**GREATER MANCHESTER** MANUFACTURING MACHINERY FOR TOMORROW - ROBOTICS, AUTONOMOUS SYSTEMS AND AI





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"Advanced Manufacturing showed significant growth last year, with a record number of exciting projects - companies investing here for the first time and existing businesses expanding - creating high-quality roles in Greater Manchester as a result of foreign direct investment. Thanks to the collaborative approach across the city-region from ambitious experts at our world-leading programmes, our position at the heart of the UK's largest manufacturing and advanced engineering cluster is growing stronger. Investment at government level will only help fuel this further."

Rhys Whalley - Acting Managing Director, MIDAS

# INTRODUCTION

Greater Manchester has a deep-rooted history of discovery, invention and an unrelenting curiosity that saw it at the helm of the Industrial Revolution.

The combination of world-class research institutes, leading minds and investment across diverse industries such as Advanced Materials, Recycling, Nuclear, Food and Drink, Aerospace, Energy, and Healthcare have built a collaborative ecosystem that continues to grow and diversify.

In the modern-day you'll see these core strengths continuing to power its status as a leading UK city of innovation and as we step into a rapidly transforming world of technology, this report will explore the Greater Manchester organisations and academia that are on the frontline of discovery; and the market opportunities in the industry that could define the future of manufacturing and beyond.



Juergen Maier, CBE

# LEARNING FROM THE PAST

# The history of manufacturing in Greater Manchester

1830

### 1761

The construction of the Bridgewater Canal 1761, recognised as the first English canal of major economic importance.

## 1803

Atomic Theory published by John Dalton, a precursor to all modern chemistry and our understanding of the weather.

First modern inter-city passenger railway started operating from purpose-built station at Liverpool Road.

## 1841

Sir Joseph Whitworth becomes the father of precision engineering in which he proposed a universal system for screw threads. By 1858 it was used universally.

1896

in the world.

Trafford Park became the first

purpose-built industrial estate



1904

Sir Henry Royce produced

the first car from his factory

in Hulme. This attracted the

who then set up the famous company Rolls-Royce.

attention of Charles Rolls.

# 1783

1764

First steam power mill set up by Richard Arkwright paving the way for mass production techniques.

## 1825

William Sturgeon invented the electromagnet the heart of Electrical Engineering.

# 1917

Ernest Rutherford changed the world when he split the atom at The University of Manchester - a breakthrough which resulted in the development of nuclear power. as well as cancer-fighting radiotherapy.

2004 Graphene was isolated for the first time by two scientists at The University of Manchester: Professor Sir Kostya Novoselov and Professor Sir Andre Geim.

# 2005

1948

The Manchester Baby.

the world's first stored

program computer, ran

its first program.

3D printing of human tissue developed at The University of Manchester.

2015 technology.

The Spinning Jenny in 1764 marked the beginning of the Industrial Revolution and brought with it the first fully mechanised production process.

# 2016

First UK city to be awarded the prestigious title of European City of Science, for the city's innovative endeavours in science and technology.

### 2021

Construction starts on the £16m University of Salford's North of England Robotics Innovation Centre (NERIC).

# 2022

Atom Valley given the green light to create a hub for innovation in advanced materials, manufacturing, and green technologies, with world-leading facilities.



National Graphene Institute opens pioneering research into the ground-breaking

# MEET THE EXPERTS



#### Gareth Edwards AMPI Programme Director and Strategy Lead for Advanced Manufacturing, National

Strategy Lead for Advanced Manufacturing, National Physical Laboratory (Eng, M.Res, C.Eng) Gareth drives the development of

the National Physical Laboratory's (NPL) Industrial Digitalisation strategy. He leads a talented team who are working hard to forge collaborations across industry, academia and government, using the extraordinary science and engineering undertaken at the NPL to help accelerate the UK manufacturing industry's growth and competitiveness.



#### Neil Eccles Head of Innovation at Rochdale Development Agency

Neil is Head of Innovation at Rochdale Development Agency and has secured more than £50 million worth of funding across numerous regeneration projects, working with the borough's business community to drive growth. Recently, Neil led on developing the Advanced Machinery & Productivity Institute - one of only five innovation projects across the UK to receive Government funding - alongside the National Physical Laboratory, Universities and local industry.



### Professor Samia Dr Nefti-Meziani OBE OBE Global Thought Leader in Honora

### Robotics and Artificial Intelligence

Professor Nefti-Meziani holds a Doctorat D'etat from Paris XI in Robotics and Artificial Intelligence. She is an international leading expert with 25 years' experience in the development of concepts, mechanisms and algorithms in the areas of both hard and soft robotics, automation and autonomous systems. She has made fundamental contributions in low-cost robotics technologies and has developed numerous wider practical crosssectorial technologies.



## a Dr Tony Bannan DBE OBE

Honorary President AMPI, Chief Board Advisor of Precision Technologies Group (PTG) Limited

Tony is a Chartered Engineer and an experienced technical, operations and managing director with extensive international experience (China, India, USA and Europe). He has been responsible for driving profitability and innovation in high-complexity manufacturing involving multiple large-scale project delivery, M&A and international contract negotiation.



### Professor Angelo Cangelosi

Professor of Machine Learning and Robotics at The University of Manchester

Angelo Cangelosi is Professor of Machine Learning and Robotics at the University of Manchester (UK). He also is Turing Fellow at the Alan Turing Institute. His main research expertise is on language grounding and embodiment in humanoid robots, developmental robotics, human-robot interaction, and on the application of neuromorphic systems for robot learning.



## Dr Vivek Koncherry

CEO of Graphene Innovations Manchester Ltd and Graphene Space Habitat Ltd (GSH)

Vivek is the CEO of Graphene Innovations Manchester Ltd and Graphene Space Habitat Ltd (GSH). Based at the Graphene Engineering Innovation Centre (GEIC) at the University of Manchester, the group is developing a type V all composite hydrogen storage tank and Space Habitat for sustainable human settlement in Space using an advanced robotic manufacturing process, advanced materials, and artificial intelligence.



### Juergen Maier CBE

#### Industrialist, Chair and NED (Made Smarter)

Juergen is Chair of the Digital Catapult, is the co-founder of vocL – a platform for responsible business voices, and Vice-Chair of the Northern Powerhouse Partnership where he supports the drive for the green re-industrialisation of the North of England. He advises tech start-up and scale-up businesses which are a key part of the industrial ecosystem creating the green 4th Industrial Revolution.



### Professor Joe Sweeney

Dean of School of Science, Engineering and Environment, University of Salford

Joe is Dean of the School of Science, Engineering and Environment (SEE). Throughout his career, Joe has gained extensive experience of working with UK and EU global tech companies, bringing industry and academia together on projects which have consistently delivered tangible impact. During his career he has been responsible for securing grants totaling over £9 million from charities, research councils and industry, both in the UK and internationally.



## e Dr Marilyn Comrie OBE

ent, CEO of the Manchester Innovation Activities Hub Passionate about growing the

diverse talent pipeline to plug net zero skills gaps, and catalysing greater inclusion within the innovation ecosystem, Marilyn is the CEO of the Manchester Innovation Activities Hub (MIAH). She also sits on the board of the Greater Manchester Local Enterprise Partnership, the governance committee for the National Electrification Skills Forum, and is the director of multi-award winning e-motorsport STEM education provider, the Blair Project.



## Barry Lennox FREng

Professor of Applied Control in the School of Electrical & Electronic Engineering at the University of Manchester

Barry is Fellow of the Royal Academy of Engineering and Professor of Applied Control and Nuclear Engineering Decommissioning at The University of Manchester. He holds a Royal Academy Chair in Emerging Technologies and was the Director of the Robotics and Artificial Intelligence for Nuclear (RAIN) Research Hub and academic lead for the Robotics and Artificial Intelligence Collaboration (RAICo) programme.



#### Dr Carl Diver Director of PrintCity and Reader in Industrial Digitalisation, Manchester Metropolitan University

Carl is the Director of PrintCity, a state-of-the-art 3D Printing facility in the heart of Manchester and leads on the Industry 4.0 activities at Manchester Metropolitan University and works closely with experts across the various disciplines to bring this digital expertise and know-how together. Manchester Met is leading the way in bridging the digital skills gap through teaching, research and knowledge exchange and aligns these activities with its focus on sustainability.



#### Hadi Jawaid Industry 4.0 Expert, Bouygues Energies & Services

As a process project manager, Hadi is an ambassador in the autonomous system and process engineering industries. Hadi has longstanding experience within Life Sciences, Energy, and Data Centre industry. With solid experience in consulting and contracting, he is responsible for managing all aspects of projects, from design management to execution and handover. With the leadership mindset in Industry 4.0. he is driving forward solutions and concepts to integrate autonomous systems and robotics in industrial manufacturing markets.



### DCI Chris Maddocks Head of The Cyber Resilience

#### Head of The Cyber Resilience Centre North West

Chris has a wealth of policing experience with him from both Greater Manchester and Cheshire Police, having worked across a diverse range of investigative roles including Child Sexual Exploitation and Serious Crime within Central Manchester, and developed his interest in cyber investigations when he set up the Cheshire Police cybercrime team. Chris has responsibility for the North West Cyber Resilience Centre.



### David Hilton

#### Director of Business Development, MIDAS

As MIDAS' Business Development Director, David leads the Advanced Manufacturing, Low Carbon, Digital, Life Sciences and Financial & Professional Services teams to effectively promote Greater Manchester and support companies to set up and to grow in the cityregion. Previously an MD of a company specialising in energy management systems and Head of MIDAS' advanced manufacturing team. David has a wealth of knowledge surrounding advanced materials, robotics and autonomous systems, and net zero.

# STEPPING INTO THE FUTURE

# The Advanced Machinery & Productivity Institute driving forward innovation

A critical aspect of driving innovation forward is the meeting of minds. This is what The Advanced **Machinery & Productivity Institute (AMPI) hopes** to cultivate.

Based in Rochdale, AMPI is an industry led project, devised by a consortium of regional businesses, collaborating with the National Physical Laboratory (NPL), the Rochdale Development Agency (RDA), the UK's Manufacturing Technologies Association (MTA), Universities and Training Partners.



In Atom Valley, Manchester, we are striving to create a better tomorrow. This can only be achieved when there is a dynamic, interconnected community of business leaders, local government and research organisations all having a shared vision.Rochdale is part of Atom Valley and has sought to transform the way we do innovation over the past five years. We have done this by actively collaborating with our business community to drive the economic transformation of the area. The power of our local industry, which specialises in Advanced Materials and Machinery, have now co-developed a series of physical developments, research programmes and skills development activities which are setting the foundations to realise a better tomorrow." Head of Innovation at Rochdale **Development Agency** 

AMPI IN NUMBERS £2bn in export sales within 10 years 20k high value manufacturing sector jobs £23m initial funding from UKRI's Strength in Places fund

Born out of an in-depth review into the state of the nation's advanced machinery sector, the challenges facing the industry highlighted the absence of a comprehensive manufacturing supply chain, undertaking research or modern technology adoption, creating a real gap in industry to increase the performance of the UK in the international market. Thus the concept for an Advanced Machinery and Productivity Institute (AMPI) to address these industry-wide challenges and position the UK at the heart of the fourth Industrial Revolution.

The Institute plans to deliver applied and translational research via a series of development programmes. These programmes are designed to stimulate and support rapid growth of the UK's advanced machinery and manufacturing sector as it transitions to digital solutions and autonomous robotic systems. Its specific goals are aimed at strengthening supply chains, creating high value jobs, and growing the sector locally, nationally, and internationally.

AMPI has set itself ambitious targets as a national institute. This includes creating over 20,000 new jobs, increasing GVA by £144 million over five years and quadrupling the size of the UK advanced machinery sector bringing the industry to the same level as Switzerland.

Manufacturing is a key and essential factor in economic growth - the global sector for advanced manufacturing machinery is valued at £125 billion per annum and the UK produces approaching £600 million worth of goods annually, approximately 1% of the global market (MTA, 2020). The top-5 producers being China, Germany, Japan, Italy and the USA.

Recognising the pivotal role of advanced manufacturing machinery, these countries have significant research, innovation and industrial development programmes on this area. Until now, The UK has no such national programme and the SIPF fund is seen as the first step towards its creation.

£2 billion pounds annum."

Dr Tony Bannan OBE



# POWER IN The place

Working together to achieve

Built on the existing strengths in Advanced Manufacturing and the connectivity provided by Greater Manchester and Rochdale's own industrial legacy, placing AMPI in Rochdale will have a profound impact on the place and its people.

Rochdale Borough Council's inward investment and development arm – Rochdale Development Agency (RDA) has supported the AMPI project since its inception and has committed to providing £15 million of capital funding towards AMPI's facilities from its Towns Fund, with further local government support being identified across Greater Manchester and West Yorkshire.

The AMPI team strongly welcomes the involvement, engagement and support of local, regional and national political leaders and policymakers, and hopes to inspire a wide group of interested parties to help them realise their proposals.

The institute will provide SMEs the opportunity to access the same type of R&D facilities bigger businesses have in-house, addressing the gap Catapults have been unable to fill. With a well-supported SME network, AMPI has the potential to act as a viable option for larger companies, like BAE Systems, to source UK-built advanced machinery.

Not only does Rochdale have the investment into R&D to unleash the potential of innovation in Greater Manchester, the bigger picture shows a wealth of opportunities.



"Together we will unleash the economic, technological and wealth-creating potential of this ambitious initiative.

Dr Tony Bannan OBE



### **Innovation Greater Manchester**

Innovation Greater Manchester (IGM) is a business-led partnership that harnesses the power of business, universities and local government to drive productivity and create quality jobs across all parts of Greater Manchester. The unique initiative could lead to £7 billion economic benefit and 100,000 jobs and its vision is to enable the city-region to be a leader of the fourth Industrial Revolution by 2030 fuelling productivity and prosperity across the North. The success of the plan will significantly impact on all Levelling Up Missions, reflecting more productive and R&D intensive firms, increased skills, higher quality jobs and reductions in health inequalities in all parts of the city-region. GVA will be up by 5%, compared to business as usual, a prize worth £3.8billion, according to official documents.

### Made Smarter in Greater Manchester

Made Smarter was created following an industry-led review commissioned by UK Government and led by Juergen Maier CBE, Co-Chair of Made Smarter. It is now a leading programme transforming the way the UK manufactures for the future. The national Made Smarter Innovation programme outlined the UK opportunity for industrial digitalisation and how to get there, through making it easier for businesses to adopt new and emerging technologies, to creating new, higher-paid, higher-skilled jobs and developing new concepts into vibrant markets. The Growth Company is the delivery partner for the North West, enabling makers to transform their everyday operations.

#### **High Potential Opportunities**

The UK has goals to reduce the amount of waste we create and a huge part of this will be achieved through worldleading research and innovation. Combined with Greater Manchester's ambition to be carbon neutral by 2038, the city-region provides companies with the perfect location to access support focused on sustainability. The Department for International Trade (DIT) has recognised Manchester as a High Potential Opportunity for Smart and Sustainable Packaging, in line with the UK's Plastic Pact thanks to its innovation in materials. DIT has also officially identified Manchester as an ideal location to invest in the UK's Lightweight Structures opportunity, due to its proximity to industry partners such as the GEIC and the Henry Royce Institute and easy access to end manufacturers including Bentley and Airbus.

# THE ADVANCED MANUFACTURING ECOSYSTEM

From research and development, architectural services and civil construction; to assembly, distribution and technical consultancy; Greater Manchester companies are well-established across the whole business life cycle.

Due to open late 2022, The £16 million, all-electric North of England Robotics Innovation Centre (NERIC) will be a focal point of Salford University's (UoS) commitment to industry collaboration, innovation and skills.

Adding even more value to Greater Manchester's technical infrastructure, the hub will provide a much-needed facility for small to medium sized industries to design, test and validate automation and robotics systems.

Bringing industry together with academics in a way that they haven't before is the aim. Available specifically for businesses based in Greater Manchester, NERIC will provide tech consultants and experts available to deliver 121 support, looking at the full feasibility of new systems and to actively troubleshoot problems for a fast, yet efficient commercial pipeline. Set in the purpose-built facility with specialist equipment, businesses from a wide range of backgrounds are encouraged to take up the service that will work across a wide range of sectors from net zero and healthcare technologies to vehicle automation and the development of smart cities will be covered.

PrintCity at Manchester Metropolitan University is a forwardthinking education and innovation centre specialising in 3D printing and digital manufacturing. Its unique combination of academia, additive manufacturing facilities and links to businesses of all sizes is a recipe for rapid production, with the research and development to truly bring ideas to life. PrintCity also runs the PrintCity Network - a £3.2 million funded programme - supporting SMEs in Greater Manchester with the adoption of 3D printing.

As an ever-evolving and fast paced sector, PrintCity's understanding of real-world application underpins every part of the consultation process, ideal for businesses that are looking to create to a high standard but may not know where to start. The state-of-the-art facility gives businesses and students from sectors as diverse as medicine, fashion and engineering access to CAD and additive manufacturing technology to design and create.

Greater Manchester's Universities have critical mass and breadth in interdisciplinary digital research and particular strengths in AI and data science.

This also is evident in the recent establishment of the Greater Manchester AI Foundry, a £6 million collaboration between four universities from the North West which supports businesses in harnessing the power of AI to unlock innovative new products / services and uncover business growth opportunities.

The focus for the Foundry, ran by Manchester Metropolitan University as the lead partner and supported by the University of Manchester, University of Salford and Lancaster University, is to increase the innovation capacity in SMEs across the city-region. This will create a ripple effect that will increase productivity and stimulate the demand for the regional industrial base.







# MEET THE MAKERS

Well known as the home of Graphene, The University of Manchester has made a major contribution to the discovery of revolutionary materials and innovation.

The sky isn't the limit, and with a (UK) space sector worth over  $\pm 16.4$  billion per year, scientists from Greater Manchester are optimising opportunities in this exciting market.

In response to this challenge, an R&D team led by Dr Vivek Koncherry - based at The University of Manchester's (UoM) own innovation accelerator, the Graphene Engineering Innovation Centre (GEIC) is exploring Space Habitat, looking to build pressurised vessels that will create a modular space station for Low Earth Orbit. These pioneering vessels are to be made from graphene-enhanced carbon fibre for sustainable human settlement in space using an advanced manufacturing process, advanced materials, and artificial intelligence. Combining two strengths – advanced materials and trustworthy automation – to create a USP for space.

Space is a fast-growing opportunity for exponential market growth - and provides an arena for the UK engineering sector to apply its world-leading expertise. The R&D being pioneered by experts at The University of Manchester to deliver revolutionary innovation in space habitat technology provides a model approach. Greater Manchester has combined two of its key engineering strengths – advanced materials and autonomous systems – to find a unique proposition on space tech innovation.

Dr Koncherry has built a pilot digital manufacturing line designed to handle materials of the future by integrating robotics, AI and IoT systems in his state-of-the-art Alchemy Lab based in the GEIC. He has an ambition to grow the manufacturing base in Greater Manchester and from this provide a model to underpin the UK's national capability to making advanced products.

The Department of Electrical and Electronic Engineering at The University of Manchester has a long history of researching and developing technologies for industrial applications.

A new generation of smart robots is being developed at The University that can be trusted to think and act for themselves in some of the most hazardous places on Earth - and beyond. 'Hot robotic' systems were originally designed to work in radioactive environments found in decommissioned nuclear reactors - but future assignments for this type of super machine will include deployment in nuclear fusion power, the offshore energy sector, agriculture and even outer space. 'Hot Robotics' is led by Professor Barry Lennox who also co-leads the Centre for Robotics and Al with Professor Angelo Cangelosi at The University of Manchester.

Bouygues Energies & Services is another company that uses automation to transform industries. Specialising in the design and build of cleanrooms, data centres, and industrial facilities, through automation, they now perform complex processes and meet performance demands in the scarcest of resources while increasing productivity, efficiency, and profit margins.

The autonomous systems can be tailored to suit individual requirements by working with both clients and end users to map the deliverables through several technical workshops at the beginning of each project, allowing varied levels of autonomy and human control. There are multiple approaches within the industry that can be adopted and contribute to the target of achieving carbon neutrality. One such approach adopted by Bouygues is increasing energy efficiency which reduces energy demand, wastage, and carbon footprint. The autonomous system also practices PPM (predictive and preventative maintenance) to prevent reduced efficiencies or downtimes.

Greater Manchester continues to be at the forefront of breakthroughs in Healthcare and Life Sciences and has developed a more streamlined innovation adoption pathway overseen by Health Innovation Manchester, with the aim of delivering new health and social care innovations at pace and scale representing a unique opportunity to life science companies.

Driving the commercialisation of its innovations and intellectual property, The University of Manchester's Innovation Factory works to capture and rapidly evaluate new inventions coming out of the university into the real world.

One University of Manchester Life Sciences company en-route to success is Imperagen, who are building unique technology to accelerate the development of enzyme biocatalysts and have secured a £3.5 million seed round of investment led by IQ Capital and Northern Gritstone to do this. Imperagen's proprietary technology combines cutting-edge computational design with synthetic biology and laboratory automation to speed up the process of developing optimised enzymes for pharmaceutical companies, enabling efficient and environmentally friendly manufacturing at industrial scale. The company's enzyme products will enable exciting new green processes, revolutionising old manufacturing routes by reducing use of raw materials, energy, and harmful by-products.

"If you want to implement nanomaterials - or indeed the next generation of advanced materials - into space application you will also need automation. In Manchester, everything comes together - you have expertise in both advanced materials and automated systems. The skilled people we need to work with are based in the same place, which creates a unique proposition." Dr Vivek Koncherry

Image: © Skidmore Owing and Merrill (SOM)

# SKILLS AND TRAINING

# Changing lives through smart industrial technology

According to a recent report published by the Northern Powerhouse Partnership, a skilled labour market was cited as the biggest driver for attracting investment into the North West; yet there is still a shortage of skills that needs to be addressed.

In a bid to tackle the lack of diversity in the tech sector, IN4 has established Skills City, a digital skills powerhouse set to transform talent diversity in the North West. At the heart of Skills City, it aims to break the barriers to the tech industry faced by those from underrepresented and disadvantaged backgrounds. As a leading promoter of skills, It has obtained £3.5 million through its operations.

To address this demand and create new economic opportunities, the Manufacturing Innovations Activities Hub (MIAH) founded by Dr Marilyn Comrie OBE, will launch at BASE by Bruntwood in Spring 2023 and will include 20,000 sq ft of dedicated industrial makerspace. This unique £4 million industrialisation and electrification skills training centre for manufacturing, transport and energy sectors, has a target to upskill, reskill and new skill a minimum of 5000 people over the next four years, through a mix of blended learning, including classroom, skills training on industrial grade equipment in the workshop areas, and online augmented reality.

Inspired by a fact-finding mission to New York City to unlock the concept enabling their success in upskilling disadvantaged Black and Hispanic students for hard-to-fill vacancies in highvalue added growth sectors such as advanced manufacturing and technology,

MIAH is an approved Cisco Netcad Academy and will work with a number of partners to provide industry standard training and accreditation in Digital Design, 3D Printing, Software & Programming, Cyber Security, AI, Sensors & Process Control, AR/VR, Low Carbon Propulsion, Batteries and Energy Storage Technologies such as Hydrogen Fuel Cells, Automation, App Development. In a bid to tackle the lack of diversity in the tech sector, IN4 has established Skills City, a digital skills powerhouse set to transform talent diversity in the North West. At the heart of Skills City, they aim to break the barriers to the tech industry faced by those from underrepresented and disadvantaged backgrounds. As a leading promoter of skills, It has obtained  $\pm 3.5$  million through its operations.

They have a particular focus on unity and accessible learning. Under-represented and disadvantaged background. Skills City provides people across it's 7 digital skills bootcamps including Cyber Security, Software Engineering, Immersive Technologies.





"I applied for the Skills City Cloud Engineering Skills Bootcamp because I'd been playing around with programming but was unsure which direction I wanted to take my career in. I really enjoyed working on my commercial project -I had the best time with my group and developed my cloud computing, AWS, Python, HTML and CSS skills. This Skills Bootcamp was instrumental in helping me start a career in cloud computing." Alex Lescionok, Student at the Cloud Engineering Bootcamp

# STRENGTH IN CYBER

Cyber security for autonomous systems and robotics has grown in relevance, as digital manufacturing for the future comes to the forefront. Recent statistics revealed in a report published by Deloitte showed that 90% of data breaches in the manufacturing industry involve IP, demonstrating just how critical it is to adapt cyber security precautions to avoid data breaches.

Manchester's cyber ecosystem sits at the heart of a thriving £5 billion digital economy and being the place where the knowledge economy intersects with industry, cyber firms are often drawn to the city-region by the opportunity to collaborate and innovate with the highly-skilled, specialist knowledge holders.

The Cyber Resilience Centre is also based in Manchester, a trusted, not-for-profit venture between North West Police forces and Manchester Digital, committed to developing a highly-skilled, industry-ready pipeline of cyber talent with realworld experience of delivering cyber security solutions to the business community.

Looking into the future, there is a growing trend in the cybercrime-as-a-service (CaaS) economy, where attackers can now rent or buy tools for an attack. This has freed up time to research and strategically target companies who are more likely to pay a ransom, hold higher value assets or otherwise provide better return on investment. Attackers are exploiting the change in companies having to adhere to data and cyber regulations such as GDPR and Cyber Essentials, by adjusting their ransom demands to make paying up more appealing to a company who are afraid and under attack rather than paying the regulatory penalty.

As we explore new and emerging technologies, it's important that innovation is protected and used for good, which is why the Cyber Resilience Centre is so important for local business.

"With such complex technologies in autonomous systems and robotics, cyber attackers aren't just interested in stealing or encrypting data, they may also be working to sell on designs to the highest bidder through the dark web or other criminal networks. It's necessary that controls are in place to ensure they aren't successful" DCI Chris Maddocks

# **ABOUT MIDAS**

Established in 1997, MIDAS, is the award-winning Inward Investment promotion agency for Greater Manchester, here to support national and international firms of all sizes that wish to relocate or expand in the city-region.

No matter what stage of the relocation or expansion decisionmaking process your company is at, MIDAS offers a free and confidential package of services that are tailored to individual business' needs, saving companies money, time and effort. Whether you require state-of-the art-labs, manufacturing space or advice on funding MIDAS can help de-risk your business investment and ensure a faster, more successful move.



To discuss the market opportunities for your business within Industry 4.0, contact Rachel Eyre today.



# Rachel Eyre

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