a wider range of products and/or services, plus access new and /or larger markets. Affordable connectivity is self-evidently also pivotal to redressing digital poverty, as set out in Section 6, and “building back better” overall.

## Where are we Now?

The Liverpool City Region is one of the most connected places in the UK in terms of superfast<sup>4</sup> broadband coverage. However broadband access is unevenly distributed, often due to cost/affordability, and take-up of ultrafast<sup>5</sup> services across the LCR is below 3%<sup>6</sup>. The UK is near the bottom of the European league table of full fibre roll-out, and like many other parts of the country, gigabit-capable connectivity is low in the Liverpool City Region, albeit higher than the UK average. There is less than 21% coverage of full fibre broadband to premises, the market is complex and fragmented, and, by definition, operators will tend to go where profit can be made rather than based on social need.

Central government has announced £5billion public funding for the DCMS “Outside In” programme that aims to help those in the hardest to reach 20% of UK premises (“F20”) gain access to “gigabit-capable”<sup>7</sup> services. However, these 20% are predominantly rural premises that are geographically hard-to-reach, rather than commercially unattractive because of demographic factors such as deprivation and poverty, so the Outside In programme will be of little direct benefit to the LCR.



*The 200+km LCR gigabit backhaul network is one of the UK’s most ambitious and innovative public sector led fibre infrastructure builds and will be compiled in 2023 via a commercial Joint Venture.*

<sup>4</sup> Ofcom defines superfast broadband as a service which delivers download speeds of greater than / equal to 30 Mbit/s

<sup>5</sup> Ultrafast services are defined as being able to deliver broadband speeds that are greater than / equal to 300 Mbit/s

<sup>6</sup> Take-up of ultrafast connections at premises with an ultrafast-capable connection. Source: Ofcom Connected Nations 2019

<sup>7</sup> “Gigabit-capable” is defined as being able to deliver download speeds of greater than / equal to 1Gbps

The good news is that LCRCA's work on the accelerated provision of digital infrastructure is firmly underway. Improved digital infrastructure is a major public commitment for the LCR Metro Mayor as well as a key delivery priority for the Combined Authority, and there is approved co-investment for the creation of a 200+km fibre backhaul network<sup>8</sup> that will link all six Local Authority areas, as well as inter-connect key sites and assets across the region. Our "Dig Once" approach is already enabling the installation of ducting during other highways maintenance and infrastructure investment schemes, which can lower the costs of deployment by as much as 50%, as well as reducing disruption for residents and businesses. Digital connectivity considerations are similarly being mainstreamed into new LCR policies on housing, skills and energy.

Meanwhile, the recent digitisation of the full 160km Merseyrail network as part of the £0.5billion comprehensive rolling stock replacement programme provides an additional fibre network with the potential to provide fixed and wireless connectivity opportunities along its route.

## What are our Strengths?

As evidenced in the LIS, the Liverpool City Region has demonstrable, distinctive competitive strengths in "data hungry" sectors, namely AI/high-performance computing (HPC), digital materials chemistry/advanced manufacturing, and infection control/health innovation. Indeed, the [STFC Hartree Centre](#) at Sci-Tech Daresbury at the south east tip of the City Region is a world leader in the application of HPC and big data analytics to solve real world industrial challenges.

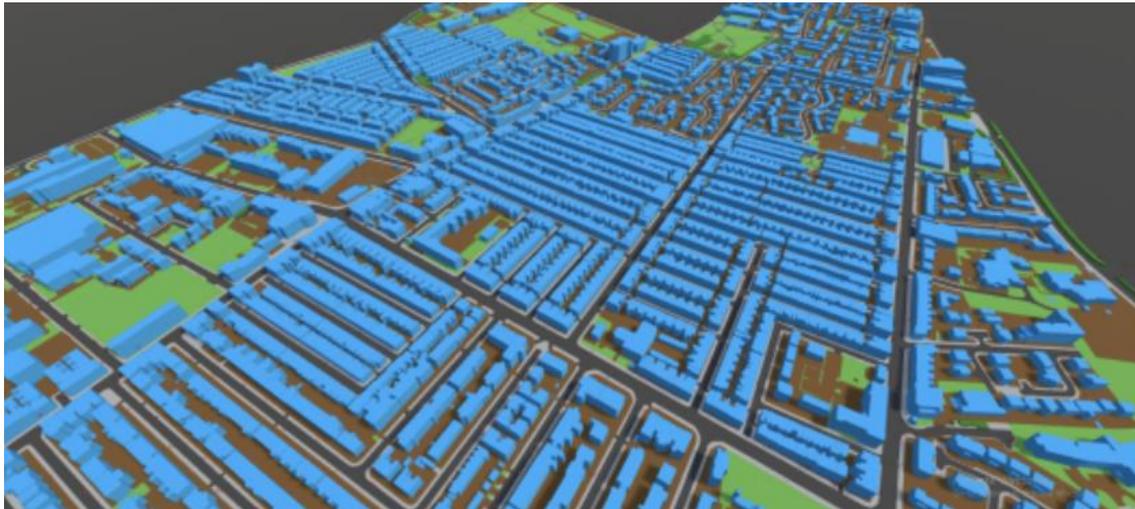
In the opposite, north west, corner of the City Region, two of the UK's main transatlantic fibre optic cables land at Southport. This internet superhighway carries vast amounts of data between the UK, North America and the rest of the world, and will almost certainly assume even greater significance following post-Brexit shifts in the pattern of the UK's global trade. It also presents opportunities for new large-scale data centres, financial services, and other operations that could benefit from the low latency data transmission advantages<sup>9</sup> of being located near such an important inter-continental landing point.

**The Combined Authority is directly investing in a highly innovative, commercially driven £30M joint venture to deliver a new LCR gigabit capable "backhaul" network by 2023**, arguably one of the UK's largest ever such public-private partnership schemes and most ambitious "dig once" initiatives. This network of 4-duct high-capacity fibre will interconnect the transatlantic cable landings, Hartree Centre supercomputer, and other economic assets, reaching into each of the LCR's six local authority areas. The backhaul will facilitate the expansion of local fibre networks across the whole region, stimulate greater choice and innovation in connectivity products and services, improve business productivity, and increase the attractiveness of the LCR for investment.

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<sup>8</sup> A "backhaul" network is the high-capacity spine essential for the provision of local access connections, the delivery of improved speeds to homes and businesses, and the rollout of mobile services.

<sup>9</sup> This means minimal time lag in transmission, or as close to "real time" as it can get.



*A Liverpool consortium is delivering one of Europe's leading 5G health and social care programmes, and uses a bespoke, locally devised digital mapping tool to optimise planning.*

Meanwhile, the [Liverpool 5G Health and Social Care Testbed](#), one of only 6 projects selected by DCMS for its original 5G Testbeds and Trials Programme, has created the largest 5G mmWave network in Europe, and – having secured an extra £4.3m in June 2020 from the national “5G Create” competition run by DCMS - is now expanding the network, trialling additional telecoms and education usages, plus developing a new, transferable, commercial model, all of which will also help to reduce digital exclusion. In addition, the Liverpool 5G team have excellent links to government, industry and other UK 5G testbeds and demonstrators, providing significant opportunities to exchange expertise, experience and best practice.

## **What are our main Challenges & Opportunities?**

By providing a common infrastructure, and if properly integrated, the provision of gigabit digital connectivity via both fibre and 5G will benefit the City Region in a variety of ways, e.g. powering innovation, supporting business start-up, adaptation, growth and productivity gains, developing new and existing sectors and clusters – from manufacturing and logistics to digital tourism - and attracting inward investment.

**The creation and maintenance of ubiquitous high speed LCR-wide digital infrastructure will open up additional skills and job opportunities at all levels**, plus - as necessitated by the Covid-19 pandemic - support widespread homeworking and radical improvements to online education and learning. It can similarly enable effective and efficient citizen engagement and public/health service delivery – for example for those dealing with dementia - and has already impelled us to adopt a quasi-commercial model, find new ways of working, and with new partners.

It is therefore imperative that we seize the opportunities afforded by the new 200+km fibre backhaul network, the expansion of 5G-enabled health/care/education services, accelerating business access to commercial 5G, synergies between fixed and wireless infrastructure, and the development of alternative business models for large scale infrastructure investment. The gigabit fibre spine is similar to building a motorway network rather than the local roads and streets that feed off it to connect individual premises, so in tandem we need to work closely with Local Authorities, market operators, housing associations, and others, in order to ensure the rapid and comprehensive roll out of “local

loops” to provide direct gigabit digital connections to businesses and homes across all 6 local authority areas.

We equally recognise that a proliferation of digital infrastructure does not automatically close the “digital divide” for those who cannot afford and/or do not know how to use digital services. Ensuring that digital connectivity is delivered in a fair and inclusive way across our whole region, and that residents have the requisite skills and means to benefit, are therefore major challenges that require dedicated solutions, as highlighted later in this Strategy. In addition, all these need to be underpinned by effective communication campaigns to explain the practicalities, opportunities, and benefits for residents and businesses.

Other areas of consideration and focus include:

- The different opportunities that the core network will create in different parts of the LCR, e.g. potential new global data interchanges near Southport and the intended Hartree National Centre for Digital Innovation (HNCDI) at Daresbury.
- Opportunities to exploit the low latency advantages associated with where the transatlantic internet cables land to create an international data exchange near Southport.
- Synergy with the LCR’s net zero carbon clean growth ambitions - notably the Mersey Tidal mega-project, large scale hydrogen-related opportunities, expansion of existing offshore wind deployment, plus carbon capture and storage - given the important energy and heat dissipation requirements of “digital”.
- Contribution to the UK’s national digital resilience by providing new routes and interconnections (including to the national network link between Wirral and Runcorn).
- Associated national cybersecurity and terrorism threats, in terms of internet/network vulnerabilities, data theft, and/or intellectual property espionage.

## **What are our Priorities for Action?**

Our digital infrastructure vision for the Liverpool City Region is one of world-class gigabit-capable connectivity to unlock growth and opportunity and make the LCR the most digitally connected City Region in the UK. Our wider priorities are to:

- **Build, operate and maintain a fibre backhaul network across the LCR by 2023, and accelerate local gigabit rollout.**
- **Maximise 5G connectivity and 5G-fibre backhaul integration**
- **Develop and deliver projects to exploit wider opportunities offered by enhanced digital infrastructure**
- **Embed digital infrastructure/connectivity in other major LCR strategies and plans.**

### 3. Tech for Good & a Smart City Region

#### Why is this Important?

Digital technologies and data analysis continue to transform our society at an exponential rate. In less than two decades our largely now “mobile-first” society has seen the rise and increasing dominance of disruptive digital platforms such as Amazon, AirBnb, Instagram, Twitter, and Uber, that largely transcend language, culture, geography, politics and religion, and have revolutionised not only the way that we share information and communicate, but also how we conduct many other aspects of our daily lives. Again, the Covid-9 pandemic has significantly highlighted and accelerated what were pre-existing trends.

This rapid, radical technological change is bringing ever-wider new opportunities and possibilities for people across the planet. However, these self-same changes, combined with near-universal 24-hour access to real time information, have also had negative ramifications, from new forms of addiction, mental health pressures, to “fake news”, privacy violations, fraud, insecure employment status within the growing “gig economy”, and widening inequalities. **Taking proactive steps to ensure that digital technologies are used for positive ends and delivering social value is therefore vital to the ongoing development of fair, vibrant and inclusive places, and core to the LCR’s ambitions accordingly.** That is what we mean by “tech for good”, and why it is a key theme both here and alongside open health innovation in our draft Local Industrial Strategy. It also underpins all four Grand Challenges set out in the UK Industrial Strategy - Ageing Society, Artificial Intelligence (AI), Clean Growth, Future of Mobility - and associated funding streams.

This notion of tech for good is closely allied to the concept of “Smart Cities”; and whilst there are numerous associated models and definitions, in essence the term refers to **the integrated and systematic application of data, analytics and technology to sustainably improve quality of life, health, the environment, public services, and the economy in the face of society’s greatest needs and challenges**, of which Covid-19 is but one.

This has taken different forms in different places – with Singapore cited by Juniper in 2018<sup>10</sup> as the smartest city on the planet, followed by London, San Francisco, New York, Chicago, Seoul, Berlin, Tokyo, Barcelona and Melbourne. The 2020 smart city index produced by IMD<sup>11</sup> - ranking cities on the basis of citizen perceptions, rather than economic benefits or the degree of technology integration - also put Singapore top, followed by Helsinki, Zurich, Auckland, Oslo, Copenhagen, Geneva, Taipei City, Amsterdam, and New York. In all cities however, the guiding principle has been to build on to distinctive local strengths and capabilities in order to address critical local priorities and needs. This theme therefore also cuts across all the others set out in this strategy, and if we see digital infrastructure and connectivity as means to achieve things, this theme begins to answer the question regarding what ends we should be using it to achieve.

The ultimate smart cities paradigm is the notion of “Society 5.0” being actively developed in Japan, with an explicit emphasis on redressing social inequalities: *“This envisions a sustainable, inclusive socio-economic system, powered by digital technologies such as big data analytics, artificial intelligence (AI), the Internet of Things and robotics... Any product or service will be optimally delivered to people and tailored to their needs. At the same time, Society 5.0 will help to overcome chronic social challenges such as an ageing population, social polarization, depopulation and constraints related to energy and the environment”*<sup>12</sup>. Meanwhile, Google’s sister company Sidewalk Labs came close to assuming the powers and authority associated with local government through

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<sup>10</sup> <https://newsroom.intel.com/wp-content/uploads/sites/11/2018/03/smart-cities-whats-in-it-for-citizens.pdf>

<sup>11</sup> <https://www.imd.org/smart-city-observatory/smart-city-index/>

<sup>12</sup> <https://en.unesco.org/news/japan-pushing-ahead-society-50-overcome-chronic-social-challenges>

the intended construction of a new waterfront sub-city in Toronto designed "from the internet up", before abandoning its plans in early 2020.

It is certainly also headline news when things go wrong, as with the UK's 2020 GCSE and A-Levels grading algorithms issues, or the controversy when Deepmind access to NHS patient records was deemed illegal. Hence the fact that a data strategy - directly recognising that individual data is a form of intellectual property - with stringent data ethics, stewardship, regulation, and respect for individual privacy, are all critical considerations in developing and applying smart city solutions.

## Where are we Now?

The following table produced by the LCR CA provides an overview of the critical elements of planning and delivering a major Smart City Region programme.

### Core elements of a Smart Cities approach:

- Visionary leadership, plus the political will to translate proposals into practice at scale
- Well- defined use cases across a critical mass of population
- Usable public infrastructure (e.g. lampposts, traffic lights)
- Extensive deployment of sensors/IoT devices to capture data at a wide variety of locations
- Uninterrupted digital connectivity (fixed and wireless) to relay data from sensors/IoT devices
- Open data usage policy, programme, protocols to ensure legal compliance and reassure the public
- Integrated technology platforms and APIs to mediate access to data
- Data storage capacity with extremely robust data security
- Benchmarked evidence base to be able to measure benefits
- Clear, structured processes to apply data insights to directly inform policies and decision-making
- Buy-in from a broad range of stakeholders, together with associated collaboration mechanisms
- Engrained cross-organisational culture and interoperable systems
- Transparent governance arrangements
- Living labs and testbed environments to identify challenges and game solutions
- Critical mass/digital/creative cluster of innovative SMEs to co-create solutions
- Dedicated commercialisation platform/support
- Extensive public information campaign to explain applications and benefits, plus allay concerns
- Data analytics capability, i.e. quality and quantity of skilled people
- Sufficiently embedded basic digital skills in resident population to maximise involvement/benefits.

The LCR already has most of these elements, albeit they are not yet integrated or applied in a systematic manner. In tandem, the Metro Mayor is an ardent advocate of both social value and digital solutions, while **the CA, constituent Local Authorities, and Merseytravel transport body all have the processes, democratic legitimacy, infrastructure, scale and reach across a population of 1.5million to make things happen in this sphere, working with academia,**

**industry and health bodies.** This is exemplified by the ambitious digital infrastructure and connectivity programmes outlined in the previous section.

Smart cities related issues were considered at a dedicated international symposium hosted by the University of Liverpool's Heseltine Institute and LCR Combined Authority in early 2020. In addition to launching a good practices reference guide<sup>13</sup> produced by international consultancy BABLE, the event also saw the publication of a Position Statement on "Building a Data Ecosystem in Liverpool City Region to Unlock the Value of Big (Local) Data"<sup>14</sup>, which provides a significant frame of reference for ongoing local debate in this sphere.



*Sensor City – located at the head of Knowledge Quarter Liverpool and a joint venture between the University of Liverpool and Liverpool John Moores University – as one of the world's first incubators dedicated to sensor.*

## What are our Strengths?

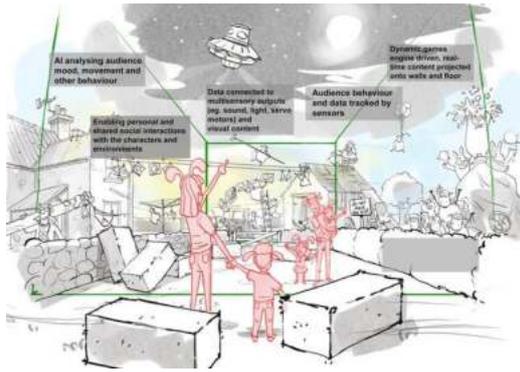
The LCR is home to a fast-growing cluster of distinctive tech for good businesses, projects, solutions, and assets. These include Sensor City – a dedicated Internet of Things (IoT) incubator, the world-leading collaboration between the STFC Hartree Centre and IBM Research and associated AI capabilities, and the presence of other major tech companies based in the LCR, notably Atos, CGI, EPAM, O2, Very Group, plus Unilever via its global data centres and cyber-security hub at Port Sunlight This is complemented by academic expertise - with the University of Liverpool having the top-rated Computer Science Department in the country for 4\* and 3 research<sup>15</sup> and internationally significant AI and data science capability, while Liverpool John Moores University (LJMU) has relevant specialisms in applied mathematics (Guardian Top 5, 2019) and IoT, plus immersive and drone technologies. Indeed, the two universities are currently collaborating with Aardman Animations to create a £1million immersive Shaun the Sheep experience in China.

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<sup>13</sup> [www.liverpool.ac.uk/media/livacuk/publicpolicyamppractice/2019-20events/2020-03-09smarcities/UoL\\_Heseltine.Institute,GPRG.52pg,A4.web.pdf](http://www.liverpool.ac.uk/media/livacuk/publicpolicyamppractice/2019-20events/2020-03-09smarcities/UoL_Heseltine.Institute,GPRG.52pg,A4.web.pdf)

<sup>14</sup> [www.liverpool.ac.uk/media/livacuk/publicpolicyamppractice/2019-20events/2020-03-09smarcities/UoL\\_Heseltine.Institute,GPRG.Positioning.Statement,Web.pdf](http://www.liverpool.ac.uk/media/livacuk/publicpolicyamppractice/2019-20events/2020-03-09smarcities/UoL_Heseltine.Institute,GPRG.Positioning.Statement,Web.pdf)

<sup>15</sup> [www.liverpool.ac.uk/computer-science/ref-2014/](http://www.liverpool.ac.uk/computer-science/ref-2014/)



Moreover, there is a wealth of activity in and around our distinctive health assets and specialisms – from Liverpool’s ground-breaking 5G health and care testbed, mesh network, and additional DCMS funding to scale activities up and out, to the UK’s largest SME-led e-health cluster, the SPARK (Single Point of Access to Research & Knowledge) joint data and intelligence initiative applied by [Liverpool Health Partners](#) (LHP) across constituent universities and trusts, and the LCR’s 4 Global Digital Exemplar<sup>16</sup> hospitals, exemplified by [Alder Hey](#) with its dedicated 1,000square metre innovation “batcave”, rapid prototyping centre, dedicated AI team, UK-first NHS open innovation portal, and world-first healthcare chatbot, created with IBM.



*Alder Hey Children’s Hospital is one of the most innovation-focused health trusts in the country, using technology to co-create new solutions among clinicians, patients, SMEs, large companies and academics to revolutionise healthcare.*

## What are our main Challenges & Opportunities?

While the LCR has most of the building blocks required to become a Smart City Region that delivers large scale tech for good programmes, a critical gap is the lack of dedicated capacity, investment, or governance to deliver on this promise and integrate the various disparate initiatives, infrastructure and data streams into a coherent whole. Moreover, beyond the health sphere, use cases have tended to be loosely defined and/or standalone, and not sustained or expanded as a result. Digital infrastructure and assets have been, and largely remain, in different ownership across market

<sup>16</sup> internationally recognised NHS providers delivering improvements in the quality of care through the world-class use of digital technologies and information.

operators, Local Authorities, and other public bodies, compounded by differing commercial and contractual arrangements and monitoring regimes.

If we fail to directly address these inherently complex issues and collaborate much more effectively in this area, then the LCR stands to lose out to other UK and global cities in terms of competitiveness and productivity, and our most marginalised communities could fall even further behind. Covid-19 has only heightened this threat, which could be further exacerbated by any adverse economic impacts from Brexit.

Significant progress is however being made. The city region-wide scale of the fibre backhaul network programme is already unlocking unprecedented degrees of cooperation, as well as new commercial and governance models that could be further enhanced to deliver smart City Region solutions via a new public-private compact. Similarly, the Liverpool 5G mesh network, joined-up policy approaches to infrastructure planning and delivery, potentially using “dig once” to install sensors/IoT devices as well as fibre, designing “digital” into the £2+ billion investment pipeline in Knowledge Quarter Liverpool, plus the CA’s proposed smart ticketing rollout, all present significant opportunities. In tandem, a “smart cities” apprenticeship and joint Universities Chair have also been proposed by the University of Liverpool and LJMU.

The prospective Hartree National Centre for Digital Innovation (HNCDI) at Sci-Tech Daresbury will be an internationally significant development, while two other initiatives are of particular significance building on the health innovation assets outlined earlier. Firstly, following the £5.3M award of CA Strategic Investment Funding in early 2020, **the ground-breaking [Civic Data Cooperative](#) being developed by LHP is not only intended to effect systematic population health improvements and generate business growth, but it also has the potential to be scaled out to other use cases and sectors**, which, if successful, could form a broader platform for realising wider Smart City Region activities. Secondly, **the aim of the award-winning Alder Hey Children’s Hospital is to become the world’s first “living hospital”, applying sensors, IoT, and AI technologies to pre-cognate patient needs, revolutionise care practices, and improve health outcomes**, building on the successful partnership with IBM research to deploy its Watson platform via the Alder Play app. Moreover, under the “Alder Hey anywhere” tagline, the ambition is to generate health solutions that ultimately reach all the world’s 1.4 billion children.

Other opportunities remain largely uncharted, for example improving port and logistics efficiencies, plus leveraging national pilot initiatives and associated major utility industry relationships to maximise the application of energy data to drive efficiencies and carbon reduction.

Comprehensive public engagement and communication to explain the overall opportunities and benefits associated with data and digital technologies, will be critical to any LCR smart city region approach. An important sub-element of this is the need to combat misinformation and highlight potentially negative impacts such as online gambling or social media addiction. Proactively engaging with citizens in all our communities will not only help build lasting trust and safeguards, but will also directly inform the development and prioritisation of solutions to the issues which most impact the lives of local people. The ground-level experience and collaborations of our six local authorities will be vital in helping to identify these issues across a wide spectrum of needs, and to develop new and improved public services that leverage digital technologies to deliver public good.

In practice, this will mean public bodies sharing best practise, data and experience across the full range of local services - from transport, to waste, environmental health, planning, education, health and social care. This unified approach will facilitate the interoperability and consistency of quality services across the LCR and seek to both save resources and enable more real-time decision-making. Wider stakeholder groupings in the voluntary and community sectors will be equally vital in facilitating two-way engagement with citizens, plus helping to devise and roll out resulting initiatives. This will be especially important for those with little to no access to digital services – e.g. older and/or vulnerable individuals – who could benefit most in practice from integrated “smart” approaches.

## What are our Priorities for Action?

We have identified the following priorities to help us to realise our aim of becoming a smart, comprehensively digitally interconnected City Region that applies technology and data to create social as well as economic value for all, in line with the overall Strategy vision

- **Enhance data-led approaches, plus overall LCR digital development and delivery capacity and governance**
- **Develop, deliver and scale up tech for good projects**
- **Living labs and people-focused challenge programmes - involving citizens in programmes to determine use cases, priorities and public service improvements and apply emerging technologies to provide solutions.**

## 4. Digital & CreaTech Sector Development

### Why is this Important?

The LCR has a vibrant digital and creative sector that is fast-growing in its own right, as well as being a key enabler of wider recovery and growth across other sectors of our economy, as highlighted in the draft Local Industrial Strategy.

The sector has a diverse LEP-facilitated board established in 2017, and we have strong relationships with key national bodies whose priorities we seek to align with, most notably Department for Digital, Culture, Media and Sport (DCMS), [British Interactive Media Association \(BIMA\)](#), [Creative Industries Federation/ Creative England](#), [Digital Catapult](#), [Tech Nation](#)<sup>17</sup>, and [Tech UK](#), as well as being a founder member of the UK Tech Clusters Group.

### Where are we Now?

Our highly diverse and collaborative Digital & Creative sector predominantly comprises small or micro businesses. The primary hubs of activity are at Sci-Tech Daresbury for data intensive and software development businesses, and in the [Baltic Triangle](#) area of Liverpool for “CreaTech” (where creativity meets technology) companies.

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<sup>17</sup> NB. there has also been an historic issue with the geographic delineation of the LCR by Tech Nation, based on Travel to Work Areas rather than the actual political and administrative geography of the City Region – thereby excluding Wirral, Halton/Daresbury, and some of Sefton. The result has been to mis-represent the LCR sector’s composition, scale and focus vis-à-vis other parts of the UK.



The following metrics (*ONS, Sep 2020*) highlight our most recent performance:

- In 2018 the Digital & Creative sector in LCR produced over £2.2bn of output, £1.96bn from Digital Technology (as per [DCMS definition](#)).
- Output from the Digital & Creative sector grew by 41% from 2008 to 2018 in the LCR, compared to 33% growth in England, while GVA growth in the sector has been more than double that across the whole of the North of England in the same timeframe, albeit starting from a lower baseline.
- In 2018 there were 3,980 Digital & Creative workplaces in LCR (2,680 Digital Technology) employing 21,150 people (15,750 in Digital Technology).
- Since 2010 the LCR has become home to an additional 1,000 Digital & Creative workplaces; 73% of which are in Digital Technology.
- Labour productivity, the total volume of output (measured in terms of Gross Domestic Product - GDP) produced per unit of labour (measured in terms of the number of employed persons) in the Digital & Creative sector in LCR has grown 55% since 2009 to £104,214, more than three times the 17% growth recorded nationally.

Over and above the annual Digital Summits held since 2016, key initiatives to support the LCR's Digital and CreaTech sector have included:

- [LCR Activate](#), launched by LJMU and the LCR LEP in 2017 to help companies innovate by accessing local expertise, research and funding; the project awarded more than £800,000 in grants to companies to match early-stage investors' money on a £1:£1 basis, contributed to the creation of 70 jobs, and added £2.65M to the value of local digital/creative businesses during its three-year duration (evaluation by Capita, 2020).
- [Gather](#) is a package of high quality business support programmes funded by the LCR CA and delivered by growth consultancy Form to better interconnect the local digital and creative sector ecosystem; it was refined in March 2020 to build resilience, stability and survival in digital and creative SMEs in the face of the Covid-19 pandemic.



Metro Mayor Steve Rotheram visiting [Red Ninja](#), a design-led technology company, grown in Liverpool and working across the world.

## What are our Strengths?

The 2017 BEIS-commissioned [LCR+ Science & Innovation Audit](#) evidenced that **the LCR has distinctive world-leading capability in the industrial application of high performance and cognitive computing through the unique partnership between the STFC Hartree Centre and IBM Research**. In addition to the digital health expertise/assets and leading 4IR business support highlighted elsewhere, **distinctive strengths include culture and heritage, linked to Liverpool's designation as a UNESCO City of Music and being the most filmed place in the UK outside London**.

**A historic strength in games development linked to Sony Psygnosis's Liverpool base has paved the way for a subsequent immersive technologies sub-sector to flourish**, as set out in a 2020 Immersive Tech report commissioned by the Growth Platform (Liverpool City Region's Growth Company). The report identified a critical mass of 114 LCR-based immersive businesses aligned with a strong entertainment/leisure industry represented in our games, film (content) and music (content/publishing), all of which were larger (both in employment and turnover) than the average Digital & Creative SMEs, more profitable and growing strongly.

In addition to our [e-Health cluster](#) – the only SME-led such grouping in the UK – **we have two primary geographic hubs of activity: [Baltic Creative](#), a property management Community Interest Company for the digital and creative sector in the vibrant Baltic Triangle area of the Liverpool, and at [Sci-Tech Daresbury](#) - a designated enterprise zone, one of the UK's primary science and technology campuses, and the sister site to STFC Harwell - with a nascent digitech cluster**. These are complemented by a strong corporate presence in the form of Atos, CGI, EPAM, IBM Research, Telefonica (O2), Matalan, Very Group, and Unilever's global data centres and cyber-security hub.

In 2019 the first [Tech Climbers report](#) identified the LCR's top 35 fastest-growing and most innovative tech scale-ups, who are predominantly active in the technology, health and life sciences, education, sales and marketing, and transport sectors, and the exercise was repeated again in early [2021](#). Meanwhile, in response to the COVID-19 pandemic, the Liverpool City Region Combined Authority launched a [Future Innovation Fund](#) (FIF) in 2020 to provide grants to SMEs for near to market innovation projects across a broad range of sectors. At the time of publication, the FIF has held two of the three intended pilot funding rounds of £1million each, with grants ranging from £25,000-£75,000. Digital and Creative sector businesses have been prime beneficiaries for tech for good products and digitalisation initiatives spanning health, education, smart cities, culture and hospitality.

## What are our main Challenges & Opportunities?

As with our smart city region aspirations, a primary challenge is the lack of dedicated capacity to coordinate the wealth of activity in and around the sector, and to maximise associated developments to create greater scale and impact. Linked to this is the need to better connect innovative tech SMEs both with large corporate and public sector bodies, as well as to world-leading assets such as the

STFC Hartree Centre and Materials Innovation Factory. Local businesses and sub-clusters would equally benefit from engaging in a more proactive manner and more readily access the programmes of national bodies – ideally through enhanced local activity, visibility and presence - plus connect with complementary clusters across the UK and beyond in a more systematic fashion. In tandem, more needs to be done to highlight the games, e-sports, immersive, and e-commerce sub-sectors as distinctive comparative LCR strengths, plus drive greater and quicker adoption of technology in other key sectors, notably Hospitality, Education, Health & Social Care <sup>18</sup>, and deliver a more integrated approach across the LCR digital/creative, cultural, and visitor economy sectors.

By their own admission, local digital and creative businesses are comparatively poor at both applying for and securing national innovation funding, notably from UKRI/Innovate UK, as well as accessing private early-stage investment and patient capital, while there is a specific issue re the perceived high cost of professional fees to claim R&D tax credits. In a more general sense, access to talent – industry-ready workers with basic proficiency and expertise in particular standards and disciplines – and the lack of dedicated, flexible workspace for digital and creative businesses – from offices, studios, exhibition and event space to incubator and demonstrator facilities – are both critical challenges, as they are for many other localities across the UK.

One consideration highlighted by the sector itself to help redress these challenges is the creation of a Chief Digital Officer, or equivalent senior City Region level role, to provide a single point of direction, in tandem with according the Digital & Creative Board a direct strategic say in the allocation of local public funding that directly impacts the sector. Certainly greater capacity would help forge greater synergy across the culture, visitor economy sectors, health/care and other sectors, at the same time as championing greater revenue and/or angel investment for early-stage tech companies, wider links to external investment networks, accelerator programme development, and providing more systematic support for seeking public sector investment from national bodies. There is also clear scope to build on our existing relationships with bodies such as [Nesta](#) (innovation foundation), Tech UK (tech industry membership organisation), Tech Nation (accelerator programmes), [UKIE](#) (games industry body), [Immerse UK](#) (immersive industry body), as well as using the City Region's global credentials to develop an international programme to help LCR SMEs export their expertise overseas and grow.

The Future Innovation Fund £3M pilot phases have been so successful that a scaled up £20M programme is now intended to accelerate and broaden sector development, while the cross-sector digitalisation initiatives and digital technologies adoption by businesses linked to Covid-19 - as highlighted in the next section – present a major opportunity for the digital and creative sector to diversify their business operations and client base. Similarly, the established healthtech cluster plus two new nascent clusters centred at Sci-Tech Daresbury – digitech, and the NW Space Hub announced in late November 2020 – have major business growth potential, alongside the emerging immersive cluster spanning academia and industry, and e-commerce anchored by the Very Group and Matalan HQs in the LCR. This in turn underlines the need for enhanced business space, working with local authorities and the CA Town Centres Fund to create and embed these beyond established hotspots and across the whole sub-region. In tandem there is potential to create new programmes for businesses to engage with education providers and young people to develop digital skills and raise awareness of local opportunities.

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<sup>18</sup> Beyond the Liverpool 5G testbed.



*[vTime](#) is the world's first and probably biggest cross-reality social network, born and bred in and around Liverpool's Baltic Triangle, and whose vision is to transform social engagement through digital experiences that are as powerful as face to face interaction*



*[vTag](#) is the first cross-world 3D avatar messaging app, expanding the way people can interact with friends, family, heroes, and brands.*

## What are our Priorities for Action?

The strategic priorities as defined in 2018 by the LCR Digital & Creative Sector Board<sup>19</sup> are:

- **Business support & scale up:** general coordinating capacity, access to finance, leadership development, events, and specialist programmes
- **Place & space:** ensuring the sector has fit for purpose places for business and tech workspaces
- **Facilitate access to new & international markets:** diversifying across new sectors and generating new international business
- **Place marketing & inward investment:** effectively promoting our competitive strengths to drive more foreign direct investment and attract new talented people.

<sup>19</sup> NB. skills, diversity and digital inclusion is also one of the Board's priorities, however this is covered by themes 5 and 6 below. In parallel, the "place & space" priority has been pared down from the Board's original focus on "infrastructure, smart cities & workspace" as the first two elements of this are similarly covered in Themes 1 and 2 of this Strategy and Action Plan.



*The Liverpool-headquartered Very Group is UK's largest integrated digital retailer and financial services provider and has been serving customers for over 100 years.*

## 5. Cross-Sector Digitalisation & Artificial Intelligence (AI)

### Why is this important?

In essence, the Fourth Industrial Revolution (4IR) involves applying Industrial Digital Technologies (IDTs) – notably sensors and digitally interconnected (internet of things) devices; simulation, virtual reality or augmented reality; AI; digital twins; 3D printing (a.k.a. additive manufacturing) - to make improvements in design, productivity and resource/energy efficiency, and shift from linear, materials-based, supply chains to broader, more diverse supply eco-systems enabled by digital technologies.

The Government's 2017 [Made Smarter Review](#), which was directly informed by LCR policy and practice, stated - *"the positive impact of faster innovation and adoption of IDTs could be as much as £455 billion for UK manufacturing over the next decade, increasing manufacturing sector growth between 1.5 and 3% per annum, creating a conservative estimated net gain of 175,000 jobs throughout the economy and reducing CO2 emissions by 4.5%. Overall, from the data and evidence collated, we are confident that industrial productivity can be improved by more than 25% by 2025."*

However, the importance of this extends beyond the manufacturing base and supply chains to almost all sectors. AI is one of the four grand challenges identified in the UK Industrial Strategy and represents a fundamental shift in the role, primacy and behaviour of humankind, while Covid19 has disrupted all business sectors and catalysed digital adoption at a previously unimagined pace, to the point that digitalisation has become a fundamental prerequisite for almost all means of innovation.

This dramatic transformation is aptly summarised in the University of Liverpool's December 2020 [Digital Innovation Whitepaper](#)<sup>20</sup>: *"shifts in attitude, culture and investment priorities which might otherwise have taken years have been catalysed over weeks. Coronavirus has created a burning platform for decision-makers, with the cost of inaction outweighing the cost of action for the first time since the inception of the Industry 4.0 era... None of these changes will be rolled back. Businesses wedded to analogue processes and business models will quickly find themselves disconnected from the opportunities in a future that is undoubtedly digital-first... There has never been a stronger*

<sup>20</sup> <https://news.liverpool.ac.uk/2020/12/03/digital-innovation-supporting-jobs-and-business-models-in-covid-19-recovery/>

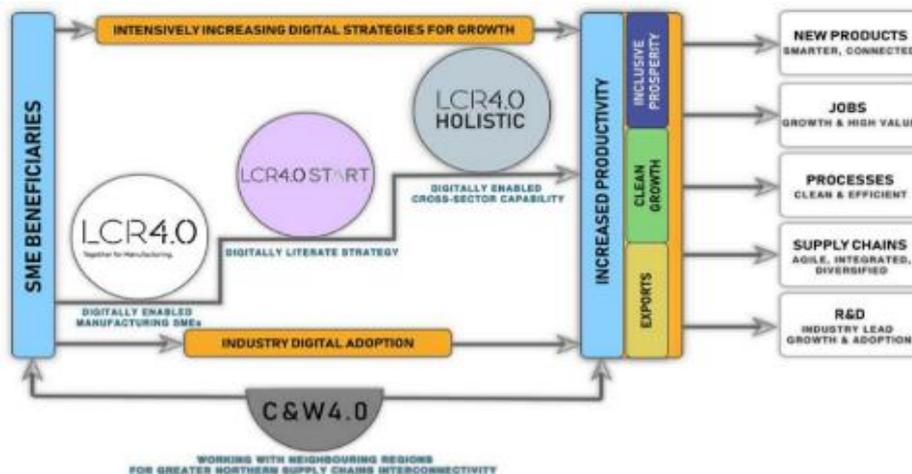
imperative for businesses of all sizes, from start-ups to blue chip corporates, to explore the benefits of emergent technologies. Those which do will not only secure a recovery from COVID-19 but a sustainable competitive advantage enabling them to thrive in the new normal.”

As highlighted in the previous section, this goes even further than the business world to also encompass health, education and other public services.

## Where are we Now?

The Liverpool City Region is an integral part of the largest manufacturing economy in the UK (Make UK Annual Manufacturing Report 2020/21), and home to a host of global companies, including ABB Alstom, Astra Zeneca, Jaguar Land Rover, NSG/Pilkington, Ørsted, Seqirus, and Unilever. According to the CA’s own analysis, manufacturing accounts for £4.3bn GVA (13% of LCR total), 49,000 jobs (8% of LCR total), and 2,400 businesses (5% of LCR total), and employs a greater proportion of people in Liverpool City Region than the wider North West or nationally.

Even before the Covid-19 pandemic, manufacturing industry was experiencing unprecedented upheaval, linked to the global climate crisis, Brexit, US-China trade tensions, changing consumer behaviour, and the rapid introduction of new technologies. Our response was to develop and deliver the highly successful [LCR4.0](#) initiative to support manufacturing SMEs to adopt 4IR practices. This has in turn given rise to cross-sectoral business digitalisation support programmes [LCR4 START](#) helping SME to start their digital journey - and LCR Holistic, which offers more intensive assistance to companies to develop digital solutions across several key industry sectors as highlighted below.



With regard to the impact of Covid-19 on wider cross-sector digitalisation, the University of Liverpool’s December 2020 Digital Innovation White Paper<sup>21</sup> - based on inputs from 200 Liverpool City Region and wider North West industry leaders across all sectors - provides excellent insights into the trends, benefits and barriers relating to the adoption of digital technologies over the last 12 months, as summarised in the following table.

<sup>21</sup> The result of an online quantitative study conducted in September 2020 by Influential Marketing Agency’s preferred online B2B panel suppliers, involving 200 interviews with management level or above respondents from businesses across the North West (19% from Merseyside) in the 22 main industry sectors.

**Key Findings re. business adoption of more/new digital technologies during CV-19:**

- 83% using digital technology more in the last year, while 76% adopted new digital technologies
- 81% stated that adopting digital technologies during Covid-19 has changed their business model
- 79% increased investment in digital technology specifically due to Covid-19; of these, 23% have already seen a return on investment, a further 44% expect to do so within a year
- 77% had been able to expand geographically as a result
- 67% reported that digital technologies had made their business more efficient (59% of small businesses; 72% for medium and large businesses)
- 64% reported improved customer experience
- 63% agreed that COVID-19 has changed how their business operates
- 59% stated that going forward they will invest more in digital technologies
- 58% say adopting digital technologies has made their business stronger
- 57% reported a positive impact on the timescales of their work
- 54% claimed improved revenue and profitability
- 46% said digital technologies had improved market or product innovation
- 41% highlighted digital technologies as instrumental to their ability to retain jobs
- 39% said their old business model would not work post-COVID
- 32% say it has enabled them to reduce costs
- 29% posited new business generation, from either existing or new customers

These findings highlight clearly just how extensive, rapid, and largely positive the digital adaptation by businesses have been. Meanwhile, this subsequent table illustrates how prevalent business intentions are with regard to the future adoption of digital technologies they do not currently use, with even two thirds (66%) of micro businesses confirmed their interest in doing so.



**What are our Strengths?**

The seminal BEIS-commissioned LCR+ Science and Innovation Audit (SIA) published in late 2017 highlighted the LCR’s distinctive world-leading assets and capabilities in high performance computing (HPC) and AI, materials chemistry, infection.

**HPC & AI:** over and above the University of Liverpool having one of the UK’s top-rated Computer Science department (REF, 2014) and AI expertise, **the Scafell Pike supercomputer hosted at the Hartree Centre, anchoring STFC’s national science and innovation campus at Sci-Tech Daresbury, is believed to be the largest supercomputer in the world that provides services**

**directly tailored to the needs of industry.** Moreover, the Hartree Centre's co-location with IBM Research, and primary UK deployment of IBM's "Watson" AI platform, is a singular global collaboration in terms of a multinational working with a government research body to apply real world solutions in this sphere. In tandem, **Sci-Tech Daresbury is also the first UK location for an Atos Quantum Learning Machine, the highest performing quantum simulator in the world.**

This AI and HPC expertise is complemented by the **advanced modelling and simulation** capability of the similarly industry-facing [Virtual Engineering Centre](#), also based at Sci-Tech Daresbury, as an anchor asset of the University of Liverpool's new [Institute of Digital Engineering and Autonomous Systems](#) (IDEAS). In tandem, the University's [Materials Innovation Factory](#) (MIF) based at its main campus in [Knowledge Quarter Liverpool](#), and co-created with Unilever, is an unequivocal world-leader in **digital materials chemistry** and **computer- and robotics-aided discovery and design.**

Over and above the digital health innovation assets showcased in previous sections, the LCR's pre-eminence in infection control is epitomised by the fact that a [consortium led by the Liverpool School of Tropical Medicine](#), one of the world's first and foremost specialist bodies in this field, was one of only six UK projects (and the only one in the north of England) to be awarded public R&D investment under the first round of the Strength in Places Fund. At the heart of this £126M iiCON project are eight specialist, commercially sustainable, **digital research platforms for infectious disease** to transform product discovery and development, and help products translate from laboratory research to use in patients faster, cheaper and more effectively.

The LCR is also a **UK leader in 4IR and advanced manufacturing digitalisation**, with a unique concentration of associated sub-regional assets and business support. Driven by the LEP's Advanced Manufacturing "Making It" Board, this national leadership position started with LCR 4.0, a partnership between the Local Enterprise Partnership, STFC, University of Liverpool, LJMU, and Sensor City – one of the world's first dedicated Internet of Things and sensor technologies incubators. LCR 4.0 was the first Industrial Digital Technologies business support programme in the UK, as a result of which more than 300 SMEs are engaged in adoption of 4IR technologies, more than anywhere else in the country. As highlighted above, LCR 4.0 has given rise to two successor projects LCR Start and LCR Holistic, plus the regional [Made Smarter North West pilot](#). First hosted in 2017, the LCR is now the annual home for Digital Manufacturing Week<sup>22</sup>, attracting over 6,000 delegates every November, making it the UK's biggest 4IR and digital manufacturing innovation showcase event, and one of the largest in Europe.



*LCR4.0 was the UK's leading sub-national 4IR industrial digitalisation project; learning from these has been enshrined in twin local successor initiatives LCR4 Start and LCR Holistic as well as this national Made Smarter programme.*

<sup>22</sup> [www.digital-manufacturing-week.com](http://www.digital-manufacturing-week.com)

Last but not least, the LCR houses [Manufacturing Technology Centre's £15M Digital Manufacturing Accelerator \(DMA\) and Factory In A Box \(FiAB\)](#), part of the UK's High Value Manufacturing Catapult, and with direct links to the Advanced Manufacturing Research Centre (AMRC), the Centre for Process Industries (CPI) and the Digital Catapult. This investment gives LCR companies the opportunity to collaborate on Industry 4.0 projects, access UK leading technical support, and develop tools to better embed them in the digital supply chains of the future. The programme will also further strengthen existing LCR competitive strengths in Fast Moving Consumer Goods and pharmaceutical manufacturing.



*The University of Liverpool's [Virtual Engineering Centre](#) is a UK pioneer in industrial digital transformation, delivering client solutions since 2010 using Digital Twin, AI and Data Analytics, Advanced Visualisation, Modelling, Simulation and Robotics/Autonomous Systems technologies.*

## What are our main Challenges & Opportunities?

The LCR already has an internationally significant competitive advantage in the application of AI and HPC technologies to solving real world industrial problems, based on the unique partnership between the STFC Hartree Centre and IBM Research. The opportunity now is to consolidate and scale this, which is precisely what the intended **Hartree National Centre for Digital Innovation** will do, as the nucleus for a series of sub-hubs across the UK. The same applies to increasing R&D activities around the Atos quantum computing capability anchored at Sci-Tech Daresbury. The associated challenges are to ensure that these technologies and expertise are diffused beyond a relatively small current number of large companies, and then adopted throughout the LCR, NW and UK business bases in order to facilitate innovation, the development of new clusters and industries, and enhance productivity and job creation at all levels. In turn that necessitates concerted action to ensure a much greater proportion of “home grown” talent can fill these potential new roles.



*The mobile AI-powered robotic chemist developed by Materials Innovation Factory spin-out Robotics featured on July 2020 front cover of Nature, one of the world's most prestigious scientific publications.*

The LCR has a pipeline of other major innovation projects that will enhance our critical mass in areas of existing specialism through the application of digital technologies. These include:

- The intended incubator at the Materials Innovation Factory seeks to partner with large R&D intensive UK manufacturing companies to co-invest in late stage research and new IP development, to establish the **LCR as the Silicon Valley of Digital Materials Chemistry**
- [Glass Futures](#) in St.Helens is a global glass innovation and industrial decarbonisation project that also offers major opportunities for new applications of data analysis across foundation industries.
- The proposed **National Packaging Innovation Centre** is an open innovation facility to disrupt the full life cycle of packaging materials, to be operated by CPI, with Unilever as an anchor tenant, and directly supported by the Combined Authority.
- The [New Robotic Telescope](#) in La Palma will be the world's largest and fastest robotic telescope operated remotely, and the data analysed by LJMU will unlock new AI-related autonomous operations and software opportunities.
- The University of Liverpool's £12.7M [Digital Innovation Facility](#) opening in 2020/21 will concentrate on areas of research in computer science, robotics, and engineering, distributed simulation and immersive visualisation to enable collaborative R&D and support businesses linked to the exploitation of digital technologies.

As highlighted above, the unprecedented twin challenges for manufacturing and other sectors brought on by Covid-19 and Brexit have dramatically accelerated the need to become more efficient. Adopting industrial digital technologies, once viewed as a process of incremental adaption to achieve growth, is now accepted to be critical for business survival. This on top of the array of other common UK issues identified in the Made Smarter Review, particularly for SMEs: lower productivity than competitor countries, a complex UK tax system and business support landscape, the lack of common standards, skills shortages, plus challenges around cost and the need to demystify the benefits of different technologies (as also identified in the 2020 University of Liverpool White Paper).

The solution is to deploy the unique array of UK-leading 4IR support, expertise and experience available within the LCR ecosystem, in order to equip our businesses with the best tools to adapt and digitise, and protect and grow both the manufacturing economy and the network of technology companies that support it. Indeed this extends beyond the 4IR vanguard to also being at the forefront of the E-commerce, E-health and E-transport revolutions. The LCR4.0 Holistic project is a significant opportunity to not only help individual businesses to do so, but also shift the local economy from a

sector-specific, linear supply chain, to a more interconnected, sustainable, digitally enabled supply chain ecosystem, building on the experience of LCR 4.0.

Last but not least, amid radically shifting patterns of international trade, our global Western facing port - that can handle 95% of the world's shipping, and even before the £400M L2 investment in 2018 already accounted for 45% of the UK's North American container traffic - is clearly another major opportunity in both macro-economic terms and the potential application of data, technology and modelling to optimise logistics flows, digital supply chains, and drive greater efficiencies and competitiveness. This also applies to other LCR port and logistics hubs, such as Wirral Waters and Port Weston in Halton.

## What are our Priorities for Action?

Our mission is to make LCR supply chains the most digitally connected in the UK and become a global centre of excellence in the adoption and deployment of Industry 4.0. Over and above that, the LCR clearly intends to fully exploit our distinctive innovation assets and in international competitive advantage re. AI-led industrial solutions, digital materials chemistry, infection/health innovation, and clean growth, as well as ensuring that local SMEs can directly access and benefit from these. Our priorities in this domain are therefore three-fold:

- **To maximise our world-leading High Performance Computing and AI capabilities**
- **To deliver major projects to exploit our other competitive strengths**
- **To drive technology diffusion and digital adoption across all sectors.**

## 6. Digital Skills for Recovery & Growth

### Why is this Important?

Digital technology has revolutionised the way we work, which has never been more apparent and critical than during the current pandemic, with a September 2020 report<sup>23</sup> suggesting that at its height 60% of the UK adult population was working at home, 30% exclusively so according to ONS, while another 2020 study<sup>24</sup> suggested that 91% of the UK's office workers would like to work from home at least part of the time. In parallel, online education and learning become the unwanted norm throughout most of 2020 and at the beginning of 2021.

**Digital skills were already becoming increasingly valued, however democratising and enhancing these in schools, other educational establishments, and the majority of workplaces is now a necessity. Improving digital skills, at all ages and levels, from basic to post-doctoral, is in turn a major national challenge, and equally critical to the LCR's post Covid-19 recovery, growth and productivity across all sectors and communities.**

Over and above basic skills improvements, the imperative is to align the opportunities afforded by technology, hardware and software developments, the current and future needs of industry, and the ability of our local population to engage and thrive. Ultimately the productivity of our economy and ability to compete with other global locations is reliant on achieving this and closing the gaps that

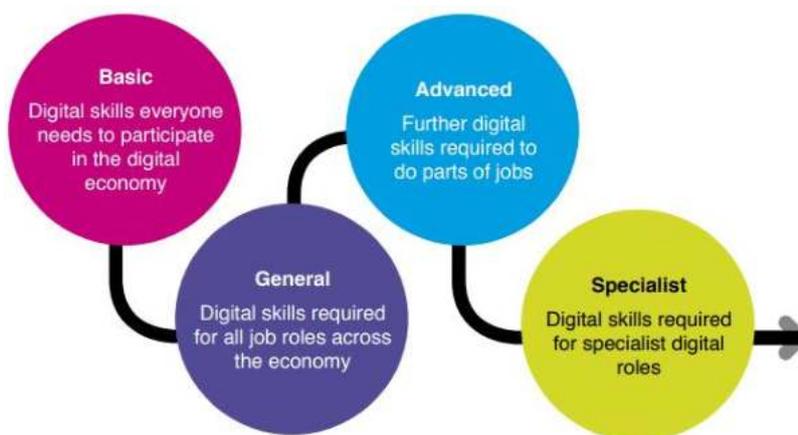
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<sup>23</sup> [www.finder.com/uk/working-from-home-statistics](http://www.finder.com/uk/working-from-home-statistics)

<sup>24</sup> [www.eskenzipr.com/2020/05/12/eskenzi-survey-finds-9-out-of-10-respondents-would-prefer-working-from-home-at-least-once-a-week/](http://www.eskenzipr.com/2020/05/12/eskenzi-survey-finds-9-out-of-10-respondents-would-prefer-working-from-home-at-least-once-a-week/)

exist. November 2020 research conducted by Microsoft and Goldsmiths, University of London warned of the risk posed by digital skills deficits, highlighting that 80% of UK leaders surveyed see investment in digital skills as important to post-pandemic economic recovery, with 69% believing that their organisation is currently facing a digital skills gap.

Analysis by the Centre for Economics and Business Research (Cebr) for the Good Things Foundation and published in September 2018, suggested a net present value of providing everyone in the UK with digital skills of £21.9 billion. Against this backdrop, the LCR [Digital and Creative Skills for Growth Action Plan](#) identifies how the Government's pre-2021 Digital Strategy breaks skills needs down to three distinct levels: Essential – General – Specialist. Whilst this provides a helpful focus, it omits the 'fusion' type, i.e., the advanced set of skills that a growing range of jobs now require as core competencies.



Our draft Local Industrial Strategy sets out the LCR's ambition to use technology to deliver benefits that extend to residents and businesses within all our communities, however the need to improve digital skills is one of the principal barriers to delivering this, let alone visions of a smart city region. The future of technology and the skills required to manage and realise the potential of this technology are notoriously difficult to predict, nevertheless it is possible to anticipate some general demand trends for particular skills, and a proactive approach is vital in order to mitigate the risks of workforce displacement and mass unemployment that characterised previous industrial revolutions.

The inexorable and accelerating introduction of new technology needs to be matched by support for reskilling and continuing professional development for all sectors, in order to help our residents to progress from jobs that are likely to become obsolete into higher value roles that will be demanded in the future. Hence the explicit intention set out in our 2020 Economic Recovery Plan to work in partnership with Government on a far-reaching digital skills programme to retrain businesses and workers for an increasingly digital world.

## Where are we Now?

The Liverpool City Region has some of the highest rates of socio-economic poverty and digital skills deficits in the country. Local research undertaken for the 2018-2020 [Digital & Creative Skills for Growth Action Plan](#) evidenced a mismatch between educational supply and sectoral demand, confirming increasing demand for digital skills at all levels. In particular, it highlighted strong continuing employer need for skills in Excel, and point-of-time demand for programming skills. Evidently the skills required for tech roles are not necessarily being taught, and the challenge thus remains to enhance the general digital skills required for all job roles, the advanced digital skills required for particular jobs, and develop the higher level 'fusion' digital skills at all levels for non-tech jobs, e.g. logistics staff using handheld devices to allocate stock, post-doctoral chemistry recruits at Unilever requiring programming skills, or the basic data handling aptitude required across innumerable other sectors.

Building on this Action Plan, close collaboration between businesses and education providers to address the future digital skills demands of employers is vital. Related pre-pandemic digital skills programmes commissioned and/or delivered by the Combined Authority in the last 3 years include:

- [Include It Mersey](#) (funded by the European Social Fund and The National Lottery Community Fund) - a volunteer-led project providing digital champions and ambassadors to help people across the LCR to get online and to improve digital learning and skills.
- Using our devolved [Adult Education Budget](#) (AEB) to set up digital Test and Learn Pilots to enhance the delivery of basic digital skills in advance of the national digital entitlement that is intended to help increase the employability of learners in line with the Government's Digital Inclusion Strategy.
- Supporting [InnovateHer's](#) programme to challenge and overcome tech sector gender stereotypes across the City Region and wider UK.
- Introducing a [Graduate Digital Accelerator](#) programme for local commuter (living at home) students attending local universities.



*Dream Factory: the UK's first Entertainment Technology Centre led by Liverpool John Moores University will be created at the former Littlewood's building and facilitate the application of new technology to a range of sectors from TV, film, gaming and immersive, to health, engineering and business, with a dedicated skills component*

## What are our Strengths?

The Liverpool City Region has a diverse blend of formal and informal digital skills provision, with a range of independent training bodies, a particularly well developed third sector network of digital skills providers, six universities – most notably the University of Liverpool being the UK's top-rated Computer Science department (REF, 2014) - and six FE colleges with distinctive areas of specialism. **City of Liverpool College was the first in the world to be awarded Microsoft Associate College status**, and benefitted from a £2.5m investment in a digital academy from the Combined Authority with the latest industry standard technology, while Hugh Baird College's delivery of Digital T Levels will be the first in the City Region to begin the roll out of these new employer focused qualifications from September 2021. In tandem, the [Studio School](#) specialises in technology, using its location at the heart of the Baltic Triangle to maximise industry engagement and work experience in local digital firms.



*The Studio School specialises in digital and tech company links for students.*

There has been a strong focus on employer leadership in the development of provision to meet their needs. Most recently, this has seen the establishment and flourishing of Agent Academy, growing from one of the City Region's most prominent creative agencies. This provides a part-time 12-week programme to give unemployed people the chance to develop and hone their skills in digital and creative roles, supported by industry professionals. They have successfully sourced funding from the Combined Authority, University of Liverpool and NESTA, demonstrating the applicability and need for the programme and support.

We are also actively engaged in innovative pilot approaches to the delivery of digital skills. As highlighted above, we have focused our devolved AEB budget to fund a series of test and learn pilots in the 2019/20 academic year in advance of the introduction of the new national statutory AEB digital entitlement. Linked to this, the LCR is one of only three Department for Education (DfE) funded Digital Bootcamps, which will deliver £1m of employer-led digital skills delivery for around 1,000 people across the region.



*Agent Academy offers a solution to the challenges faced by many young people, aged between 18 and 25, who find themselves, post-further/higher education, without the skills or experience to begin their careers in the digital, creative or tech industry.*

## What are our main Challenges & Opportunities?

One of our fundamental challenges relates to timely and comprehensive local data and intelligence on both gaps and provision. On the one hand we are committed to applying an evidence-based approach to policy and programme development and action. On the other there is a dearth of national research following the cessation of the Skills for Life surveys in 2011, plus, for example, the 2017 research that detailed the percentages of those having and using the 5 basic digital skills was carried out by an organisation that no longer exists. We therefore need to plug this gap by devising and implementing our own regime for systematically collating and applying local data/intelligence to inform digital skills related activity.

More needs to be done to ensure that the current gap does not become a digital skills crisis, by helping to equip both current and future employees with the skills required by employers, in turn helping our businesses become more productive and competitive. However the scale of the LCR's digital skills gap is such that it cannot be redressed by our £53million AEB funding alone, as this is already stretched in trying to meet basic, existing English and Maths entitlements. Similarly, whilst the DfE digital bootcamps funding is welcome, this £1m will only support 1,000 people. It is therefore imperative not only that much greater funding is forthcoming to scale up intended interventions, but also that what resources we have are optimally targeted and delivered.

We work closely with employers to understand their current and future digital skills requirements, and Digital Skills for the Workplace, T-Levels and Entitlement Provision programmes are being developed to meet employer needs. There nevertheless remains a challenge in matching supply with demand, accurately specifying what will be required when, and then translating this into viable training programmes and provision. Moreover there is also a critical gap to be addressed re the higher level skills – e.g. in AI, data science, telecoms, immersive – required to fuel our ability to translate world-leading innovation assets and capabilities into sustained economic growth and international competitiveness, and deliver the tech for good projects outlined.

The City Region has plans for a Local Digital Skills Partnership to bring together organisations from across the spectrum of employers, providers and support bodies to come up with deliverable actions to deliver an inclusive digital economy. We are also keen to learn from transferable best practice generated by the six local [Digital Skills Partnership](#) (DSP) trailblazers, introduced by DCMS in 2018 to develop collaborative and innovative models to improve digital skills across differing regions.

## Priorities for Action

Just as “digital” is now essential to most facets of daily life, from learning, to work, to play, health, and public services, so too are improvements to digital skills at all levels, from basic to post-doctoral, in order to deal with inevitable ongoing change and digitalisation, let alone maximise the associated benefits. Within the context of the Covid-19 pandemic, equipping people with core digital skills is critical to helping people back into work, while also ensuring our local businesses have access to the skilled and productive workforce our economy needs to grow is also vital. We will therefore deliver actions across the following priorities:

- **To create/maintain a comprehensive research & evidence base**
- **To implement Covid-19 recovery and basic skills initiatives**
- **To match skills supply with industry demand across future growth sectors, including testing out new models of delivery.**

## 7. Digital Inclusion

### Why is this Important?

Digital inclusion means ensuring that people have the motivation, skills, and/or access to be able to use digital technology and the internet. Those who lack one or more of these attributes may be defined as digitally excluded and are at increased risk of being left behind in an increasingly digital society. This applies not just to those who cannot or do not access the internet at all, but also those who are only making limited use of it.

Digital poverty is a subset of digital exclusion and is defined as those who are digitally excluded as a result of finding the cost of necessary digital equipment or connectivity prohibitive. This sits alongside other forms of digital exclusion, such as skills deficits or non-availability of digital connectivity, and these barriers may be experienced singly or in any combination.

The Covid-19 pandemic has undoubtedly exacerbated the marginalisation of those without either the basic skills and/or financial or practical means to access digital connectivity, and the public, financial, health, and retail services that rely on it, not to mention accessing culture and entertainment, socialising and, perhaps most importantly, learning. There is evidence both that the removal of in-person access to services has driven some previously reluctant people online, and that income reductions and competing cost pressures has made internet access unaffordable for others.

This is even more so in places such as the Liverpool City Region with prevalent, high levels of deprivation. Essentially, those already at a disadvantage are most likely to miss out further and on more, therefore widening and worsening already stark social inequalities. The converse is also true, which means that helping people who are digitally excluded to go online and develop basic skills can help tackle wider social issues, support economic growth, and redress inequalities.

As outlined in the previous section, digital skills are increasingly essential in relation to employment, both as a pre-requisite to fulfil many roles - government estimates suggest that within the next two decades 90% of job roles will require some form of digital skills - and in order to both identify and apply for job opportunities, with interviews for a large number of positions during the pandemic being conducted online, in some cases merely based on a video self-recording. This highlights the risk that the digitally excluded will be increasingly disadvantaged in the labour employment.

At the same time, the internet is increasingly the norm for accessing and interacting with public authorities or services, which in some cases are now exclusively “digital by default”, driven both by new technology and the need to find efficiency savings. For many this is convenient, however for others it presents a seemingly insurmountable challenge, and may make already difficult circumstances almost impossible to cope with. One clear example is claiming Universal Credit or completing a “jobsearch journal” without the internet access, further exacerbated by the closure of public libraries, some permanently due to public budget cuts, others temporarily during the Covid pandemic.

According to the 2020 Lloyds Bank Consumer Digital Index<sup>25</sup>, age remains the most significant indicator whether an individual is online, with 77% of over-70s being considered to have very low digital engagement, and only 7% likely to have the capability to shop and manage their money online. ONS data over the last decade demonstrates that the share of non-users aged over-65 is rising. Although each successive generation may be more digitally engaged than the last, health and cognitive decline may lead to diminishing digital engagement, while technological advances may render people’s previous skills obsolete. Part of the challenge will therefore involve ensuring that support is available to help the older generation make the best use of new technology, and on an ever-evolving basis.

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<sup>25</sup> [www.lloydsbank.com/banking-with-us/whats-happening/consumer-digital-index.html](http://www.lloydsbank.com/banking-with-us/whats-happening/consumer-digital-index.html)

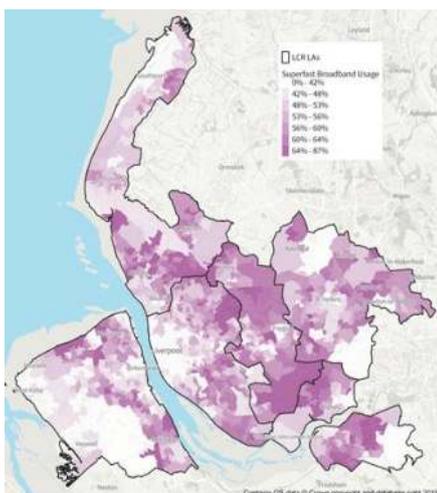
At the other end of the spectrum, pre-Covid, ONS research into the digital divide<sup>26</sup> found that 7%/700,000 young people aged between 11 and 18 in the UK lacked internet access via a tablet or computer, whilst 60,000 had no access at all. Moreover 68% of this age group who do have internet access reported that they would struggle to complete schoolwork without it, highlighting the criticality to education and learning.

Across all age groups, disabled adults make up a large proportion of adult internet non-users. Also according to ONS, in 2017, 56% of adult internet non-users were disabled, well over two and a half times the 22% proportion of disabled adults in the UK population as a whole<sup>27</sup>. A similar pattern of non-use is also seen amongst those who are economically inactive, including those on long-term sick leave.

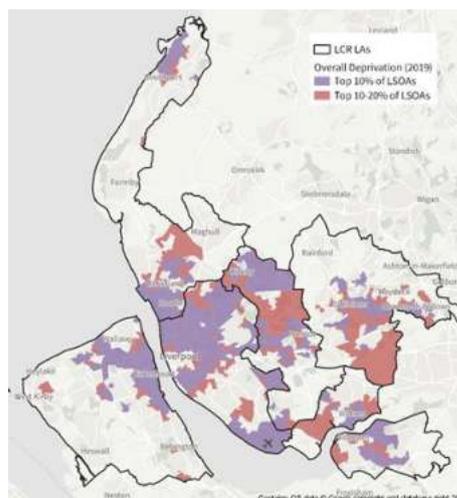
### Where are we Now?

Pre Covid-19 as many as 1 in 5 City Region residents lacked basic digital skills and had not been online recently. Other factors such as age, poor long-term health and/or disability, unemployment, and education - particularly lack of basic literacy and numeracy - also played a role.

Although superfast broadband coverage in the City Region is generally good, there are parts of Wirral, Sefton and Halton where it is poor. In addition, there are areas where take-up of available superfast broadband is low. These tend to be more deprived areas of LCR, suggesting that cost of hardware and/or connectivity plays a significant role, while 23% of neighbourhoods in LCR are defined as e-withdrawn, compared to 10% nationally, as detailed on the map below.



Proportion of premises with Superfast broadband, 2019



Levels of deprivation in the LCR, 2019

<sup>26</sup> [www.ons.gov.uk/peoplepopulationandcommunity/householdcharacteristics/homeinternetandsocialmediausage/articles/exploringtheukdigitaldivide/2019-03-04](http://www.ons.gov.uk/peoplepopulationandcommunity/householdcharacteristics/homeinternetandsocialmediausage/articles/exploringtheukdigitaldivide/2019-03-04)

<sup>27</sup> For these purposes a person with a disability has been defined as someone who has a current physical or mental health condition(s) or illness(es) lasting or expected to last 12 months or more and that limits their ability to carry out day-to-day activities

	Premises	Coverage <sup>28</sup>			
		Below USO	Superfast	Ultrafast	FTTP
Halton	58,340	0.5%	98.4%	67.7%	2.0%
Knowsley	69,211	0.4%	99.2%	77.2%	6.0%
Liverpool	219,322	0.4%	96.4%	79.6%	27.8%
Sefton	126,811	0.3%	98.5%	66.1%	21.2%
St. Helens	83,114	0.5%	98.3%	85.3%	4.1%
Wirral	149,909	0.2%	97.6%	67.9%	32.1%
Liverpool City Region	706,707	0.4%	97.7%	74.2%	20.5%
North West	3,284,679	0.9%	96.9%	60.1%	12.3%
England	24,403,277	1.3%	96.1%	58.9%	13.4%
UK	29,063,154	1.7%	95.6%	57.1%	14.5%

Given the data above, and particularly the widespread availability of superfast broadband, it is apparent that physical coverage is far from the most significant barrier to digital inclusion in the city region. Overcoming cost, skill and attitudinal factors appear to be the keys to moving those currently excluded online and increasing the use of digital technology by those whose use is currently limited.

ONS, OFCOM and Lloyds Bank data highlight regional variations in digital skills and internet use. Overall, the North West broadly performs around the UK average, although OFCOM identifies 31% as extensive internet users against 37% for England, and 41% as limited or non-users against 39% for England. Recently published analysis by the University of Liverpool Heseltine Institute breaks this data down further to estimate that 324,590 LCR working age residents are limited or non-users, whilst 30,560 households with school age children are offline or headed by limited users.

It is apparent that the regional data available may not facilitate accurate local analysis. As a result, the LCR CA commissioned its own local research in December 2020 in order to obtain a more granular understanding of digital exclusion across the City Region, and to assess the impact of the Covid pandemic and related public health measures on digital exclusion locally; this will report in 2021.

## What are our Strengths?

There has been an increasing focus on redressing digital inclusion over recent years, with a dedicated network of community and voluntary sector organisations supporting people to have the confidence and skills they need to go online. The current enhanced need for digital equipment and connectivity has seen a huge response from philanthropic organisations, with the community, voluntary and social enterprise sectors at the very heart of the provision of equipment and connectivity to students.

LCR has a strong third sector network in the form of [VOLA](#), a network of voluntary, community and social enterprise organisations currently responsible for delivering the ESF and Lottery funded Include IT Mersey programme referred above. Many members of this consortium were historically part of the UKOnline network and have an established track record of developing and promoting digital inclusion measures. As an immediate short-term intervention during the first 2020 lockdown, the VOLA network, supported via an LCR Cares grant, distributed 300 devices, including 3 months' worth of data, to families in digital poverty.

<sup>28</sup> Ofcom Connected Nations Update, Summer 2020

As part of [LCR Cares](#) – a crowdfunding campaign that by October 2020 had raised more than £2million to support community and voluntary organisations on the frontline of helping local communities cope with the impact of Coronavirus - the Covid-19 Community Support Fund provided both kit and connectivity through a partnership of third sector providers. This has been targeted towards those most in need and the intention is to extend this if possible.

LCR is also home to the [Furniture Resource Centre](#), a nationally recognised social business that is extending its service to deliver a ‘Recycle IT’ project. This collects unwanted IT equipment from organisations and then, after wiping data and hard drives, tests and refurbishes the equipment before distributing it at low or no cost. Meanwhile, both FRC and VOLA are in dialogue about forging a partnership with the CA to use its connections and publicity to leverage and identify sources of redundant IT equipment within the LCR, whilst VOLA provides a referral mechanism for households experiencing digital poverty to receive the equipment.

As part of the CA’s commitment to digital inclusion, free Wi-Fi is available at the five underground stations on the Merseyrail network, while there is also free Wi-Fi on all Merseytravel bus services delivered by Arriva and Stagecoach, as well as USB charging points on the majority. The CA has also set up a Digital Poverty Task Group to develop specific actions to overcome the “digital divide” that is critical to realising core aims relating to social justice and inclusive growth.

As identified in the draft Local Industrial Strategy, varying levels of broadband accessibility, digital skills and confidence levels, and the ability to afford digital services are all barriers to delivering the vision of creating a city region where the benefits of modern technology reach into every community. The fibre backhaul network, local loop rollout, work with housing associations and others, plus the Liverpool 5G network are all vital building blocks to achieving this. In doing so however, consideration will need to be given to ensuring that older devices continue to work for those unable to afford the latest technology.

## **What are our main Challenges & Opportunities?**

The challenges to achieving digital inclusion are extensive, range from the practicalities and cost of getting people online, through to creating a societal culture of inclusivity. These challenges are not unique to the Liverpool City Region, nor are they quick or easy to redress, being rooted in multi-faceted, inter-generational inequalities, however we do have strong foundations locally from which we can start to build a better approach to securing digital inclusion.

The development of the LCR fibre backhaul network is in part a response to remove lack of physical access as a barrier to digital inclusion. Moreover the appointment of a commercial Joint Venture partner provides the opportunity to address digital poverty through the application of social value, as this was explicitly included and identified by bidders, suggesting that there is an appetite for such an approach amongst potential partners. As also outlined above, the Liverpool 5G testbed and successor 5G Create project are in practice digital inclusion and skills as well as health and social care initiatives that have significant potential to be expanded further afield across the LCR, highlighting the critical inter-dependency between this theme and the tech for good section.

By the same token, we recognise that digital inclusion is not only about physical access to the internet, but also having the skills, confidence and capability to do so. Low-income levels, unemployment, low skills and poor housing status are all factors that increase the likelihood of digital exclusion, and the LCR is characterised by above average incidences of all of these, hence digital exclusion and poverty being greater challenges here than many other parts of the UK.

LCR registered housing providers are engaged and willing to support a programme to tackle digital poverty, and already collaborating with third sector partners such as VOLA to develop this. Emerging approaches include a social housing pilot between VX Fiber and Torus Group, and exploration of a public voucher scheme. There are a number of other initiatives from elsewhere that could be adopted

to reduce digital poverty in the LCR, such as providing free wi-fi for underserved communities, and hardware lending programmes

The Education Development Trust<sup>29</sup> has identified that nationally 12% school children have no access to devices at home, and 11% no broadband connection. For the reasons cited previously, the LCR position is likely to be more challenging still. Nor does this data reflect situations where young people have to share access to equipment and/or attempt to study using a smartphone. A critical strand of research and activity for the intended digital poverty programme therefore relates to children and schools. This in turn highlights a fundamental, wider challenge to be addressed, namely a lack of both detailed, up to date baseline data, and of the dedicated capacity and resources to map existing activities and gaps, let alone coordinate these, and develop and deliver a comprehensive range of high impact initiatives across the whole LCR.

Critical to all of this work, and across all themes and priorities, will be directly, closely and meaningfully involving the people and communities affected, which will require concerted thinking, coordination, communication and investment accordingly...

### What are our Priorities for Action?

Following on from the above, our priorities for action are:

- **To create/maintain a comprehensive research and evidence base** - in order to understand the scale and the scope of digital poverty and exclusion across the Liverpool City Region
- **To develop and deliver an effective and all-encompassing digital inclusion programme**
- **To redress digital poverty, via dedicated, coordinated activities to address the gaps in ongoing interventions.**

## 8. 2021-2023 Action Plan

The purpose of the Action Plan is to drive the delivery of actions to fulfil identified strategic priorities, which are in turn based on perceived gaps and opportunities, and intended to deliver the overall ambition set out in the introduction. It will do this by:

- **Mapping existing and ongoing key initiatives**
- **Delineating other key actions to potentially be taken, some of which are conceptual at present**
- **Serving as an important frame of reference, both for local digital strategies and LCR-wide strategies, investment programmes, and policy frameworks; and**
- **Facilitating progress monitoring and reporting via existing and prospective new governance structures.**

There is no formal mechanism for determining which actions should be included or otherwise, however the key criteria applied are:

- where **digital is the primary focus or means** in a project rather than just an integral element;

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<sup>29</sup> [www.educationdevelopmenttrust.com/our-research-and-insights/commentary/bridging-the-digital-divide-evidence-and-advice-on](http://www.educationdevelopmenttrust.com/our-research-and-insights/commentary/bridging-the-digital-divide-evidence-and-advice-on)

- **projects must actually or potentially impact** (e.g. capable of being scaled out to) **at least 2 LCR LA areas and/or be of regional or (inter)national significance**, rather than being purely local to a single local authority area.

It is important to note that the Strategy and Action Plan are intended to serve as a frame of reference for, and to complement rather than replace, existing and intended local and individual organisational digital plans. As overarching documents, they cannot be exhaustive in the sense of capturing all the actions that need to be undertaken in all localities, and would be unwieldy if they tried. By the same token, **these are very much for and about the whole Liverpool City Region rather than just the Combined Authority, so successful delivery will depend on the individual and collective buy in, ownership and direct actions of all key stakeholders and organisations from all sectors.**

## 9. Taking Things Forward

**Any Strategy and Action plan are only as good as its execution, so ensuring appropriate governance and resourcing will be vital.**

Currently the overall coordination and governance of the various strands of digital-related activities appears fragmented, both at City Region level and within individual local authority areas. Over and above the multi-stakeholder LEP-facilitated Digital & Creative Sector Board, a newly established framework of CA Portfolio Holder and elected member briefings, and the informal strategy/action plan development group, there are a number of other groupings, however these have a particular thematic focus, notably re the digital connectivity programme, rather than feeding into a cohesive systematic overall framework.

While Strategy and Action Plan development has been completed using existing CA and LEP resources, this has highlighted the lack of dedicated capacity for overall coordination beyond individual themes and/or elements of them.

Streamlining and integrating these disparate groupings at LCR level, facilitating effective coordination across services within individual Local Authorities and areas, and identifying resourcing and capacity requirements for ongoing development, management and delivery, are therefore directly written into Priority 2.1 of the Action Plan.

In the meantime, monitoring will be coordinated using a traffic light format via the group and thematic leads responsible for drafting the Strategy and Action Plan, and fed into current structures, including the CA Corporate Plan performance monitoring system. The ongoing evolution of both the Strategy and Action Plan will be reviewed on an annual basis and revised as required, before an intended full refresh at the end of 2023.