GREATER MANCHESTER
DOING DIGITAL DIFFERENTLY

Greater Manchester Cyber Strategy
2023-2028

Greater Manchester Combined Authority

AUGUST 2023

Contents

Foreword

Major global events have affected the way we work recently. The recent pandemic accelerated the pace of adoption of digital technology and, combined with the emergence of new threat actors across the world, this has increased the risks of potential cyber attacks. Cyber security has become one of the highest national security priorities, to protect the country, its people, its infrastructure and its assets. (As confirmed in the Government's National Cyber Strategy 2022).

Greater Manchester (GM) does Digital Differently and goes further, it sees Digital Security as more than just technology, it encompasses the ethics and trust that form the human element of a secure cyber space.

Greater Manchester is a city-region rapidly becoming the UK and European centre for cyber and digital ethics, trust and security. Boasting a £5bn digital economy, the recent location of a GCHQ hub in Manchester was the recognition of the capabilities, expertise and potential of the city region in digital security.

£5bn

Digital Economy

Greater Manchester presents a unique opportunity for digital security – a place with ambition and a strong civic mandate, to take a responsible approach to digital that ensures that no one gets left behind.

The launch of the National Cyber Force in November 2020 opened up opportunities to accelerate the development of a North West Cyber ecosystem, supporting GM's ambitions to become a major player in the Cyber Centre of the UK and a global influencer in cyber.

This Cyber Strategy sets out how Greater Manchester will become

"A world leading responsible cyber ecosystem that is driven by inclusivity and diversity for the safety, security and prosperity of Greater Manchester and the UK."

Building on its a fast-expanding cyber ecosystem driven by partnership between business, academia and public sector organisations, and which is part of a world-leading tech industry, Greater Manchester will continue to strengthen the expertise which exist at its core. It has already nurtured homegrown digital security companies including Avecto, Hedgehog, NCC Group and Secarma, and has attracted established cyber divisions of global defence companies such as Raytheon, BAE Systems Digital Intelligence and Northrop Grumman as well as consulting firms including KPMG.

Greater Manchester will continue to secure its digital transformation by innovating and collaborating in cyber security to create better quality future job in all sectors of the economy, helping its residents to live better, greener and more prosperous lives, in a way that is digitally inclusive, innovative and forward thinking.

Led by the Greater Manchester Cyber Advisory Group, a public and private sector collaborative group which reflects the cyber capabilities in the City Region, this strategy will drive forward an inclusive, resilient and prosperous economy for Greater Manchester and for the North.

This strategy will ensure that we build on our bold and ambitious collaborations, to drive innovation and investment whilst creating accessible routes to cyber and celebrating diversity in the sector. This will firmly establish Greater Manchester as a global responsible cyber influencer.

Victoria Knight

Chair of the Cyber Advisory Group and
Strategic Business Director at BAE Systems

Introduction

Digital innovation is key to productivity and is creating ever increasing opportunities to conduct day to day activities virtually. This, however, also increases risks. The acceleration of digitisation post-pandemic has also highlighted the growing exposure to risks in a digital world. Digital security has become vitally important to protect our people and our economy and increase their respective resilience.

Cyber security is defined in the National Cyber Strategy 2022 as:

"The protection of internet connected systems (to include hardware, software, and associated infrastructure), the data on them, and the services they provide, from unauthorised access, harm, or misuse."

"This includes harm caused intentionally by the operator of the system, or accidentally, as a result of failing to follow security procedures or being manipulated into doing so."

The last 5 years have seen key developments in Greater Manchester cyber position in the UK. From the location of the GCHQ's hub and the National Cyber Security Centre, to the launch of the Cyber and AI Foundries and the Manchester Centre for Digital Trust and Society at the University of Manchester, the city region is growing its cyber ecosystem and its world class reputation for digital security.

In launching the National Cyber Force, Ben Wallace confirmed that the North West is now the *"Cyber Centre of the UK"*, which has the potential to consolidate Greater Manchester's position as world leading in global cyber with its location in the North West Cyber Corridor.

This cyber strategy sets out a 5-year route to further grow our cyber ecosystem, and through that growth, ensure a more prosperous, fairer and greener place.

In Greater Manchester, we see cyber as synonymous with responsible digital security. We need to ensure that our businesses, services and people are able to operate in a safe and secure cyberspace, whilst benefitting from doing so, and enhance the UK's overall defence and security posture in line with the National Cyber Strategy.

Cyber Centre of the UK

But digital security is about more than technology, it encompasses the ethics and trust that form the human element of a cyber secure place, in which Greater Manchester has significant strengths.

Our Greater Manchester definition of cyber is:
"The development of technologies, data, digital assets and talent to ensure the safety and security of our residents, built on trust and confidence to improve our resilience and develop a competitive advantage that will improve our prosperity."

By adopting a holistic approach to cyber, we want to ensure that Greater Manchester is leading the way in both developing and implementing global best practice in responsible cyber security.

Our approach will ensure that our cyber ecosystem is actively contributing to our local priorities and national government missions, including achieving clean growth, driving health innovation and ensuring national security. We will make sure that this is delivered in a way which is inclusive and responsible.

This strategy will set out the ways to achieve our vision:

"A world leading responsible cyber ecosystem that is driven by inclusivity and diversity for the safety, security and prosperity of Greater Manchester and the UK."

At the heart of our strategy, we have shared outcomes that we will strive to achieve for:

Our people

- Empowered and resilient citizens and communities
- Cyber savvy and inspired children and young people
- A diverse and inclusive talent pool

Our place

- Cyber reflected in decision making across the city region
- A distinct, vibrant ecosystem
- Cyber secure and trusted public services
- A recognised, integrated world-leading cyber research and innovation centre

Our partnerships
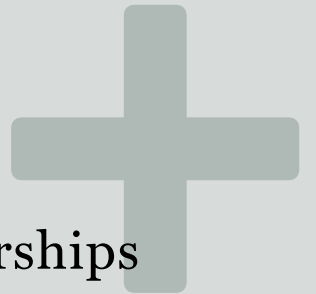
- Globally recognised brand values
- A collaboration led approach to regional and global partnerships
- A shared ownership and democratic legitimacy

Why cyber and why now?

Cyber in the UK

The UK is one of the world's digital pioneers, a leader in reimagining and developing a future enabled by technology. The amount of data we are consuming, and digital technology continues to increase at an exponential rate in almost every aspect of life. This trend has been accelerated globally during the Covid 19 pandemic.

We are also seeing more machines connected wirelessly and exchanging large volumes of data with other machines, humans, and the internet. It is this demand that will continue to drive the evolution of digital technology well into the future.

The multiplication of digital uses, devices and users is generating an increasingly complex landscape and is also creating more potential entry points for potential cyber attacks. Emerging technologies such as quantum computing and 5G will also create both opportunities and risks. Cyber security has become paramount to protect individual, businesses and states.

Cyber security will continue to evolve in both threat and response to those threats. Cyber criminals now have more innovative ways to perform more devastating and diversified attacks.

Cyber space will become more contested by those seeking strategic advantage and it is expected that there will be an increased competition for control of a rapidly evolving technological landscape.

The UK is already a leading cyber power. Over the past decade the government has led a sustained national effort to strengthen the UK's cyber security, raise public awareness of cyber risks, grow the cyber security sector, and develop a wide range of capabilities through cyberspace to respond to threats from hostile actors. While the country has made great progress and put itself in a strong position, it still faces significant challenges.

The National Cyber Strategy 2022 is the government response to these challenges.

It sets out how the UK in 2030 will continue to be a leading responsible and democratic cyber power, able to protect and promote our interests in and through cyberspace in support of national goals:

'...it is a strategic imperative to foster our competitive advantage in navigating this landscape'

This national cyber strategy was followed by the first ever **Government Cyber Security Strategy** to further protect the public services people rely on.

Cyber in the North West

The new **National Cyber Force (NCF)** will help to transform the UK's cyber capabilities to disrupt adversaries and keep the UK safe.

The NCF is a GCHQ and Ministry of Defence (MoD) partnership which will conduct cyber operations to disrupt hostile state activities, terrorists and criminals threatening the UK's national security – from countering terror plots to supporting military operations. Working alongside the National Cyber Security Centre – a part of GCHQ – which protects the digital homeland, the NCF will play a vital role in enhancing the UK's world-leading and responsible cyber power.

Its location in Samlesbury is a transformational opportunity for the region has the potential to cement the North West's position as the **Cyber Centre of the UK**[*] and realise levelling up ambitions as set out in the Levelling Up White paper. The NCF, a £5bn investment to 2030, will embrace exciting new offensive cyber technologies

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[*]   *"The permanent site of the NCF will be established in Samlesbury, cementing the North-West region's position as the cyber centre of the UK."* The Rt Hon Ben Wallace MP, **https://www.gov.uk/government/news/permanent-location-of-national-cyber-force-campus-announced**

and provide thousands of highly skilled jobs and expertise to the North West. It will have a major multiplier potential on the North West economies through pan regional collaborations.

This initiative will create a North West Cyber Corridor which will increase the interdependence of the Greater Manchester and Lancashire ecosystems and highlight the complementarity and expertise of their respective assets. The regions already have a shared commitment to collaborate for a regional benefit and build out on partnerships such as the Northwest Partnership for Security and Trust, a partnership which involves GCHQ, Lancaster University, the University of Manchester, Manchester Metropolitan University and the University of Salford.

Innovation hub HOST, has been also appointed as the North West delivery partner for a pilot of CyberFirst Schools, run by GCHQ's National Cyber Security Centre (NCSC), to champion cyber education in the region's North West Cyber Corridor. This reinforces further the desire to see the North West leading on innovative cyber security initiatives.

Cyber in a Connected Place

The fundamental aim of a connected place is to enhance the quality of living for residents through collaborative, interactive, and connected technology. It provides a range of critical functions and services to its citizens. This makes the systems that the connected place are based on, an attractive target for a range of threat actors. A connected place will be an evolving smart and sustainable ecosystem, comprising a range of systems that exchange data, which will add yet further risks.

Cyber has a key role in the development of smart sustainable connected places. This is highlighted by the Smart Connected Place Principles of the NCSC which are *"Secure design, build and management of public realm technology, infrastructure, and data-rich environments."*

In Greater Manchester, we understand the role of cyber in secure and smart connected places. Specific cyber capabilities are being developed across our transport, health and care systems, but we also go further, by including ethics and trust in the design phase of our new technologies. This will help prevent and resist cyber attacks more effectively for organisations and help provide better citizen protection.

Cyber risks

As people are doing increasingly more online, and an increasing amount of data is shared and stored digitally, cyber risks extend well beyond the cyber ecosystem. Cyber security is equally relevant to businesses, charities, public services and people in their everyday lives.

It is therefore essential that we build our resilience and manage those risks.

The North West Cyber Resilience Centre is an important asset to minimise the threats and risks of operating in cyber space and to keep our people and organisations safe.

The North West Cyber Resilience Centre (NWCRC) is also a critical asset. Their ambition is that every business within our region will have the skills and knowledge to protect themselves from online attacks to make the region one of the safest places to live, work and do business, which aligns with our cyber strategy and the National cyber strategy.

Similarly, the Centre for Digital Innovation will use its research strengths in cyber security to increase resilience in new products and services to support business growth in SMEs.

A world-leading digital city-region

Greater Manchester is a place with a world leading digital infrastructure, where digital connectivity makes things better for people.

Our digital ambitions

Greater Manchester is a place with a world leading digital infrastructure, where digital connectivity makes things better for people. It is a place where a lack of digital skills is never a barrier to social mobility and employment, and public services are intuitive, joined up and available to all.

With a fast-growing £5bn digital ecosystem, and an exponentially growing global market the opportunities are limitless. Greater Manchester is a place where communities, business, academia and public services work together to create opportunity, innovate and invent; and where growth benefits everybody.

In Greater Manchester, we are doing digital differently. We are committed to being a digital city-region that puts our residents at the heart of our plans and are working towards our ambitions to be recognised as a world leading digital city-region.

Our Greater Manchester ambitions

We want Greater Manchester to be a place where everyone can live a good life, growing up, getting on and growing old in a greener, fairer more prosperous city region.

We need to work deliberately and collectively, going beyond meeting basic needs, empowering marginalised groups, and ensuring that people can participate fully in society with access to good education, skills provision and employment opportunities.

Our frontier sectors, such as digital and creative, have the potential to address some of societies biggest challenge like health inequalities or clean growth. We need to be driving productivity through Research and Development and a culture of creative innovation which will help to increase investment, resilience and create future jobs.

We need to evidence the position of Greater Manchester as a world-leading digital city region with the number of people employed in digital industries.

The role of cyber in realising our ambitions: a global influencer in cyber

Through greater collaboration, innovation and skills development we have a real opportunity to deliver improved productivity and resilience that benefits businesses and individuals across the Greater Manchester.

The exponential growth of the cyber sector will lead to the creation of high value jobs, which, in turn will contribute to deliver a good life, in a greener, fairer and more prosperous GM and will further reinforce Greater Manchester's position as a world-leading digital city-region. Explicit within our plans is community engagement to empower citizens and outreach to ensure we draw in cyber talent from across all of GM.

Our growing cyber ecosystem will reinforce our collaborative work between businesses, academia and public sector organisations which will lead to wider collaborations cross sectors, benefitting other areas of the economy and help strengthen the UK cyber ecosystem. It will enhance research and development and innovation, together with supporting the skills needed by our residents to access the cyber opportunities in a way which will be responsible, inclusive and ethical.

Cyber security will empower people by making them feel safer and more confident to use digital technologies for work, health, or to access online public services.

The Greater Manchester Cyber Ecosystem

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The North West has the potential to become the "**Cyber Centre of the UK**". With **339 active cyber businesses**, it represents **9% of the national number of cyber offices and 9% of UK based cyber security employment.** (DSIT 2022)

Department for Science, Innovation & Technology (DSIT) – UK Cyber Security Sectoral Analysis 2022, identifies **Greater Manchester as the largest contributor** to the North West region in terms of density of cyber firms, evidencing the **strong existing cyber cluster**.

Greater Manchester has a **thriving and diverse cyber ecosystem** which comprises over **120 organisations** and includes academic excellence, collaborative partnerships, innovation assets and apex organisations such as GCHQ.

Greater Manchester's **world-leading universities** are working in partnership enabling world leading cyber research to drive the direction and pace of innovation of the ecosystem. The **North West Partnership for Security and Trust** is undertaking research across 4 regional universities with GCHQ building on the legacy of the Cyber Foundry, academic partnerships will increase the regional stature for cyber.

Greater Manchester has a **large and high-quality education and training sector** that is well equipped to support the growth in demand for cyber professionals. Our universities, further education colleges and training providers are increasingly working together to produce new entrants, **upskilled individuals/career switchers** and highly skilled specialists to **meet the demand of the cyber sector**.

Other notable cyber assets span from the **Centre for Digital Trust and Society**, the **Greater Manchester Digital Security Hub (DiSH)**, **HOST innovation hub, the Northwest Cyber Resilience Centre and SPRITE+**. These assets are all contributing to the delivery of a holistic approach to the GM cyber sector development.

Furthermore, other organisations can be leveraged to provide further support to the core ecosystem. These include **Digital Futures**, **Innovation Greater Manchester (iGM), The Growth Company Angels, Northern Gritstone**.

Looking ahead

Our cyber ecosystem is fast growing which brings challenges about which we are not complacent.

We recognise the need to build a collaborative relationship across the entirety of the ecosystem, building on the maturity that exists at the core. We need to consolidate regional relationships to realise the potential of the North West cyber corridor; and elevate our emerging reputation for cyber innovation.

Utilising our key assets, and further building on the Greater Manchester brand, we will continue to develop and forge international partnerships, trade relationships, research activity and ensure we maintain our stature as a globally desirable destination of choice and a responsible cyber global influencer. This will enable business to develop and grow sustainably, facilitate sharing of knowledge and learning from our international partners, as well as ensuring that we attract the best talent.

We will need to develop further global partnerships that can stimulate innovation, such as the partnership between Greater Manchester and North Rhine-Westphalia, to build our cyber brand and profile, and to leverage investment: all of which are key to our ambition, as is ensuring that the academic excellence of our Higher Education Institutions is translating research and education into economic impact.

We recognise the need for a strong and co-ordinated focus on developing skills and talent at entry and mid-career levels in order to respond to the growing demand of the sector and fulfil our sectoral ambition. We will work with partners in business, education and skill provision to further create inclusive opportunities for our people to acquire cyber skills.

The opportunity

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The cyber sector globally and in the UK

The Cyber market is growing at a rapid rate globally. The global cyber security market size is expected to grow to **266.2 billion USD** by 2027*. In the UK alone, it already delivers **£10.1bn annual revenue**.

* marketsandmarkets

$266bn
projected market size

£10bn
annual revenue

The cyber sector in the North West

Similarly, the cyber sector continues to expand in the North West, and the ecosystem is growing in depth and breadth.

The region counts **339 active cyber businesses**. The number of active firms has more than doubled in the region since 2019. The North West has more cyber offices than any other regions outside the Greater South East and **employs 5,000 people**.

The region is growing its market share whilst London and the South East's share remains at a similar level.

In terms of investment attraction, the regions outside of London and the South East are still underperforming. Whilst the North West attracted 10% of the number of deals, this only represented 0.4% of the total value of cyber investments (£3.8m), which indicates that there is an opportunity to increase the value of investments attracted in the region. Our universities are committed to working together to drive innovation to support attracting more investment in Greater Manchester. This would, in turn, increase the productivity and attractiveness of the sector for new entrants.

Greater Manchester has a big part to play in the establishment of the North West Cyber Corridor. It brings the weight of a large conurbation, in terms of attractiveness, people and talent, a £5bn digital economy and the strength of its growing and dynamic cyber ecosystem.

Greater Manchester cyber sector

The cyber sector in Greater Manchester is driving the growth of the cyber sector in the North West. Greater Manchester has **over 150 cyber** companies registered in the city region and more than double that number that are trading.

Greater Manchester is home to a mix of global organisations such as BAE, NG, Raytheon, and to a growing wealth of SMEs and start-ups (i.e. Digital Oracles and KoKu).

GM's innovation ecosystem is underpinned by nationally and internationally significant Research and Development (R&D) assets, clusters of innovative SMEs, major global businesses, and highly skilled people concentrated in four complementary and interconnected frontiers sectors: sustainable advanced materials and manufacturing, health innovation and life sciences, digital and creative, and net zero.

Cyber, as a cross cutting technology aligns with all the frontier sectors, and therefore has the potential to maximise opportunities for the City Region, and to diffuse innovations across the very large and diverse economy.

Businesses, public services and citizens will be able to benefit from combined leaps in technology and innovation emanating from this alignment, which will deliver better, safer, responsible and ethical solutions.

Greater Manchester has over **150 cyber companies** registered in the city region and more than double that number that are trading here.

GCHQ's Greater Manchester experience

We have set up our **newest office** right in the heart of Manchester to break down the barbed-wire barriers of the past.

It's allowed us to work alongside industry and academia in new and exciting ways, giving us fresh perspectives on some of our biggest challenges. Heron House opened in late 2019, in Albert Square in the centre of Manchester, contributing to an already thriving technology scene. We use cutting edge technology and technical ingenuity to identify and disrupt threats to the UK while allowing us to draw on the talents of companies and people in one of the most vibrant and diverse cities in the UK.

The offices come **complete with public space designed for welcoming local technology start-ups** and innovators to collaborate with us on some of the biggest tech challenges of the day.

This is part of **GCHQ's** wider outreach work in the North West. We regularly invite students and young people into our world to give them a taste of what we do; to encourage them to explore their passion for technology and to learn first-hand what a career in national security looks like.

Greater Manchester's vision and desired outcomes

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Greater Manchester's cyber vision is to become a

"World leading responsible cyber ecosystem that is driven by inclusivity and diversity, for the safety, security and prosperity of Greater Manchester (GM) and the UK."

The five pillars of our strategy

Our strategy sets out the five pillars guiding and organising the specific actions we will take to deliver this strategy successfully by 2028:

01
Bold and ambitious **collaboration**

02
Driving **innovation** and **investment**

03
Creating **accessible** routes into cyber

04
Representing **diversity** in Greater Manchester

05
Promoting cyber and being a global influencer

Pillar 1: Bold and ambitious collaboration

In Greater Manchester, we collaborate with purpose. Collaborative working is key to the region's success in cyber innovation, and there are already many great examples of how these partnerships are supporting this growing sector in the City Region.

The **Cyber Advisory Group** reflects the cyber security capabilities of Greater Manchester and drives forward inclusive economic growth for the city-region and the North by taking an ecosystem approach to build capability and economic resilience.

In addition, **SPRITE+** is a network of over 800 organisations which brings together people involved in research, practice, and policy with a focus on digital contexts to building collaborations across the spectrum of issues relating to security, privacy, identity and trust.

01

We will:

Create a collaborative environment that extends across the cyber ecosystem

Co-ordinate and enable the cyber ecosystem

Maximise cross sectoral co-location

Partnerships between four universities of the region have already delivered programmes such as the Greater Manchester Cyber Foundry and the AI Foundry for small-medium sized businesses to help with business growth and security and innovation.

Moreover, the **North West Partnership for Security and Trust**, a partnership between four North West universities, will foster collaboration across research, innovation, skills development, and public engagement, to produce new knowledge to benefit national prosperity and societal understanding of issues relevant to national security.

The **Greater Manchester Digital Security Hub (DiSH),** a collaboration between academia, businesses of all sizes from the largest corporations to SMEs and start-ups, public sector organisations and the voluntary sector, aims to develop ideas and solutions with real-world applications and enhance public and private sector cyber resilience and digital security.

HOST and **DiSH** also provide co-working spaces and incubators, such as **Edge Innovation Lab** (a partnership with Vodafone) which will maximise cross sectoral co-location to accelerate and enhance innovation in the private sector and support the expansion of our ecosystem.

We will continue to expand our ecosystem and intensify our truly unique level of collaboration between the private sector, academia, and the public sector to deliver a bold and ambitious collaboration. This will, in turn, help strengthen the UK ecosystem.

01

Greater Manchester Digital Innovation and Security Hub **(DiSH)**

DiSH is an initiative to help drive innovation and growth in Greater Manchester and the wider UK's digital and cyber security sectors, with an aim to support 500 startups and create over 1,000 jobs in Greater Manchester.

The DiSH is headquartered in Manchester in an 11,000 square foot state-of the-art space in Heron House. The space, available for co-working or private office space for businesses and entrepreneurs, will provide access to networking opportunities, business growth programmes and mentorship from industry experts.

The consortium of partners, appointed by Manchester City Council, provides a range of cyber and digital educational initiatives across the Greater Manchester Combined Authority, including business accelerators and secure digitisation programmes. Support also includes training and support for businesses, business owners and employees through workshops and seminars and upskilling over 1000 individuals in the next five years to help them access opportunities in the growing sector, with a focus on deprived local communities to promote social mobility through innovation.

01

Pillar 2: Driving innovation and investment

Greater Manchester has a collaborative, inclusive and responsible cyber ecosystem that will drive innovation and investment for the safety, security, prosperity and resilience of the city-region and the UK.

The city-region's excellent scientific capabilities will be further strengthened and integrated into an ecosystem that will deliver inclusive growth.

Already home to the National Cyber Security Centre's applied research hub which is working to identify the areas of technology most critical to the UK cyber power and with a focus on emerging technology in areas such as connected places and transport, we will strive to accelerate the innovation pace in Greater Manchester by harnessing the synergies between our frontier sectors, our cross sectoral technological capabilities and our research centres.

02

We will:

Utilise our Unique Selling Point (USP) to drive innovation and investment

Harness the synergies between frontier sectors and cross sectoral technological strengths

Align our resources to the strategic place and national priorities

Cyber underpins R&D and will generate growth across all our frontier sectors and key technologies such as artificial intelligence (AI) and advanced computing, as highlighted by innovation Greater Manchester. Digital security will also facilitate the diffusion of innovation to GM's very large and diverse economy.

Innovation GM **(iGM)**

Innovation GM (iGM) is a triple-helix partnership organisation, overseen by an industry-led Board, which brings together businesses, universities, R&D institutions, and public sector agencies.

2030 vision – Greater Manchester will be a leader of the fourth industrial revolution, known globally for the strength of its innovation ecosystem. We will realise this vision by having an intense focus on our global strengths.

This will be achieved by:

- Mobilising investment into existing and new innovation assets
- Building a connected innovation ecosystem
- Forging R&D collaborations
- Raising the global reputation of GM

The Innovation Accelerator will catalyse the changes needed to achieve this vision It will pilot proof of concept solutions to: improve the performance of existing local and national programmes; fill gaps in the North's innovation ecosystem; help design strong proposals for competitive national funds; and create best practice that can be scaled up in GM and the UK.

02

Some initiatives that will help us achieve this are already in place. Accelerators programmes such as **the iGM Innovation Accelerator**, **Cyber** and **AI Foundries**, **HOST** and **DiSH** are giving startups and SMEs the freedom they need to create and innovate but within a digital environment that is safe and secure from cyber criminals.

These initiatives provide a solid foundation for Greater Manchester to establish the city region as a leading cyber location in the North West Cyber Corridor, the cyber centre of the UK and as a global cyber influencer. We will build on those to accelerate innovation, to facilitate investment for innovators and to aid commercialisation of the R&D generated.

We will support the development of further initiatives such as the Turing Innovation Hub which will focus on AI and digital trust and will support the translation of cutting-edge AI research into commercial opportunities. This will improve our ability to anticipate, assess and

act on the science and technology development most vital to our cyber power. We will work collaboratively with partners to encourage academic spin-outs which will further contribute to the expansion of our innovation capabilities.

Digital and cyber diffusion will also be key to ensure that innovations are adopted by Greater Manchester businesses and population. We will support the development of initiatives such as the Centre for Digital Innovation, a comprehensive programme, building on the Cyber and Artificial Intelligence Foundries, to support the diffusion and adoption of digital technologies across the wider Greater Manchester business base. This type of initiative would facilitate the adoption of innovation by a larger number of businesses and people, making the access to technological innovation more accessible for all.

02

Pillar 3: Creating accessible routes into cyber

For our strategy to succeed, it is critical that we increase the size and diversity of our cyber talent pool. Cyber business growth and the demands of the sector will only be achieved if we can scale our talent pool.

We will work with businesses to identify their skills needs as part of the development of the GM Local Skills Improvement Plan and intensify industry engagement and commissioning to meet businesses current and future requirements.

To ensure that our people can benefit both from the opportunities created by cyber, but also from living a life which is safe and resilient, we will strive to create accessible and inclusive routes to cyber and celebrate diversity. This is a two-fold approach: increasing the digital literacy of our residents and creating routes to access cyber skills and careers opportunities, with initiatives such as CyberFirst School programme.

03

We will:

Facilitate skills brokerage

Support workforce development

Support the **development** of digital diffusion initiatives

It is important that we consider skills in the short, medium and long term and at all skills levels, from entry to mid-level and senior positions to enable the ecosystem to scale at pace.

Engagement with schools, FE colleges, training providers, universities, employers will need to be intensified to encourage more people to consider a cyber career. We will also promote the sector within Greater Manchester to inspire a larger number of people to contemplate a cyber career.

We will continue to support the creation and multiplication of bootcamps to facilitate access to digital security skills for students from different backgrounds and from those underrepresented in the tech sector, while also preparing them for the real-world cyber security job market.

We will continue to work with our universities and colleges, to expand the breadth of the digital security courses that they offer, leading the way in technical education transformation to provide a wider set of skills to meet the requirements of the cyber sector.

03

HOST | Salford's Home of Skills & Technology

Operated by IN4 Group, HOST brings together both the cyber and innovation ecosystems with a state-of-the-art Innovation Lab and combines this with the latest talent and skills training in the region.

Home to Skills City, HOST provides a cutting edge environment to help close the digital skills gap across the region. With skills training in Cyber Security, Cloud Engineering, Software Engineering and more, combined with real industry projects, the talent produced is having a profound impact on the industry and creating a diverse and sustainable pool of talent for the region.

The IN4 team at HOST also deliver National Cyber Security Centre (NCSC) CyberFirst programmes across the North West. Working with secondary schools and industry partners, our team inspire girls to consider

and pursue careers in the STEM industries through delivering programmes and events to students.

In partnership with Vodafone, HOST recently opened the Edge Innovation Lab which offers the opportunity for companies, academics, software developers and public sector organisations to see and test the possibilities of the next generation in network technology – Multi-access Edge Compute (MEC). Software developers and innovators in the

Greater Manchester region will have access to these technologies in the earliest stages of development. This head start will create a global centre of excellence for real-time mobile applications in the region, supporting the growth of digitally led businesses and industries in the area, as well as in the rest of the UK.

03

Pillar 4: Representing diversity in Greater Manchester

Greater Manchester is a region which presents a unique opportunity for cyber – a place with the ambition and strong civic mandate to ensure our world-class digital ambitions ensures no one gets left behind – helping everyone to live healthier and happier lives by being able to access and benefit from inclusive public services in an increasingly digital world.

Diversity is essential to create a thriving cyber ecosystem. It encourages creativity and innovation because every member of the ecosystem brings their own unique backgrounds, experiences, and perspectives to the table. In celebrating diversity, we will maximise the social and economic impact of our cyber ecosystem.

04

We will:

Maximise the social impact and ethical approach of our ecosystem

Ensure democratic legitimacy

Reflect and **celebrate** the diversity of GM

Diversity also has the potential to have a major impact on the talent pipeline and therefore on strengthening the cyber ecosystem. Promoting the cyber sector to a diverse audience and specifically to underrepresented groups in the sector, such as women, minority ethnic communities or at risk young people, could result in a larger number of people from a multitude of backgrounds to take steps towards a cyber career.

Besides, we will help support and intensify outreach activities such as **CyberFirst Empower North West** from the **National Cyber Security Centre (NCSC)**, which is a part of **GCHQ**, an initiative that aims to encourage a diverse range of young people to pursue careers in the cyber sector. A major objective of the scheme is to encourage girls to take an interest in technology during their school years. It aims to engage over 500 schools from across the region in the next two years.

We will help to maximise membership of the **North West Cyber Resilience Centre**, currently a 600 business community that offers free cyber support for businesses of all sizes, voluntary, community and social enterprises and the public sector. This will help improve the understanding of cyber risks and drive more efficient action on cyber security and resilience.

04

Pillar 5: Promoting cyber and being a global influencer

Greater Manchester will become a go-to destination to develop the best in responsible cyber with exceptional access to government organisation, research and academic organisations and a diverse business ecosystem.

We have already produced a cyber prospectus to promote GM cyber nationally and globally to support the expansion of our ecosystem and to attract further investments. Investment forums are being held in Manchester to help angel and venture capital (VC) investors to understand the potential of Greater Manchester start-ups and scale up businesses.

05

We will:

Be a **global responsible** cyber influencer

Offer a clear landing point and **support**

Deliver landmark events

We will organise and host trade missions to ensure that businesses across the world get to experience cyber in Greater Manchester, showcasing our capabilities, both in research and technology, whilst witnessing the breadth and depth of our growing ecosystem.

Greater Manchester will continue to host cyber events and embed cyber within our vibrant programme of digital events, both regionally and nationally, working together to showcase and celebrate the fantastic cyber security capabilities we have and the inclusive economic growth that this brings to the digital-city region. We will also work to increase the number of international, national and regional cyber events in GM to support the promotion of the sector and increase our recognition as a global cyber influencer.

05

Greater Manchester's inward investment promotion agency **(MIDAS)**

MIDAS is the inward investment promotion agency for Greater Manchester, with a strategic aim to secure significant levels of new investment for the city region to create and safeguard jobs.

This is achieved through the global business marketing of the city region's key sectors and the provision of an extensive package of free advice and assistance for potential investors and location consultants.

MIDAS has helped hundreds of businesses successfully relocate to or expand in Greater Manchester.

By providing the company with access to expert knowledge and local intelligence, MIDAS helps to de-risk the business investment and can ensure a faster and more successful relocation or expansion.

Support is available to both national and international firms of all sizes that are considering or wish to relocate to (or expand in) Greater Manchester, and includes:

- Investment case development including market intelligence and research

- Sourcing property solutions

- International market support

- Advice on recruitment and training

- Introductions to appropriate networks, suppliers, agencies and educational establishments

- Help to understand and navigate potential market opportunities

05

Delivering the strategy

The Cyber Advisory Group

The Cyber Advisory Group (CAG) is a multi-agency forum representing the breadth and diversity of the ecosystem. The CAG is the strategy owner and has primary responsibility for strategy formulation and management. It will provide strategic oversight and a force for inclusive economic growth, taking an ecosystem approach to building that capability and economic resilience.

The Cyber Advisory Group's ambition is that Greater Manchester be recognised as a world class centre for cyber security and digital trust, and No. 1 in the UK with strengthened links to similar centres internationally and define routes to achieve that.

We want to:

Become known as a **responsible cyber centre** for excellence and scale in research

Deliver **excellence** and scale in commercial and government activity

Define routes to a motivated, **diverse** and high-quality talent pipeline

Encourage **high levels of innovation** across a wide and active ecosystem

Develop a globally recognised reputation as a **cyber influence**

a **world class** centre for cyber security

The group will guide and inform the activities within the Greater Manchester (GM) cyber portfolio of activities, identify new opportunities and progress, and ensure relevant connections are made across to the other activities within the Greater Manchester digital sector and beyond.

The role of the group is to bring together representatives of the city-region's cyber ecosystem in Greater Manchester to guide and inform the GM Cyber strategy and work streams.

Specifically, it will:

- **Provide** aspirational input and **co-ordination** into the design of GM Cyber activities and capabilities

- **Initiate**, **evaluate** and **prioritise** opportunities

- **Monitor** the performance of individual work areas

- **Align activities** across the sector in Greater Manchester and act as a central interface with partners and related policy areas

- **Review and support** the resolution of GM Cyber risks and issues

- **Provide** a means of representing the sector in Greater Manchester to wider stakeholders regionally, nationally and globally including to central Government and industry bodies

- **Raise awareness of priorities**, activities and progress across GM by championing initiatives

- **Escalate opportunities** and risks or issues to the GM Digital Steering Group

The CAG will also act as a catalyst to leverage resources across the ecosystem and other organisations, clusters and regions.

The CAG will take a lead role in developing key relationships and partnerships to strengthen the North West Cyber Corridor.

By involving wider stakeholders during the course of its work, the CAG will create a sense of shared ownership of problems and solutions, of trust, openness and accountability to benefit Greater Manchester and its people.

Development of an action plan

The CAG will develop a comprehensive action plan, which can then be acted upon by members of the ecosystem or partner organisations. **It will pay particular attention to developing the following key areas**:

Visibility of the sector at a national and global level	Be a driving force in the establishment of the North West Cyber Corridor and promote the GM responsible cyber sector to investors, businesses and government, with a mix of events, talks, prospectus, public relations, mayoral cyber trade missions, cyber ambassadors from the CAG.
Government engagement	Continue and intensify work with GCHQ, NWCRC, NCF, DSIT.
Encourage further cyber innovation	Lobby for investment in the technologies pertinent to cyber.
Encourage further cyber collaboration	Coordinate a private sector peer to peer network which could generate further innovation and the development of best practices in responsible cyber.
Promote the use of a responsible tech toolkit	Promote the use of NCSC responsible and ethical toolkit, which will aid businesses in the development of their responsible cyber technologies.
Commercialisation of research	Support and help to further develop academia and business collaborations. This could be linked to attracting potential UKRI funding to support innovation journeys to commercialisation.

Diffusion of innovation	Create an entity to translate university research and innovation to SMEs and the supply chain.
Scale up support	Leverage partnerships with business support organisations and business investors to support and fund scale-ups.
Talent pipeline	Promote the cyber sector within GM to draw more people into the sector and expand the potential talent pool.
Mid-level talent	Invest in further skills development frameworks with a particular emphasis on mid-level talent.
Clear pathway into cyber	Continue to work with educations and skills providers to develop clear pathways into cyber, with various entry points (school leavers, colleges, universities, bootcamps, upskilling and re-skilling workforce).
District engagement	Engage on cyber with all 10 local authorities in Greater Manchester to ensure that each district can benefit and contribute to the development of the GM cyber sector.
Understand diversity	Work with communities to better understand and address the barriers to enter and thrive in the cyber sector.
Foundational economy	Develop the absorptive capacity of businesses in the foundational economy which will result in an increased capacity to learn and use scientific, technological or other knowledge that exists outside their sector.

Measuring our impact

We want our strategy to make an impactful difference to the cyber sector in Greater Manchester.

We have set a clear vision, our desired outcomes and defined our 5 pillars of action.

As the work progressed, we will use the following headline metrics to measure the impact of our cyber strategy. We will develop wider metrics as the work progresses to ensure that the headline metrics are achieved in full.

Grow the value of GM cyber ecosystem:
- Sector GVA
- Inward investment
- Value of investment

Intensify GM cyber innovation:
- R&D spend by public and private sectors
- R&D collaborations

Promote GM responsible cyber sector to become global influencers:
- Digital Capital Index ranking
- Inward Investment

Inclusive and representative:
- Individuals attending outreach programmes, focusing on attracting those from underrepresented groups
- Individuals completing training opportunities, promoting entry pathways to underrepresented groups
- Organisations achieving cyber accreditations

Glossary

Cyber	Involving, using, or relating to computers, especially the internet.
Cyber security	Cyber security is how individuals and organisations reduce the risk of cyber attacks. Cyber security's core function is to protect the devices we all use (smartphones, laptops, tablets and computers), and the services we access – both online and at work – from theft or damage. It's also about preventing unauthorised access to the vast amounts of personal information we store on these devices, and online. (NCSC)
Digital security	Digital security is the collective term that describes the resources employed to protect your online identity, data, and other assets. Digital security refers to the economic and social aspects of cyber security, as opposed to purely technical aspects and those related to criminal law enforcement or national and international security. (OECD)
STEM	Science, technology, engineering, and mathematics is an umbrella term used to group together the distinct but related technical disciplines of science, technology, engineering, and mathematics.
Connected Place	A community that integrates information and communication technologies and IoT devices to collect and analyse data to deliver new services to the built environment, and enhance the quality of living for citizens. (NCSC)

terms

Innovation	[A]n innovation is a new or improved product or process (or combination thereof) that differs significantly from the unit's previous products or processes and that has been made available to potential users (product) or brought into use by the unit (process). (OECD 2018)
Diffusion	Facilitate the adoption of innovation by a larger number of businesses and people.
Gross Value Added (GVA)	Measures the contribution to the economy of each individual producer, industry or sector.
Angel Investor	An angel investor (also known as a private investor, seed investor or angel funder) is a high-net-worth individual who provides financial backing for small startups or entrepreneurs, typically in exchange for ownership equity in the company.
Venture capital (VC)	Is a form of private equity and a type of financing that investors provide to startup companies and small businesses that are believed to have long-term growth potential. Venture capital generally comes from well-off investors, investment banks, and any other financial institutions.

terms

Centre for Digital Innovation	A comprehensive programme, building on the Cyber and Artificial Intelligence Foundries, to support the diffusion and adoption of digital technologies across the wider Greater Manchester business base.
Centre for Digital Trust and Society	A focal point for research across the University that explores aspects of trust and security in our digital world.
Cyber First Schools	Collaboration between local schools, the National Cyber Security Centre (NCSC), national and local companies and organisations who share the aim of encouraging young people to engage with computer science and the application of cyber security in every day technology.
Department for Digital, Culture, Media & Sport (DCMS)	Department for Digital, Culture, Media & Sport (DCMS) helps protect and promote the UK's cultural and artistic heritage and help businesses and communities to grow by investing in innovation and highlighting Britain as a fantastic place to visit.
Department for Science, Innovation & Technology (DSIT)	In 2023 the responsibility for Digital moved from the Department for Digital, Culture, Media & Sport (DCMS) to Department for Science Innovation and Tech. Strategies published by DCMS including the National Cyber Strategy are now the within the remit of DSIT who are responsible for driving innovation that will deliver improved public services, create new better-paid jobs and grow the economy.
Digital Futures	Is a purpose-led technology training and services company. Their mission is to transform the lives of others, helping individuals from all backgrounds acquire the necessary skills and confidence to start a career in technology.

initiatives

GC Angels	GC Angels is a professional service driven by experienced equity specialists. With over 400 associate angels, institutional capital partners and in-house co-funds, they support SME's to raise early-stage, scale-up and growth risk capital ranging from £25k-£2m. Anchored in Greater Manchester and publicly backed, GC Angels responds to the early-stage equity market across the North with an aim to scale and coordinate Business Angel activity through enablement and increased market access.
Northern Gritstone	Aims to support the commercialisation of science and IP-rich businesses based in the North of England – many originating from their partners at the Universities of Leeds, Manchester and Sheffield. Many of these opportunities are in the UK's most exciting emerging sectors such as advanced materials, health technology, cognitive computation and artificial intelligence.
North West Cyber Resilience Centre (NWCRC)	A not-for-profit, police-led partnership, providing affordable, professional cyber security services to small businesses. The NW Cyber Resilience Centre was established in 2019 as the first centre in the country and the pathfinder to the National Police Chief's Council and the Home Office.
Sprite +	A network that brings together people involved in research, practice, and policy with a focus on digital contexts. They are a 'one stop shop' for engagement between academic and non-academic communities – a way for these communities to connect and a platform for building collaborations across the spectrum of issues relating to security, privacy, identity and trust.
Turing Innovation Hub	Initiative involving the University of Manchester, Greater Manchester Combined Authority, ID Manchester, the Turing Institute, and other stakeholders to develop a business case for a major investment in an Innovation Hub that will engage with the local economy to accelerate the translation of AI and Digital Trust technologies into practice.

initiatives

GREATER MANCHESTER
DOING DIGITAL DIFFERENTLY

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