GREATER MANCHESTER INDEPENDENT PROSPERITY REVIEW

REVIEWERS' REPORT

March 2019

THE GREATER MANCHESTER INDEPENDENT PROSPERITY REVIEW WAS COMMISSIONED TO PROVIDE A DETAILED AND RIGOROUS ASSESSMENT OF THE CURRENT STATE, AND FUTURE POTENTIAL, OF GREATER MANCHESTER'S ECONOMY.

TEN YEARS ON FROM THE PATH-BREAKING MANCHESTER INDEPENDENT ECONOMIC REVIEW, IT PROVIDES A FRESH UNDERSTANDING OF WHAT NEEDS TO BE DONE TO IMPROVE PRODUCTIVITY AND DRIVE PROSPERITY ACROSS THE CITY REGION.

Independent of local and national government, the Prosperity Review was carried out under the leadership of a Panel of six experts:

Professor Diane Coyle
Bennett Professor of Public Policy, University of Cambridge, and Chair of the Greater Manchester Independent Prosperity Review

Stephanie Flanders
Head of Bloomberg Economics

Professor Ed Glaeser
Fred and Eleanor Glimp Professor of Economics, Harvard University

Professor Mariana Mazzucato
Professor in the Economics of Innovation & Public Value and Director of UCL Institute for Innovation and Public Purpose

Professor Henry Overman
Professor of Economic Geography, London School of Economics, and Director of the What Works Centre for Local Economic Growth

Darra Singh
Government and Public Sector Lead at Ernst and Young (EY)

The Panel commissioned studies in four areas, providing a thorough and cutting-edge analysis of key economic issues affecting the city region:

- Analysis of productivity, taking a deep-dive into labour productivity performance across Greater Manchester (GM), including a granular analysis of the 'long tail' of low-productivity firms and low pay;

- Analysis of education and skills transitions, reviewing the role of the entire education and skills system and how individuals pass through key transitions;

- Exploration of the city region's innovation ecosystems, national and international supply chains and trade linkages; and sources of global competitiveness, building on the 2016 Science and Innovation Audit; and

- Work to review the infrastructure needs of Greater Manchester for raising productivity, including the potential for new approaches to unlock additional investment.

Setting an ambitious agenda, this Reviewers' Report pulls together the four strands of analysis with findings from the comprehensive evidence review, the devolution progress report and the Call for Evidence, as well as an international comparative analysis undertaken in collaboration with the Organisation for European Cooperation and Development (OECD) and European Commission.

The Prosperity Review's findings and recommendations will underpin the ambitious Local Industrial Strategy that Greater Manchester is developing jointly with the Government and will inform the actions of local and national decision-makers from across the public and private, as well as the voluntary, community and social enterprise sectors in driving forward Greater Manchester's future productivity and prosperity.

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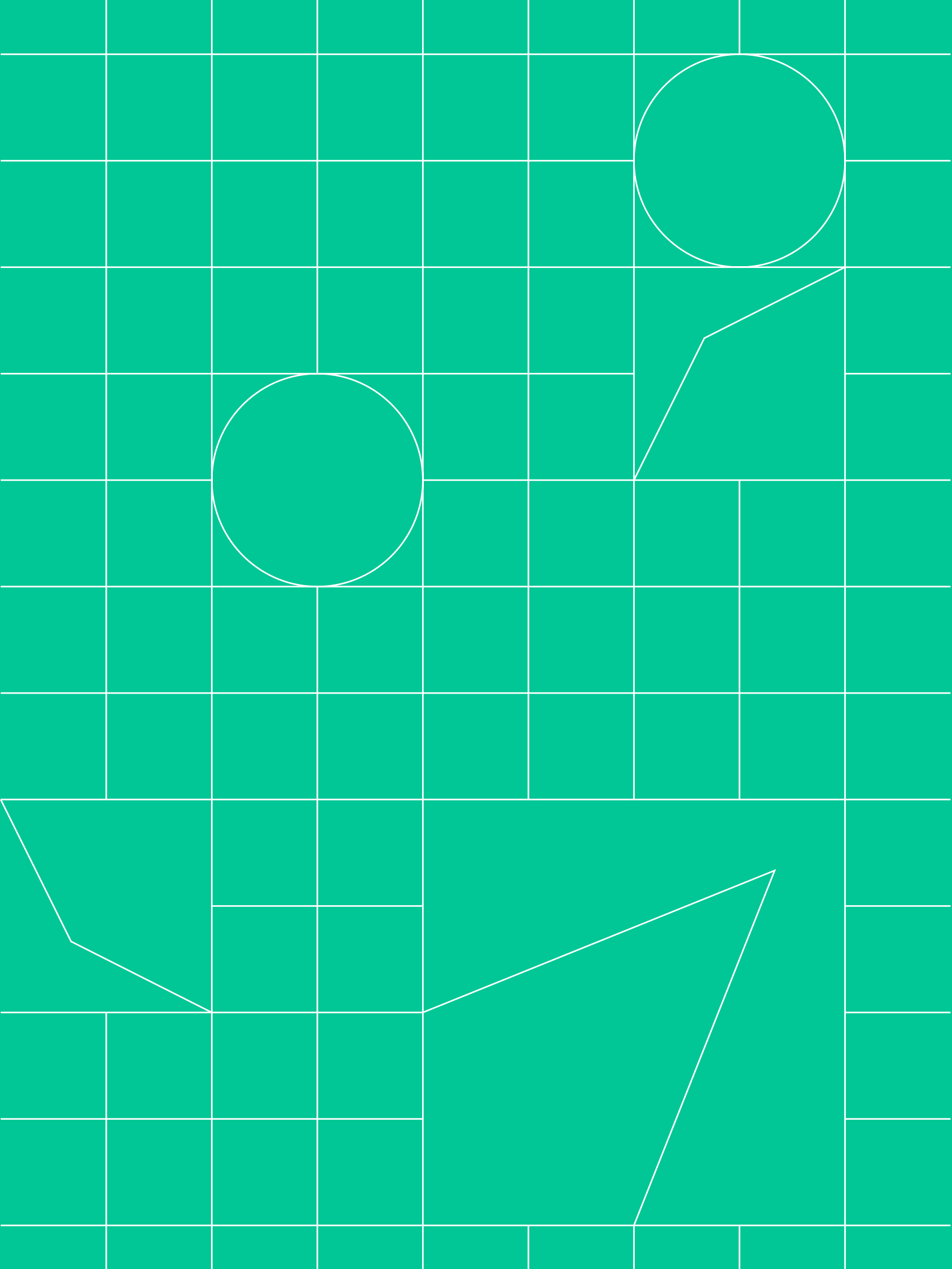


FOREWORD

It is probably no surprise to readers of this Review that the centralisation of policy-making in Westminster and Whitehall have played a significant part in shaping the UK's politics. What is less obvious is that this may have contributed to weaknesses in economic performance too. Productivity – and therefore living standards – in London and the South East of England are higher than every other part of the country. To increase the UK's national level of productivity will require everywhere to improve. If productivity rises only in London, that is no more sustainable than a plane flying on just one engine, either politically or in terms of economic growth.

The Manchester Independent Economic Review (MIER) ten years ago assembled a rigorous evidence base for the first steps in devolution and the strategies that were adopted in Greater Manchester (GM) at that time. One of its main conclusions was that GM was punching below its weight. Although the new research and evidence for the present Review show that much has improved, this fundamental conclusion still stands.

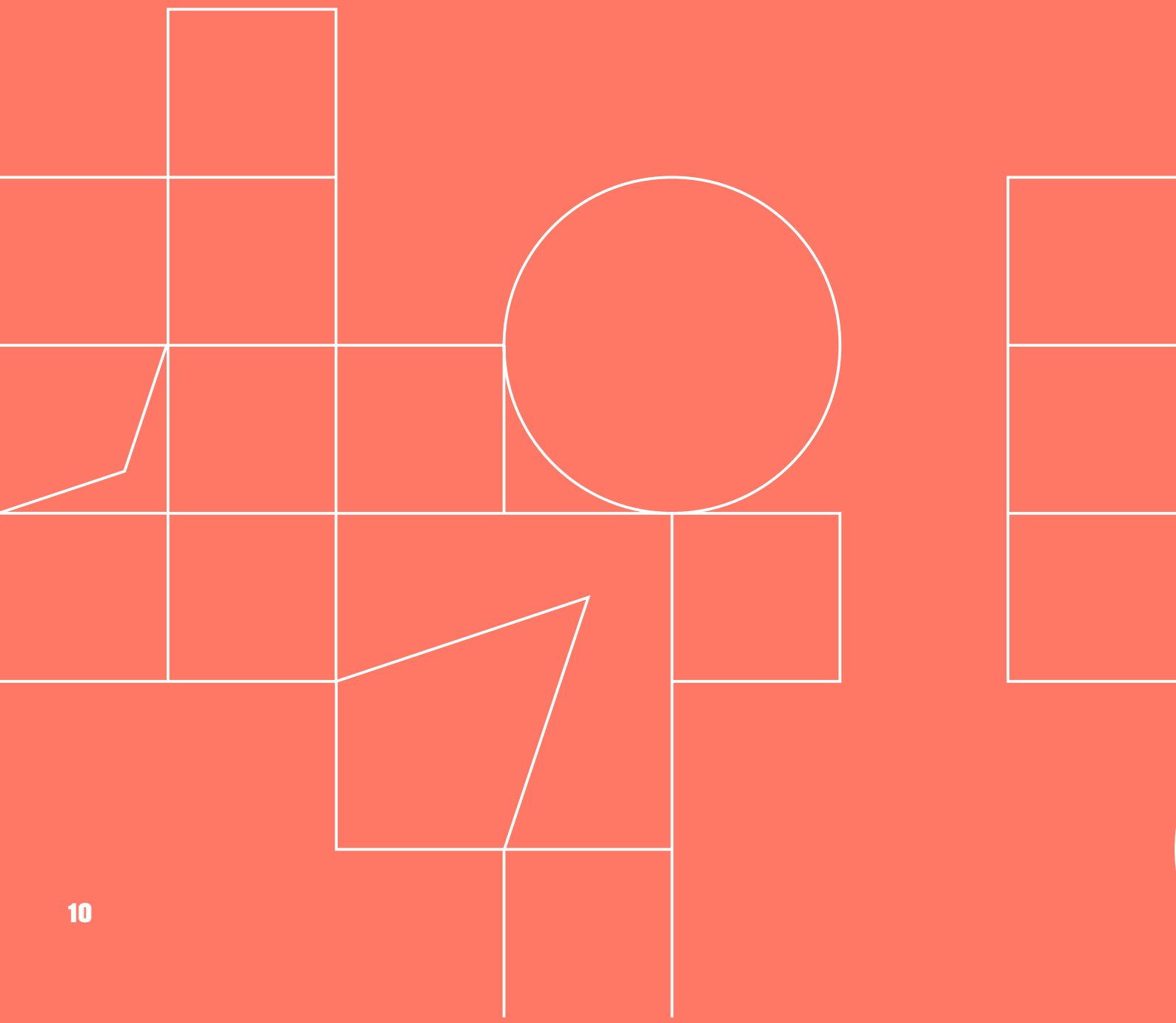
Our recommendations, addressed to central and local authorities, therefore add up to a call for ambitious actions on health, skills, innovation, the quality of jobs and the quality of the local environment. We believe further devolution of powers will be required to deliver sustained improvements in living standards for the people of Greater Manchester. This is why productivity

matters – not to keep economists or the Chancellor happy, but because over time it is essential if people are to have the ability to lead lives that satisfy them, in a pleasant environment and with meaningful work. The Government and Greater Manchester's Local Industrial Strategy should address the low productivity and low skill areas of the economy in the city region, to create good jobs around the whole of GM, as well as boosting productivity in sectors at the frontier of innovation.

It has been a pleasure and honour to chair this independent Review, and I am grateful to the distinguished Panel members for their generosity with their time and insights. We hope this report and the research underpinning it will make a useful contribution to the next chapter of the Greater Manchester story.

Professor Diane Coyle
Chair of the Greater Manchester
Independent Prosperity Review

01. INTRODUCTION




SILVER

The Greater Manchester Independent Prosperity Review has been an intensive nine-month process to update Greater Manchester's economic evidence-base. Ten years on from the path-breaking Manchester Independent Economic Review, our aim was to set a framework for local and national decision-makers who are tasked with making the city region a more prosperous place for its people.

This Review has been informed by a significant amount of existing and new research on Greater Manchester's economy. Much of the research undertaken for the Review has broken new ground, opening up access to new datasets and using analytical methods not previously applied to a UK city region. A large number of contributors, from academia, think-tanks, industry, the community and voluntary sector, social enterprise, and the public sector, have played their part in developing this evidence base and provided submissions to the Call for Evidence for the Review which complemented the work. It has been a genuinely collaborative effort.

The Review does not seek to be comprehensive, but it does provide a clear set of priorities where the evidence suggests there is potential for policy to have the greatest impact on the productivity of the city region and the lives of the people who live in it. While Greater Manchester has built the most developed institutional capacity of the UK's city regions, certainly outside London, the Review does suggest that new institutions, priorities and capacity will be needed for Greater Manchester's potential to be achieved. It will also be necessary to make existing assets and institutions work better and harder.

This Reviewers' Report starts with the Panel's recommendations, followed by a baseline description of how Greater Manchester has changed over the decade since the MIER in its economy and its governance. The final section contains a detailed overview of the Review's findings, emerging from the baseline and four thematic areas which have been the focus of much of our work. The full detail of the background reports can be found in a set of separate research overview documents published in March 2019.

The conclusions and recommendations indicate what policies and actions are needed to raise productivity and prosperity for everyone in Greater Manchester. Some parts of this policy agenda are directly relevant to the local industrial strategy being developed by the Government and Greater Manchester and should be straightforward to adopt through that route. Others will need to be taken forward through other routes, including the emerging proposals for a new model of public services in Greater Manchester, future iterations of the Greater Manchester Spatial Framework and Infrastructure Strategy, and the city region's plans for the environment and clean air. Some will be more difficult to implement and will require deeper discussions locally, and between local and national Government, to determine the right strategic response.

This is a report whose recommendations we hope and intend will be implemented. It cannot deliver everything for everyone, but by setting out how Greater Manchester can capitalise on areas of comparative strength, and address areas of structural weakness, we believe Greater Manchester will be best placed to deliver improved prosperity for all.

02. PROSPERITY REVIEW RECOMMENDATIONS

The evidence drawn together through this Review provides new insights into how Greater Manchester can fulfil its productivity potential, identifying opportunities where more progress can be made. The issues that need to be addressed are both at the high-skill, innovative frontier and in the 'long tail' of low productivity businesses. Differences in productivity between firms in the same sector are in many cases more pronounced than those between firms in different sectors, so there is significant potential for productivity growth across all sectors of the economy.

GM HAS WORLD-CLASS STRENGTHS IN ADVANCED MATERIALS AND HEALTH INNOVATION, SUPPORTED BY OTHER HIGH PRODUCTIVITY SECTORS: MANUFACTURING, DIGITAL AND CREATIVE, AND PROFESSIONAL SERVICES.

Greater Manchester has some world-class strengths, particularly in Advanced Materials and Health Innovation as identified in the 2016 Cheshire East and Greater Manchester Science and Innovation Audit, and they have been confirmed in this Review. These are supported by other high productivity sectors, which, if not nationally unique, remain important strengths and include: manufacturing, digital and creative industries and professional services. These sectors should be a focus for Greater Manchester's industrial strategy.

The balance of employment has however shifted towards lower productivity sectors and activities in recent years, as has been the case for the UK as a whole. The share of low productivity sectors in GM – those with lower than £30,000 GVA per worker, at 2013 prices – increased from 37.7% in 2005 to 41.8% in 2015. The social and spatial disparities within Greater Manchester contribute to the productivity challenge, and make it imperative to increase productivity and wages for lower skill activities.

Our recommendations are based on this dual challenge and draw on the detailed research commissioned for this Review. Some of those studies reinforce the importance of factors which have long been recognised as crucial for raising productivity: innovation and infrastructure. Just because they are familiar does not mean their importance should be underestimated.

Levels of skills are also often cited as a driver of productivity and our findings again highlight this. Recent analysis shows both that the benefits of agglomeration are greater for higher skill activities and that agglomeration effects are stronger in city regions which have higher skill levels. Analysis for this Review finds a link between the proportion of the population with at least level 4 qualifications and productivity; meanwhile, halving the proportion of residents with no qualifications could lift productivity by as much as 2%. The MIER's emphasis on improving the supply of skills should therefore remain. But less often considered is the importance to enhancing productivity of the demand for skills and how human capital is deployed in the workplace.

Another factor in productivity performance which is becoming much better understood, including through the studies carried out for this Review, is health and care. In our view, poor health in some Greater Manchester communities, creating a barrier to work and to progression in work, provides an important explanation for why overall growth has been slow in the last decade. It explains why some communities have been unable to contribute or benefit more.

Research by the Northern Health Science Alliance demonstrates the impact of tackling health inequalities across the North of England. It finds that up to 30% of the productivity gap with the UK average could be reduced by addressing ill health. Analysis undertaken for this Review has also found a correlation between productivity on the one hand and limiting long-term health conditions on the other, as well as conditions such as depression and adults reporting physical problems.

Our Review has also considered in detail two specific sectors where there is high employment but low pay and productivity: retail and social care. Greater Manchester should be looking to take advantage of opportunities to transform these sectors. For example, the city region already has emerging strengths in e-commerce and the use of technology in retail. Similarly, there are opportunities in health and care for in-work progression through the integration of NHS and

social care services and new technology-led innovations for care at home. As new digital technologies become ever more pervasive, it is to be expected that more 'foundational' sectors and traditional parts of the economy will find themselves at the frontier of technology and innovation. These are opportunities to be grasped.

Some of our recommendations will be challenging, but we believe that unless they are acted on, the opportunity to raise productivity through addressing social and spatial disparities will be missed. In some areas incremental improvements can be made, based on existing powers, resources, activities and relationships; others require more transformational approaches that depend largely on significant advances being made in the capacities that currently reside in a wide variety of national and local partners in public, private or voluntary and community sectors. Some of our recommendations should be taken forward in the Local Industrial Strategy being developed jointly by Government and Greater Manchester. Others point the way to a long-term, strategic approach that goes well beyond single electoral cycles and provides a route map for future development.

Although investment in assets is required, and Greater Manchester Combined Authority and the Government will need to consider how to finance this, most of our recommendations turn on improved governance and co-ordination, making the economy function more effectively as a system, and more effective use of existing resources through joining up and achieving a more productive balance between national and local decision-making about expenditure.

A significant development since the MIER has been the beginning of devolution and delegation of powers along with some resources to Greater Manchester, and the development of new institutional governance such as an elected Mayor for the city region. These have been welcome, but this Review shows there is still some way to go before the balance of responsibilities, powers and resources between central and local fully supports productivity growth.

HEALTH & PRODUCTIVITY

The interactions between poor physical and mental health and growth stand out dramatically in Greater Manchester. The proportion of the adult population in Greater Manchester with long-term health conditions in employment is nearly 13 percentage points lower than for the GM adult population as a whole. This demonstrates that poor health outcomes have a significant negative impact on the productivity of city regions. Health needs to feature far more prominently in discussions of human capital, labour market participation, and productivity. A focus on health and social care is also important for spreading prosperity and tackling disadvantage in some Greater Manchester communities.

The devolved structures integrating health and social care in the city region provide an important and, in England, unique opportunity to enhance productivity at the same time as improving service delivery. Greater Manchester should continue to work with the Government to progress further integration and develop practices that could hold lessons for elsewhere. Health outcomes, and their distribution, need to be monitored as an important indicator of progress in the areas of human capital and productivity.

Greater Manchester's Working Well programme and the subsequent co-commissioning of the Work & Health Programme have been successful, showing how local commissioning and integration can improve health outcomes. There is potential to build on this to find new approaches to improving human capital and productivity. The city region and Government should work together to put the Work & Health Programme on a long-term footing and there should be further

HEALTH NEEDS TO FEATURE FAR MORE PROMINENTLY IN DISCUSSIONS OF HUMAN CAPITAL, LABOUR MARKET PARTICIPATION, AND PRODUCTIVITY.

local control of employment programmes and services and benefits currently delivered by the Department for Work & Pensions and Job Centre Plus so that they can be better integrated.

This should include examining how the devolution of health and social care, local skills provision and other services can be integrated to address challenges such as progression in work and long-term unemployment among older age groups who have not so far been able to respond to economic sector and spatial changes in Greater Manchester. As with Working Well, the evaluation of new programmes should be built in from the start to ensure successful delivery and to learn lessons. But individual programmes and pilots also need to be provided on a sustainable base of local, integrated services. The Government and Greater Manchester should consider how the city region's emerging public service reform model, supported by innovation funding, can be put on a sustainable and long-term basis.

Health innovation is also one of Greater Manchester's strengths at the frontier of new innovation and high skilled jobs creation – and devolution can present opportunities to reinforce this. The evidence in this Review, building on the Science and Innovation Audit carried out by the Government, Greater Manchester and Cheshire East, shows that this can be a globally competitive strength. Health Innovation Manchester (a new institution bringing together industry, academic and research expertise, and health and care organisations) should strengthen the city region's health innovation ecosystem by better coordinating research and development and accelerating its application and diffusion across the city region for health and economic benefit. The proposed Pankhurst Centre would further strengthen the city region's health research strengths. The city region's growing digital and data capability (see below) should also be exploited to drive health innovation. This offers opportunities to combine progress at the productivity and innovation frontier with direct benefits for the whole of the city region's population.

HEALTH INNOVATION IS ONE OF GREATER MANCHESTER'S STRENGTHS AT THE FRONTIER OF NEW INNOVATION AND HIGH SKILLED JOBS CREATION.

Greater Manchester started the consultation process in January 2019 on ambitious environmental goals, including a target to be carbon neutral by 2038. While the carbon neutral ambition is impressive, the right thing to do based on climate change evidence and creates opportunities for innovation, improved resource efficiency and the development of new industries, the challenges it creates should not be underestimated. The process could act as a constraint on economic growth as the economy's reliance on carbon is diminished, unless it is implemented carefully. The quality of the environment in Greater Manchester will also clearly depend on the actions of other city regions and countries. These considerations mean the focus should be on delivering environmental improvements of direct benefit to Greater Manchester residents, such as improving air quality and housing, as well as providing other environmental benefits such as easy access to green space and urban planting. The city region does, however, have an opportunity to use these ambitions to drive mission-based innovation to attract investment and bring direct benefit to residents. The city region should ensure that, in delivering carbon neutral living within Greater Manchester by 2038, the benefits to the economy and to health and the quality of life in the city region are maximised.

IN DELIVERING CARBON NEUTRAL LIVING, THE CITY REGION SHOULD MAXIMISE BENEFITS TO THE ECONOMY, HEALTH AND QUALITY OF LIFE

SKILLS & PRODUCTIVITY

Greater Manchester has a diverse economy, in part because much of the growth in employment and output has occurred in low wage and low productivity sectors. The insight that the benefits of agglomeration are larger for higher skill activities and that agglomeration effects are stronger in city regions which have higher skill levels means that upskilling needs to be a priority both in terms of the supply side (provision of education and training) and the demand side (employers' business model choices and public sector rigidities in the face of spending constraints).

The education and training system in Greater Manchester suffers from similar challenges to other parts of the UK. As the evidence from this Review shows, the provision of education and training is patchy, fragmented and lacks co-ordination with demand from employers. There are too many underperforming schools in the city region – and no clear route through vocational training to higher levels. Despite many attempts, this has not been successfully addressed through national policy in recent decades.

Lessons should be drawn from the experience in Greater Manchester of the devolution of health and care – another area where national policy has found it difficult to make progress, but local integration has opened up new opportunities. There should be a Greater Manchester Partnership for education, skills and training, based on a common vision, priorities and evidence base, with a similar ambition to the Greater Manchester Health & Social Care Partnership to ensure that funding and other interventions are focused on the city region's priorities. As in health and social care, this could operate within national frameworks, but through delegation of powers, partnership between different tiers of government, and local convening, it could deliver a distinctive new approach to mobilising schools, local authorities, colleges and other training providers, employers, universities, central Government departments and the Greater Manchester Combined Authority.

THERE SHOULD BE A GM PARTNERSHIP FOR EDUCATION, SKILLS AND TRAINING, BASED ON A COMMON VISION, PRIORITIES AND EVIDENCE BASE, TO ENSURE THAT FUNDING AND OTHER INTERVENTIONS ARE FOCUSED ON THE CITY REGION'S PRIORITIES.

The evidence in this Review shows that priorities should be a focus on:

(i) Underperforming schools, where city region institutions are currently lacking and where lessons can be learnt from the experience of striking educational improvements in the capital, including from the London Challenge programme; and

(ii) Apprenticeships – particularly technical apprenticeships – which are a route out of disadvantage. Successful delivery of high quality apprenticeships at scale will not be achieved without close partnership work between the Government, employers and the city region. These groups should explore ways in which funding, including through the Apprenticeship Levy, could be better deployed at a local level.

It also shows that apprenticeships are an effective route for disadvantaged students into higher skilled and well paid work. Moving from an intermediate apprenticeship to an advanced apprenticeship is worth, on average, at least £3,000 a year in additional salary after three years.

PARTS OF GREATER MANCHESTER WITH LOWER PRODUCTIVITY, PAY AND LIVING STANDARDS NEED ACCESS TO JOBS IN THE CENTRE AND BETTER JOBS LOCALLY. THIS REQUIRES AN INTEGRATED TRANSPORT SYSTEM.

Greater Manchester should aim to increase the numbers of people entering 'technical' apprenticeships which are likely to generate the best labour market returns.

Ten years on after MIER identified early years as a priority, there remains a gap between Greater Manchester and the UK average on early years performance, notwithstanding the progress made in narrowing the gap since 2013. Nationally and locally, early years funding should be a priority, but many of the relevant powers and responsibilities in this area already sit locally. Greater Manchester should therefore maintain its ambition and accelerate steps towards a local system that learns from national and international best practice.

Graduate retention is an important ingredient in raising future productivity. Currently, some 39% of graduates remain in the city region six months after graduation, although not enough is known yet about lifetime pathways for people born in the city region. Research into this area should be undertaken, and used to improve outcomes for individuals. The evidence from this Review shows that poor skill utilisation is a significant contributor to poor productivity performance in the city region. While there are some high performing organisations, there is a long tail of low productivity businesses who are not fully utilising the human capital available to them. This is not just a challenge in the private sector. Other sectors with a large public and voluntary component, such as social care, share this weakness.

The Good Employment Charter, which the Greater Manchester Combined Authority is developing with employers and employees, is a clear signal of intent and ambition in terms of raising productivity and wages. It should be considered as a mechanism for improving leadership, skill utilisation and productivity, as well as for raising employment standards. Management skills need to be part of this agenda, as improving management quality will encourage demand for more highly-skilled employees and improve business processes, both contributing to productivity improvements.

THE GOOD EMPLOYMENT CHARTER SHOULD BE CONSIDERED AS A MECHANISM FOR IMPROVING LEADERSHIP, SKILL UTILISATION AND PRODUCTIVITY, AS WELL AS FOR RAISING EMPLOYMENT STANDARDS.

Greater Manchester also has a long history of developing innovative business models, such as social enterprises, which are often claimed to better deploy their human capital. While there is not yet compelling evidence that these can be more productive than other businesses, the city region has an opportunity to explore the effectiveness of such models and assess the evidence.

The city region has an extensive network of business advice services, by UK standards. These should be oriented to focus on productivity and the opportunities and challenges identified by this Review, with more piloting and testing of innovative approaches – particularly around support for better health. National and local programmes should be aligned and made simple for employers to navigate. They should have a particular focus on leadership & management, skills utilisation, innovation adoption and diffusion, resource efficiency, and on exporting and internationalisation. Networks among entrepreneurs in growing sectors such as digital, cyber security and artificial intelligence should be enabled and encouraged. The point at which poor physical and mental health impacts on productivity is within firms and other organisations. Greater Manchester should therefore focus on health outcomes that are most closely related to outcomes for labour and firms.

GREATER MANCHESTER SHOULD FOCUS ON HEALTH OUTCOMES THAT ARE MOST CLOSELY RELATED TO OUTCOMES FOR LABOUR AND FIRMS.

INFRASTRUCTURE & INNOVATION

The various parts of Greater Manchester have different patterns of activity. Their economic development should build on their existing strengths and the complementary roles they can play within the city regional economy. For parts of Greater Manchester with lower productivity, pay and living standards, there needs to be both access to jobs in the centre and improved quality of jobs locally. That requires an integrated transport system providing access to employment, education and other economic and social opportunities across the city region and aligned with major sites of employment. This will be necessary – if not sufficient – for tackling social and spatial disparities.

If Greater Manchester is to be a genuinely globally competitive international city region, it also needs wide digital connectivity, through fibre-to-the-premises investment and next generation mobile technologies, working with the market. There is a linked opportunity in Greater Manchester to build on the city region's academic and industrial strengths in digital, data, artificial intelligence and, more recently, cyber security, to explore routes to strengthen a growing ecosystem, and leverage commercial investment in the city region.

Progress has been made since the MIER in improving the transport network, particularly through the joint investment by central Government and Greater Manchester in the tram network. The programme to improve rail and bus service quality, reliability and integration – through rail devolution (franchising and stations) and bus reform – has progressed, but too slowly. Government and Greater Manchester should ensure they deliver this necessary local integration. New digitally-led approaches to transport integration – including as part of the Government's Future of Mobility Grand Challenge – may offer the potential to deliver integration at reduced cost and so should be explored as part of Government's and Greater Manchester's plans. However, integration requires institutional co-ordination as well as technology.

GOVERNMENT AND GREATER MANCHESTER SHOULD ENSURE THEY DELIVER LOCAL INTERGATION OF RAIL AND BUS SERVICES.

National infrastructure planning pays too little attention to the balance between national and local need. Inadequacies in Greater Manchester's infrastructure are placing an increasing constraint on productivity and employment growth. The Assessment carried out by the National Infrastructure Commission made a compelling case for increasing infrastructure investment but also devolving it, so that infrastructure can be better integrated locally. Following the recommendations of the MIER, the city region now has an integrated strategy for infrastructure and – as the National Infrastructure Commission recommends – this should be backed up by stable, substantial, devolved funding. The city region should work with Government to deliver the recommendations of the National Infrastructure Assessment through the next Spending Review period and beyond. This includes developing innovative local funding methods, learning from other UK and international examples, alongside national funding. Regional balance and funding should be made part of the National Infrastructure Commission's remit and it should also have a defined role as Greater Manchester's industrial strategy

THE CITY REGION'S INTEGRATED STRATEGY FOR INFRASTRUCTURE SHOULD BE BACKED UP BY STABLE, SUBSTANTIAL DEVOLVED FUNDING.

is implemented, along with the Industrial Strategy Council and the Natural Capital Committee.

Greater Manchester has a broad and relatively deep base of innovation activity. The city region should focus on areas of genuine future potential and comparative strength where national and international funding can be attracted, and where local investment can have significant local impacts.

When it comes to innovative sectors at the productivity frontier, the evidence points to clear Greater Manchester strengths in health innovation and advanced materials. The case for health innovation is set out above. In advanced materials, the city region is now in a position to learn the lessons from work that has been done to commercialise graphene, capitalise on the investment in facilities which has been made, and develop an appropriate partnership between the Government, the Greater Manchester Combined Authority, universities and the private sector. This should be informed by independent research.

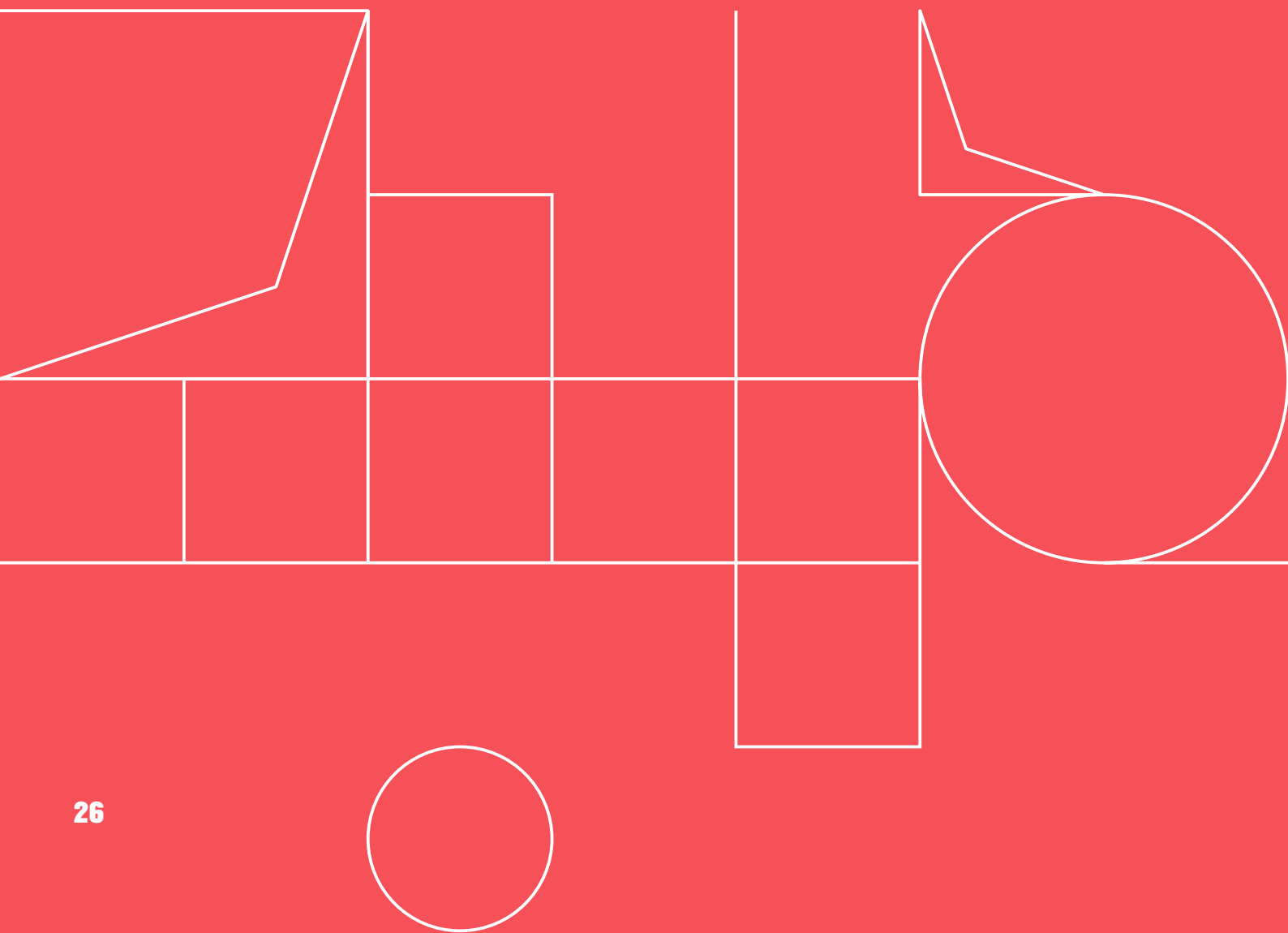
It should also be part of UKRI's remit to ensure that the wider regional distribution of research funds and alignment between research and strategic needs of the economy carry more weight in allocations.

EVALUATION

This Review has provided new and robust evidence to guide Greater Manchester's and the UK Government's strategic focus as they develop a joint local industrial strategy and wider plans. However, when moving to implementation, it remains the case that much of the evidence on "what works" at a local level to improve productivity remains untested and, as a result, contested. This is not a problem which is specific to Greater Manchester, or indeed the UK, but it will be important that Greater Manchester adopts an effective system of programme and project evaluation for all of the actions it takes forward to raise productivity. The UK Government should ask the national Industrial Strategy Council to take an overarching view of the effectiveness of local and national Government in delivering on the actions set out in local industrial strategies.

TO COMMERCIALISE GRAPHENE, THE CITY REGION SHOULD DEVELOP A PARTNERSHIP WITH GOVERNMENT, UNIVERSITIES AND THE PRIVATE SECTOR INFORMED BY INDEPENDENT RESEARCH.

03. GREATER MANCHESTER IN CONTEXT

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It is now ten years since the results of the Manchester Independent Economic Review were published. Built on the biggest dedicated research programme of a city region undertaken in the UK at that time, the MIER took an in-depth, independent look at the past performance and future growth potential of Greater Manchester's economy.

The MIER Reviewers' Report noted that Greater Manchester's size, connectedness and asset base suggested that, compared to similar city regions across the world, Greater Manchester was 'punching below its weight'. However, the right investment and policy framework could make it the city region best placed to achieve a level of growth that could complement London and the South East and play a key role in rebalancing the UK's economy.

A great deal has changed in Greater Manchester over the past ten years – a Mayor has been elected, a Combined Authority formed and six devolution deals, granting the city region new powers and resources, have been signed. Employment and population growth has been strong, with significant investment into the city region attracting businesses and higher skilled workers.

Substantial challenges, however, remain. Regional inequality persists and has widened since the financial crisis. Productivity rates in the UK and its regions have stagnated or fallen further behind other countries and regions. Skills gaps with the rest of the UK among both the young and old have remained stubbornly difficult to close.

In the decade prior to the 2008/09 recession, Greater Manchester experienced strong growth performance (in particular from 2004 onwards). Between 1998 and 2008 real Gross Value Added (GVA, the standard measure of economic output at a sub-national level) grew by 2.6% per annum in the city region, ahead of the UK average (excluding London) of 2.4% per annum; and similar to the UK average overall (2.7% per annum). Over the same period, real productivity grew by 1.6% per annum, the same as the UK, but ahead of the UK excluding London (1.4% per annum).

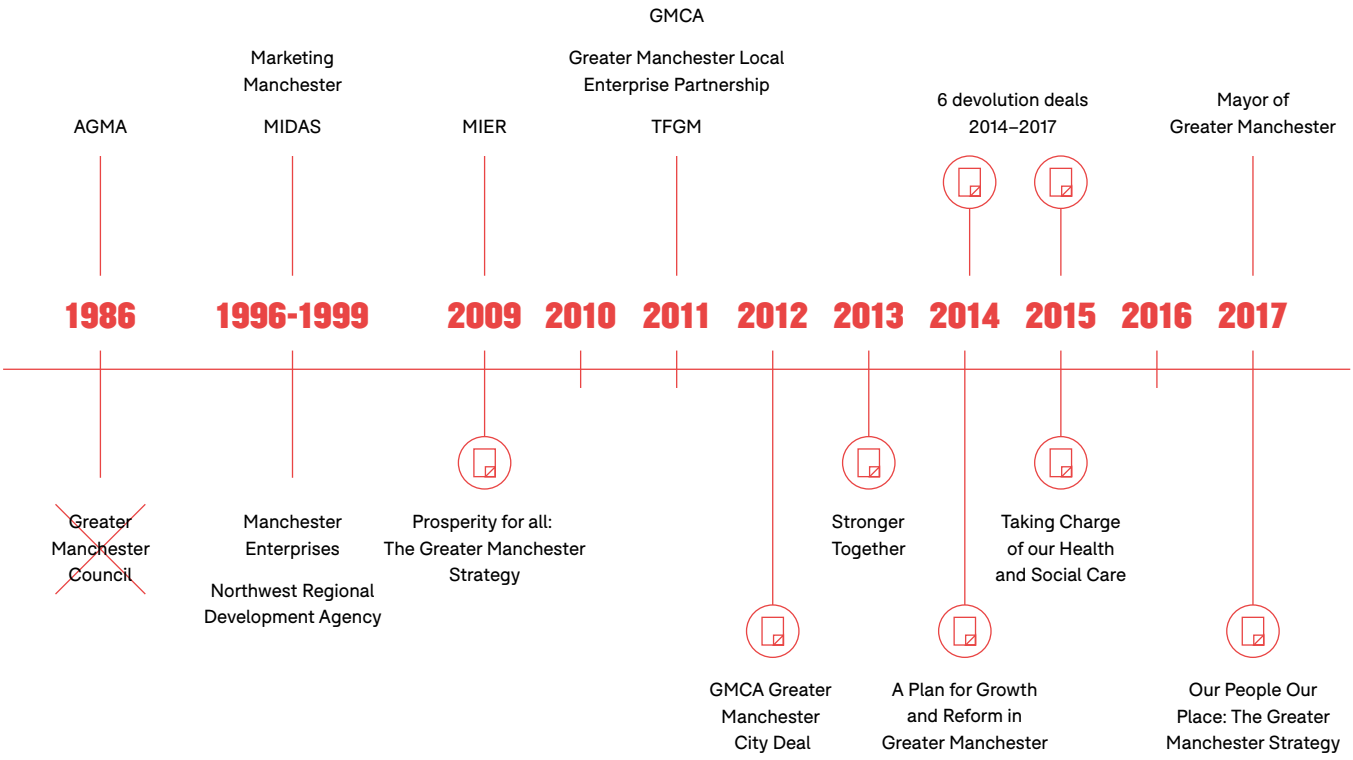


Figure 1: The road to devolution

There is no single explanation for this. It was a period of strong private sector employment growth nationally and locally and Greater Manchester was well placed to benefit from the national shift towards a service-led economy, given its existing service economy and office market, its large labour pool, and its concentrations of critical growth assets (including its universities and airport). Increases in public spending on programmes to boost employment and skills started to address some of the legacy of Greater Manchester's post-industrial decline. Increases in public sector employment nationally benefitted Greater Manchester, given its position as a regional public services hub. Beyond this, the period also coincided with the start of a number of large projects which helped further, including, for example, the development of the new financial district at Spinningfields, the extension of the Metrolink light rail system, improvements to the Motorway network, the development of MediaCityUK, and growth along the Oxford Road Corridor 'innovation district'.

The MIER was also one of the catalysts for a growing focus on the economic relationship between the cities and regions of the North of England – or 'Northern Powerhouse' as it became known – and the role of Greater Manchester within it[1]. Greater Manchester comprises 19.4% of the Northern Powerhouse GVA and 19.2% of total workplace employment. Perhaps the most important institutional demonstration of this was the establishment of Transport for the North and the developing case for improving connectivity, including high speed rail links. Networks and partnerships across the Northern Powerhouse have been developed among businesses, political and civic leaders, and by the Government. The economic success of this project will depend on a successful and productive Greater Manchester rising to the opportunities and challenges set out in this Review.

After the financial crisis, employment growth remained strong. 117,000 net jobs were created between 2010 and 2016, a growth rate of 1.4% per annum, almost in line with the national average (1.6% per annum) and faster than the UK excluding London (1.3% per annum) (Greater Manchester Forecasting Model 2018).

But the overall rate of economic growth in Greater Manchester slowed significantly after the financial crisis, falling to 1.5% per annum between 2010 and 2016, significantly lower than the national average (2.1% per annum). Real productivity growth fell to just under 0.1% per annum in the city region compared to 0.5% per annum in the UK from 2010 to 2016[2].

EMPLOYMENT GROWTH REMAINED STRONG BETWEEN 2010 AND 2016, BUT PRODUCTIVITY GROWTH WAS SLOWER THAN THE NATIONAL AVERAGE.

1. The Northern Powerhouse includes the three regions of the North West, North East, and Yorkshire and Humberside

2. When data on real estate is removed from both GM's and the UK's productivity performance (which includes imputed rental and property incomes), the gap in performance between the two narrows slightly, but not more than 1 to 2 percentage points. This case holds in the periods before and after the recession, and is broadly consistent across most comparable city regions in the UK.

Figure 2: Employment in Greater Manchester 1998 to 2016 (Index of 1998=100, forecasts from 2016 to 2018) (Source: Greater Manchester Forecasting Model 2018).

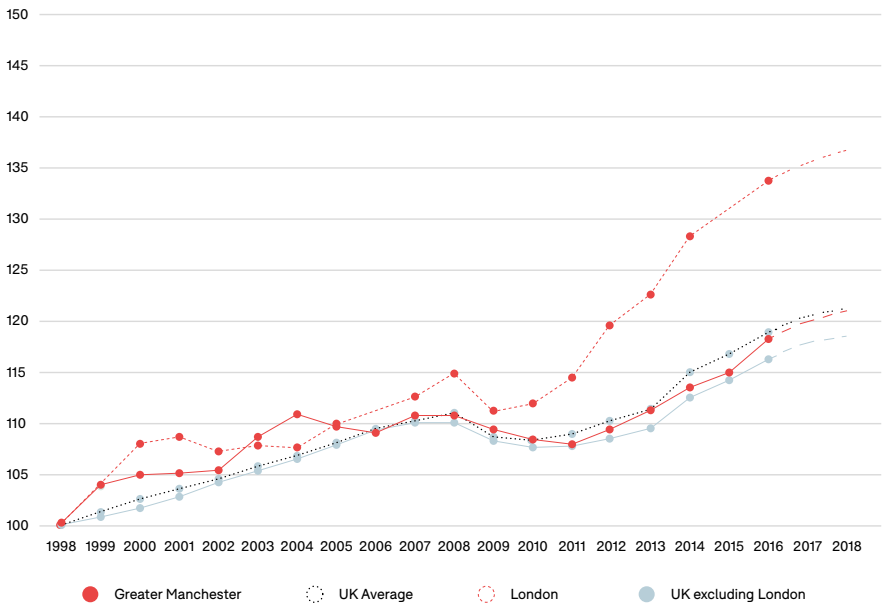
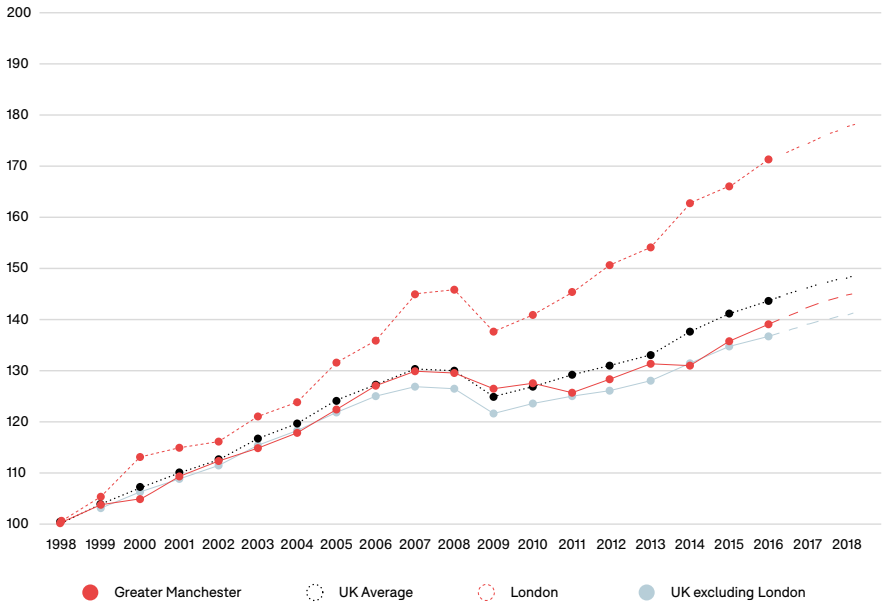


Figure 3: Total GVA in Greater Manchester 1998 to 2016 (Index of 1998=100, forecasts from 2016 to 2018) (Source: Greater Manchester Forecasting Model 2018).



Since 2016, estimated data on output and employment (figures 2 and 3 indicated by a dotted line) shows that Greater Manchester's performance is improving. ONS intelligence from the Business Register and Employment Survey complements this, provisionally suggesting another 36,500 net new jobs in GM's economy from 2016 to 2017. The Purchasing Managers' Index (PMI) surveys also show that the North West of England (the lowest geography available), has performed strongly in the last two-years (2016 to 2018), in particular Manufacturing, which has consistently outperformed many other regions across the UK (IHS Markit / NatWest UK, 2018). Business start-up rates have also improved sharply since the recession (growing by 29% in 2016 compared with 15% in 2015, and a UK average of 8% in 2016), with Greater Manchester being the best performing city region outside London on this measure (ONS, 2016).

Headline statistics do however mask significant disparities in performance across the city region. Between 1996 and 2016, total GVA grew by 83% in Manchester, 54% in Salford and 52% in Trafford. Comparable figures for Rochdale and Tameside, by contrast, were 24% and 8% respectively.

The importance of the regional centre was noted in the MIER and its importance has grown further since. The regional centre is now the location of one in five jobs in the city region and it accounted for a third (36%) of all jobs growth in Greater Manchester between 2010 and 2015. Its importance is illustrated by the fact that there are 60% more jobs in the Regional Centre than in all other major employment locations in the city region (the eight main town centres, Trafford Park and Manchester Airport and its surrounding area) combined. This job growth has been accompanied by strong population growth. The regional centre's population grew by 120% between 2001 and 2011, compared to 8.1% across Greater Manchester as a whole. The regional centre's population is also significantly younger than the rest of Greater Manchester: 16 to 44 year olds make up approximately 77% of the total population there, compared to 41% of the wider Greater Manchester population.

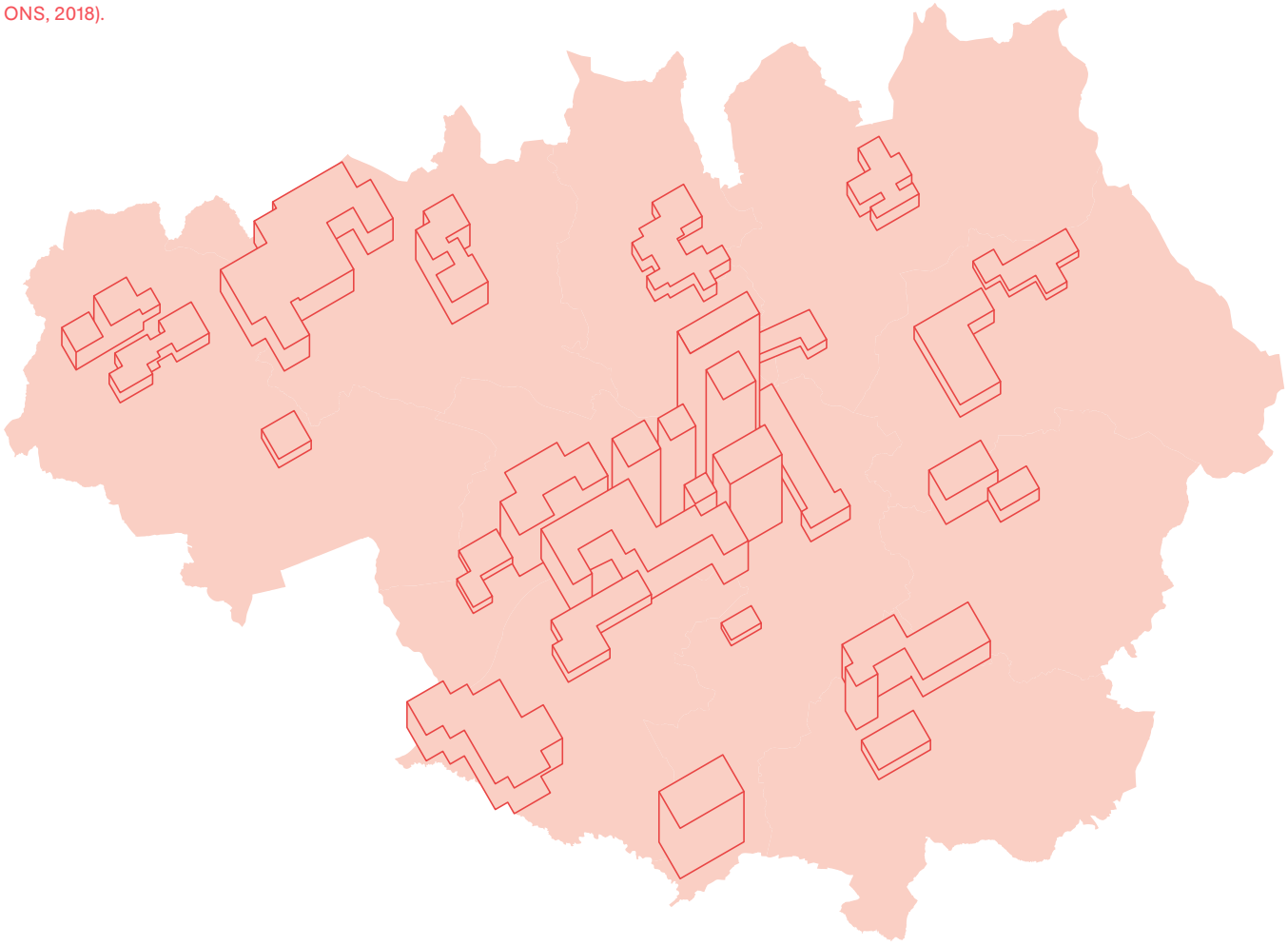
While the disparity in GVA performance is stark, inequality on some measures has reduced across the city region. In 2015, 348 GM neighbourhoods were amongst the 10% most deprived nationally, down from 396 in 2004. The sharpest decline in the number of deprived neighbourhoods during the period was seen in areas close to the regional centre.

AVERAGE RESIDENT EARNINGS ROSE SIGNIFICANTLY UP TO THE START OF THE RECESSION, HOWEVER THEY FELL 0.8% PER ANNUM BETWEEN 2010 AND 2016

The data on earnings growth tells a similar story to that on productivity. Whilst average resident earnings (taking account of inflation) rose significantly up to the start of the recession (rising 1.8% per annum from 1998 to 2008), they fell by 0.8% per annum between 2010 and 2016. This is equally true of workplace earnings, which, having risen by 2.0% per annum in the decade prior to the recession (a rate of growth faster than the UK average excluding London, which averaged 1.9% per annum), fell by 0.7% per annum from 2010 to 2016 at more or less the same rate as the UK average. This has been accompanied by rise in 'atypical' forms of employment, which tend to be unstable and low paid. The result is that average resident earnings are now less in real terms than they were at the start of the recession.

Therefore, while many of the conclusions of the MIER are still relevant, this fresh assessment of the evidence has been able to explore how the Greater Manchester economy has changed since and bring new insights into long-standing challenges.

Figure 4: Total employment in 2017 by MSOA in Greater Manchester (Source: ONS, 2018).



Greater Manchester's business base and labour market

(Sources: ONS, Social Enterprise UK, Bureau van Dijk FAME, GMCA and HMRC)

Across the city region there are 124,000 businesses (as measured at workplace (local unit) level) in 2018 and 1.4 million people employed.

Greater Manchester is a highly economically diverse city region. Analysis by the Office for National Statistics using the Krugman Specialisation Index (a measure of diversity in industry, jobs and output), indicates Greater Manchester is the most diverse city region economy in the UK.

The largest sectors in terms of employment and the number of businesses are: Business, Financial & Professional Services, with 291,000 jobs (22% of total) and 29,935 firms (24%); Wholesale and Retail, with 217,000 jobs (16%) and 25,615 firms (21%); and Health and Social Care, with 174,500 jobs (13%). Other significant sectors in terms of business numbers and employment include Construction (10% of total businesses), Digital and Creative (9%), Hospitality, Tourism, and Sport (8%), Manufacturing (7%), and Logistics (7%).

84% of businesses are micro-sized (employing 0-9 people), 13% small (employing 10-49 people), and 3% are medium-sized (employing 50-249 people). There are also 570 large businesses (250+ employees) which account for under 1% of the business base. There are over 2,400 social enterprises in Greater Manchester, which are estimated to invest up to £90m in the community each year

Greater Manchester also has a strong voluntary, community and social enterprise sector, with almost 16,000 organisations operating across the city region.

Business start-up rates in Greater Manchester have improved sharply since the recession, and Greater Manchester is now one of the best performing city regions outside London for business births. There were 132 business births per 10,000 resident working age population in Greater Manchester in 2017, compared to 92 in the UK. However, business density levels still lag behind the national average: there were around 693 businesses per 10,000 resident working age population in Greater Manchester in 2018; compared to 754 in the UK.

There are around 1,500 scale-ups in Greater Manchester (firms with growth in turnover and/or employment greater than 20%). Greater Manchester performs well for numbers of scale-ups relative to other UK cities, with 83.7 scale-ups per 100,000 working age residents. This is below the UK average (85.0), but above the North West (81.4) and the UK average if London is excluded (79.8).

There are around 1,000 foreign-owned firms in Greater Manchester. According to the Greater Manchester Business Survey around 16% of Greater Manchester firms are involved in some form of international trade (an estimated 17,500 businesses) of which around 7,000 to 8,000 firms exported goods and 10,000 to 16,000 imported goods.

There are 1.8 million residents of working age in the city region and 1.3 million working age residents in employment. The employment rate has recovered from a post-recession low of 66.3% in 2011 to 72.8% in 2018, although the employment rate still lags behind the national average (75.0% in the UK in 2018). Greater Manchester has seen significant improvements in its workforce qualification profile over the last decade, with the proportion of residents with no qualifications falling from 17.1% in 2006 to 9.6% in 2017 and the proportion with a Level 4 or higher qualification rising from 25.6% to 35.0%. However, significant gaps in qualification levels and employment rates still exist between Greater Manchester and the national average, and parts of the economy remain entrenched within lower skill, lower productivity and lower wage activity.

Wages have fallen by 6.6% in real terms between 2006 and 2016: the average worker in Greater Manchester still earns 81p an hour less in real terms than in 2006. The gross median annual wage for full time workers living in Greater Manchester was £26,800 in 2018, compared to £29,570 in the UK as a whole; and the gap in wages between GM and the national average has widened over the decade.

GREATER MANCHESTER IS THE MOST ECONOMICALLY DIVERSE CITY IN THE UK

GREATER MANCHESTER HAS WORLD-CLASS STRENGTHS IN ADVANCED MATERIALS AND HEALTH INNOVATION

THE EMPLOYMENT RATE OF GM ADULTS WITH LONG-TERM HEALTH ISSUES IS 13% POINTS LESS THAN FOR THE GM POPULATION AS A WHOLE

GREATER MANCHESTER IS THE BEST PERFORMING CITY-REGION OUTSIDE LONDON FOR BUSINESS BIRTHS

FOR TWO DECADES, GREATER MANCHESTER'S PRODUCTIVITY HAS CONSISTENTLY REMAINED AT 90% OF UK LEVEL

QUALIFICATION LEVELS ARE IMPROVING BUT 1 IN 10 IN GREATER MANCHESTER STILL HAVE NO QUALIFICATIONS

04. PROSPERITY REVIEW KEY MESSAGES

Building on a comprehensive baseline assessment, the Prosperity Review Panel has commissioned and overseen new studies in four areas, providing a deep and cutting-edge analysis of key economic issues affecting the city region:

- Analysis of productivity that takes a deep-dive into labour productivity performance, including a granular analysis of the 'long tail' of low-productivity firms and low pay;
- Analysis of education and skills transitions, reviewing the role of the entire education and skills system and how individuals pass through key transition points;
- Exploration of the city region's innovation ecosystems, national and international supply chains and trade linkages; and sources of global competitiveness, building on the 2016 Science and Innovation Audit; and
- Work to review the infrastructure needs of Greater Manchester to raise productivity, including the potential for new approaches to unlock additional investment.

This chapter of the report highlights the key messages and recommendations from the research synthesised into the following sections: productivity drivers, productivity and pay, education and skills, and innovation and infrastructure.

PRODUCTIVITY DRIVERS

Leading work by University of Manchester and Greater Manchester Combined Authority in partnership with Office of National Statistics (ONS) explores the key factors affecting productivity in the city region. The analysis draws on data made available for the city region for the first time, such as firm-level data from the ONS Annual Business Survey.

GREATER MANCHESTER'S LEVEL OF PRODUCTIVITY HAS CONSISTENTLY REMAINED AT AROUND 90% OF THE UK AVERAGE.

This work reveals Greater Manchester's level of productivity has consistently remained at around 90% of the UK average. However, this has eroded over time so that the city region's position relative to the UK has fallen to 89.9% of the national average in 2016 compared with 92.2% in 1998. In the decade leading up to the financial crisis, the UK and Greater Manchester economies experienced steady labour productivity growth and there was a narrowing of the long-standing productivity gap between the UK and other leading international economies, if not between Greater Manchester and the UK. However, UK labour productivity suffered a negative shock during the financial crisis and the recession that ensued and productivity growth has remained stubbornly low ever since. Productivity growth in the UK and Greater Manchester once again lags behind that experienced in peer economies, and the recovery in economic output that has been achieved has depended largely on increases in employment.

INTERNATIONALLY, GREATER MANCHESTER'S PRODUCTIVITY TRAILS THAT OF LEADING EUROPEAN CITY REGIONS SUCH AS THOSE CENTRED UPON BARCELONA, MUNICH AND HELSINKI.

The UK city region with the highest productivity levels outside London is Bristol. Elsewhere in England, a group of city regions in the Midlands and North of England – Birmingham, Greater Manchester, and Leeds – emerge as the next 'tier' for productivity. Internationally, Greater Manchester's productivity trails that of leading European city regions such as those centred upon Barcelona, Munich and Helsinki.

Health

Health has been strongly linked with productivity performance, and is a dimension not previously emphasised in much of the work on regional productivity in the UK. Research by the Northern Health Science Alliance demonstrates the impact of tackling health inequalities across the North of England. It finds that up to 30% of the productivity gap with the UK average could be reduced by raising participation in the workforce through addressing ill health; while decreasing rates of ill health by 1.2% and mortality rates by 0.7% would reduce the gap in productivity between Greater Manchester and the rest of England by 10% (Northern Health Science Alliance, 2019).

This is further supported by analysis of long-term trends in premature mortality in northern and southern England, which demonstrates persistent and growing health disparities between the north and south (Buchan et al., 2017).

New analysis undertaken for the Greater Manchester Independent Prosperity Review has found a correlation between limiting long-term health conditions and productivity, likewise with conditions such as depression and adults reporting physical (musculoskeletal) problems. 47.2% of the Greater Manchester adult population (16+) with health conditions or illnesses lasting more than 12 months were in employment as of September 2018, compared to 60.1% for the total adult population – a gap of 12.9 percentage points. Based on average GVA per employee of £44,100, this gap equates to a potential loss to the economy of £4.1bn per annum. There are also significant productivity losses related to people in work who have health problems, both around 'presenteeism' (under-performance associated with ill-health) and sickness absence from work. Whilst the former is challenging to quantify, the estimated headline cost of productivity losses to Greater Manchester employers arising from sickness absence is some £0.6bn.

UP TO 30% OF THE NORTH OF ENGLAND'S PRODUCTIVITY GAP WITH THE UK AVERAGE COULD BE REDUCED BY RAISING PARTICIPATION IN THE WORKFORCE THROUGH ADDRESSING ILL HEALTH

HEALTH HAS BEEN LINKED WITH PRODUCTIVITY PERFORMANCE, A FACTOR NOT PREVIOUSLY EMPHASISED IN WORK ON UK REGIONAL PRODUCTIVITY

Sectoral change

As in the UK as a whole, over the past decade the balance of employment in Greater Manchester has shifted towards lower productivity sectors and activities. The share of low productivity sectors in Greater Manchester – those with lower than £30,000 GVA per worker[3], at 2013 prices – increased from 38% in 2005 to 42% in 2015. The employment share of each of Greater Manchester's low productivity sectors has held firm or increased over this period, rising by 1.9 percentage points in health and social work, 1.5 percentage points in administrative and support services, and remaining level in retail.

There is considerable variation in the average productivity levels of Greater Manchester's main sectors across the city region and within individual local authority areas. Sectors within the 'regional centre' at the core of the conurbation are more likely to have higher average aggregate productivity, in particular for traded service industries. However, differences in productivity within sectors are more significant than those between sectors. Typically, a 'top 20%' of higher performing 'frontier' firms sit alongside a longer tail of less productive firms in all sectors.

Characteristics of high productivity places and firms

A comparative econometric analysis of labour productivity in UK city regions shows that:

- There is a significant relationship in all city regions between productivity and levels of human capital. Differences in skills levels, the extent of higher-value employment and the utilisation of skills appear to be the most important factors driving differences in local economic performance.

- The proportion of higher-skilled workers, managerial and professional jobs, and science and technology jobs within the labour force are most closely correlated with higher levels of productivity in all city regions, and particularly in Greater Manchester.

- There is also a positive, albeit weaker correlation between higher productivity and factors such as the share of workers in the Digital and Creative industries, along with the share of new enterprises (start-ups) and high-growth firms. The share of start-ups in particular appears to be a more significant driver of productivity performance for GM, compared to other city regions.

3. This includes health and social work; retail; arts, entertainment and recreation; administrative and support services; accommodation and food services.

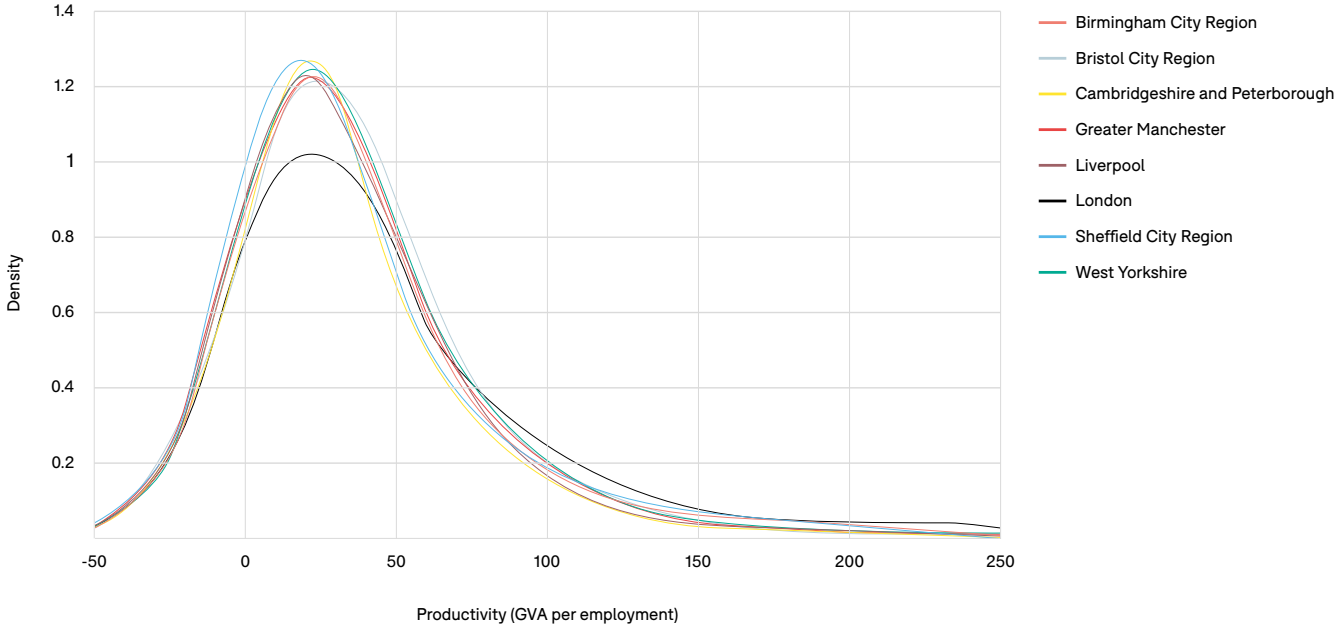
There are high-productive and low-productive firms in all Greater Manchester industry sectors. However, firms in business and professional services, digital and creative industries, construction, health innovation, and manufacturing are more likely to be most productive. Firms in hospitality, tourism, and sport, retail and wholesale, and health and social care tend to be least productive.

The main characteristics associated with higher performing firms are those that trade internationally and/or are foreign-owned. A factor common to both would be the size of the market firms can access. Better access to larger markets also increases innovation and investment. These factors seem more important than simple focus on firm size, age, or broad sector.

There is little difference in the productivity distributions of firms in the foundational economy (retail, hospitality and so on), which are almost identical between city regions outside London.

The density of high-productive frontier firms in Greater Manchester is similar to that in the other comparator city regions outside London, although small variations do exist in the tail of very high-productive firms. Outside London and Bristol, Greater Manchester typically has the highest concentration of firms with up to £110,000 GVA per worker compared to the other comparator city regions. However, city regions such as Cambridgeshire, Bristol and Liverpool have small pockets of very high productive frontier firms (£250,000 and above GVA per worker). In other words, there are arguably too many 'below average but not very weak' productivity firms in GM and not enough 'above average and exceptional' frontier firms.

Figure 5: Distribution of firm-level GVA per employment, Greater Manchester and Great Britain City Regions, 2015 (Source: ONS, 2016).



PRODUCTIVITY AND PAY

Work by the Resolution Foundation to understand low pay in Greater Manchester reveals that pay and productivity are not perfectly correlated, but they are closely linked. Overall pay levels and salary growth in Greater Manchester lag behind UK averages. Workers in the city region earn on average around 10% per hour less than the UK median. Salary growth between 2013 and 2018 in Greater Manchester was 7.8%, compared to 9.4% across the country. The real value of the annual median wage in Greater Manchester in 2017 was around £1,500 less than in 2008.

19% of jobs in Greater Manchester were paid less than two thirds of the national median wage in 2017; a higher proportion than in better performing UK urban areas (London, 10%, and Bristol city region, 16%), but lower than in most comparator city regions (20-24%). The proportion of jobs offering low pay fell in eight Greater Manchester districts between 2012 and 2017 and did not increase in the other two[4]. The proportion of local jobs that were low paid in 2017 was highest in Rochdale (26% in 2017) and lowest in Manchester and Salford (14%).

The majority of Greater Manchester's low earners work in just three sectors: retail and wholesale (27%), hospitality, tourism and sport (21%) and health and social care (15%).

The majority (58% in 2017) of low paid workers in Greater Manchester are women; a lower proportion than the UK average and comparator UK city regions. The proportion of single parents in Greater Manchester who were low paid in 2016-18 (33%), however, was higher than the UK average and those of comparator city regions. It was also higher than among adults in other types of Greater Manchester household. A higher proportion of black workers (33%) in the city region was low paid than their Asian (27%) and white (21%) counterparts in 2016-18, although the number of people in the latter group (215,000) far exceeded those for Asian (20,000) and black (15,000) workers.

31% of Greater Manchester workers with qualifications at GCSE level or below were low paid, similar to the national average (30%). The proportion of graduates in Greater Manchester who were low paid in the same period (10%), however, was marginally higher than in most comparator city regions.

New research for this Review by the Resolution Foundation on progression out of low pay, found that a third of people who were on low wages in 2012 were still on low wages four years later. This proportion varied from city region to city region with Greater Manchester in the middle of the pack. Those who were low paid in London in 2012 were least likely to still be in low pay in 2016 (29 per cent), while the risk of still being low paid was highest in Newcastle (43 per cent).

Case studies produced by Manchester Metropolitan University on the retail and adult social care sectors identified as characteristically low pay and low productivity, are presented in the boxes below. They contrast strongly in terms of the extent to which they are shaped by public sector procurement and regulation, yet the research identifies common themes that have a key role to play in driving up productivity and pay. These include the positive impact of technology, changing skill requirements, opportunities for staff progression and improving the quality of jobs. The analysis also highlights the limitations of technology in some people-orientated sectors where technology is unable to substitute for human interaction.

4. Low pay here is defined as hourly earnings (excluding overtime and other payments) less than two-thirds the median hourly wage for all employees.

Adult Social Care

(Sources: Manchester Metropolitan University, Greater Manchester Combined Authority)

Adult social care is an important and growing sector, offering the opportunity for innovation and integration of services to improve the quality of jobs and pay while also improving the service for residents. There are 64,000 frontline care workers in Greater Manchester. 80% (around 50,000) are employed in the independent sector across the following specialisms: residential and nursing homes, with nearly 18,000 beds that operate at 90-100% of capacity; domiciliary care, supporting over 26,000 residents; and learning disability services for over 7,400 people.

Employment in GM grew in line with the UK average up to the recession (growing at 2.1% per annum 1998-2008), but it has seen much slower growth post-recession (0.2% in GM compared to 1.0% in UK, 2010-2016).

Adult social care is a low pay sector and evidence suggests that this problem may be more acute in Greater Manchester than elsewhere. Greater Manchester has low commissioning rates as compared to both the rest of the North West and to England, particularly in relation to domiciliary care (at £450 per week for residential/nursing care and £164 per week for domiciliary care). We do not yet understand in full detail why Greater Manchester pays less than other localities – reasons are likely to include the urban setting, lower property costs, and the large buying power of commissioners.

Firm-level productivity analysis by the ONS and GMCA for the Prosperity Review shows that firms in health and social care, alongside firms in hospitality, tourism and sport, and retail and wholesale, are more likely to fall in the group of least productive organisations. However, placing the emphasis solely on boosting productivity could have negative consequences for care delivery. Outcome-based commissioning which leads to shorter care visits may be detrimental to the care worker and care recipient experience.

Other terms and conditions in the sector are equally challenging. Only 50% of care workers hold a Level 2 qualification. There are also high turnover rates, especially for new starters and those new into adult social care (usually around one third of new starters).

Opportunities for development

- Health and social care devolution in Greater Manchester has created the opportunity for greater integration of health and social care to deliver more efficient, higher quality services. Led by the Health and Social Care Partnership, Greater Manchester is now developing an Integrated Care System. Within this, health and social care-wide re-design of job roles has the potential to offer more skilled roles to care workers and facilitate career paths that cross the traditional health/care divide.

- There are a range of practical opportunities to address the challenge of low pay including working with local authority commissioners to improve terms and conditions, including the right to request guaranteed hours contracts. Engagement of the sector in the wider Good Employment Charter initiative has the potential to drive up pay and conditions and encourage good employment practice.

- Health innovation is an identified globally competitive research strength for Greater Manchester and there are substantial opportunities to link health innovation more effectively with care. For example, providing incentives for technology investment such as WiFi in care homes, care planning and assessment technology in domiciliary care, and wearable technologies. Encouraging new technology-led innovations of care at home can also act as a preventative measure for the Greater Manchester population as a whole and reduce demand on the sector.

Retail

(Source: Manchester Metropolitan University)

Around one in ten employees in Greater Manchester works in the retail sector, slightly above the national average. There are 144,800 employed in the sector, contributing £4bn in GVA. Two of the three largest private sector employers headquartered in Greater Manchester operate in the retail sector (The Cooperative Group and JD Sports).

Retail employment in GM grew broadly in line with the UK average up to the recession (0.7% on average per annum compared to 0.8% in the UK between 1998-2008), and was comparatively faster after the recession (1.6% in GM compared to 0.4% in the UK between 2010-2016). Both the UK and GM's retail employment growth rates are however estimated to have slowed substantially over the last two years (0.2% on average per annum in GM and 0.0% in the UK between 2016-2018); this aligns with the view of the British Retail Consortium that the retail industry is undergoing a profound change. They anticipate that the number of frontline staff in retail nationally will fall over the next decade, with new jobs being created in areas such as digital marketing and Artificial Intelligence.

Compared to the rest of the Greater Manchester labour market, the retail workforce is disproportionately part-time (over half of all jobs in the sector are part-time), young (just under half the workforce are under 35) and low paid (average gross full-time earnings are £21,000 while the Greater Manchester average is £24,000).

Pay in the sector is low compared to other parts of the labour market. The mean weekly earnings for the Greater Manchester retail sector are £406, although this figure hides significant variations across the ten boroughs: retail workers in Salford earn most (£451/week on average) while those in Wigan receive the lowest average pay (£328/week).

Retail sector productivity is lower in Greater Manchester (£28,100 per worker) than in the UK as a whole (£29,700). However, the gap between productivity in the Greater Manchester retail sector (indexed: GM 94, UK 100) is narrower than Greater Manchester's all-sector indexed productivity gap (GM 88, UK 100). Retail productivity varies considerably across Greater Manchester with Bury, Manchester and Salford showing higher productivity per worker (at or above the national average) while retail productivity in Stockport and Tameside is around 20% lower (approximately £25,000 per worker).

Opportunities for development

- The growth in e-commerce, the changing nature of the shopping experience, and growing research specialisms in Greater Manchester in service design all offer opportunities for growth. There is an opportunity to explore the scope for research and industry collaborations in Greater Manchester around the development and use of cutting-edge retail sector technologies, including targeting business support at small and medium-sized retailers for the adoption of new technology.

- As with adult social care, through the Good Employment Charter there is an opportunity to encourage best practice in pay and employment conditions. Alongside this, opportunities to address pay and progression issues include working with retail employers and training providers to pilot new job design and workforce development programmes. Recognising the transition to digital, there is an opportunity to improve the digital skills of the retail workforce, particularly targeted at the older workforce.

- Through wider planning activities and initiatives such as the Town Centre Challenge work there is an opportunity to regularly engage with the community to better understand what they want from their retail offer, and to work with planners to develop or create this offer. Evaluating the success of any initiatives will be important to understand what works.

EDUCATION AND SKILLS

'Human capital factors', largely comprising education and skills alongside health, are among the most powerful explanations of lower productivity in Greater Manchester. Econometric analysis for this Review finds a link between the proportion of the population with at least level 4 qualifications and productivity; meanwhile, halving the proportion of residents with no qualifications could lift productivity by as much as 2%.

Research undertaken by University of Manchester on current trends in technology, robotics, artificial intelligence and the shift to cleaner growth, points to unpredictable, but probably momentous, disruption for Greater Manchester. The education and skills system will need to adapt – and possibly rethink some of its underpinning assumptions – to respond to these changes. Existing learning phases, funding streams and traditions (such as valuing academic over 'practical' knowledge, and early life over life-long learning) may not work in the digital age. New routes through the skills system and programmes supporting those needing to change labour market direction may be needed. Some employment programmes helping citizens overcome labour market barriers have been successfully developed locally (see Working Well case study).

Preparedness for an increasingly digital future is low. Predictions of job losses from digital automation vary between a third of jobs (Frey and Osborne, 2013) and 10% (Arntz, Gregory and Zierahan, 2016). All types of jobs, sectors and skill levels will be affected. However, the better educated and skilled are likely to find adaptation easier. Change is anticipated to disproportionately affect the least skilled: half or more of low skilled roles could be automated (Frey and Osborne, 2013).

English education has well-known weaknesses (OECD, 2017). These include poor provision of basic skills, longstanding problems in technical education, especially at 'higher' levels (level 4 and above), and an over-reliance on graduate education, often leading to 'non-graduate' work. Participation by adults in skills development has fallen, alongside reductions in funding (for example, the adult skills budget reduced by 25% in one year between 2014/15 and 2015/16, while since 2010 there has been a 60% drop in part-time learning by adults, according to the Higher Education Statistics Agency). Meanwhile, employer investment in training stands at half the EU average and fell by 13.6 percent in real terms between 2007 and 2015 (Dromey and McNeil 2017).

Greater Manchester reflects these phenomena. But skills reform starts from a challenging base. Almost 10% of the population of the city region have no qualifications (about two percentage points higher than the rest of the country) and 35% have at least a level 4 qualification (compared with 37% nationally). Level 4 and above skills are especially significant for raising sub-national productivity. In the last decade Greater Manchester has transformed its qualifications profile; level 4+ skills have increased by 46%, for example. But still the gap in relative skills levels persists.

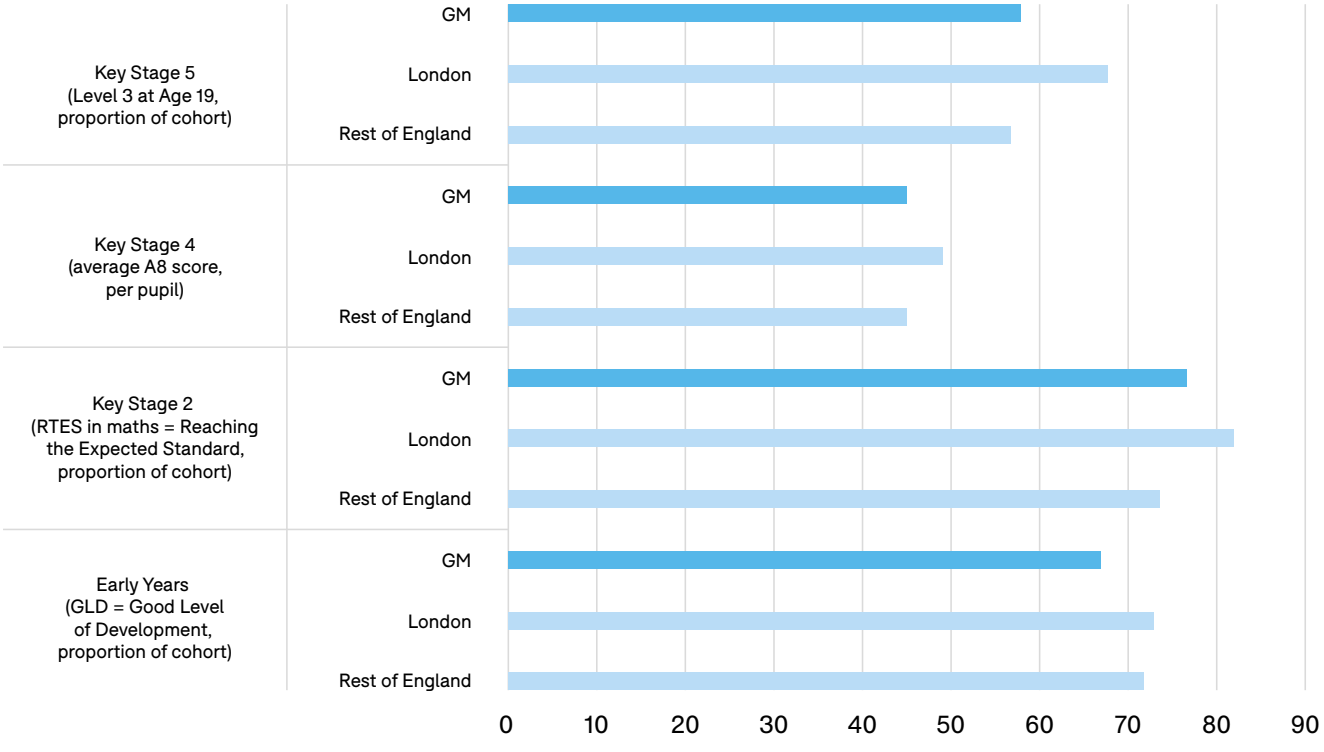
The skills supply system may only be part of the answer. Graduate retention and migration patterns obviously affect the skills levels of a local population. More pertinently, it is a profound mistake to consider skills supply in isolation from skills demand. Low quality jobs with low demand for, and utilisation of, skills are

a barrier to the development of skills through the education and training system. Between 2012 and 2017, there is evidence that the growth of skills demand by employers has slowed (Henseke et al, 2018).

Research undertaken for this review highlights the challenges that big English cities, London apart, face around educational performance. Early stage performance in Greater Manchester lags behind national and comparator city region averages. Greater Manchester compares relatively favourably (despite higher levels of disadvantage) with comparator cities and the national average at Key Stages 2, 4 and 5. London is a clear outlier, and its rate of improvement over recent years shows that significant progress can be made. The reasons for London's improvements and performance are disputed, but there are clearly lessons that can be learnt, including from the London Challenge programme.

There remain questions regarding the quality of Greater Manchester's schools. Ofsted inspections show that Greater Manchester has proportionally fewer good or outstanding schools and more schools deemed 'inadequate' or that 'require improvement' (RI). About 42,000 pupils attend schools in Greater Manchester rated as inadequate or RI. Some 29% of Greater Manchester schools were in these categories in 2017, compared with 22% nationally. At the other end of the spectrum of judgements, 20% go to 'outstanding' schools in Greater Manchester compared with 22.5% in England. There is, however, a well-known relationship between poverty and purported 'excellence' in education: 'worse' schools tend to be in poorer areas and vice versa.

Figure 6: Attainment for Greater Manchester benchmarked against rest of England and London (Source: Department for Education, 2016/17)



Measures used: Early Years – GLD; KS2 – reaching the expected standard in Mathematics; KS4 – average Attainment 8 score; KS5 – proportion of 19 year olds qualified to Level 3.

For the first time, research undertaken for this Review has used information on 'longitudinal educational outcomes' (LEO),which tracks what happens to learners after they finish education. A clear message from this analysis is the impact of disadvantage on future education and labour market destinations, as well as the more well-known impact of deprivation on attainment. At age 16, non-disadvantaged pupils are more than twice as likely as disadvantaged pupils to go on to a school sixth form or sixth form college. Poorer pupils are three times more likely to drop out of their chosen pathway after Key Stage 4. By age 19, 63% of non-disadvantaged young people have a level 3 qualification compared to just 37% of disadvantaged young people.

Apprenticeships are unique among learning pathways in there not being a penalty for being disadvantaged in terms of outcomes. They also deliver better outcomes at level 2 than further education (84% in employment afterwards compared with 64% from further education).

For apprentices, moving up a level is worth at least £3,000 a year in salary. Former intermediate apprentices three years after achievement earned £16,400,compared with £19,400 for former advanced apprentices. But the Greater Manchester-UK wage gap for former apprentices is pronounced. Three years after completing an apprenticeship 47% of former apprentices earned above £21,000 nationally, compared with 37% in Greater Manchester.

Wages are superior from 'technical' apprenticeships as opposed to 'service-oriented' apprenticeships. For example, child development apprentices in Greater Manchester earned on average £12,400 three years after completing compared with about £30,000 for engineering apprentices.

Greater Manchester sends more young people to university than the national average, but fewer to the top third of UK higher education institutes (16% compared to 18% of Key Stage 5 leavers nationally). Wages for graduates of the University of Manchester are £4,000 higher than the national average five years after graduation, but for all other Greater Manchester universities they are lower (at around £24,000, £2,000 lower than the UK average).

So what possibilities exist for Greater Manchester-driven reform in education and skills? Research as part of this Review by the Inclusive Growth Analysis Unit at the University of Manchester suggests there are five central issues that need to be addressed: the separation of the 'education system' from the 'vocational training system' and the workplace; the variability in quality and availability of post-16 pathways for GCSE 'low attainers' and non-A Level students; the varying capacity of workplaces (of all types and sizes) to create effective learning environments; an overreliance on early phases of education at the expense of a lifelong approach; and the propensity of the school system to reproduce rather than overcome socioeconomic inequalities.

EDUCATION AND TRAINING PROVISION IN GREATER MANCHESTER IS FRAGMENTED AND LACKS COORDINATION WITH EMPLOYER NEEDS. POOR UTILISATION OF SKILLS ALSO CONTRIBUTES TO REDUCED PRODUCTIVITY PERFORMANCE.

To begin to address these issues, inspiration can be taken from other Greater Manchester programmes, including health and social care devolution and the Working Well programme of employment support (see Working Well case study box). These approaches have emphasised joined-up, place-based services united around common themes. There should be a Greater Manchester Partnership for education, skills and training, based on a common vision, priorities and evidence base, with a similar ambition to the Greater Manchester Health & Social Care Partnership to ensure funding and other interventions are focused on those priorities[5]. As in health and care, this could operate within national frameworks, but through delegation of powers, partnership between different tiers of government, and local convening, it could deliver a distinctive new approach mobilising schools, local authorities, colleges and other training providers, employers, universities, central Government departments and the Greater Manchester Combined Authority.

5. For the proposal for how a reformed framework for education and skills could operate in the GM city region, see IGAU (2019), A New Approach to Education, Training and Skills in Greater Manchester: Building Capacity for Individual, Workplace and Civic Prosperity.

Working Well Case Study

(Source: Greater Manchester Combined Authority)

Working Well began in March 2014. It started as an exploratory pilot programme which provided support to 5,000 Employment and Support Allowance benefit claimants who had completed the Work Programme – the Government's former main employment support scheme - but not found work.

At the heart of the Working Well is the notion of providing intensive, personalised support, fully integrated into Greater Manchester's public services. To this end, aims are broader than simply 'finding work': 'improving lives' – whether that means health, training or other intervention – is the objective. The principal elements are:

- the offer of locally coordinated and managed integrated service provision;

- intensive and holistic support from a 'key worker', who acts as single point of contact and ensures access to the right services at the right time for each individual.

In April 2016 the pilot expanded its offer to a further 20,000 people across a more varied client group, including recipients of Job Seekers Allowance, Income Support and, more recently, Universal Credit.

The family of Working Well programmes has also grown through devolution. First announced as part of the 2014 Devolution agreement, Greater Manchester successfully negotiated the ability to co-design, procure and deliver a localised version of the Government's successor to the Work Programme, the new Work and Health Programme.

As a result, Greater Manchester's £52 million Working Well (Work and Health) programme will support over 22,000 individuals who have long-term health conditions or are unemployed into work. The programme went live in early 2018 and will run until at least 2024.

A personalised approach and integration with local services remain central. An Integration Coordinator in each of the ten boroughs across the region works closely with local authority leads and other partners to understand the needs of participants, and maintain and create new partnerships with local providers or specialist organisations to ensure the right support is available at the right time.

By the end of 2018, in total, some 20,000 people had engaged with Working Well. Of these, some 4,000 have found jobs – a rate of 20%. In comparison, the Work Programme involving former incapacity benefit claimants on Employment Support Allowance ran between June 2011 and June 2017 and just 6% of people attached to the programme found jobs. The performance of Working Well demonstrates that local service development can deliver better outcomes for some client groups.

The Working Well family of programmes continues to evolve. The next iteration will be the Working Well Early Help Offer. This will go live in March 2019 and will target those at risk of falling out of employment.

INNOVATION

Innovation and global competitiveness

Central to a local industrial strategy is understanding what places are currently good at, and what they might be able to become good at in the future. An understanding of the realistic opportunities for firms within the local economy to move up the value chain, given their current starting point, is also vital.

The level and nature of innovation within an area provides further intelligence on a place's current and future specialisms. Innovative activity, such as expert collaboration and the creation of new knowledge and technologies, provides an understanding of potential areas of future growth.

Innovation plays a fundamental role, alongside other factors such as human capital and infrastructure, in raising productivity in the local economy. Econometric analysis undertaken for this Review shows that doubling the proportion of science and technology jobs in an economy – a proxy for innovation – could increase productivity by up to 4%.

The 2016 Science and Innovation Audit, produced jointly by the Government, Greater Manchester and Cheshire East, provides an understanding of what Greater Manchester is 'good at'. It identified core strengths for Greater Manchester in Advanced Materials and Health Innovation, where Greater Manchester has concentrations of existing, internationally-recognised research excellence. Fast growth opportunities were identified in Digital, Energy and Industrial Biotechnology, where Greater Manchester's assets and capabilities offer scope for future development.

Health innovation and advanced materials assets

(Source: Cheshire East and Greater Manchester Science and Innovation Audit)

The Greater Manchester and Cheshire East Science and Innovation Audit was launched in November 2016, and presents a broad-ranging analysis of the regions' capabilities, as well as the challenges and the substantial opportunities for future economic growth. The report identified health innovation and advanced materials as core competencies for Greater Manchester:

Health Innovation

Greater Manchester and its surrounding area has the largest concentration of excellence in health research nationally, outside South East England. Key facilities in support of cutting-edge research and innovation are set in the context of a large and stable population exhibiting significant health challenges. Health and social care devolution to Greater Manchester has created an unprecedented opportunity for a concerted push towards innovation for both health and economic benefit. The creation of Health Innovation Manchester will help refocus priorities around a system and place. Synergies were also identified with the digital sector (for example health informatics) which has the potential to enable Greater Manchester also to drive towards becoming a globally leading centre for clinical trials.

Advanced materials

The Audit highlighted the opportunity to develop 'Graphene City', founded on the unique presence of world-leading science in advanced materials (including at the National Graphene Institute), engagement with business, and the creation of new start-up companies. It identified the need to systematise the pathway through higher 'technology readiness levels' (TRLs) with the opening of the Graphene Engineering Innovation Centre (GEIC) – and hence to turn discoveries to applications. Particularly important is the need for accompanying training programmes, which will give Greater Manchester a large concentration of graphene scientists with additional entrepreneurship training. The Sir Henry Royce Institute will create a national focus to overcome traditionally long lead times and act as a 'rapid accelerator' through TRLs to application, notably in the manufacturing sector. Other assets covered in the Science and Innovation Audit include the BP International Centre for Advanced Materials, and the Cockcroft Institute.

Specialisms

New research undertaken for this Review has identified industrial strengths that complement those identified by the Science and Innovation Audit. The analysis uses a variety of existing and novel data sources to combine Standard Industrial Classification with more granular information about the specific activities, services, and products in Greater Manchester's businesses and those from other benchmark city regions.

The analysis reinforces the finding of the Science & Innovation Audit that health innovation is a particular strength in Greater Manchester, with the potential to be globally competitive. This includes scientific research and development, in particular natural sciences, molecular diagnostics, and biotechnology / bioinformatics sciences, where GVA per worker is almost three times the national average.

Other high productivity sectors which, if not nationally unique, are strengths which should be built on are:

- **Manufacturing.** The manufacture of paper, paperboard and related products delivers over three times the national average level of productivity, and in advanced textiles (including spinning, weaving, finishing and specialist products), it is twice the national average.

- **Digital and creative Industries.** There are strengths in broadcasting, with almost three times the national average productivity, but also in software, digital telecoms, and e-commerce; and Greater Manchester is an emerging hotspot for public agencies and companies specialising in cyber security.

- **Professional services.** In particular, shared services, human resources, office services such as translation, and the activities of membership and representative organisations – around twice the national average level of productivity is presented in these sub-sectors.

In addition, the data also highlights high absolute productivity in a number of key sub-sectors, which perform relatively well against sectoral benchmarks for productivity (i.e. close to or exceeding the UK average), and have a link to those listed above, including: advertising and market research (GVA, £500m, 8,000 employees); computer programming / software (GVA, £1.5m, 26,000 employees); and digital & telecommunications (GVA, £1.25m, 13,000 employees

ALONGSIDE OUR WORLD-CLASS STRENGTHS, OTHER HIGH PRODUCTIVITY SECTOR STRENGTHS EXIST IN MANUFACTURING, DIGITAL AND CREATIVE INDUSTRIES, AND PROFESSIONAL SERVICES.

New experimental data analysis by Data City, a Smart Cities and Economics Data as a Service (DaaS) company, commissioned for this Review, has also enabled us to explore additional opportunities which traditional statistics do not reveal[6]. The data science work looks at two leading indicators of innovation: first, events taking place across the UK on a rolling 12-month basis (based on MeetUp and EventBrite data[7]) and second, an innovation global index (based on published

6. www.thedatacity.com/products/gmtechprofile
7. 380,000 events and meetups in the past year, 90,000 of which are in the UK, and classified them into 16 key sectors of interest to Greater Manchester's industrial strategy

academic papers[8] and patents and clustered at city level[9]). This is complemented with a fresh analysis of the business base using a novel approach to identifying priority sectors, based on Companies House data, supplementary web scraping and classification by machine learning against the sectors of interest to GM, including the Industrial Strategy 'Grand Challenges'.

Events are a good leading indicator of a vibrant scene for collaborative knowledge sharing. This analysis places Manchester second, only behind London, for events in important sectors/themes such as digital, energy, fintech, creative and manufacturing. Although other major cities host events across a similarly broad set of areas, they do not have the depth of innovation meet-ups seen in Manchester. Manchester edges out Bristol, Edinburgh, and Cambridge in terms of AI and data events and leads Brighton in terms of creative events.

Papers published in peer-reviewed journals and patents have also been analysed in over 2,000 fields of study to calculate global rankings for 404 global cities. In the UK, London, Cambridge, and Oxford dominate; however, Greater Manchester is best placed outside the golden triangle. It ranks top 10 globally in five scientific fields behind Oxford (top five in eleven fields) and Cambridge (top five in 18 fields), although a long way behind London (top five in 473 fields). Greater Manchester's top five fields are ontology (computer science), design methods, residual stress (material science), qualitative research, and ageing. This backs up the established view that Greater Manchester is strong in material science.

The data also reveals an emerging strength in service design linked to e-commerce sectors. Manchester ranks third in the world and second in the UK for service design and the broader, related fields of design methods. In marketing, Manchester ranks 18th in the world and second in the UK. However, it is at the intersection of disciplines that Manchester appears to excel. When looking at the activity of firms a clear strength emerges at the overlap between digital, data, AI, and retail.

Greater Manchester should continue to test the value of this type of research for policy making, planning and programme design. More work is also required by the research community to validate these methods.

8. Data regarding Academic papers is sourced from https://www.openacademic.ai/
9. The analysis is primarily based on an OECD definition of Manchester to allow international comparison beyond the EU. For definition of geographies used see http://www.oecd.org/cfe/regional-policy/functionalurbanareasbycountry.htm. For countries not covered by OECD urban area definitions we use an additional dataset created by Maisonobe et al. https://journals.openedition.org/cybergeo/29637

Innovation

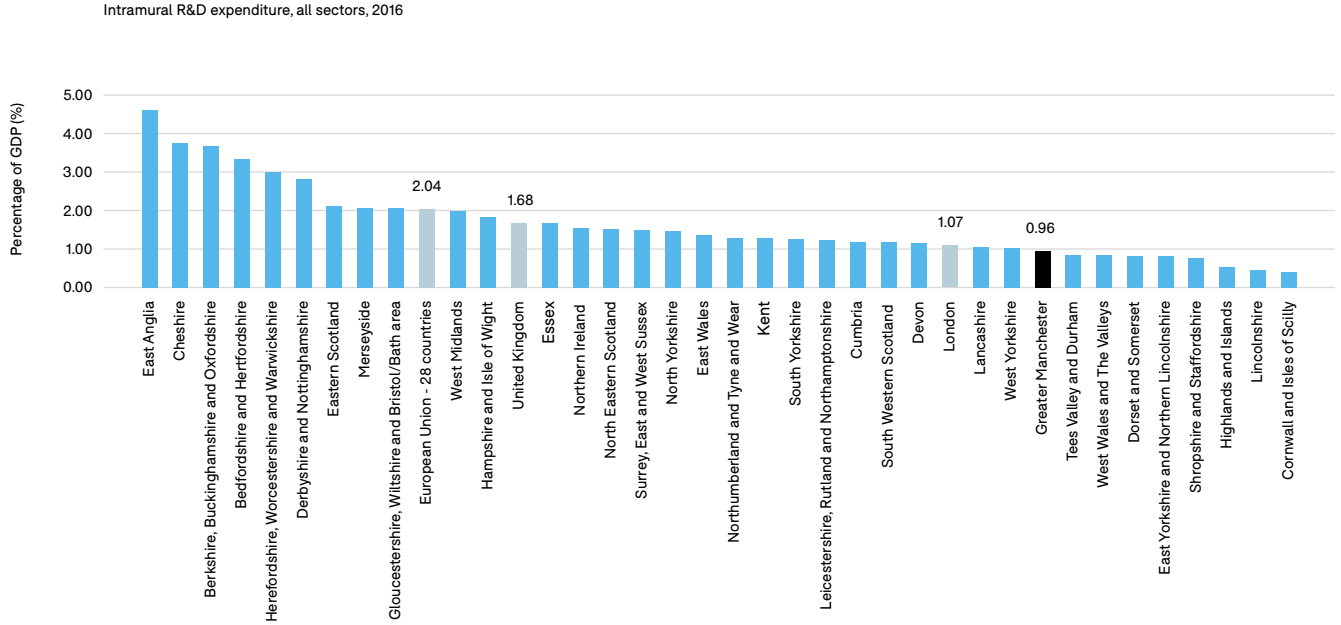
While this Review reveals areas of specialisms and strength in the city region's economic diversity, it also reveals gaps in innovation right across the economy. Comparative data shows that, using traditional metrics for public and private sector investment in Research and Development (R&D), the city region lags behind comparator areas, including in overall R&D spending, R&D tax-credit take up, InnovateUK funding take-up, and university R&D spending. The overall result is that R&D spending is lower in Greater Manchester than might be expected for a city region of its size (see Figure 7).

A systematic review of the literature undertaken for this Review by the Manchester Institute of Innovation Research (MIOIR) at the University of Manchester agrees with these findings. It suggests, however, that substantial 'hidden' innovation takes place within companies, societies and institutional organisations and this is difficult to capture using traditional metrics, which tend to prioritise the capture of product innovation over process innovation. The work suggests that the metrics may particularly underplay service innovation in the economy, a particularly relevant factor in a service-dominated economy like Greater Manchester's.

MIOIR's review looks at how innovation policy can address gaps in innovation activity, increasing the absorption and spill-over of innovation between and within organisations, networks and places. It highlights the importance of innovation activities within firms, including: increasing the adoption of new products; services and business models; increasing research and development, and skills development, particularly leadership and management. However, it also raises crucially the importance of activities outside firms, including supporting networks within and between sectors, and building social capital within the local economy.

More broadly the analysis finds a growing need to make innovation 'sticky' in Greater Manchester by developing the systems and capabilities to commercialise university research, and spread innovation across sectors and geographies within the city region.

Figure 7: Intramural expenditure on R&D by all sectors, Greater Manchester and benchmarks (Source: GMCA analysis of ONS data on intramural R&D expenditure)



Economic complexity

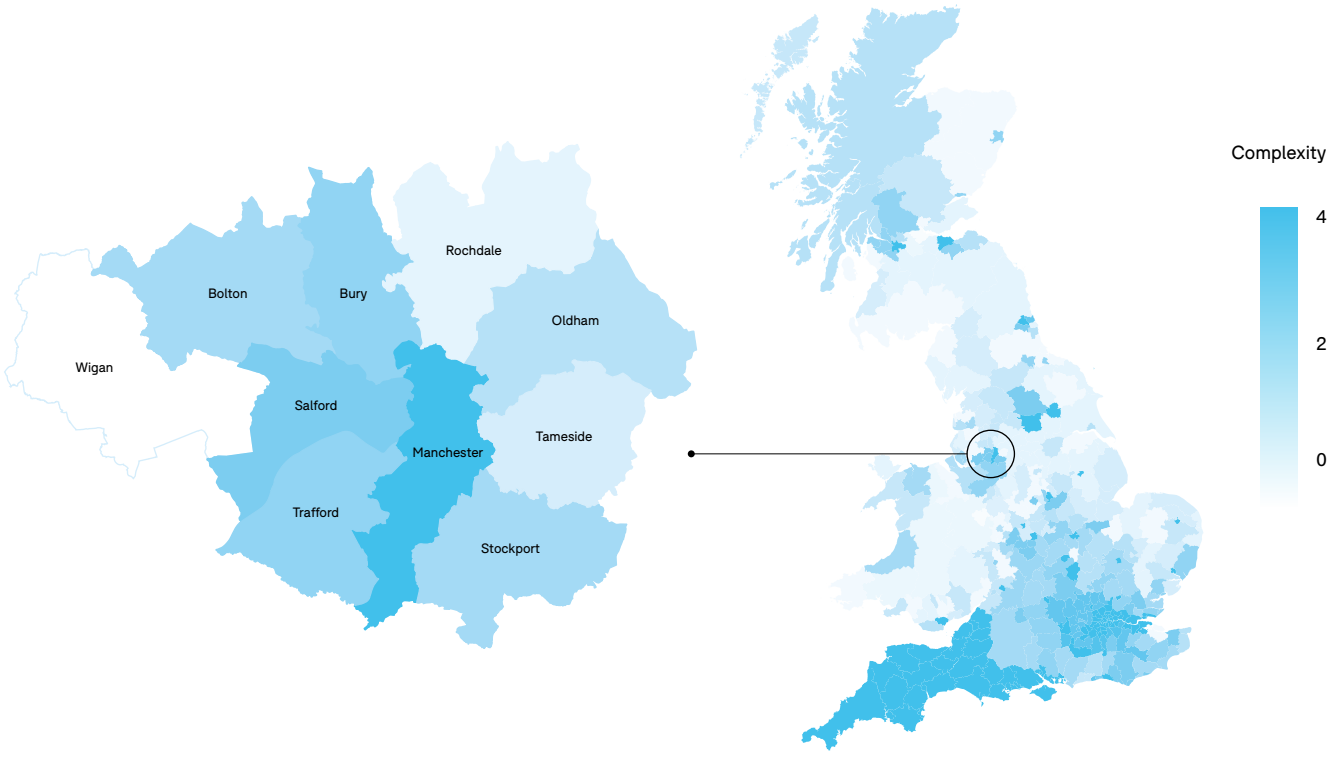
The complexity of an economy is related to the breadth and depth of useful knowledge embedded within it. This can for example include the extent to which there are individuals within the economy who know about design, marketing, finance, technology, human resource management, operations and trade law – and whether they can interact and combine their knowledge to make products and services (Hausmann et al., 2014). The economic complexity and diversity (breadth of sectors and occupations within it) of an economy can be an aide to making innovation 'sticky', as diverse and dense economies are often better placed to make these types of connections and to find new combinations that may lead to new growth paths and innovative opportunities. Diversification is also closely connected to regional resilience, that is the capacity of a regional or local economy to withstand and recover from shocks.

Pioneering work by the University of Cambridge for this Review has explored the concept of economic complexity in Greater Manchester, drawing on novel network-based analysis to study areas of comparative advantage and future growth potential. The analysis clearly demonstrates that, at a UK and Greater Manchester level, the level of economic complexity of a district is correlated with earnings per capita and a significant predictor of future earnings growth. Manchester and Salford have the highest levels of economic complexity, followed by Trafford and Stockport, indicative of their similar industrial profiles concentrated in higher-skilled service industries. In contrast, Wigan, Rochdale and Tameside have much lower levels of economic complexity, suggesting they have quite different areas of competitiveness, which are more concentrated in manufacturing activities. An effective industrial strategy needs to take account of these differences, as the realistic possibilities for future growth will look very different in these different areas.

Both 'related' (within sectors) and 'unrelated' diversification (between sectors) are conducive for growth and have been explored in the context of Greater Manchester. The University of Cambridge has undertaken analysis using the complexity approach to identify new industrial opportunities based on what an area is currently good at and, crucially, where they have potential to move to higher product complexity, as this could be advantageous in informing growth and capability upgrading. This analysis, undertaken for each Greater Manchester district, uses data on the current industry profile and skills mix, and uses this to identify possibilities to broaden into new specialisms.

As an illustration for how this analysis could be used, the plot for Manchester (see Figure 9), shows 'related' opportunities for the city in market research and public opinion polling, trusts and fund management activities, and motion pictures, video and television, that complement the local authority's existing strengths in advertising, management consulting and computer programming. Not only are these specialisms well-aligned to Manchester's current industrial strengths, they also have higher product complexity, which is potentially positive for earnings and growth performance. The plot for Stockport shows that, owing to its different set of existing capabilities, it has a number of 'related' opportunities including management consulting, software publishing and head-office activities with a high product complexity and also some with a low product complexity, such as pre-primary education, landscape services, and residential care activities.

Figure 8: Geographical Distribution of Economic Complexity Index across the UK (Source: Cambridge University, 2018).

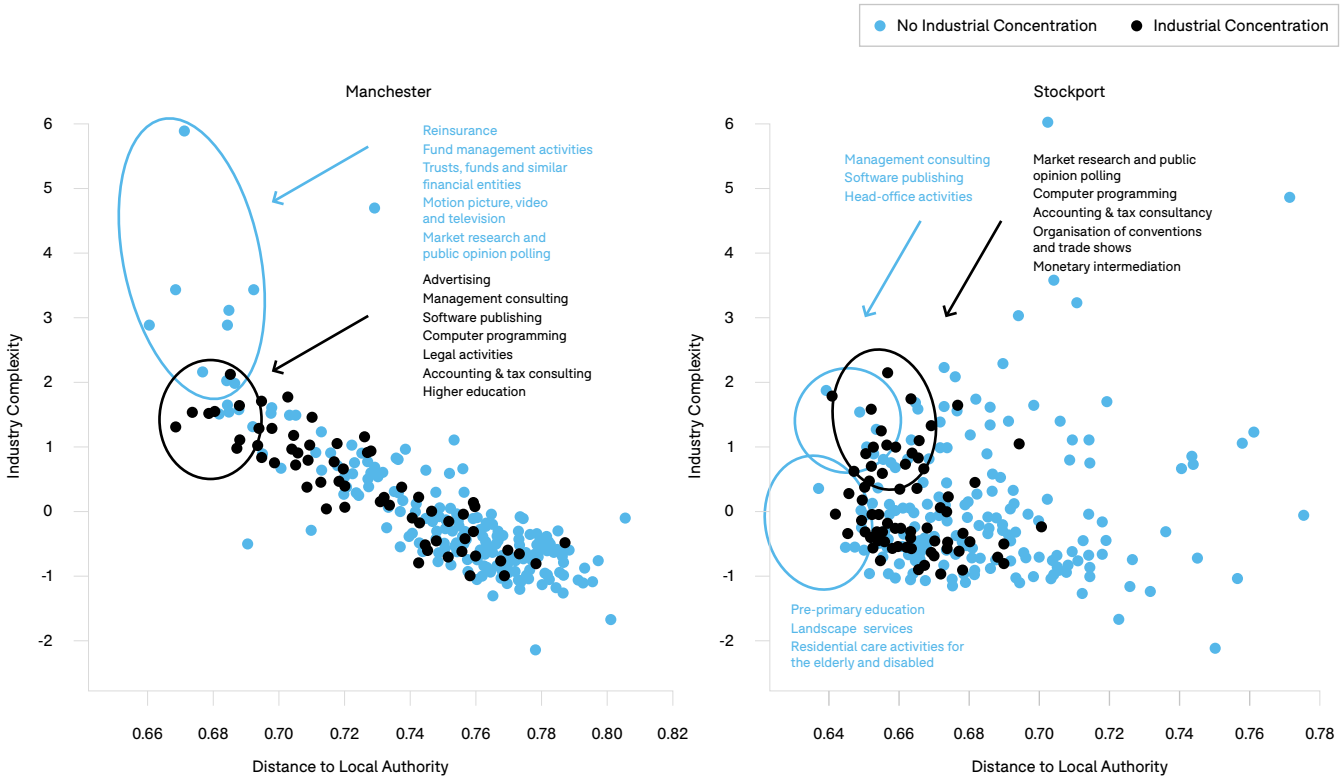


PIONEERING WORK BY THE UNIVERSITY OF CAMBRIDGE FOR THIS REVIEW HAS EXPLORED THE CONCEPT OF ECONOMIC COMPLEXITY IN GREATER MANCHESTER, DRAWING ON NOVEL NETWORK-BASED ANALYSIS TO STUDY AREAS OF COMPARATIVE ADVANTAGE AND FUTURE GROWTH POTENTIAL.

In contrast, Wigan's and Rochdale's nearest future industrial opportunities have lower levels of product complexity, including in wholesale activities in Wigan and construction activities in Rochdale. They do, however, also have some competitive strengths in more complex and less typical activities for their particular industrial capabilities. In Wigan this includes business support service activities and in Rochdale wireless telecommunication activities. Bolton, Bury, Oldham and Tameside similarly have fairly industrial productive bases, with existing strengths and nearby growth opportunities tending to relate to less complex manufacturing activities. However, each of these local authority districts also has a few key strengths in more complex, high-value areas such as management consultancy and telecommunications-related activities. Salford and Trafford have a more diverse portfolio of competitive strengths, with greater ability to leverage existing capabilities in market research, computer programming and financial services into more complex, higher skilled activities relating to data processing, information services, advertising and financial management.

It is important to emphasise that this analysis only represents an initial exploration of the industrial strengths and future possibilities of these places. Further work is needed to understand whether focusing on these locations would make sense in terms of a sector's broader growth prospects, whether there are other binding constraints limiting growth in more complex areas of activity (such as skills shortages, lack of infrastructure and so on), and the extent to which the activity is tradable and can serve markets beyond the local authority's domestic demand. However, it provides a potentially powerful new way for local areas to think about their future growth prospects and the options which may be open to shape the strategic trajectory of their economies.

Figure 9: Identifying new industrial possibilities (Source: University of Cambridge, 2018).



Mission-led innovation

A challenge to policy makers seeking to diversify their economy into related activity, and therefore strengthening existing development paths, is that the area may eventually run out of opportunities (path exhaustion). Unrelated variety, which recombines more distant pieces of knowledge, can offer another route for diversification and has been associated with radical innovation.

One route to promote 'unrelated' diversification in the economy can be through addressing high level societal challenges. This can promote crossovers between unrelated technologies and industries that are present in an economy that may not otherwise have connected (Janssen, 2015). Mazzucato (2018) makes a case for 'granularity', suggesting that societal challenges "are useful to ensure focus" but are "too broad to be actionable" . The identification of particular missions therefore brings greater focus and a level of granularity and allows the setting up of targets and timings.

At a national level, this demand-side 'mission-oriented' approach to industrial policy sets out an ambitious goal, and then uses this to create a long-term policy landscape, setting out tasks that mobilise various actors for bottom-up experimentation across different sectors. The Institute for Innovation and Public Purpose at UCL (UCL-IIPP), which has been advising the Government on shaping its industrial strategy through a series of Grand Challenges and missions, has also supported this Review to consider how national and local missions are likely to create opportunities for sectors in Greater Manchester best placed for cross-sector interaction (see mission-oriented approach to clean growth box).

A NUMBER OF BROAD POLICY IMPLICATIONS EMERGE FROM THE WIDE RANGE OF RESEARCH INTO INNOVATION. FIRST, THE IMPORTANCE TO GREATER MANCHESTER OF FOCUSING ON ITS IDENTIFIED SPECIALISMS – PARTICULARLY HEALTH INNOVATION AND ADVANCED MATERIALS, AND THE INDUSTRIAL OPPORTUNITIES THAT PRESENT THEMSELVES IN THESE SECTORS – IS CLEAR.

SECOND, THE RESEARCH HIGHLIGHTS THE IMPORTANCE OF SUPPORTING GROWTH AND FACILITATING INNOVATION ACROSS THE ECONOMY AS A WHOLE. THE ROUTE TO DIVERSIFICATION SHOULD COME FROM AN ABILITY TO BUILD ON EXISTING STRENGTHS AND SKILLS SETS, BUT ALSO THROUGH OPPORTUNITIES TO PROMOTE UNRELATED DIVERSITY. A MISSION-BASED APPROACH EMERGES AS ONE ROUTE TO SUPPORT AND FACILITATE THIS LATTER TYPE OF CONNECTIVITY.

A mission-oriented approach to Clean Growth in Greater Manchester

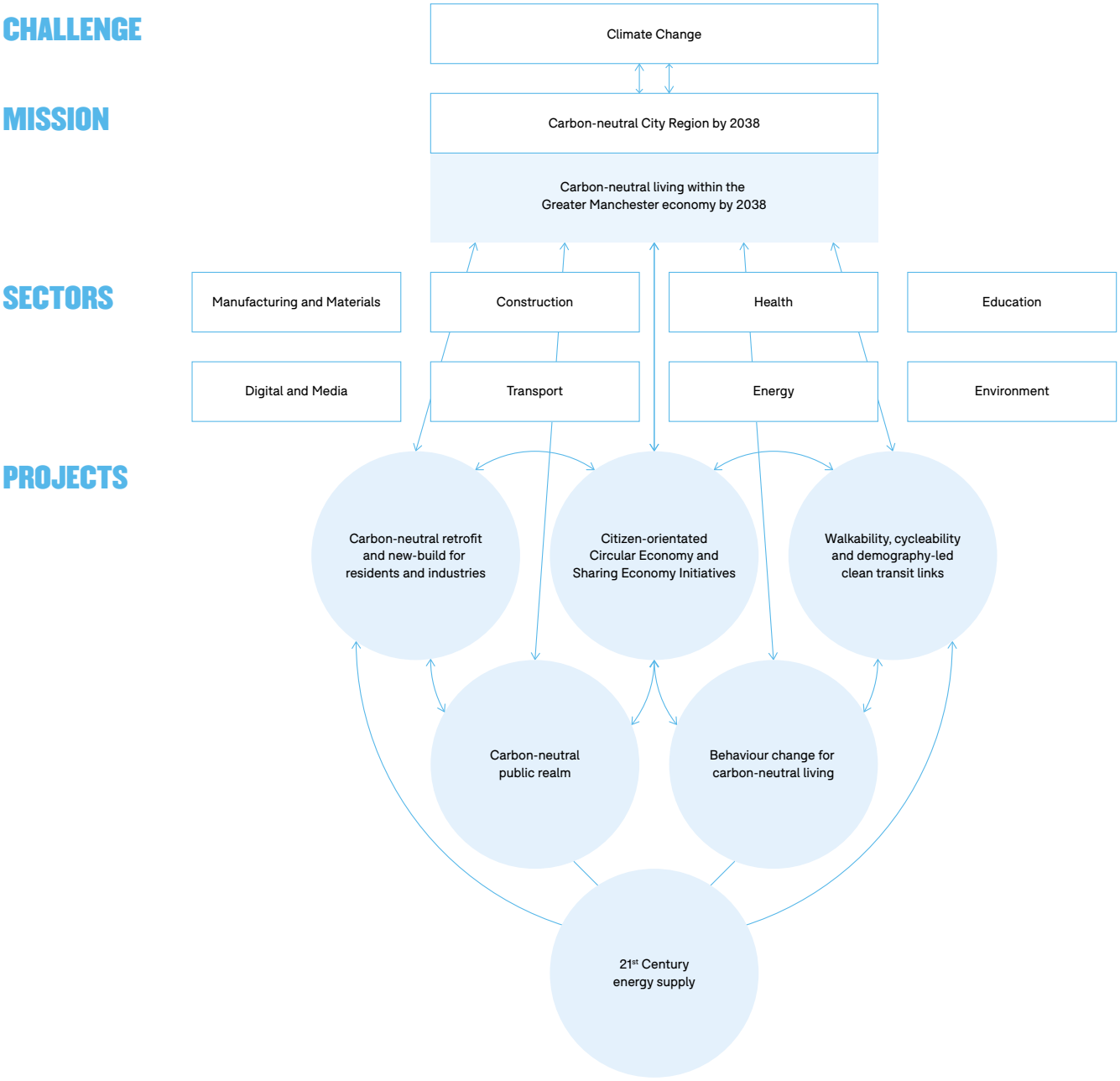
(Source: UCL Institute for Innovation and Public Purpose, UCL-IIPP)

In January 2019, Greater Manchester started the consultation process on the target of achieving carbon neutrality by 2038. It is hoped that GMCA will adopt the target formally in March at the Green Summit.

The ambitions proposed for a carbon-neutral economy, clean air and other environmental improvements present an opportunity for Greater Manchester to drive local innovation.

UCL-IIPP have worked closely with the Greater Manchester Combined Authority to begin developing a mission-oriented approach exploring how this can be inspiring and measurable across the city region. Using IIPP's 'mission roadmap' format, key sectors have been identified which are best placed for cross-sector interaction; an understanding of areas of cross-sectoral interest and commonalities has started to develop.

Carbon-neutral living within the Greater Manchester economy by 2038



Supply chains

An often overlooked feature of national and local economic structures and growth dynamics is the role of supply chains. But in recent years as economies have become more sophisticated and technology has enabled greater specialisation, supply chains have grown ever more complex and increasingly important.

It is difficult to trace supply chains in the UK, certainly at sub-national levels, because there is no sufficiently detailed data. In Greater Manchester, with its small and medium enterprise-based economy and the absence of large prime manufacturers at the head of global or national supply chains, this is harder still.

New research by the University of Cambridge for this Review provides insights into how a supply chain and supply chain management lens can support increased productivity and growth. Based on case study interviews with businesses in Greater Manchester's tech sector it finds that, while most businesses are strongly rooted in the city region – partly because of 'hard' factors such as access to skills but also partly because of 'softer' factors such as the 'ethos' or image a Greater Manchester base conveys – most do not supply or sell to other businesses in the area. They are part of complex, and evolving, national and international supply chains and production networks. That said, even though the tech sector is changing radically with technological advances and globalisation, the importance of business relationships means that personal contact is still important. In a global economy, local networks are critical to find out about new business opportunities, to spread innovations and best practice, and to access funding to support growth.

Two important policy implications begin to emerge from a stronger understanding of seemingly messy and complicated supply chains. First, there should be a focus on 'horizontal' economic policies that cut across sector boundaries creating the environment for businesses to thrive in a serendipitous manner. Overly prescriptive clustering and 'vertical' policies carry greater risk in an economy made up of complex supply chain linkages, and the evidence from elsewhere is that they can be counterproductive. Second, businesses could still benefit from the creation of opportunities for face-to-face networking. Access to new business opportunities, start-up or venture capital, or new innovations often depend on personal relationships and access to networks. In the UK these are most developed in London; increasing the density of the business ecosystem of buyers, suppliers and financiers in Greater Manchester is an area that policy could attempt to address.

That said, understanding of supply chains is still relatively limited, with little evidence on the impact of policies to stimulate linkages. Efforts to do this will be especially challenging in a small and medium enterprise-based economy like Greater Manchester, and any policies implemented here therefore need to be rigorously tested and evaluated.

INFRASTRUCTURE

Infrastructure is essential to national and local prosperity. Ensuring there is integration between planning for homes and jobs, transport infrastructure and other critical utilities such as digital, water, flood risk management, energy and greenspace, is vital for the city region. Infrastructure has a wide range of social as well as economic benefits: it can connect people to opportunities, enable digital inclusion, improve health (housing, homelessness, carbon emissions, air quality, active travel, green space) and support general well-being (happiness, confidence, safety, individual choice).

Greater Manchester faces challenges in the future provision and maintenance of critical infrastructure. In particular in relation to fragmentation of responsibilities across a number of decision-making 'silos'. Significant progress has been made in bringing infrastructure providers and regulators together to promote common understanding of the challenges and opportunities affecting infrastructures that serve the city region to 2040 (see Infrastructure box). As yet, however, the city region lacks the mechanisms that are needed to align the separate investment and maintenance programmes of a multitude of providers and ensure a genuinely place-based approach.

Progress has been swifter in the case of transport infrastructure and services, where the recommendations of the MIER have been taken forward through GM devolution deals and the strengthening of transport governing capacities. Further extension of the Metrolink tram network, for example, was made possible by the creation in 2009 of the Greater Manchester Transport Fund, which combined Government grants, local borrowing, and private sector contributions with local taxation, and revenues from Metrolink. The city region now has an integrated strategy, for infrastructure and in January 2019 Greater Manchester published its prospectus for Future Growth, which sets out an integrated strategic plan for housing, transport and infrastructure, under the framework provided by the Greater Manchester Strategy.

The critical challenges in transport lie in accommodating the levels of economic, employment and population growth that the city region is forecast to experience in a way that enables productivity growth, promotes inclusion and tackles the detrimental impacts that arise from current transport technologies and behaviours on residents' health. In broad terms, the need for greater mobility that has been generated by economic and population growth in GM has been accommodated by changes in transport behaviour, and in particular by a progressive switch from the use of private vehicles to collective forms of transport, cycling and walking (see figure 10). There is strong evidence, however, that much of Greater Manchester's critical infrastructure is operating at capacity and that the costs of increased mobility are felt in heavy levels of congestion and the deterioration in air quality that congestion helps generate.

Greater Manchester Infrastructure Framework: Opportunities and Challenges

(Source: Greater Manchester Infrastructure Framework, 2040, Greater Manchester Clean Air Plan and Greater Manchester Digital Infrastructure Implementation Plan).

Transport

Manchester suffers the worst congestion of anywhere outside London, according to an analysis by the National Infrastructure Commission. Congestion has a direct impact on air quality. Local modelling of air quality has revealed a wider NO2 problem than initially identified by Government. Sections of road with concentrations of NO2 over 40µg/m^3 are located in all ten Greater Manchester local authorities. Long-term exposure to elevated levels of particulate matter (PM2.5, PM10 and NO2) may contribute to the development of cardiovascular or respiratory disease and reduce life expectancy.

Digital

Greater Manchester's full fibre coverage is currently 2%. There is significant variation across districts with full fibre ranging from 9.6% coverage in Salford and 7% coverage in Manchester, through to 0.1% coverage in Bury. Embracing digital technology throughout all sectors, geographies and occupations is fundamental to Greater Manchester's current and future international competitiveness. There are ambitions to raise this coverage to connect 90% of all businesses by 2025.

Heat

At present natural gas provides 96% of primary heating fuel for homes in Greater Manchester (Energy Technologies Institute, 2017). This will need to be substantially reduced or eliminated by 2040 if climate change objectives are to be met.

Electricity

Greater Manchester has around 150 primary substations with an overall peak supply capacity of approximately 3200MW. These currently meet a peak demand of 2200MW. There is likely to be up to a 20% reduction in electrical demand due to increasing electrical efficiencies of property, lighting, and appliances. However, this is likely to be offset by increasing digitalisation and the adoption of digital technologies. The potential increase, without electrification of heat, is approximately 600MW, equivalent to 25 new primary substations that could equate to a cost of circa £125m. If electrification of heat is included, this would equate to around 170 new primary substations at a cost of circa £850m.

Water

There are no deficits of water supply forecast for Greater Manchester by 2040. Even allowing for forecast population and economic growth, there is expected to be a reduction in potable water demand. The potable water system is expected to have a 'good' level of resilience to extreme droughts to 2040, made possible by leakage reductions and water efficiency measures. There will still, however, be local pinch points with the city region associated with the limitations of existing assets.

Flooding

The triple challenges of population growth, new development (increasing the proportion of hard surfaces and resulting in a potential rise in surface water run-off flow) and climate change will mean the performance of Greater Manchester's drainage and sewerage systems and flood defences may fall below standard. The increased significance of flood events will have a detrimental impact on GM's citizens and economy if sufficient protection is not provided.

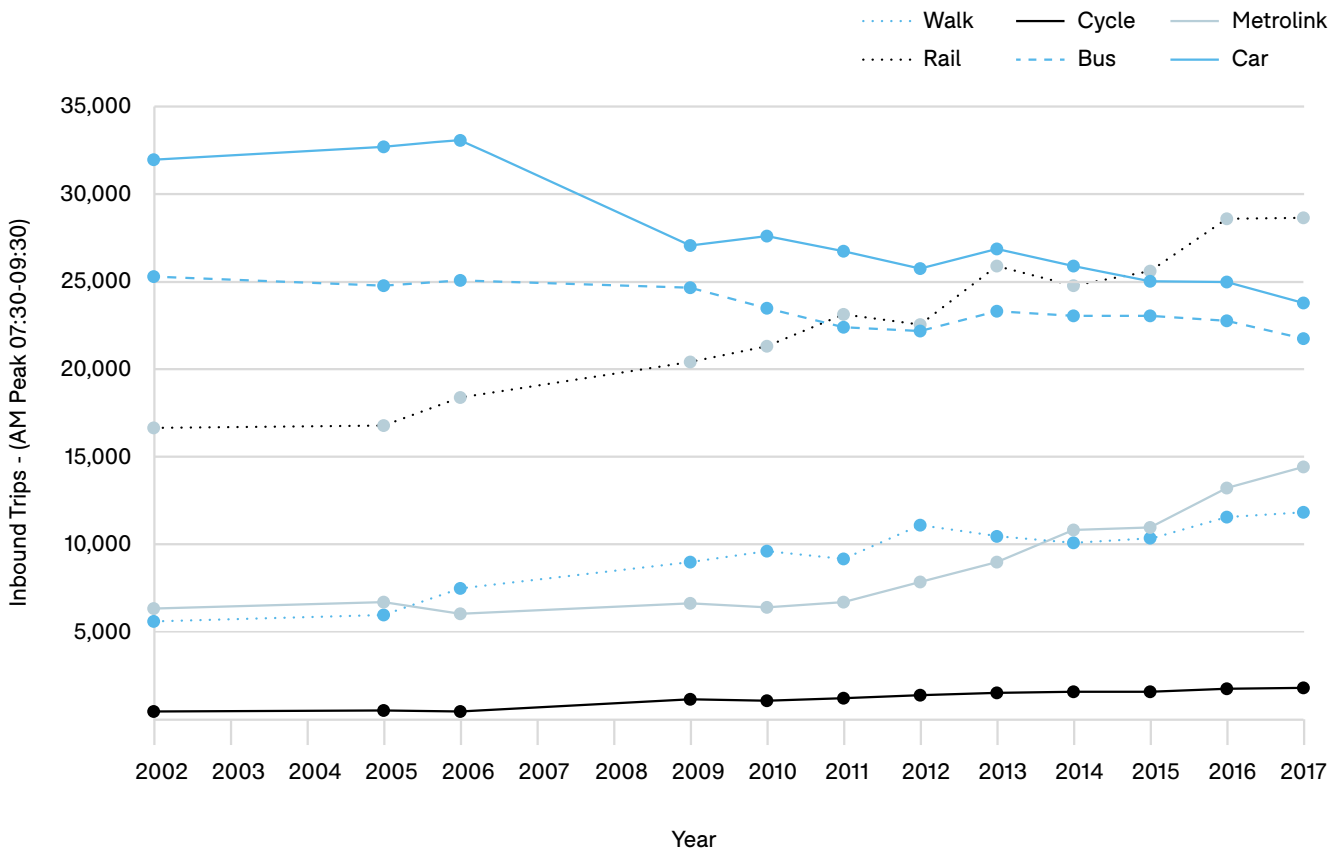
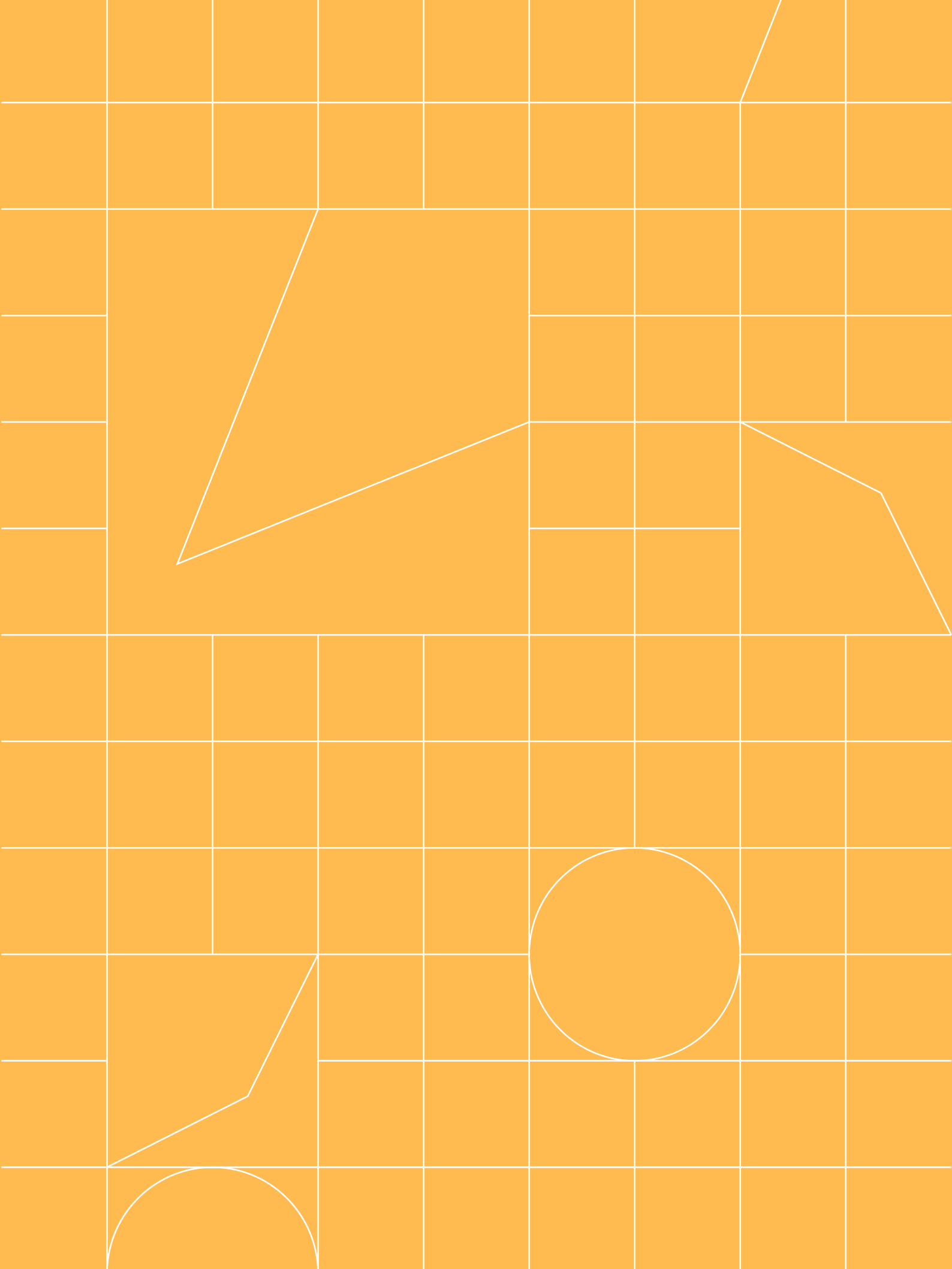


Fig 10: Inbound Trips by Mode across the City Centre cordon (AM Peak) (Source: TfGM Highways Forecasting and Analytical Services, 2017).

The National Infrastructure Assessment (NIA) found that Greater Manchester's infrastructure capacity needs to increase if it is not to place further constraints upon productivity and employment growth. The Assessment made a compelling case for increasing infrastructure investment, but also devolving it so that infrastructure can be better integrated locally. Work for this Review by the Alliance Manchester Business School also suggests that current, scheme-specific national appraisal tools and methods offer little support for non-marginal and potentially transformative projects. To ensure effective prioritisation across a devolved integrated infrastructure programme, Greater Manchester needs to work with Government to create a fit-for-purpose appraisal process that reflects joint central and local government objectives, embraces more than purely economic outcomes, and addresses how interventions will be co-funded.

Greater Manchester will also need to continue to enhance its institutional capability and capacity that will be required to take long-term, significant, devolved funding decisions for infrastructure, following the positive change in transport prioritisation and delivery shown in the Metrolink network expansion.

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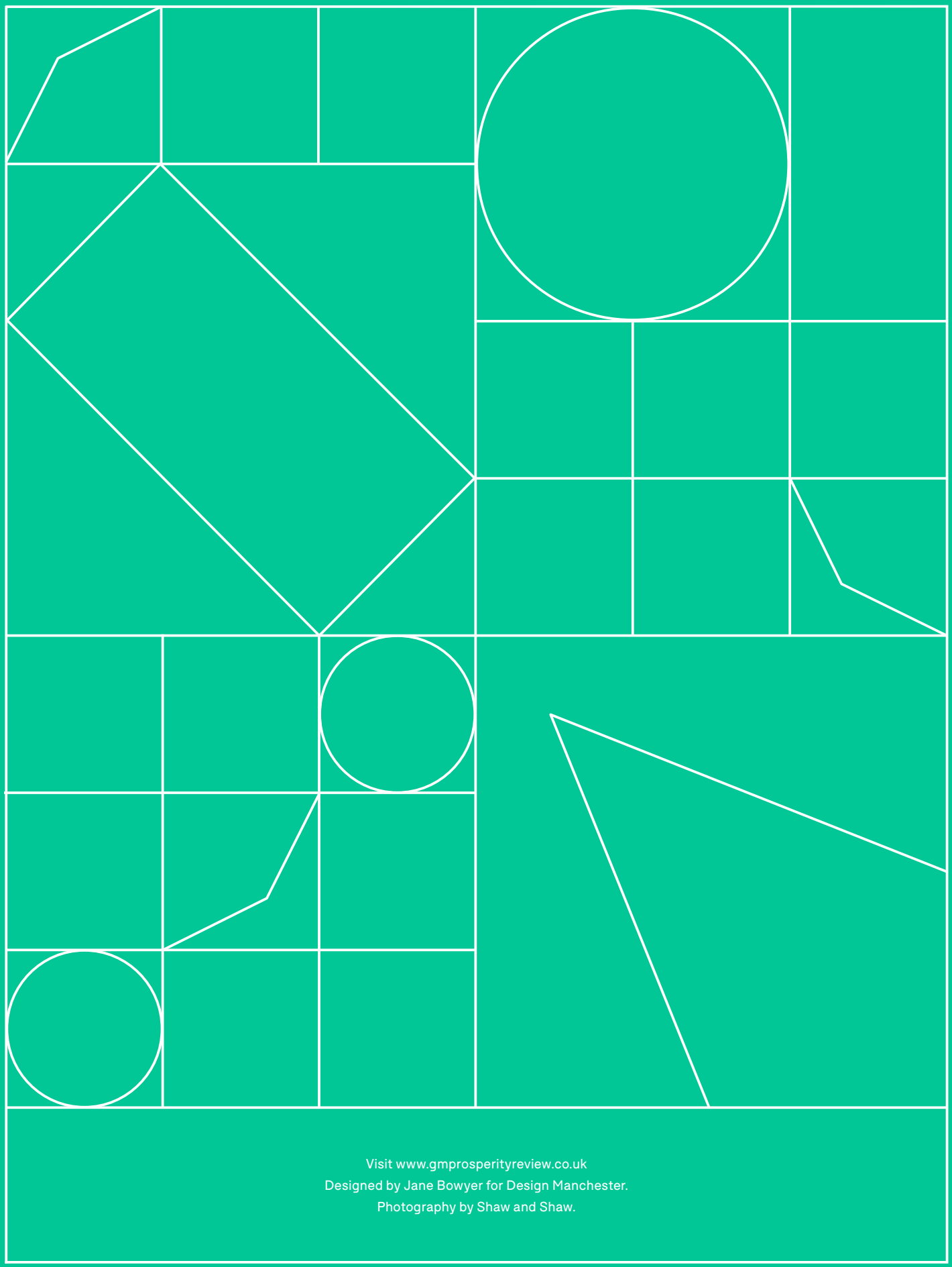

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