

Manchester Digital Strategy 2021 – 2026

September 2021

1. Introduction: A new digital vision for Manchester

This digital strategy for Manchester is the vision for Manchester's digital future. It sets the priorities that our whole city – our public, private, voluntary and community organisations and our residents – will be able to work on together to make Manchester one of the world's leading smart cities and digital economies in the next five years. This means that it's **a strategy for the city**, not just the Council, and that we will need to work together with people and organisations from all over Manchester to make it a reality.

We have developed this strategy because we see an opportunity to use technology to meet the priorities of the Our Manchester Strategy, which sets out the long-term vision for Manchester's future, and to make sure that we can achieve our ambition of being in the top-flight of world-class cities by 2025. In doing this we have tried to answer the following questions about how digital can play its part in Manchester's future success:

- How can we make sure that people in Manchester have the right skills and technology to play an active role in the life of the city and its economy?
- How can we make sure that businesses and organisations in Manchester have access to the right skills, technology and infrastructure to be successful, sustainable and to grow?
- How can we make sure that Manchester City Council makes the best use of digital and technology to promote a healthy and vibrant democracy with strong civic engagement?
- How can we use digital and technology to support those who are excluded, who are isolated or whose circumstances mean they face barriers to fully using technology?
- How can we make sure that Manchester continues to be attractive to digital companies and businesses looking to start up, invest or relocate in the city?

These questions and issues are at the core of both the Digital Strategy and the Delivery Plan which outlines the practical steps that we will be taking, together with our partners and stakeholders, to implement our priorities and support digital programmes and projects over the next five years.

What is a smart city?

Manchester has worked with many other European cities over the last 10 years on digital projects with a focus on becoming a "smart city." Rather than have a separate smart city strategy, we have integrated this within our digital strategy underpinned by the following 5 point definition:

- Smart Cities enable citizens to have the capacity and confidence to use state-of-the-art future internet technologies to transform the way they live and work and their quality of life.

- Smart citizens will collaborate in new and dynamic ways, co-owning new ways of planning and delivering services and co-producing services both for themselves and for those that they live with, care for and work with.
- Smart cities will adopt new economic and social opportunities for new ways of working and living
- Smart cities will adopt new digital solutions for making environments greener, cleaner and healthier, as well as more open and inclusive.
- Smart citizens will ensure that smart cities are more democratic, resilient and attractive, using future internet-enabled services to generate and celebrate creativity, innovation and diversity, especially accessing, shaping and participating in arts and cultural experiences.

2. Context

City Context

All aspects of the digital world now impact on everything we do, living, working, playing and our quality of life. At the same time the ways we want to work, learn, travel and experience life impact on the digital world. This means that it is of fundamental importance to our future success that everyone in Manchester is equipped with the skills and technology to make the most of our rapidly digitising world.

Fortunately, Manchester is already one of Europe's fastest growing technology cities. We already have a strong and resilient digital sector, acknowledged as "the UK's second technology city", consistently outperforming "all cities outside of London" (The Data City, 2019). This is significant not only in terms of the scale of the sector but also in terms of its scope in covering both established and emerging technologies and providing a talent pool of digital and creative skills supporting consistent growth across all parts of the sector. The recent Tech Nation report 2021 "UK Tech for a Changing Nation" demonstrates the strengths of certain parts of the sector in Manchester, including Service Design, eCommerce, Cyber Security, AI and Data Science, as well as in advanced materials. In 2021 Manchester was named as a prime location to start and scale financial technology (FinTech) firm, raking 34th globally in the Global Fintech Index by Findexable. The Government commissioned "Kalifa Review of UK Fintech" published its findings in 2021 and identified Manchester and Leeds as a 'Pennines' fintech cluster with the highest cluster count outside of London.

In addition to our thriving businesses, Manchester has a very strong community of people and organisations working in digital environments who interact closely with each other, often referred to as Manchester's *digital ecosystem*. This includes support networks for start-ups and scale-ups, its own trade association with Manchester Digital (<https://www.manchesterdigital.com>), skills providers, user groups and tech meetups and events. This is central to the city's continuing economic success and inclusive recovery after the pandemic.

This ecosystem is complemented by the strength of Manchester's innovation and creative networks and activities focusing on ethics, diversity and equalities. Manchester's digital strengths impact on many other sectors as well, being at the forefront of innovation for advanced manufacturing, construction, retail and product &

service design sectors. Manchester is also a centre for research and innovation around the idea of “Industry 4.0” especially in advanced manufacturing, robotics and automation and this is already stimulating thinking around the idea of “Industry 5.0”, moving forward to a more people-centric development of industrial digitalisation. Furthermore, Manchester has a resilient investment pipeline managed through the investment agency MIDAS.

The new Digital Strategy aims to capitalise on our strengths, while acknowledging current challenges and looking to ways of ensuring inclusive recovery that are both sustainable and resilient, with digital inclusion, equalities and diversity at its heart. We want to put our people at the centre of this, not only making the best of digital to improve our lives but also ensuring that we can play an active role in co-designing and co-producing digital applications and services. Manchester City Council is committed to making this happen and the Digital Strategy is there to provide focus and guidance to do this.

Policy context

The Digital Strategy aims to provide the vision and framework to realise Manchester’s ambition to be a world leading Digital City by 2025, aligning with the recent resetting of our priorities in the Our Manchester Strategy, especially in terms of helping us to achieve key aspects of the connected city and liveable city themes. At a wider level it takes forward the “grand challenges” originally set out in the previous UK Industrial Strategy especially in terms of mobility, sustainable growth and ageing population. It also aligns with the City Council’s Culture Recovery Plan, the Our Manchester Industrial Strategy, as well as the GM Local Industrial Strategy (LIS) and the GM Digital Blueprint.

The priorities of the Manchester Digital Strategy will contribute directly to the delivery of five of the ten Our Manchester Strategy priorities:

- We will become a digitally inclusive city, with better digital infrastructure, access to digital technology and strong and lifelong digital skills.
- We will maintain Manchester’s vibrancy and ensure that all our communities are included in
- We will work to ensure Manchester has a strong, inclusive and innovative economy with diverse growth sectors, where our residents are recognised for their contribution via fair contracts and are paid at least the Real Living Wage.
- We will continue to support our residents to learn, progress, upskill and retrain so they can access the city’s current and future employment opportunities.
- We will achieve our zero-carbon ambition by 2038 at the latest, via green growth, sustainable design, low-carbon energy, retrofitting buildings, green infrastructure, and increasing climate resilience.

Another important link for our work on digital will be with the city’s Work and Skills Strategy. This is being refreshed alongside the development of the digital strategy, and the two will need to work together, particularly around skills and training for our residents and businesses.

3. How we developed this strategy

Evidence Base

In addition to listening to people and organisations in the city, there is also a significant body of evidence that tells us about the present state of the digital sector in Manchester and how well our residents can benefit from it. Manchester's Digital Exclusion Index provides valuable insight and data to show how digital exclusion affects different people and communities in the city. A range of reports and research from industry bodies and organisations demonstrates our strengths in certain sub-sectors and promote the city to investors worldwide.

The recent GM Industry Labour Market and Skills Intelligence Report (<https://greatermanchester-ca.gov.uk/media/3918/industry-labour-market-skills-report-digital-tech.pdf>) makes recommendations to ensure that there are more flexible routes into digital/tech industries and that "inclusivity should be embedded in all skills initiatives" which are particularly relevant to this strategy.

Resources that we have used to inform this strategy include:

- Manchester Digital Skills Audit (2021 and previous)
- Manchester High School Digital Audit (2019)
- GM Industry Labour Market and Skills Intelligence Report
- Manchester City Council's Digital Exclusion Index
- Greater Manchester Emerging Technologies Sectors. Sensemaking & Narrative Report
- Smart and green: joining up digital and environmental priorities" (Green Alliance, October 2020)

This information tells us that our strengths are:

- Our digital economy is worth over £5bn, employs over 88,000 people and is home to over 10,000 businesses
- Manchester now has five "unicorns" (companies valued at over £1bn), all of which are in e-commerce sector.
- Our digital "ecosystem" continues to grow and develop around the city centre, with Circle Square, the new innovation district, "ID Manchester", together with Enterprise City (St John's) and developments in NOMA and the Northern Quarter.
- Manchester is one of the best places to operate a digital business, with a strong digital ecosystem, improving talent pipeline, and increasingly attractive destination for investment.
- Our Digital Skills Network already brings together over 200 creative and digital, and education and skills professionals, with a broad purpose of sharing good practice and collaborating on activity that tackles Manchester's digital skills challenge.
- Our Voluntary, Community and Social Enterprise (VCSE) sector has highlighted throughout the importance of grass roots, community-based initiatives, often run by small charities and self-help networks, in promoting digital inclusion.

- It is widely recognised that Manchester has a strong talent pool based on a growing workforce which is young, diverse and increasingly well-educated with the skills and capacities to support further growth in the digital/tech sector, attracting new investment and relocations.
- Manchester's digital skills ecosystem is well placed to continue to support this with universities, colleges, business and the VCSE sector working closely together to ensure that additional capacity can be created and delivered to support the continued growth of the sector and inclusion of more of the City's residents in the opportunities it creates.
- Manchester's strengths in research and innovation have long made the city a place of choice for investment and talent, particularly focusing on the universities and related research agencies and networks.
- Many parts of the innovation ecosystem are already actively engaged in the wider communities in which they are based, including providing access for local people and business to the experience and expertise that they have available
- Manchester is home to an emerging new wave of ethical tech businesses and digital not-for-profits which builds upon existing strengths of other pioneering initiatives including Future Everything, Open Data Manchester and the Manchester Digital Laboratory (MadLab).
- Manchester's universities provide a foundation for digital innovation and research and the talent pool to attract investment for future prosperity.

It also tells us that we face the following challenges:

- 25% of Manchester LSOAs are within the highest scoring groups on our Digital Exclusion Index with a very high risk of being digitally excluded.
- Data shows that there is a strong link between digital exclusion and social exclusion.
- There is a lack of diversity in the sector which contributes to making it unattractive or inaccessible for some of our residents.
- There is a need to create a strong offer for digital skills learning to meet the needs of new entrants to the labour market, as well as others who have become recently unemployed or underemployed.
- There is a need to focus on meeting the needs for advanced digital skills, as specialist sectors of the ecosystem continue to grow rapidly and require higher level technical skills. Inability to meet these skill needs will constrain growth.
- Manchester Digital's annual Skills Audit highlights skills shortages, including specific shortages in areas such as DevOps and software engineering. These have been consistently the areas with the highest levels of skill shortages for a decade. While there are many good programmes & initiatives, these need to be scaled up.
- There is a lack leadership and management capacity in Manchester, though there is also demand from employees to develop these skills.
- More support is needed to help people retrain, reskill and to develop the entrepreneurial skills they need so that they can form their own businesses and networks.

- There is a need to make sure that we continue to provide high capacity, accessible and future-proofed infrastructure to support future growth.
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Listening and engagement

The new Digital Strategy is based on the engagement and discussion with 63 partners and networks across the city during the past year. It also considers the recommendations from a report by ARUP commissioned by the City Council following their evaluation of the CityVerve project, which provided an external overview of Manchester's current digital policies and strategies. This included lessons learnt from case studies of Digital Strategies from across the UK and globally.

A formal consultation process took place from September 2020 to March 2021 with business, public and VCSE sectors and community organisations and networks. This resulted in many suggestions for new and innovative digital ideas for services and projects which have been incorporated into this strategy.

The consultation feedback showed that we need to:

- Support the continued growth of the sector in Manchester to enable a much wider growth of jobs, skills and innovation;
- Build on our success and incorporate the lessons learned from recent major projects including Triangulum, CityVerve, Synchronicity and SmartImpact;
- Build on our strengths in the grass roots networks of digital innovators, entrepreneurs and activists to challenge ethical, diversity and equalities issues;
- Build on our local sector strengths which include fintech, e-commerce, cybersecurity and digital creative.
- Continue to support the growth of the innovation ecosystem, especially in local universities and their partnerships with businesses and the wider community;
- Continue to support and grow Manchester's networks with other cities across the world, to enable the exchange of knowledge and ideas and the sharing of best practice.

In addition to the direct consultation on this strategy, in 2020 Manchester completed the reset of the Our Manchester strategy having undertaken significant engagement with people and organisations in the city. The findings of the consultation for this process showed us that:

- Our residents have a strong preference for prioritising equality and inclusion, making sure all people have the same life chances.
- Our residents want to make sure that everyone, especially young people, have the skills and experience they need to be successful.
- Our businesses want to make sure that we have the right infrastructure to grow and to compete globally.
- Our businesses want to ensure access to a highly skilled workforce with strong pipeline of talent.

- All groups consulted recognise the importance of digital, with a particular focus on inclusion, and that access to technology, infrastructure and skills as being essential to our future success.

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A full list of those organisations and networks which have responded to this first stage of engagement and discussion is given in annex 2.

4. Themes

From the work we have undertaken to understand the needs of the sector, the people and organisations who live in the city and the substantial range of data and information available, we can start to categorise our information under four headings aligned to Manchester's Local Industrial Strategy and Powering Recovery:

People – including skills, access to technology, inclusion, and participation.

Place – including technology and digital infrastructure, connectivity, and liveability.

Prosperity – including the digital economy, Manchester's digital ecosystem, economic resilience and technology across all sectors.

Sustainability – including climate change, net-zero and the use of infrastructure, technology and services as a utility not just a commodity.

We have used these to create four overarching themes for the Digital Strategy:

1. **Smart people:** We will ensure that everyone can gain and sustain the skills, aspirations, and confidence to fully participate in the digital world; providing the basis for Manchester to become an inclusive, diverse, successful and ethical smart city.
2. **Digital places:** We will create digital neighbourhoods providing access, connectivity and support for all residents and businesses and digitally enabling enhanced health and wellbeing.
3. **Future prosperity:** We will enable the digital economy and ecosystem to grow, continue to attract new digital businesses & sectors and support a resilient and inclusive economy.
4. **Sustainable resilience:** We will use digital imaginatively for innovation to meet zero carbon and climate resilience goals and to create open inclusive connectivity with enhanced digital infrastructure as a utility not just a commodity.

These objectives are intended to work together. While *Smart People* is about our residents and workers and *Digital Places* is about Manchester itself, *Future Prosperity* is about connecting and harnessing our people and place themes to make sure they are truly beneficial to people, businesses and organisations in Manchester. Finally, *Sustainable Resilience* links the digital strategy to Manchester's zero-carbon commitments, as well as considering how we plan for and respond to the changing nature of technology and digital services in the future. It is intended to keep Manchester at the forefront of technological change in a way that is sustainable and accessible to everyone.

Theme 1: Smart People

Smart People is about making sure that all our residents have access to the skills, training and employment opportunities that they need to participate fully in the life of the city and benefit from its many opportunities.

Fundamentally, this means tackling the high levels of digital exclusion in the City, removing barriers to accessing digital services and ensuring that all our residents have the access, skills and confidence to go online to maximise the opportunities provided by the internet and digital services.

Smart People is also about creating the opportunities for people to learn and develop new skills at all levels. Some of this means working with schools, colleges and universities to improve careers education as well as formal training in digital subjects. However, it is also critical for the success of the digital sector that we address current skill shortages in the short to medium term, to enable them recruit the talent they need to thrive.

Finally, *Smart People*, is about encouraging greater entrepreneurship and creating new routes into more highly skilled and more highly paid jobs. This requires a more flexible response from the skills system and for digital businesses to provide input to curriculum design, delivery and work experience. One of the recognised challenges for the sector is its lack of diversity in terms of talent attraction of gender, ethnicity and age. Digital bootcamps bridge some of this skills gap and the recent Digital Fastrack Programme (GMCA & DCMS) enabled residents who were unemployed or low paid to participate and supported diversity. However it is also clear that there is a need for the sector to look at how it can ensure opportunities are attractive and accessible to everyone, regardless of their identity or background.

Smart People case study – Fast Track Fund / TechEquity Manchester Fast Track Fund – TechEquity Mcr

The Fast Track Digital Workforce Fund, has been effective in addressing immediate digital skills shortages by providing participants with the technical and digital skills needed in industry now. The £3 million fund is a joint venture between the Department for Digital, Culture, Media and Sport (DCMS), Greater Manchester Combined Authority (GMCA) and Lancashire Digital Skills Partnership (LDSP) - set up to support both Greater Manchester and Lancashire residents with accessible routes into digital employment,

It has enabled residents who could not normally afford to pay to participate in flexible digital bootcamps, to take part and at the same time is supporting the industry to diversify by including more underrepresented communities.

TechEquity Mcr is one of the skills bootcamp that were offered to residents and embodied a diverse consortium of community and education partners including; T.A.P, the Heroworx Institute and Malleable Mind. Over the course of two years, the career-readiness project addressed specific skills gaps in Linux, computer networking and cyber security to participants that self-identified as women or trans gender.

The aim of TechEquity was to connect the opportunity of high-value technical careers to the residents who may normally be excluded from these types of opportunities. The project offered a pathway into tech for Hulme and Moss Side residents in particular – Wards that have neighbourhoods experiencing deprivation and high representation of residents experiencing racial inequality.

A grass-roots, traditional approach was taken to recruitment. The consortia built strong relationships with local organisations to create trust pathways into communities e.g. working with Caribbean and African news and radio outlets in South Manchester to reach the community. This holistic approach resulted in more than 300 local enquiries for 36 placements. The tailored cultural and gender sensitive marketing, resulted in more applications from ethnic minorities (66% of the applicants) and 75% recruited onto the programme, which is four times higher than the current 14-15% (across genders) in the UK tech workforce (Inclusive Tech Alliance Report 2019)

Learners undertook international professional recognised technical qualifications in Red Hat Enterprise Linux, LPIC Linux Professional Institute and CompTIA. Within the six months after the 16 week course course, 55% of learners went onto secure employment in STEM-related businesses and organisations or went onto higher learning. The demand for programmes like TechEquity to upskill and create opportunity for residents was demonstrated as enquiries outstripped supply 10:1.

<https://www.greatermanchester-ca.gov.uk/what-we-do/digital/fast-track-digital-workforce-fund/>

Why Smart People?

As well as supporting the skills requirements of the digital sector, digitalisation is a trend that impacts on the wider Manchester economy, which has been accelerated as part of the pandemic. Through the *Smart People* theme, we will improve the productivity and growth of the foundational economy, as well as widening the economic opportunities for more of our residents.

Firstly, we know that digital inclusion and digital skills are the foundation for growing and sustaining our digital economy and ecosystem – *Smart People* are what really makes a smart city. However, we can do better in making sure that all our people have access to the essential services, devices, skills, training and employment opportunities that they need to participate fully in the digital world.

Digital exclusion remains a significant barrier for too many of our residents and has a disproportionate impact on people who live in poverty, particularly those with English as a second language and disabled people, as well as on older workers, women/girls and those aged 65+. As well as being unacceptable for reasons of social equity, this means that there are many residents who are digitally excluded from jobs, skills and online services. Whilst the evidence is there to inform us who is most likely to be excluded, we were until now able to establish a mechanism with to identify the scale of the challenge.

Connected to this issue, there is a lack of diversity in the digital sector and a need to ensure that more women, older residents, and people experiencing racial inequalities are encouraged and connected to opportunities. The digital sector and those

enrolled in digital learning opportunities, particularly at technical & higher levels do not tend to reflect the diversity found in Manchester's communities.

Secondly, we understand the challenge faced by the education & skills system to meet the needs of the digital sector and equip learners with the most up to date qualifications & skills needed to enter & sustain good quality careers in the sector. This is because the pace of technological change makes it difficult for traditional learning, often designed and delivered over years, to keep up. It is also because there is a need for more capacity in the system to enable enough learners to progress through to meet the increasing demand for digital and technical skills from employers.

At present, this lack of capacity has created skill shortages within the digital sector. The most recent Manchester Digital Audit highlights development, digital marketing, DevOps, testing & quality assurance, and user experience as areas with particularly high demand. Leadership and management skills have also emerged as being in demand from employers and employees. Meeting these demands requires a more flexible response from the skills system and for digital businesses to provide input to curriculum design, delivery and work experience. Manchester will benefit from additional investment in skills and training provision, for example at The Manchester College's new City Centre Campus and Manchester Metropolitan University's new School of Digital Arts (SODA). There are also some good examples of co-created curriculums that combine learning with relevant work experience. However there is need to develop and strengthen the volume of pathways into industry, which we are currently seeing through an increase in self-learning and bootcamps.

What will *Smart People* achieve?

Over the life of the Digital Strategy, *Smart People* aims to:

- ensure that Manchester residents of all ages can gain and sustain the skills, aspirations, and confidence to fully participate in the digital world.
- Aid mainstream education in building it's capacity to ensure all young people are equipped with the skills to take advantage of the opportunities that digital presents.
- create new routes into higher level, high value jobs and entrepreneurship.
- ensure that digital businesses have access to the talent and skills needed; providing the basis for Manchester to become an inclusive, diverse, successful and ethical smart city.

To make these aims happen, we will work towards the following priorities:

	Priority	Timescale
1.1	Deepen our understanding of digital inclusion by continuing to deliver the Digital Inclusion Action Plan, developing the Digital Exclusion Index and actively engaging with residents and VCSE organisations.	Year 1
1.2	Develop specific interventions and programmes of activity to promote the opportunities of the sector to under-represented groups and create a more inclusive employer culture,	Year 2 to 5

	particularly for people experiencing racial inequalities, women, disabled people and older people.	
1.3	Support schools to further develop digital leadership capability that enables strong digital strategic direction, supporting all young people across curriculum, to become digital citizens	Year 2 to 5
1.4	Include digital skills as a priority in Manchester's refreshed Work and Skills Strategy.	Year 1
1.5	Scale up and sustain existing entry-level pathways into digital jobs and maximise new pathways within the skills and careers system for post 16 (such as T-Levels), by strengthening connections between colleges and industry.	Year 2 to 5
1.6	Create new and accessible pathways into higher level, high value jobs and encourage entrepreneurship, especially in growing sectors such as Digital Marketing Cyber, AI and Fintech.	Year 2 to 5
1.7	Work with the digital ecosystem to ensure that Manchester residents are given opportunities and support to be able to compete for and progress into high value employment	Year 2 to 5
1.8	Run a pilot project to implement the findings and recommendations from the GM Cooperative Commission in Manchester, a digital brokerage for jobs and skills.	Year 3 to 5
1.9	Enhancing Manchester's strengths as a centre of excellence for ethical and socially responsible tech with new skills and training provision.	Year 3 to 5
1.10	Develop a long-term plan for enhanced collaboration between industry and the skills system, particularly to ensure developments attracting growth, such as SODA and CRCGM, attract and nurture the talent pipeline.	Year 3 to 5
1.11	Supporting digital leadership within businesses, particularly for digital start-ups and SME's, for them to continue to flourish within the digital ecosystem.	

By enabling more people to get online and stay online, encouraging and inspiring people to learn and develop new skills, creating new routes into entry level, more highly skilled and more highly paid jobs and growing digital leadership across education, the skills system and industry we achieve the following outcomes:

- People accessing digital and technology related learning and employment opportunities will more closely reflect the diversity of our city.
- More people will be accessing opportunities in digital and technology related subjects.
- More people will be employed in roles in the sector that are more highly skilled, better paid and more secure.
- Fewer business will report problems attracting and retaining talented people.

Theme 2: Digital Places

Digital Places is about making sure the city itself, alongside its people, drives us towards a more digitally enabled future.

In a digital place, high quality and open digital infrastructure is ubiquitous at every level. Its leaders think towards the future and make sure that the changes we make to our physical environment today support the technological demands of tomorrow, and therefore much of *Digital Places* is about how we plan for and consider these future requirements in everything that we do to create a built environment that is fully digitally enabled.

Digital Places are also about how public services are delivered. In *Digital Places*, all services should be accessible digitally regardless of the device used or the bandwidth available. Public services should be operated in such a way that they make use of rich data both to improve how services are delivered and to allow other people to use this data in innovative and creative ways. They should also make sure information is protected and treated with care, especially in terms of data quality, ethics and security. The *Eindhoven Principals* (annex 4) are a set of principles and guidelines developed by the city of Eindhoven to ensure that its work on smart cities, data, and the emerging Internet of Things (IoT) would have a clear framework of ethics and social responsibility underpinning it. The principals are:

1. Privacy First
2. Open data and interfaces
3. Embrace open standards
4. Share where possible
5. Support modularity
6. Accept social responsibility

Digital places should ensure that a similar set of principles are adopted to ensure that digital and technology are deployed and used in an ethical and responsible way.

Finally, *Digital Places* have strong and exciting digital ecosystems that create the space and opportunities for innovation and creativity between people and organisations. The networks of people and organisations within the city are accessible and inclusive, supporting the digital sector itself but also the wider creative and cultural sectors with which it is linked.

Digital Places case study – Open Data Manchester

Since 2014 Open Data Manchester has been interested in the potential of co-operative structures that can help communities and organisations to manage and utilise data. Mutually controlled organisations, such as data co-operatives and data collectives offer the opportunity for individuals and communities to have more control over how their data is collected, pooled, processed and shared. Data is playing an increasingly powerful role in people's lives – through the services they use, the information they access and the decisions made using it that affect them, but often the value isn't returned and sometimes is used against them.

In 2020-21, Open Data Manchester worked with the Carbon Co-op - an energy advocacy and services co-operative based in Greater Manchester, its members and the wider community to understand whether data co-operatives can:

- empower people to take greater control over their data
- offer choice about how data is used
- build trust and confidence in the process of sharing data
- return social value

The Carbon Co-op project looked at mechanisms that could give members more control over their energy data, so that it could be used for more ethical and energy efficient purposes and bring value through the creation of reduced bills, help Carbon Co-op develop better services, and benefit wider society through the development of more environmentally responsible energy practices.

This work is ongoing and has led to the development of a Data Co-operative Working Group co-led by Open Data Manchester and Aapti Institute in Bangalore which comprises practitioners and academics from around the world, to develop data co-operative models that can benefit any community that want to have more control over how its data is used.

<https://www.opendatamanchester.org.uk/services/>

Why Digital Places?

Technology is constantly changing, and alongside making sure people have the right digital skills and access to opportunities, connectivity in places is a second fundamental component of making a successful digital city. It will enable our residents to access services, to learn, and to work from any location and at any time, while supporting businesses and organisations to take advantage of the opportunities for innovation created by high speed and secure networks. *Digital Places* will also enable our public services and institutions to operate more effectively, and our businesses to be more productive, especially by making better use of data.

Firstly, we know that we can improve how we plan for the future by ensuring that digital innovation is included in all aspects of placemaking, including the development of digital and technological assets to support and maximise the benefit of new civic and public spaces. By ensuring that digital facilities and capacities are embedded across all regeneration programmes we can create a smarter public realm using the best wireless networks backed up by the best fibre, enabling wider roll out of internet of things (IoT) devices, sensors and displays, as well as improved connectivity for residents and businesses.

There is an opportunity to build on our existing successes, such as the concentration of assets and talent along the Oxford Road Corridor, and the developing ecosystems around Circle Square, Enterprise City and ID Manchester. The challenge is to build this capacity out further into neighbourhoods across the city, developing a network of smart places and digital neighbourhoods that will allow people to connect wherever they are and however they want to. Our consultation revealed that the COVID-19 pandemic has shown that not all our neighbourhoods have the capabilities and capacity to ensure that everyone has accessible, affordable and equitable access to the digital world.

Smart Places – call out box

Smart places are places where connectivity is ubiquitous and universal, where people, organisations and smart devices are all connected. They are places where information is collected and shared in a way that allows anyone to understand and interrogate it, coming up with their own solutions to our greatest challenges. Smart places are also climate-resilient and adaptive, supporting our transition to a zero-carbon economy as well as being sustainable, adaptable and future-proofed. Connectivity is also of critical importance to Manchester's creative and cultural industries, which overlap with the digital and tech sectors. Our cultural sector has been reliant on digital to keep operating throughout the COVID-19 pandemic, and there is a role for *Digital Places* in supporting the city's Cultural Recovery Plan. The digital transformation of the sector is likely to continue, and we must support it by making it easier for creators to digitise, distributing and monetising artistic products online.

Secondly, we know that improved access and technology can enhance access to existing public services. Using the example of health services, digital delivery means that services become more accessible and have wider benefits, for example enabling older people to continue to live in their own homes. Digitisation of health and care records also provides the opportunity to better integrate services as well as offering an opportunity for innovation providing new approaches to tackling embedded health challenges in the City including Health Ageing.

Thirdly, we understand that data can be a powerful tool in helping us to better understand how our city works and where we can intervene to make improvements or efficiencies to deliver better services. Enhancing the city's capacity for the collection, analysis and visualisation of data alongside implementing open access principles will allow people and organisations in the city to bring creativity and innovation to the use of data. Enabling access to a broader range of better quality, higher frequency data will allow start-ups, SMEs and social enterprises to help build new applications and provide new insights into city, developing solutions to problems that may not have been previously considered and providing opportunities for commercialisation

We also understand the importance of ethics, sustainability and security when handling data, and that we need to be pro-active in ensuring systems and process are in place to effectively manage information. Manchester City Council has already committed to "become a data-led organisation and ensure data is central to what we do" with a new Data Management Strategy.

What will Digital Places achieve?

Over the life of the Digital Strategy *Digital Places* aims to:

- Ensure that Manchester has excellent and accessible digital infrastructure everywhere.
- Ensure that all public services are delivered digitally and are made more successful through the better use of data.

- Ensure sure that we grow Manchester's wider digital ecosystem and connect it to the city's wider economic and cultural networks.
- Ensure that we use data to drive innovation and create new opportunities for growth that are linked to tackling the city's challenges and building on its strengths.

	Priority	Timescale
2.1	Develop a Digital Infrastructure Planning Design Guide and consider ways to integrate this into MCC development plans and partnerships, including professional development support for MCC staff and partners. See annex 3 (Design Guide).	Years 1 to 2
2.2	As part of the Local Plan refresh and consultation, integrate digital planning policy and guidance including consideration and linking to the Digital Infrastructure Planning Design Guide.	Years 1 to 2
2.3	Map existing digital assets to enable virtual city modelling and support ongoing development of digital planning capability and deployment of digital connectivity.	Year 1 to 3
2.4	Use evidence from the Digital Exclusion Index and asset mapping to identify and audit priority neighbourhood areas.	Year 1
2.5	Produce local Digital Action Plans for priority areas that identify steps and opportunities to improve connectivity.	Year 2
2.6	Work closely alongside major capital and regeneration projects to promote smart urban design integrating digital capacity and smart assets.	Year 2 to 5
2.7	Enhance the City Council's own public wireless connectivity with additional forms of community based fibre and wireless provision supporting digital places and smart neighbourhoods	Year 3 to 5
2.8	Contribute to development of Manchester's Data Management Strategy, and adoption of a Smart City Charter and Eindhoven Principles to allow enhanced data sharing, partnership working and innovation. See annex 4 (Eindhoven Principles).	Year 1 to 2
2.9	Extend the asset mapping model into a fully digital GIS system integrated into MCCs GIS and Data Management systems.	Year 2
2.10	Build on open data work with a new programme of tech challenges, data coops and data trusts as part of the development of the Smart City Data Charter.	Year 2 to 5

By increasing levels of connectivity and access across the city, supporting the digital delivery of public services and making better use of data we will achieve the following outcomes:

- Increased availability of high-quality, high-speed and affordable connectivity across Manchester, especially in priority areas.
- Fewer businesses and organisations will identify lack of network access and capacity as a barrier to growth.
- Increased quality and quantity of data available to people and organisations in Manchester.

- Increased capability of the Council's digital planning, mapping, data management and other services, to support more effective and efficient city planning, management and public engagement.
- Growth in Manchester's digital ecosystem and increased clustering of people and organisations in our innovation areas.

Theme 3: Future Prosperity

Where *Smart People* is about our residents and workers and *Digital Places* is about the city itself, *Future Prosperity* wraps around these two themes to ensure that the digital strategy truly makes a positive impact on the lives of our residents and the success of our businesses, in a way that is both ethical and sustainable. *Future Prosperity* is about making a strong connection between residents and businesses and the positive opportunities and outcomes that digitally enabled people and places will create. It sits at the heart of our inclusive growth ambitions.

Firstly, Future Prosperity is about building on our strengths to grow the digital sector and digital ecosystem in Manchester and creating more good quality and sustainable opportunities for learning, employment, business and investment. It is about making sure that through *Smart People* and *Digital Places* that we can connect these opportunities to our residents, neighbourhoods and businesses.

Secondly, Future Prosperity is about ethical and sustainable technology. It considers the positive and negative impacts of digitisation and how we might mitigate against some of the potential issues, alongside issues around good quality employment in parts of the foundational and cultural economy affected by the digitisation of work in ways that have tended to reduce jobs security and pay. It helps secure positive and incremental improvements and guard against the potential issues of low paid and insecure work.

Future Prosperity case study – Manchester Digital & Skills Festival

Manchester Digital is the voice of Greater Manchester's tech and digital sector. Their community is made up of a wide range of businesses and they work closely with them to create the optimum environment for sector-wide success. They are independently funded through membership and represent the entire ecosystem with a wide range of business types, models, sizes and capabilities making up our community.

Manchester Digital take direct action to solve specific issues and barriers that impact the sector's growth and we provide a cohesive voice for the sector, ensuring that its views are represented at a local and national government level. They develop talent, drive innovation, share knowledge and help businesses to thrive.

The Digital Skills Festival is one of the most important events in Manchester Digital's calendar. Held here in Manchester each February, the Digital Skills Festival attracts industry professionals, educators, students, graduates and tech job seekers as well as respected industry thought-leaders and innovators. One of the highlights of the event is the Talent Day which is the largest specialist careers fair in the North. Each year over 1800 graduates and job seekers attend to find out more about the latest

careers on offer at some of Greater Manchester's most exciting and innovative tech companies. 40+ businesses attend and there are upwards of 250 jobs on offer. It's the perfect day to find new talent, or if you're a jobseeker, to take the next step in your career. <https://www.manchesterdigital.com/talent-and-skills/skills-festival>

Why Future Prosperity?

There is an increasingly strong evidence base for Manchester's digital strengths, highlighting how important Manchester now is in terms of combining its historic strengths in specific parts of the digital sector, including its digital talent pool, with new investment to support wider business growth, especially with start-ups and scale-ups. Manchester is recognised as the fastest growing "tech city" within Europe, having overtaken Cambridge for the first time, as second only to London for venture capital investment in tech businesses. Alongside this Manchester has also been ranked as the top UK city for IT professionals to live and work (CompTIA UK Tech Town Index, 2019).

We know that a strong and diverse digital ecosystem is important for several reasons. Firstly in making connections between people and organisations that boost productivity, knowledge transfer and growth. Secondly, in supporting the emergence and growth of centres of excellence in specific areas such as cyber security or e-commerce. Thirdly, in attracting talent and investment into the city to support future growth. Therefore, making sure that the digital strategy supports and grows our existing ecosystem will be an important factor in our success. This will require consideration of both established networks and organisations as well as the needs of smaller start-ups or entrepreneurial organisations.

In addition to growing the digital ecosystem, we also know that to be successful we will have to ensure that digital and technology is both ethical and sustainable. A number of partners who provided feedback in the consultation emphasised the importance of "ethical tech" and ethics in the digital world, an area in which Manchester already has significant experience through organisations such as the Responsible Tech Collective and Open Data Manchester as well as the emerging work of the AI Foundry initiative being led by Manchester Metropolitan University.

Digitisation and digital innovation impacts on all areas of our lives, especially the future of employment and productivity. While in the digital sector itself productivity remains high, other sectors face an entrenched challenge of low productivity that may be disrupted by new technology and particularly automation. This may lead to the significant restructuring of employment in some areas, including job losses, leading to an opportunity to retrain and reskill workers so they are able to access new roles. The impact of the COVID-19 pandemic is likely to have a long-term impact on businesses and the wider labour market. Many companies are rethinking their need for office space and moving to higher levels of remote and flexible working, potentially leading to the employment of fewer permanent staff and more temporary and freelance staff. Anecdotal evidence suggests that travel-to-work areas, already weaker in the sector, have disappeared for some companies who may be Manchester based but now recruit nationally or even globally. This creates both opportunities and challenges for our residents and businesses.

What will Future Prosperity achieve?

Over the life of the Digital Strategy *Future Prosperity* aims to:

- Make it easier and more attractive to start, relocate or grow a digital business in Manchester.
- Strengthen the wider network of organisations and groups that support the sector in Manchester.
- Increase the number of high quality and sustainable job opportunities created.
- Identify new and future areas of growth and technological change that Manchester can benefit from.
- Make sure that growth in the sector in Manchester is inclusive and benefits everyone.

	Priority	Timescale
3.1	Support digital sector events and networking opportunities through exhibitions, conferences and business visits.	Year 1 to 5
3.2	Support the development of Innovation Districts, Corridors and Hubs to promote digital start-ups and scale-ups and the expansion of the digital ecosystem.	Year 1 to 5
3.3	Develop more accessible routes into Innovation capacity through local initiatives promoting social innovation, e.g. Living Labs, Makerspaces & Coop Innovation Zones.	Year 2 to 5
3.4	Establish a Cooperative Innovation Zone for digital businesses to develop new ways of working and implement the recommendations of the GM Cooperative Commission.	Year 3 to 5
3.5	Work with GMCA and MIDAS to develop a Digital Investment Strategy focused on making investment more accessible particularly to diverse businesses.	Year 2 to 5
3.6	Develop more intelligence, data analysis and horizon scanning on the potential impact of automation/AI and promote new thinking and practice on proactive socially inclusive responses.	Year 1 to 5
3.7	Enhance support for ethical and socially responsible tech development and Manchester's growing ecosystem and reputation in these areas., including driving support in the sector for the Good Employment Charter.	Year 1 to 5
3.8	Implement proposals for a Smart Urban Data Discovery Platform in partnership with Manchester Urban Observatory (MUO), providing data and intelligence on digitisation and future trends.	Year 3 to 5

By strengthening Manchester's digital ecosystem, focusing on ethics and sustainability and supporting businesses and organisations to make a positive contribution to the life of the city we will achieve the following outcomes.

- Increased number of digital business births and relocations.
- Increased inward investment into the sector in Manchester.
- Increased number and size of networking groups and organisations.
- Increased number of job postings.

- Higher share of job postings filled by Manchester residents.
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Theme 4: Sustainable Resilience

Sustainable Resilience is the point at which the Digital Strategy connects to and helps achieve Manchester's commitment to become a zero-carbon city by 2038, and meet the many challenges presented by climate change. It is about how we can use technology to directly reduce our carbon emissions, but also about how technology will help us mitigate against the impact of a changing climate.

It is also where we ensure that we keep looking forwards and can rapidly adopt and adapt to new technology as it emerges, keeping Manchester at the leading edge of digital transformation in all its forms. This is in part about how we plan and manage infrastructure and services to ensure they are open and accessible.

Finally, Sustainable resilience is also about connectivity, and how in a world that is increasingly digitised, we need to make sure that everyone can access digital services and resources. It is about making sure these networks are in place and that they are accessible to all.

Sustainable Resilience case study – Cooperative Network Infrastructure

Cooperative Network Infrastructure (CNI) – the GM Digital Coop
Using an innovation called the 'Thin Layer Model', Cooperative Network Infrastructure (CNI) - <https://cni.coop/> - promotes collaboration between owners and users of digital infrastructure. Members include local authorities and other public-sector bodies alongside private-sector telecoms operators and Internet providers.

CNI started in 2018 as an initiative of Tameside Council in Greater Manchester. Since then other local authorities have joined including Manchester City Council, Blackpool, Mid Sussex, Lancaster and West Sussex county. Other public sector partners include NHS trusts, education institutions and social housing providers. Commercial members include Virgin Media, CityFibre, Zayo, euNetworks, ITS and Telcom, alongside smaller ISPs.

CNI is a cooperative neutral host: user members (generally the telecoms operators and ISPs) get access to raw infrastructure (dark fibre and colocation space) on equal terms and non-exclusively. Most of the dark fibre available from CNI is 'spine' fibre, deployed by the contributor members (mostly public sector bodies) to meet their needs. CNI pays the contributor members a fee and makes spare capacity in the spine available to user members, who then build out to connect customers. Because it makes sharing possible, CNI delivers mutual benefits for users, contributors and the wider community:

- Local authorities and public sector bodies can invest in infrastructure for their own use and share it for the benefit of the local economy and wealth creation.
- By sharing the spine infrastructure, commercial operators can invest in new access networks without needing to overbuild competitors, so they can deploy faster and there is less disruption for the community.

- Smaller and local ISPs and operators can access dark fibre and colocation. This means they can capture more of the value chain, innovate and differentiate their products from larger competitors.

Why Sustainable Resilience?

Digital technologies have a specific role in supporting action on climate change and zero carbon targets. Digital can be transformational for the environmental agenda and offer very practical solutions for current and future action. New, low carbon opportunities can be realised through enhanced digital connectivity and data analytics, especially in areas such as mobility, logistics, food and buildings, supporting sourcing of energy from green sources to improving air quality and encouraging more walking and cycling. Digital can also help create a new smart circular economy where local sourcing is the norm and product information can be made more accessible and easier to analyse with repair and recycling facilities more widely known and understood, with makerspaces and other digital production facilities able to give products longer lifecycles.

Manchester and the wider city-region has the opportunity to capitalise on the infrastructure and connectivity that has been created to date but also to look to the future and find ways of staying ahead of the curve for future digital infrastructure. This means new models of delivery and finding ways that digital infrastructure can be delivered as an essential utility, ideally unlimited, not just as a commodity. The City Council has been highlighting the importance of investment in digital infrastructure for “developing a more resilient city” in all parts of its current work on inclusive economic recovery and this is also a key element of the Our Manchester “Inclusive Economy” Local Industrial Strategy. This can be achieved by developing our existing partnership with Tameside MBC to extend the original Cooperative Network Infrastructure (CNI – also known as Digital Coop) duct and fibre installations to more public, research and innovation locations across the city to provide faster and more resilient connectivity.

During the pandemic there have been failures of digital infrastructure and Manchester’s innovation ecosystem needs more resilient future-proofed Internet in two particular areas:

1. Topological resilience – new spine fibre connections connecting key nodes by diverse routes;
2. Commercial resilience – which must be made available on neutral non-exclusive basis so that multiple ISPs and operators can use it. This increases diversity of supply, competition and the scope for innovation, hence the use of the cooperative neutral host model.

Commercial resilience means that there is enhanced future-proofing because of the diversity of supply which is less prone to stress or failure. This in turn provides new opportunities for local and smaller digital/tech businesses to add value with access to infrastructure (rather than services) that otherwise would not be available to them. In addition the public sector has more choice in its procurements and greater access to innovation and new services and applications.

Digital resilience is created by building the “scaffolding” from which Internet Service Providers – ISPs, operators and other SMEs providing specialist services can then build out to reach more customers more easily and effectively – both public sector and others in the innovation ecosystem. That in turn means: more scope and scale for fibre spines and shared neutral digital exchanges which thus encourages more investment. Operators can choose their areas, for example, they don’t need to ‘roll out’ across the conurbation to achieve scale but can instead share and co-produce connectivity which also means smaller and local ISPs and operators, including new start-ups, can take part, increasing productivity and growing new markets.

What will Sustainable Resilience achieve?

Sustainable Resilience aims to:

- Use digital and technology to drive a green and inclusive economy, supporting our transition to a zero-carbon city.
- Use digital infrastructure and innovation to create a smarter, more resilient and future-proofed city
- Make digital connectivity a universal utility that is accessible to everyone, wherever they are.

	Priority	Timescale
4.1	Collect, use and share data to improve our understanding of where our carbon emissions come from and how we can reduce them.	Years 2 to 5
4.2	Promote the use of technology and data to better manage demand on energy networks and account for new ways in which energy will be used (e.g. electric vehicle charging).	Years 2 to 5
4.3	Incorporate good practice and “green” design within the Digital Infrastructure Planning Design Guide (Theme 2)	Years 1 to 3
4.4	Take the opportunity to participate in and lead national and international initiatives and projects, e.g. UK Smart Cities, Eurocities and Global Smart Cities, to promote Manchester, learn from other smart cities globally and attract further funding and investment.	Years 1 to 5
4.5	Implement the business case for the further development of Cooperative Network Infrastructure (CNI) and establish a Manchester Development Group with CNI members to move forward with the “Fibre Manchester” initiative.	Years 3 to 5

By harnessing digital and technology to reduce carbon emissions, future proof the city and ensure connectivity is a universal utility we will achieve the following outcomes:

- Increase the number of community and cooperatively owned infrastructure and networks.
- Improved environmental credentials of digital initiatives and programmes.

6. Delivering the objectives: Implementation and next steps

The Manchester Digital Strategy provides a new strategic framework for the city to meet its aspirations about how we use digital and technology to improve the lives of our residents and create new commercial opportunities for our businesses. To achieve our aims and deliver our priorities, our next steps will be to:

- Establish a small Digital team within the City Council, working with key stakeholders to deliver the Digital strategy.
- Develop a full action plan for the delivery of the priorities outlined in this strategy.
- Establish partnerships and working relationships with relevant stakeholders.
- Identify potential funding opportunities and build capacity to bring in funding to finance delivery.

The delivery of the Strategy will be overseen by a Digital Strategy Governance Board, comprising of relevant Council Officers alongside representatives from partner organisations and networks.

The delivery plan will be subject to an annual review through the proposed five years of its implementation from 2021 to 2026. This will be undertaken through a partnership-based approach drawing upon not only the existing digital ecosystem but also on new collaborations that are emerging, for example around socially responsible and ethical tech, creative economy renewal, youth initiatives, the age-friendly agenda, health and wellbeing and climate change. These new collaborations are renewing innovation in the digital sector and supporting new thinking and working in imaginative ways to co-create new solutions to the challenges of the pandemic and to ensuring an inclusive economic recovery.

Creating a digitally enabled inclusive economy and society will need commitment and support from all partners across the city working collaboratively and investing their time, energy and resources to achieve this. To achieve this Manchester Smart City partnership boards and working groups will be established to oversee the development of programmes of work and support effective governance of their implementation. As well as developing a shared commitment to ensuring that social value is at the heart of all aspects of the Manchester Digital Strategy it is also important to include increasing economic, social and economic justice across the city, especially with digital inclusion being the single most important aspect of this work.

Manchester City Council will continue to work closely with everyone who has collaborated to produce the ideas and proposals brought together so far. This will include outlining options for coordinating and implementing new work programmes and practical projects, as well as more resilient funding models for supporting this work in the context of inclusive economic recovery.

7. Annexes:

1. Consultation respondents

2. Manchester Digital Infrastructure Design Guide and Local Plan recommendations
3. Smart City Data Charter: the “Eindhoven Principles” and Open Data Manchester – “Declaration for responsible and intelligent data practice”
4. Summary of aims, outcomes and objectives
5. Case studies of City Digital Strategies and Smart Cities initiatives from the UK and globally
6. Acknowledgements: list of organisations and networks involved in consultation to date