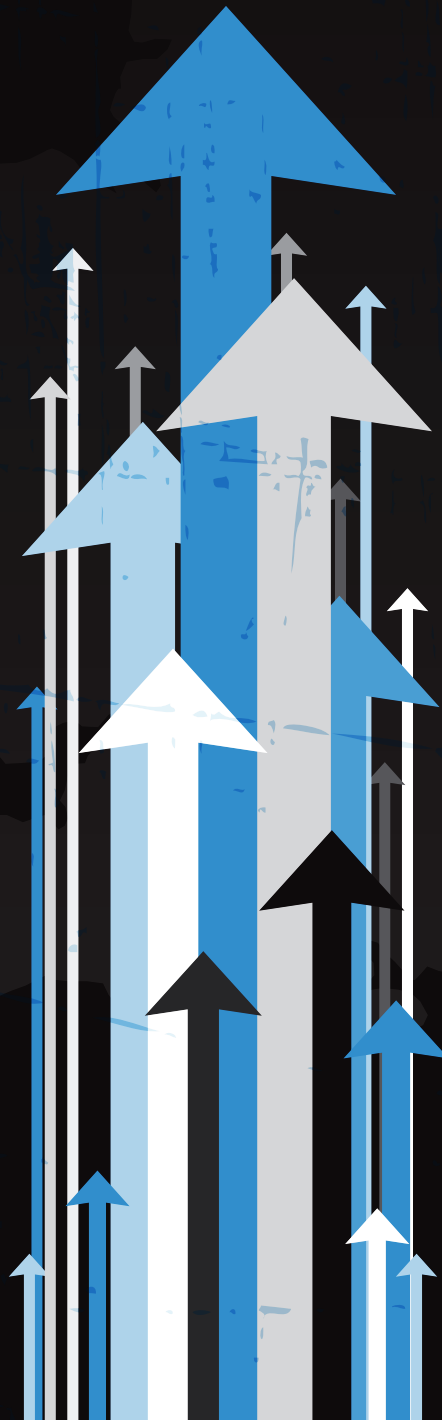


LEVEL UP INDUSTRY

STRENGTHENING REGIONAL MANUFACTURING



March 2020

This report follows a 12 month inquiry and was written by Ben Carpenter Merritt, Head of Industry, Technology & Innovation at Policy Connect.

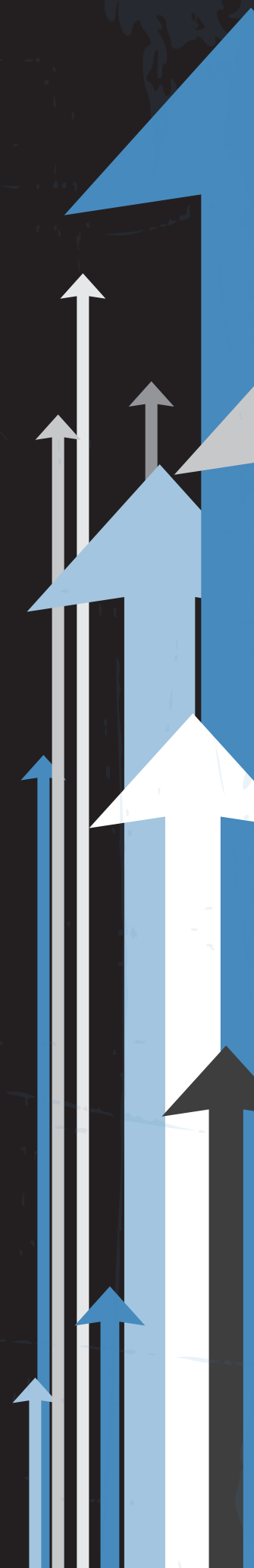
The report was funded by the ERA Foundation and the Manufacturing Technologies Association.

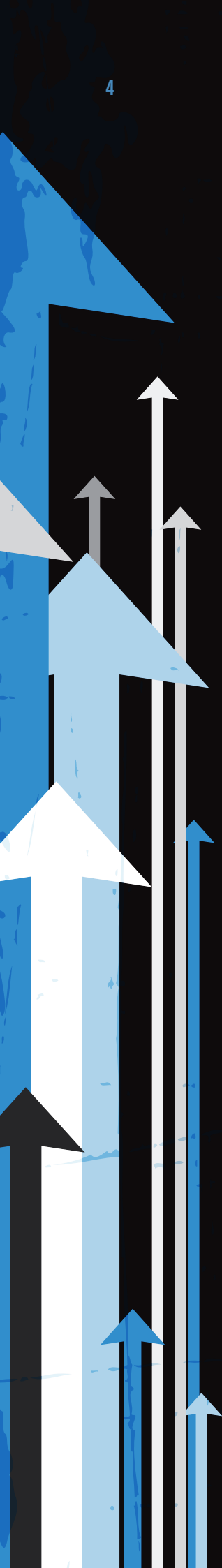
Policy Connect
7-14 Great Dover Street
London
SE1 4YR

www.policyconnect.org.uk

CONTENTS

Foreword	5
Recommendations	6
Executive Summary	7
Policy & Cooperation	9
Driving Innovation, Driving Growth	13
Technology & Skills	17
Funding for the future	21
Other Themes Raised in the Fieldwork	23
Inquiry Commission	24
Contributions	25
References	28





“Our economies, like our politics, are local. Like the seashore, the more you magnify an economy, the greater its richness, complexity, self-similarity. Like our bodies, understanding our economic health means taking readings at many resolutions. It means understanding the moving body parts, and their interactions, in microscopic detail. It calls for new data, at a higher frequency and higher resolution, and new ways of stitching it together. It means making micro-to-macro a reality.”

Andy Haldane, Chief Economist of the Bank of England and Chair of the Industrial Strategy Council¹

Foreword

Manufacturing is immensely important to our economy, yet the debate surrounding it often focuses on broadly abstract discussions about the value of the sector to society, and rarely on the realities of the role of manufacturing in the communities and regional economies in which it exists. As the government looks to level up the regions, manufacturing will have a key role to play in a sustainable and inclusive economy.

This inquiry began looking into the Local Industrial Strategy to consider how it could best be developed to support manufacturing. However, from our conversations with manufacturers across the country, we have discovered that while Local Industrial Strategies will play a key role in unlocking growth in the regions, they cannot do it alone. A true levelling up of the regions will require action in four key areas.

The first is to ensure the policy, in the regions and in Westminster, gives businesses the certainty to invest for the long term. The Climate Change Committee and the UK's 2050 80% emissions reduction target – which many thought overly ambitious in 2008 but is now Net-Zero – has been instrumental in giving the UK a leading role in driving consistent climate change action. We believe this model would work well for manufacturing – with a body based in statute to keep a relentless focus on strategic targets – coupled with a long horizon and new powers devolved to areas of regional collaboration to enable increased co-operation.

The second is to ensure that government smartly targets the increasing Research & Development (R&D) budget. As we drive towards 2.4% of GDP and beyond, we must ensure that this is spent as wisely as possible to enable innovation and growth across the whole country. The third tenet of the strategy is to ensure industry is future proofed by having access to the technology and the skills for today, but also for the future. And finally, we call for the provision of flexible funding for local leaders to best support their regions. If government acts on the recommendations set out in this report, they will raise the productivity of the manufacturing sector and level up the regions.

I would like to thank the expert panel of Commissioners who have provided support and advice to this inquiry and the ERA Foundation and the Manufacturing Technologies Association (MTA) without whom, this inquiry would not have been possible.



Lord Karan Bilimoria CBE DL
Chair of the Manufacturing Commission

Recommendations

1. Long Term Industrial Growth

Recommendation 1: England needs a national productivity target for industrial growth. Like the 2050 Net-Zero target, this should be measurable and easily understandable to the general public as well as policy makers. A key enabler of achieving this long-term target would be to strengthen the Industrial Strategy Council by putting it on a statutory footing in the mould of the Committee on Climate Change.

2. Greater Collaboration

Recommendation 2: Several regions have already implemented successful models of cross-Local Enterprise Partnership (LEP) collaboration. To allow all of England to benefit similarly, the government should set a timetable for all regions in England to have increased devolution of powers and funding. These regional bodies will then be able to assess and exploit synergies and intra-regional opportunities for collaboration and growth.

3. Strengthened Business Networks

Recommendation 3: Businesses – including Small and Medium Enterprises (SMEs) – need to shape policy making in their locality. To facilitate this, LEPs and regional bodies should be provided with the funding and tools to engage local and regional business organisations and develop ecosystems in their locality.

4. Targeted R&D Investment

Recommendation 4: To maximise the output of the increasing Research & Development (R&D) spend, government should map existing regional capabilities and seek to create a long-term innovation network bringing together government agencies, catapults, universities and businesses.

5. Make it Smarter

Recommendation 5: To support the 2050 industrial target, manufacturing will need all the enablers of increased productivity. This will mean a nationally available Made Smarter-type business support programme to encourage the uptake of Industrial Digital Technologies (IDTs) supported by high speed broadband and 5G infrastructure.

6. Matching Skills to Industry

Recommendation 6: Supply and demand in job opportunities and skills provision is currently mismatched. In order for local job opportunities to be more available to local people, all regions should have a process to match learner aspiration to business need.

7. Funding Local Growth

Recommendation 7: The UK Shared Prosperity Fund (UKSPF) should provide a single, flexible resource to allow places to direct the funding in line with their Local Industrial Strategies.

Executive Summary

In recent months the government has begun explicitly referring to “levelling up” the regions of England, with a focus on devolving power and raising the productivity of the whole country. The Local Industrial Strategies offer a potential basis from which to raise all of the regions of England, bringing higher value jobs, driving growth and allowing government to invest in more quality infrastructure.

In 2016, the government set out a vision for ‘making Britain a country that works for everyone’ including the promise of a modern industrial strategy.² In 2017 the government launched the green paper consultation *Building our Industrial Strategy*³ and later that year also released the industrial strategy white paper *Building a Britain fit for the Future*, which set out how the government intended to support businesses to create better jobs through investment in skills, industries and infrastructure.⁴

The Industrial Strategy identified five foundations upon which productivity is built: ideas, people, infrastructure, business environment and places. The places foundation of productivity is recognition that economic growth does not take place in the abstract, but that it happens in diverse places that require different strategies and plans to increase their productivity.⁵ Place-based Industrial Strategies provide an opportunity to rebalance the UK economy – which currently skews heavily towards London and the South East – whilst also addressing the productivity gap between the regions, which is estimated to cost the economy c.£40 billion a year.^{6,7} A recent report by the Industrial Strategy Council found that current regional differences in per-worker incomes are approximately as large today as they were in 1901.⁸

Manufacturing accounts for around 10% of the UK’s economy or up to 23% if including its induced spending in support and services.^{9,10} The sector is a key driver of productivity and remains a major component of the economy outside the core cities of the UK.¹¹ As the government looks to address productivity and close the gap between the regions and London and the South East, manufacturing will have a central role to play.

Manufacturing as a sector is also undergoing profound change, with the increasing prevalence of technology and disruptive new techniques changing the way people work and the way things are made. This period of flux does however provide an opportunity for government to get it right first time, by bringing together strong local interventions with the technology and skills required to facilitate continued growth.

This report considers five key areas in which government can enable growth in manufacturing, and in so doing can begin a journey towards increasing the productivity of all English regions.

First, to maximise the opportunities of this period of change, government must create a stronger national policy framework around the Industrial Strategy to ensure its longevity and enable the country to meet the Grand Challenges facing it.

Second, below the national level, England needs to unleash the power of localities and regions, by supporting stronger cooperation between LEP areas to identify synergies and to strengthen UK supply chains.

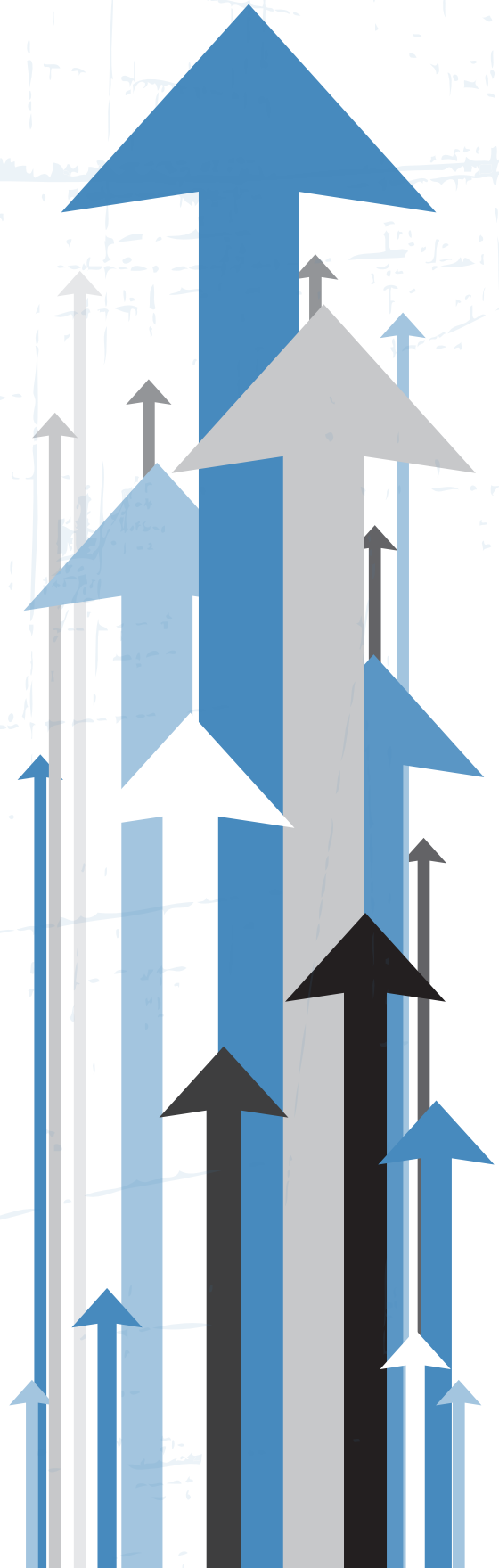
Third, to help home-grown supply chains to develop, regions will need updated innovation networks to support productivity growth and improvements. This will require careful targeting of the increasing R&D spend to maximise return on investment, but also to ensure that government looks beyond the usual lower risk recipients - London, Oxford and Cambridge - and invests across England.

Fourth, in parallel with driving long-term action towards a 2050 vision, we need to address the challenges of the near future, especially of the digital age. The Fourth Industrial Revolution is a huge opportunity for industry, with new technologies offering the potential to unlock a renaissance in manufacturing. But without the right skills to meet demand and maximise output, the opportunity may be missed.

Finally, this report considers business funding. This inquiry found that some regions and localities have been very successful in merging European and other funds to create manufacturing support in line with their own strategic priorities. It will be important not just to retain these examples but to build on them by creating simple to access (including by SMEs) regional and local funding pots, which would be allocated not in Whitehall but by local leaders to meet local and regional priorities. These should be the driving principles for the UKSPF.

If the recommendations in this report are enacted, we anticipate manufacturing productivity will increase and the sector will grow through an uptake in use of UK supply chains, increased use of digitisation and the implementation of high-value technology across the sector. We also anticipate that existing digital and technological divides across England will begin to ease, and that currently lagging regions will be able to better exploit the opportunities of the Fourth Industrial Revolution.

Effective and joined-up Local Industrial Strategies - sitting within a long-term national framework - offer the basis from which government can respond to these challenges, but this will only be possible if they engage and support employers, work for local economies and adapt to a changing society. To maximise this impact, government will need to think holistically about how local challenges are connected, and how they can be addressed in a way that aligns with the key themes of the wider Industrial Strategy and the challenges facing the country over the next 30 years.



Policy & Cooperation

As Britain leaves the European Union, the country should build upon the foundations of the Industrial Strategy to create a stable context in which business can feel confident to invest in for the long-term.

Long-term, cross-party framework

“I’d like to see a lot more cross-party working... that’s where the Germans beat us, they’ve got an agreed strategy going forward, whereas our government policies will change, they’ll change overnight.”

Manufacturer, West Yorkshire

Business is flexible and good at adapting to changing circumstances, but to do so it needs certainty in the longevity of policy to plan and invest for the future. As a vision document, the Industrial Strategy offers a basis for this, by combining mission-based long-term Grand Challenges with specific and place-based interventions.¹² The benefit of place-based interventions is that they can achieve direct and tangible local impact whilst also contributing to the longer-term mission-based goals.

For Industrial Strategy to have real impact, it will need commitment from business. While Brexit and the associated political flux has damaged the confidence of industry in policy makers and is making them more cautious when considering investing in the long term, this is nothing new. The past 30 years of economic policy and Industrial Strategy have been characterised by their short duration, with major programmes lasting on average 10 years and changing with each new government. During the roundtables held in the course of this inquiry, businesses explained that to be able to invest with confidence they would need longer-term certainty, as opposed to a cycle of changes in policies and priorities. Certainty would allow businesses to invest in technology and research programmes, confident that whoever the government and ministers in charge of business and economic policy would be, they will continue to drive in the same direction.

To build cross-party consensus, and ensure the longevity of the programme, government should put a draft bill before parliament setting out a strong legal framework underpinning work to tackle the major challenges facing the country over the next 30 years. This would give parliamentarians the opportunity to consult, scrutinise and build a consensus on the legislation. A successful example of building consensus through a draft bill was the Draft Climate Change Bill¹³ which the Department for Environment, Food and Rural Affairs (DEFRA) published in the 2006-2007 session and which was the basis of the Climate Change Act 2008.¹⁴

The Climate Change Act also established the Committee on Climate Change (CCC) and set an ambitious (at the time) long-term target of reducing carbon emissions by 80% by 2050. The CCC’s remit to keep the government’s climate policy focussed on the 2050 target (now Net-Zero), reporting annually to Parliament on its work and findings, has helped put the UK in a position of global leadership. Similar benefits can be achieved in relation to industry. Ensuring business has the confidence it needs to invest will require oversight from a similarly independent body with an equally long horizon and a clear target. Such a long-term target would need to be overarching, clearly measurable and easily understandable in the mould of the Net-Zero 2050 target. This will ensure the short-term targets of different government departments do not undermine the longer term objectives of the Industrial Strategy. The longer-term target could also be underpinned by shorter-term (e.g. five year) regional productivity targets to place onus on the regions which would then drive local action to level up.

1: Long-term Industrial Growth

Recommendation 1: England needs a national productivity target for industrial growth. Like the 2050 Net-Zero target, this should be measureable and easily understandable to the general public as well as policy makers. A key enabler of achieving this long-term target would be to strengthen the Industrial Strategy Council by putting it on a statutory footing in the mould of the Committee on Climate Change.

The UK has one of the highest levels of regional inequality and centralisation of any major economy.^{15,16,17} Central government control in the UK has been described as a ‘power hoarding’ system due to the power imbalance between Westminster, Whitehall and the rest of the country.¹⁸ Whilst increased devolution has been attempted by previous governments, there is no consensus between political parties as to what it should look like or on what basis power ought to be devolved. As a result, devolution in the UK has been asymmetric.¹⁹

Since the Scotland Act, the Government of Wales Act and the Northern Ireland Act in 1998, devolution has grown apace in three of the four countries of the UK.^{20,21,22} However, England continues to have only the UK Parliament by way of national representation.²³ To those in Durham, Yarmouth or Plymouth, a London-based government taking all the major investment decisions seems very distant and remote, exacerbating feelings of powerlessness.

In 2004, a referendum was held in the North East to decide whether to introduce a regional level of government, but due to high levels of scepticism about the powers, such an assembly would be allowed and worries over adding to the bureaucracy of two-tier local government, the notion was rejected by three to one.²⁴ Since then, devolution of power to the regions of England has been negotiated on an ongoing, ad-hoc, deal-by-deal based system and as a result, the fractures and inequalities between those with most devolved power and those without are becoming stark.²⁵ The think tank Localis found that despite recent reforms, over 20 million people in England (approximately half of the total English population) have no access to devolved powers at all.²⁶

It is apparent that the current devolution set up is not sufficient, though the best way forward is also far from clear. Whilst an English parliament has been called for by a range of fringe voices,²⁷ it would not necessarily be the best way to align the strengths of the country and would take considerable effort, money and time to put in place. However, further individual devolution deals when and where they can be agreed, whilst comparatively quick, may not impact widely enough to make the difference needed everywhere.

The Conservative 2019 Manifesto promised an English devolution white paper in early 2020 to build on the current structures.²⁸ However, currently many LEPs have no real capacity to manage serious change, and those that do have such capacity tend to be located in strong and well-organised localities (Manchester, West Midlands, Cambridge etc.). While any further devolution of powers should not seek to reinvent the wheel nor redesign the entire system, it should seek to support collaboration between regions and central government by building on pre-existing structures where possible. This will strengthen the relationship between decision making and delivery.

“We’re talking about manufacturing focus, and we’re talking about productivity improvement, how well do even the boundaries of these Local Enterprise Partnerships suit that? Are you going to have two basically signing up to compete with each other?”

Manufacturer, East Midlands

To support a more strategic and connected approach government should look to other successful economies, many of which feature a mid-level of governance. Mid-level governance is also known as a meso level and can reveal connections between the micro (local) level and the macro (central government) level. Whilst not advocating additional governance, this report does see the benefit of enabling regional bodies to further support collaboration at the LEP and local government level. In England, a collaborative partnership of this type would seem likely to sit between LEPs and Central Government in order to better identify synergies and opportunities for regional cooperation.^{29,30}

In England, a regional or meso level of decision making and delivery has developed in part in the Northern Powerhouse, Midlands Engine and Western Gateway. These regional areas of collaboration have already had positive effects far beyond their borders. The Northern Powerhouse has been acting as an informal coalition for the LEPs within its area through the the NP11 partnership, and the representative body, the LEP Network, is now working directly with the chairs of seven similar areas covering the whole of England. The experience of the Northern Powerhouse and these regional bodies shows that there are connections and shared values at this level which could serve as a strong starting point from which to build.^{31,32}

To level up their areas, these bodies will need government to enable them to move beyond soft power and into more tangible power over decision making and delivery in their area.³³ To make a difference on the ground requires decisions to be backed by funding, which would require the government to delegate greater amounts of direct funding than is currently available, shifting the weight of investment decisions from London to the regions. Some of this funding would need to be used to develop capacity across England, to ensure that it is not just larger or richer LEPs and Combined Authorities who are able to maximise the benefit.

The Local Industrial Strategies provide a unique opportunity not only to highlight local strengths and opportunities for productivity growth, but also to match them to other areas of the region or wider nation. In highlighting the opportunities and current capabilities of localities, they offer a model through which government can better understand in what types of manufacturing, and where, the country needs to invest in order to best tackle the challenges of the future. To ensure that regional strengths are maximised, cross-LEP groupings should seek to bring together the local strengths highlighted by the Local Industrial Strategies and identify potential synergies to connect complimentary businesses across the country.

Upon their completion, the Department for Business, Energy and Industrial Strategy (BEIS) should review the regional strengths highlighted by the cross-LEP groupings in order to understand what conditions brought them about and why. It should then look at how these strengths might complement each other and what actions government could take to facilitate such connections. This could be done at both the regional level as set out above and followed by further analysis at a national level.

2: Greater Collaboration

Recommendation 2: Several regions have already implemented successful models of cross-Local Enterprise Partnership (LEP) collaboration. To allow all of England to benefit similarly, the government should set a timetable for all regions in England to have increased devolution of powers and funding. These regional bodies will then be able to assess and exploit synergies and intra-regional opportunities for collaboration and growth.

The SME challenge in policy development

Currently, in the UK, over 99% of businesses are SMEs.³⁴ The small business community is a key part of the economy in its own right but it also serves as the supply chain for larger businesses. Any strategy designed to improve productivity must therefore be designed with these businesses in mind. In all of the regional roundtables, SME participants explained that they find it difficult to engage in anything beyond the urgent issues in their daily business. As a result, SMEs often feel that they are not heard in major policy conversations and that policy feels like it is designed for major corporations and not smaller companies.

A lot of the policy connection, with the greatest respect, sits with the bigger organisations and the voice of the small manufacturer, or the SME regardless of sector, doesn't get heard. Typically you don't see them at forums like this because they can't afford the time, they're busy on the tools, doing the job.

Manufacturing Recruitment Company, East Midlands

Engaging small companies can be difficult for government at both the national and local level. As a sector, manufacturing is extremely well represented by membership organisations, with national organisations such as Make UK and the Manufacturing Technologies Association (MTA) to the more locally-focussed Chambers of Commerce and region specific bodies such as Made in the Midlands and Made in Yorkshire. This broad and deep network of business organisations can act as a conduit between the SME base and central government.

However, this network is still fragmented, and it is important that any work in this area serves to create a coherent and collective voice for the wider base. During the fieldwork, the German Mittelstand was regularly referred to by those who had worked in Germany and/or had worked closely with German firms, as manufacturers cited the strong and united voice the sector has in Germany and the resulting power it gives them with government. When seeking to use the business representative network as a conduit, government should also seek to give the networks a voice to ensure that any engagement can be constructive for both parties.

It is important to encourage knowledge transfer and spillovers by creating fora in which businesses can learn from one another, something that most individual businesses do not have the capacity to do. This was demonstrated in the roundtable discussions, where manufacturers stressed the importance of business collaboration, citing the value of peer-to-peer knowledge-sharing and business collaboration to the success of their companies. Participants stated that they would actively seek and attend events which featured networking as they provide the opportunity to make connections and gain new business, in addition to the opportunity of learning from peers. Membership organisations were also highlighted as important to business collaboration as they provide programmes of events at which manufacturers can network and share best practice. This is particularly important in lagging regions, where such networks tend to be weaker, further stifling knowledge transfer and collaboration.

3: Strengthened Business Networks

Recommendation 3: Businesses – including Small and Medium Enterprises (SMEs) – need to shape policy making in their locality. To facilitate this, LEPs and regional bodies should be provided with the funding and tools to engage local and regional business organisations and develop ecosystems in their locality.

Driving Innovation, Driving Growth

Innovation is a key driver of economic growth. As the government looks to level up the regions, ensuring that networks are in place to support innovation growth outside London and parts of the South East will be imperative.

Supporting innovation by driving demand

The UK currently spends 1.7% of GDP on R&D, well below the Organisation for Economic Co-operation and Development (OECD) average of 2.4%.³⁵ Following an initial commitment by government to raise spending to match the OECD average in the Industrial Strategy, there is now a cross-party commitment to going beyond that.^{36,37}

Innovation is, by its nature, uncertain as many projects that are funded will not produce widely adopted techniques or products and as a result, governments struggle to justify R&D expense. Standard cost benefit analysis is not suitable for innovation, yet this is broadly the model employed by government to target investment, resulting in higher spend in areas where R&D is already more advanced, and therefore lower risk. If government is serious about increasing innovation across the country, it will have to increase the amount of money spent on R&D but also reassess where it is spent, in order to fund the best opportunities rather than to simply reinforce success. The government are aware of disparities in regional investment and Former Minister of State for Universities, Science, Research and Innovation, Chris Skidmore MP recently spoke of the importance of rebalancing public investment in the different parts of the country.



Now that we are increasing public investment into R&D, we have a chance to address these disparities, and I want us to seize it. We must ensure that more public R&D funding is being driven to places where, despite historic under-investment from the state, private investment has been flowing freely, and where it is ready to flow even faster.³⁸



Chris Skidmore MP, Former Minister of State for Universities, Science, Research and Innovation,

It follows that increasing the level of spend will not be enough on its own and policy makers, including in the Treasury, need to be bolder and more willing to take well thought-through risks by investing in longer-term, less developed areas.³⁹ With the right long-term framework in place (e.g. a 2050 type target with oversight from a statutory Industrial Strategy Council as advocated for earlier in this report) the government can have confidence that sub-national investment decisions using the increased spending can be targeted towards areas where it can add the most value, as efficiently as possible, and in as short a period of time as possible.

The Conservative Manifesto 2019 promised a new agency for high-risk, high-payoff research which was then reiterated in the Queen's Speech following the 2019 General Election stating that the government will back *'...a new approach to funding emerging fields of research and technology, broadly modelled on the US Advanced Research Projects Agency (ARPA).'*⁴⁰ While an ARPA style body could serve to enable innovation by taking on risk for the private sector, it is important that time is taken to fully understand how it would align to current research capability and to ensure that it is embedded into the existing research and innovation system, not simply bolted on. It is also important to remember that the UK does not have a comparable budget to the US to fund innovation and therefore results would likely be different.⁴³

However, if the UK were to commit to a longer-term and mission-oriented focus on R&D, a UK ARPA could serve to plug the current gaps in the Industrial Strategy Challenge Fund and allow the fund to provide more flexible support autonomously, in parallel to existing government investment. This could also then drive locally focussed innovation, for instance by supporting regional test beds designed to support existing clusters of industrial activity.⁴¹ A more strategic approach through a UK ARPA could also focus on cross-cutting technologies which would have the benefit of driving research and innovation into supply chains, many of which are cross-sectoral and can miss out on investment.

But innovation does not take place in a vacuum; it is the result of a range of complex interactions between businesses and local networks. Consequently, any policy interventions aimed at supporting innovation cannot be driven solely from the top down.⁴² Increasing innovation adds value across the economy, and increases productivity, but simply increasing spending and investment alone will not solve the current challenges facing the country. To solve these challenges, government will have to proactively support growth in innovation everywhere in England.⁴³ This is what economist Professor Mariana Mazzucato, founding director of the UCL Institute for Innovation and Public Purpose, refers to as ‘*crowding in*’ investment, as government spending can create shared public/private visions around targets and reduce risk for private investment by funding more capital intensive or high risk areas.⁴⁴ Government already does this in other sectors, for instance through Contracts for Difference (CfD) in low carbon energy generation which account for the current price differential between renewable energy and comparable non-renewable energy. CfDs reduce risk for the private sector, enabling them to invest into cleaner energy generation in line with the government’s targets.⁴⁵

Joining the dots

Successfully supporting innovation at the local level will require more than just an increase in national R&D spending or a new government agency. It will require strong connections between networks at all levels: initial research, translation/collaboration, initial application and wider adoption. This will require a strong knowledge base of local and regional strengths, assembled by those who know the area best – the people who live and work there. To enable these connections, government will have to act to support and empower local, regional and national actors to maximise their impact through targeted investment. This should be based on analysis of local and regional strengths building upon the work of the Science and Innovation Audits (SIA) to effectively focus investment and connect business to a network of innovation support to develop existing regional strengths and create new opportunities.

Business networks, clusters and ecosystems are all types of localised collaboration between complimentary industries.⁴⁶ The benefits of clusters are many and well documented; from knowledge spill-over, to increased collaboration and economies of scale, clustering brings a range of benefits that can serve to increase productivity, uprate innovation and strengthen the businesses within.⁴⁷ A recurring problem in British regional investment is the inclination of local actors to feel that they should have certain types of industry in their area as they are high value or in vogue. This was argued to be the case in LEPs Strategic Economic Plans, which the think tank Localis noted as being frequently criticised for their homogeneity and propensity to claim spurious “specialisms” rather than to directly reflect their area’s strengths and weaknesses.²⁷ The evidence gathering of Local Industrial Strategies has been a departure from this, and the focus on intelligence-led strategy means LEPs have built a strong foundation of data on which to base their strategies.

As recommended earlier in this report, once the Local Industrial Strategies have been fully implemented, BEIS will need to work with regions to identify strengths on a regional and then national basis. This could be done through direct analysis of the Local Industrial Strategies and the connections identified at the regional level but also through the consideration of wider data such as trade mark registrations and web-link analysis of company sites, as BEIS has previously undertaken to identify clustered businesses.^{48,49} Such analysis would serve to reveal clustering of related businesses, not only in single LEP areas, but those which overlap LEP boundaries or operate in neighbouring LEPs. It would also serve to reveal cross-sectoral strengths and opportunities which could then be compared internationally to identify potential opportunities for trade growth.

It is also important that this data is further analysed to identify the presence of industries that are likely to locate near to those which have been highlighted by the Local Industrial Strategies and the additional data analysis. If related businesses are present, it may be that there is a cluster that has not been identified. If related businesses are not present, the analysis can be used as a base from which to consider what could be done to help them to locate in the area, driving additional inward investment and strengthening local supply chains.

Strong data and analysis would also allow regions and LEPs to ensure they focus investment on potential strength by identifying missing links and unblocking bottlenecks whilst also building upon and diversifying their pre-existing assets and strengths. However, investment should not solely be focussed on rewarding strength, as such a strategy could serve to entrench existing monopoly positions. Such an approach also avoids “build it and they will come” supply side strategies of investment which have rarely have a positive effect on the market and can serve to distort competition and stifle local growth.⁵⁰ It also avoids spurious claims of specialisation, as the strategies will accurately reflect the true strengths of their localities. This will allow central government to ensure that investment into the regions supports the growth of existing or related businesses and specialisations.

The university challenge

Universities play a major role in supporting innovation and driving productivity growth. The so called “golden triangle” between London, Oxford and Cambridge is an excellent example of this, as is the ecosystem which exists around the Massachusetts Institute of Technology (MIT) in the US. MIT has been so successful in building Innovation Driven Entrepreneurial (ISE) ecosystems that it now exports its work to regions around the world to grow similar systems through its Regional Entrepreneurship Acceleration Program.⁵¹ Despite having 11 of the world’s top 100 universities, away from the “golden triangle”, the UK has little by way of well-developed, long-standing university-business innovation networks.

Universities are integral to many initial stages of innovation, creating many of the ideas which then go on to be developed, honed and adopted.^{52, 53} Current Research Excellence Framework incentives do not explicitly factor in local impact and, as a result university knowledge bases and areas of focus often differ from local industrial networks.

While there has been some discussion around creating a “MIT for the North”, with suggestions that this institution could be built in Manchester, such a move is likely only to stimulate the immediate environment and could also risk creating additional competition in an already crowded space. A better strategy would be to ensure funding is increased for existing northern universities to build and improve their innovation networks.

In the roundtable discussions, several manufacturers stressed how difficult they find it when universities compete to specialise in the same fields, making it hard to know who is best to speak to when looking for academic support or knowledge transfer partnerships. The mapping of regional strengths discussed above would allow universities to tailor their offering to best suit their local ecosystems and clusters, adding value both for themselves, and for the businesses in their locality.



...the universities, they almost seem to compete against each other and they're also duplicating the similar sorts of activities and research.



Manufacturer, East Midlands

It is imperative that these offerings are not only complimentary to local businesses and other universities' offers, but that they focus on challenges facing industry today, by connecting skills for the future (e.g. in Artificial Intelligence (AI)/Data) to local opportunities in industry. This could also serve to stem the regional "brain drain" of skills by providing high value opportunities in regional industry. Research by the Edge Foundation found that the UK has one of the highest rates of graduate underemployment in the world with two out of every five graduates employed in a job below their skill level, which suggests that there is an opportunity to connect highly skilled graduates with higher value job opportunities.

Develop and diffuse

The UK reaps great rewards from investment into pure research, however is weaker in commercialising and applying research.⁵⁴ The High Value Manufacturing Catapult provides a space in the regions in which industry and researchers can collaborate to develop new products and has been successful in driving investment having already reached the target model of 33% core funding, 33% collaborative R&D and 33% direct industrial contracts. Despite not having comparable levels of funding to its international competitors, it is yielding almost five-fold return on investment from central government funding. This shows that if accurately targeted, the increase in value from increased R&D funding can be considerable.

Whilst it would be positive to see the High Value Manufacturing Catapult network grow, and further investment is welcome, it is important that government does not simply seek to spend increased R&D funding by replicating centres across the country. One of the benefits of the network is that each centre focuses on specific areas and houses associated experts in the field. These focussed specialisms ensure that the centres are able to best support and incubate innovation, which in turn draws inward investment. The Advanced Manufacturing Research Centre (AMRC) has, to date, attracted over £218m of inward investment from global companies including Boeing and McLaren, which has spurred regeneration of the area and created up to 3,500 new jobs. While these examples show that increased investment is valuable, such investment needs to be focussed and targeted to ensure that it creates the conditions which give businesses the confidence to invest.

The High Value Manufacturing Catapult alone cannot fulfil all the functions required to support industrial innovation among SMEs, focusing as it does primarily on technology scale-up rather than diffusion. To create a holistic innovation network, government should consider how existing regional capabilities – including Catapults – can be developed to build a long-term technology diffusion network to support regional firms in increasing their absorptive capacity, as described by the academics Cohen and Levinthal: *"the ability to recognize the value of new information, assimilate it, and apply it to commercial ends."*⁵⁵

4: Targeted R&D Investment

Recommendation 4: To maximise the output of the increasing Research & Development (R&D) spend, government should map existing regional capabilities and seek to create a long-term innovation network bringing together government agencies, catapults, universities and businesses.

Technology & Skills

Manufacturing is facing a period of profound change, with technological advances fundamentally altering the way things are made.⁵⁶ Manufacturers also face a range of challenges in getting the right skills, with poor levels of provision, unclear pathways and a lack of management skills adding pressure to industry across the country.

Digital industry

The coming decades will see profound changes to the way industry operates.⁵⁷ While much progress has already been made in technological adoption among large businesses, the uptake of Industrial Digital Technologies (IDTs) is still low among SMEs. As highlighted earlier in this report, a huge majority of UK businesses are SMEs, and it is in this group that the so called “long tail” of unproductive companies predominantly lie. Therefore, addressing the productivity challenge through the uptake of IDTs will require greater cut through to small businesses.

During the roundtables, manufacturers explained that whilst new technology could add great value to their businesses, currently, prohibitive costs were slowing uptake. Several also noted that many businesses they knew and were familiar with were also not investing in the new technology required to meet the higher production volumes which would be necessary to grow their business. This was predominantly as a result of low levels of understanding of the opportunities of IDTs among SMEs, with most also having limited knowledge of who could support them in increasing their use of technology and little or no capacity to carry it through.

“ ... I can estimate what £20,000 worth of kit looks like when it’s machined. But from a software perspective, it just seems colossal and it’s on a memory stick... until we can make that connection and bridge that gap, we are never going to be able to embrace this technology and yet, in-house we know what we need to do. It’s just, you know, we can’t get that resource or skill to make it happen.”

SME Manufacturer, West Yorkshire

To support engagement with business of all sizes, regions should share data to support LEPs in this task. In addition to this, LEPs should draw on their own business connections to ensure local manufacturers are made aware of the opportunities of the Fourth Industrial Revolution. Any programmes of awareness-raising should support SMEs in understanding the potential value added by technology through case studies showing clear return on investment.

Whilst participants were broadly positive about the benefits of technological change, several noted that many manufacturing businesses are still not operating lean processes, despite this being a required starting point for any programme of digitalisation or technology adoption. Any programme focussed around raising awareness should also be coupled with support in process improvement and lean manufacturing techniques to start industry on their digitisation journey. This could be supported by business organisations taking action to encourage their SME members to improve their management capabilities and processes, which would then enable them to benefit fully from the adoption of digital technologies.

“ I spend my life in other peoples’ factories, and the vast majority of factories I go into are fairly poorly managed on the shop floor. The processes aren’t lean, because there is no resource coming through to do it.”

Industry Expert, East Midlands

Made Smarter is a national programme designed to help manufacturing businesses capitalise on new digital technologies and is currently being trialled in the North West. The £20 million partnership between government and industry provides match-funding, specialist advice, student placements and leadership training and has distributed £1.6m to 300 manufacturers in its first year. Of those businesses it has supported, 62 have also secured matched funding and are forecasting an additional £52m of gross value added over the next three years. The analysis of the original Made Smarter review found that if the recommendations of that review were actioned, industrial productivity could increase by at least 25% with a value of £455 billion and 175,000 net jobs by 2025.⁵⁸

In considering national implementation, government will have to be cognisant of current capacity issues in the regions. As Policy Links at the University of Cambridge Institute for Manufacturing highlighted in their report to BEIS on Strengthening Value Chain Capabilities: *"... effective strategies require a long-term approach to build the institutions that are needed, with the size, coverage and financial flexibility required, in order to deliver the intended support."*⁵⁹ Since the dismantlement of the Manufacturing Advisory Service there is no single national programme or institution present in all regions, and no long-term strategy which is likely to hinder implementation.

The uptake of Industrial Digital Technologies will also require considerable increases in current levels of connectivity. Digital infrastructure has become a major topic in UK political discourse with broadband provision a key focus in the 2019 election. While commitments to improved digital infrastructure are welcome, and will help industry in the adoption of digital technologies, government must also drive forward adoption of technologies such as 5G to ensure the nation's digital infrastructure is fit for the future.

5: Make it Smarter

Recommendation 5: To support the 2050 industrial target, manufacturing will need all the enablers of increased productivity. This will mean a nationally available Made Smarter-type business support programme to encourage the uptake of Industrial Digital Technologies (IDTs) supported by high speed broadband and 5G infrastructure.

Demand-led skills provision

Analysis by the Industrial Strategy Council shows that the UK's skills supply will struggle to match demand over the next decade.⁶⁰ Truly maximising the benefit of the Fourth Industrial Revolution will require not just uprated infrastructure and access to technology, but also uprated skills provision and an invigorated talent pipeline. Skills was raised as an important point in all of the roundtables, with manufacturers stressing their inability to access both the quantity and quality needed as local providers were unable to keep up with their demand.

We don't look at where the economy's going, where the jobs of the future are, and make sure education is then teaching for those jobs.

Manufacturer, East Midlands

Recent research by the Skills Commission found this gap between provision and industry demand to be the result of a three-way tension between what employers want, what learners choose and government's national priorities, all of which can operate in opposition.⁶¹ Skills provision cannot be done from the top down as different areas have different needs in terms of provision to meet the demand of local industries.

Skills policy is highly centralised, with little to no connection to local demand or business need. Unlike other local-specific policies – e.g. planning or economic development – which are set and driven locally, skills policy lacks local levers to change provision. This is particularly problematic for SMEs who do not have the capacity to influence government or the purchasing power to shape provision across a fragmented network of local providers. The LEP system, with its business focus, was designed to address these shortfalls between central government, local demand and local provision. While LEPs are gathering skills market data to influence their decision making, their ability to directly influence local provision is limited.

The highly centralised nature of skills funding means that funding follows learners, rather than demand. Local providers are therefore incentivised to compete for learners rather than aiming to meet the needs of businesses in their area. While allowing flexibility and access to a range of learning opportunities, this can be entirely disconnected from the reality of opportunity in local employment. As the Skills Commission’s recent report argued, incentives need to be put in place to better link provision with local labour market need. Currently, provision is based on what providers think they can sell or what students think they want despite a lack of knowledge relating to relevant opportunities in the local area. In the absence of systematic or funding reforms in further education, LEPs Skills Advisory Panels can play an important role in improving careers information advice and guidance for students, aggregating employer demand and working with local providers to help reconnect supply and demand.

Creating routes into industry

If the UK is to raise the amount of home-grown skills in the sector post-Brexit, increasing diversity within industry will be crucial. However, manufacturing is beset by problematic misconceptions. Participants in the roundtables spoke of parents having engrained stereotypes of industry and apprenticeships, and as a result many would not encourage their children to consider a career in manufacturing, despite salaries in the sector being more than 10% above the national average.⁶²

Ultimately, without a strong pipeline, even if skills provision can be designed to meet demand, there will not be enough students to do so. School engagement was seen as a key route to better provision of the required skills at all levels. But the current lack of clear pathways into industry alongside outdated perceptions of the sector were seen as deterring young people from starting a career in manufacturing.

“ ... the government’s got to say to schools: Go and make partnerships with local industry, go and make partnerships with local businesses.’ It doesn’t matter if it’s a one man band and it’s a sub-contract machine shop, but just to give people an insight into what’s out there and what environments you can go and work in. ”

SME Manufacturer, East Midlands

Some manufacturers explained that due to the lack of available skills in the pipeline, they have had to resort to setting up their own programmes of school engagement. Several spoke of their impact and found that they had already helped them to access more of the skills they need through raised awareness among parents and students. But not all have the inclination to put scarce resource into outreach, unless they can be confident skills providers will be responsive.

“ We use two schools, locally, as our feeder schools and over the last, probably, last eight years, we’ve had over twenty students from them, but we open our doors to them. They come in and we show them the facilities, [and] we’ve invested in our own training academy...”

SME Manufacturer, East Midlands

Across England and Wales there are examples of LEPs, Mayoral Combined Authorities and other partnerships working to address the skills gap through raised awareness of opportunities. In the Cheshire and Warrington LEP area, 30-40% of the local economy is dependent upon Science, Technology, Engineering and Maths (STEM) related industries, yet like much of the rest of the country the region struggles with producing enough skilled technicians and professionals. To try and understand the scale of the challenge, the LEP undertook research that found that 80% of young people in the area were not aware of local opportunities, which was damaging provision, as learners were not aware of the opportunities in their local area.

While direct interaction with schools can serve to create a pipeline between education and business, this is not possible for all manufacturers and is reliant on individual networks. It is therefore important that careers and guidance in schools is driven in a way that is more systematic and inclusive of different careers and opportunities. This will require greater coordination at a local level as well as sharing of information between LEPs and schools to ensure educators and careers advisors are aware of opportunities in local business.

This lack of the right skills is acute even at higher levels. Recent analysis by the Industrial Strategy Council found that by 2030, 2.1 million workers are likely to be acutely under skilled in at least one core management skill - leadership, decision-making and advanced communication.⁶³ This was borne out in the fieldwork as businesses stressed that the dearth of leadership skills – particularly in SMEs – is stifling the ability of businesses to grow beyond a certain point. There is increasing empirical evidence that leadership skills – especially in HR practices and raising employee motivation to engage in innovative activities – are critical to productivity growth.

“ A lot of these businesses just continue to tick over and are not driving growth because the ability of the senior management is not capable of putting that growth strategy into place and there’s a lack of understanding of how to grow a business.”

Manufacturing Recruitment Company, East Midlands

Participants highlighted that – particularly in owner-run SMEs – time pressures combined with relatively low turnover means that there is little opportunity to develop these skills and push businesses to the next level. To address this, regional business schools should work to better support the full breadth of the employer base in their area. This can be done by providing executive courses tailored to local SMEs (especially focussing on the ‘long tail’ of low productive SMEs).

6: Matching Skills to Industry

Recommendation 6: Supply and demand in job opportunities and skills provision is currently mismatched. In order for local job opportunities to be more available to local people, all regions should have a process to match learner aspiration to business need.

Funding for the Future

The key to making real change at the local level is to enable local leaders to apportion funding to deliver the priorities in their Local Industrial Strategies. This will allow for responsive business support and will empower to shape long-term visions for their locality. The UK's departure from the EU provides a unique opportunity to redesign funding streams to meet these needs.

Funding

The UK is one of the most fiscally centralised countries in the OECD with just 14% of local government spending raised locally, compared to a European average of 37%.^{64,65} The local funding landscape is also inherently complex, with 343 councils in England, 38 LEAs, 10 Combined Authorities and eight elected mayors all interacting with more than 100 schemes designed to support business spread across eight government departments.⁶⁶ It was unsurprising then that in 2018, the BEIS Select Committee found that the complexity of funding and initiatives was difficult to navigate, particularly for those whom it is designed to support – SMEs.⁶⁷

“ I think that's one of the main problems, knowing what is out there and there's no central source to find out what is out there... And the initiatives change, the government changes the initiatives too many times so nobody's up to date, certainly as a small SME you haven't got a clue. ”

SME Manufacturer, West Yorkshire

As the UK leaves the European Union, the funding landscape will change considerably.⁶⁸ In the course of the 2014-2020 EU financial framework period, EU funding amounted to approximately £15 billion. The majority of this amount is made up of European Regional Development Funding (ERDF) and European Social Funding (ESF), both of which are highly relevant to industry and particularly SMEs. Once the UK leaves the EU, both of these streams of funding will stop. They will, however, be replaced by UKSPF which will aim to “*reduce inequalities between communities across our four nations*”.^{69,70} ERDF and ESF funding streams cover important areas such as enhancing SME competitiveness, research and innovation and skills for growth. In exiting the EU and changing the way a large segment of funding is managed, government should look to how this opportunity can be utilised to further reduce the complexity of business funding.

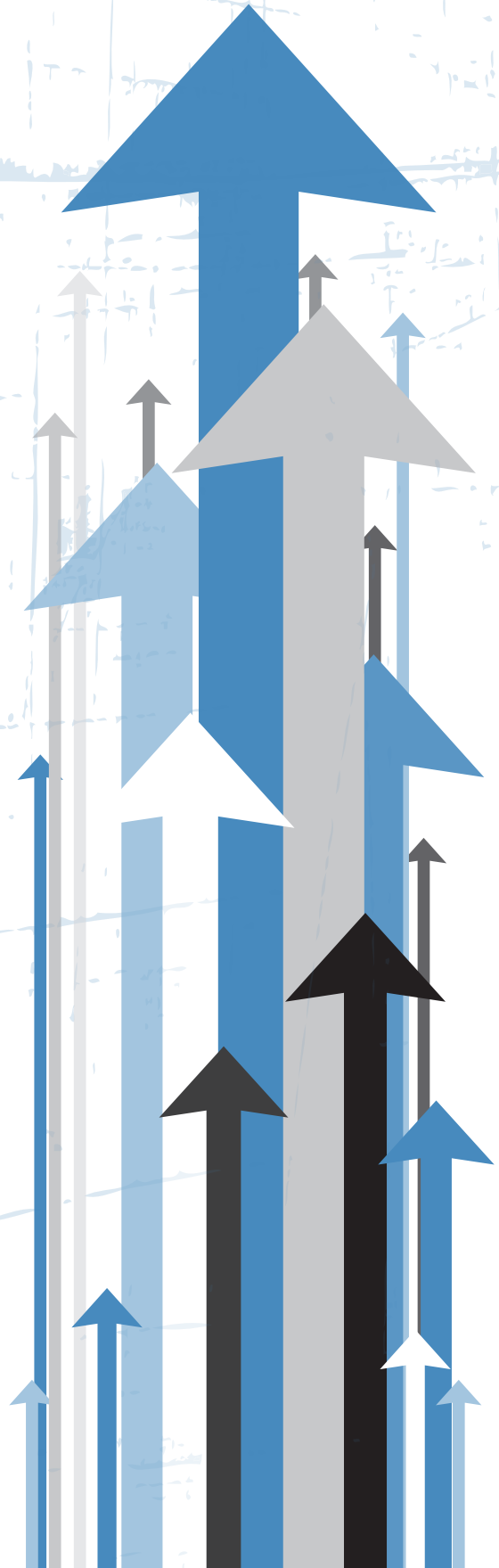
Local Industrial Strategies are intended to help areas in England decide how they will maximise the impact of UKSPF, though details of its operation and priorities have not been released (as part of the spending review as originally planned) due to Brexit contingency planning. This means that the Local Industrial Strategies have been designed and agreed without absolute certainty of the shape of the funding for which they will set the context.^{71,72} The inception of UKSPF provides policy makers with an opportunity to start afresh and ensure that future funding is fit for purpose and designed with UK businesses in mind.⁷³

Currently, the centralised nature of funding means there is little autonomy for local areas to establish long-term plans for future investment. This is because the focus of funding is set centrally, in Whitehall, despite the needs of one place differing considerably from those of another. Areas are also unable to choose how they apportion the money they receive, so may find that while they spend all of one allotted fund and do not spend all of another, they cannot repurpose the remainder of the latter to support further growth in the former. All streams of local funding should be reviewed to ensure that local leaders are able to apportion funds as they see fit for their area.⁷⁴

While there was positivity about funding received directly from the local LEPs during the roundtables, participants also highlighted the confusing and often complex nature of accessing support. This was an issue highlighted by businesses of all sizes, with even large manufacturers stressing the considerable time commitment required by some bid funding. In addition to this, much funding is competitive or bid-based. Competitive funding can serve to impede collaboration, with individual businesses and other stakeholders vying for money which could have been spent on collaborative projects if the relevant parties were identified and encouraged to work together. Stronger LEPs and combined authorities also often have more expertise in writing successful bids, which can also coincide with investment opportunities in these areas being more attractive to funders, resulting in bid funding reinforcing existing strengths.⁷⁵ All of these factors mean that smaller businesses risk missing out, not only due to their lack of time to spend on bid writing, but also as they are unlikely to have time to identify suitable collaboration opportunities with other businesses.

7: Funding Local Growth

Recommendation 7: The UK Shared Prosperity Fund (UKSPF) should provide a single, flexible resource to allow places to direct the funding in line with their Local Industrial Strategies.



Other Themes Raised in the Fieldwork

During this course of this inquiry two other major challenges were raised that will need to be addressed if industry and manufacturing is to leap forward. However, both are highly complex issues which require further discussion and investigation.

Connected places

During the roundtables, manufacturers in both the Midlands and Yorkshire stressed that low connectivity and poor public transport are additional strains on their businesses. Substandard connectivity and irregularity of services were identified as challenges to general travel – e.g. to suppliers and customers – but also in accessing the best training facilities, with apprentices expected to travel to remote sites not well served by public transport. It is therefore clear that more investment in infrastructure in the regions is required.

Becoming a world leader in shaping the future of mobility is identified as one of the Industrial Strategy Grand Challenges, it is therefore vital that improvements are made to transport connections at all levels. The Northern Powerhouse Strategy recognised that transport in the North required considerable improvement yet currently public spending per person on transport in the North is less than half that of the South East.⁷⁶ To become a world leader in the future of mobility will mean providing tangible, green choices for consumers which offer the potential to deliver national Net-Zero targets whilst improving outcomes and productivity at the local level.

As the country moves towards the 2050 Net-Zero target, action will have to be taken to increase the uptake of lower-emission transport options and reduce the number of journeys taken by car, van or taxi (currently accounting for 83% of all journeys).⁷⁷ This will require a strong understanding of existing connections, but also of possible future demand. Whilst seeking to decarbonise transport, government should also consider how improving transport can be linked to productivity increase, through localised manufacturing where possible, but also by improving links between places across the country.

Growing pains

During our fieldwork, several businesses explained that their growth plans had been curtailed by problems in trying to expand existing sites, or not being able to access suitable new sites to rent or on which to build larger facilities. While some manufacturers explained that they had successfully increased the scale of their facilities with support from the LEP, several participants raised this as a critical issue.

Operating in unsuitable sites can be a drag on productivity (e.g. through duplication, increased transport costs etc.), therefore it is important that manufacturers are able to access suitable sites when they need to upsize or relocate. While BEIS research suggests that the propensity of businesses to relocate is low, there are sometimes reasons why a business may wish to relocate.⁷⁸ It is important for local growth to retain employers in the local area, however, this should be possible whilst also providing industry with the means and the sites necessary to expand their businesses and add more value to the local economy.

There are many reasons why developers have traditionally chosen to keep places for work separate from places for living, from air quality concerns to dangers from chemicals and even heavier traffic. However, in much modern and future manufacturing, the direct environmental impact is and will be almost zero. With an increased demand for craft industries (e.g. ceramics and real ale) as well as new technological innovations such as 3D printing and other forms of small-scale or customer-of-one manufacturing, many makers now have little or no impact on their immediate environment. With space at a premium – particularly in cities – it is worth considering how future development could be designed to reconnect spaces for work and spaces for living.

Inquiry Commission

Lord Karan Bilimoria CBE DL

Cross Bench Peer, Chair of the Manufacturing Commission, Founder and Chair of Cobra Beer and Vice President of the CBI

Barry Sheerman MP

Vice Chair of the Manufacturing Commission, Labour Co-operative Member of Parliament for Huddersfield

The Right Honourable Baroness Lorely Burt

Vice Chair of the Manufacturing Commission, Liberal Democrat Member of the House of Lords

Dr Ann Limb CBE DL

Chair, London Stansted Cambridge Consortium, LEP Network Ambassador and Former Chair of South East Midlands Local Enterprise Partnership (SEMLEP)

Dr Carlos Lopez-Gomez

Head, Policy Links, Institute for Manufacturing Education and Consultancy Services (IfM ECS), University of Cambridge

David Godfrey

Visiting Fellow, Localis

Dr David Leal-Ayala

Senior Policy Analyst, Policy Links, Institute for Manufacturing Education and Consultancy Services (IfM ECS), University of Cambridge

Professor David Seall

Visiting Professor and Deputy Chair of the Supervisory Board, Surrey Business School

Josie Warden

Senior Researcher – Economy, The Royal Society for the Encouragement of Arts, Manufactures and Commerce (RSA)

Keith Robson

Executive Secretary, ERA Foundation

Laura Gilmore

Director of Government Relations, Cummins Europe

Lee Hopley

Deputy Director - Research Partnerships, Enterprise Research Centre

Professor Palie Smart

University of Bristol

Professor Phil Tomlinson

Professor in Industrial Strategy, Deputy Director, Centre for Governance, Regulation & Industrial Strategy (CGR&IS), School of Management, University of Bath.

Professor Phillip McCaan

Professor of Urban and Regional Economics, Sheffield University Management School

Paul O'Donnell

Head of External Affairs, Manufacturing Technology Association (MTA)

Contributions

Evidence sessions

Sessions 1 & 2: Tuesday 2nd July 2019

East Midlands roundtables at Norton Motorcycles in Castle Donington

The discussions were contextualised by a presentation from the Leicester and Leicestershire Enterprise Partnership on their Local Industrial Strategy

Sessions 3 & 4: Friday 13th September 2019

West Yorkshire roundtables at Cummins Turbo Technologies in Huddersfield

The discussions were contextualised by a presentation from the Leeds City Region Enterprise Partnership on their Local Industrial Strategy

Additional interviews

Anthony Breach, Analyst, Centre for Cities

Dr George Dibb, Head of Industrial Strategy, UCL IIPP

John Holden, Assistant Director, Strategy/Research, Greater Manchester Combined Authority

Jonathan Werran, CEO, Localis

Lahari Ramuni, Researcher, Centre for Cities

Mark Livesey, Chief Executive of the LEP Network

Mike Durban, Former Head of Strategy, Leicester & Leicestershire Enterprise Partnership (LLEP)

Pat Jackson, Head of Skills, Cheshire & Warrington LEP

Paul Edwards, Head of Strategy, Greater Birmingham & Solihull Local Enterprise Partnership

Rosa Wilkinson, Director of Communications, High Value Manufacturing Catapult

Roz Bulleid, Head of Policy, Green Alliance

Tim Figures, Director, Technology, Sustainability & Innovation, Make UK

Warren Rails, former Chief Executive of the LEP Network

Written submissions

Cornwall Manufacturers Group

Local Government Association

Make UK

Royal Society of the Arts (Fellows Submission)

Sponsors

The ERA Foundation

The ERA Foundation is a non-profit organisation which contributes to the economic vitality of the UK by supporting engineering skills development and by helping bridge the gap between engineering research and its commercialisation. Our history means we have a particular interest in electrotechnologies, but we maintain a broad interest in all of engineering especially in our work supporting young people. Much of our activity is in partnership with other organisations or individuals. All our partners have a significant stake in what we do and how we do it.

The ERA Foundation

The Manufacturing Technologies Association

The Manufacturing Technologies Association is the UK's trade association for companies in the manufacturing technology sector. MTA members design, manufacture and supply the advanced machinery, equipment and intellectual property that enable the creation of the products we rely on from day to day and that drive our economy. Key aspects of manufacturing technology include; machine tools, cutting tools, metrology (measuring) equipment, additive manufacturing (3D printing), surface finishing, robotics and computer aided design and manufacturing products (CAD/CAM), as well as the technology which is enabling the digitalisation of manufacturing – the fourth industrial revolution. These combine to make up complete systems - increasingly automated and adaptive - that manufacturers deploy, making the sector fundamental to the prosperity, health and defence of the nation. Established in 1919 the MTA has been at the core of the UK's engineering based manufacturing economy for almost a century.



**The Manufacturing Technologies
Association**

About this Report

This report is the culmination of a 12-month long inquiry into the Local Industrial Strategies and regional policy and how it can support manufacturing. The project was carried out by Policy Connect with sponsorship from the ERA Foundation and the Manufacturing Technologies Association. The data gathered was from four focus groups at two regional events, the transcripts were then analysed using thematic analysis to identify themes, which were then developed through desk research and interviews to form the report and its recommendations.

The Manufacturing Commission

The Manufacturing Commission, The All-Party Parliamentary Manufacturing Group (APMG), All-Party Parliamentary Design Group and the All-Party Parliamentary Group on Data Analytics make up the Industry, Technology & Innovation team at Policy Connect.



Policy Connect

Policy Connect is a membership-based, not-for-profit, cross-party think tank. We bring together parliamentarians and government in collaboration with academia, business and civil society to inform, influence and improve UK public policy through debate, research and innovative thinking, so as to improve peoples' lives. We lead and manage an extensive network of parliamentary groups, research commissions, forums and campaigns. We are a London living wage employer and a Member of Social Enterprise UK, and have been operating since 1995. Our work focuses on key policy areas including: health; education & skills; industry, technology & innovation; and sustainability. We shape policy in Westminster through meetings, events, research and impact work.



Ben Carpenter Merritt, Head of Industry, Technology & Innovation

Jack Tindale, Policy Manager, Industry, Technology & Innovation

In addition, special thanks go to:

Oona Muirhead CBE, Susannah James and Claudia Jaksch.

References

- Haldane, A. 2019. Speech to Sheffield Political Economy Research Institute (SPERI) Annual Lecture, University of Sheffield. Available at: <https://www.bankofengland.co.uk/speech/2019/andy-haldane-sheffield-political-economy-research-institute-annual-lecture-2019>
- May, T. 20 6. We can make Britain a country that works for everyone. Speech.
- BEIS, 2017. Building our Industrial Strategy. BEIS. Available at: https://beisgovuk.citizenspace.com/strategy/industrial-strategy/supporting_documents/buildingourindustrialstrategygreenpaper.pdf [Accessed 10 October 2019].
- BEIS, 2017. Building a Britain fit for the Future. BEIS. Available at: <https://www.gov.uk/government/publications/industrial-strategy-building-a-britain-fit-for-the-future> [Accessed 1 October 2019].
- BEIS, 2017. Building a Britain fit for the Future. BEIS. Available at: <https://www.gov.uk/government/publications/industrial-strategy-building-a-britain-fit-for-the-future> [Accessed 1 October 2019].
- Regional Studies Association, 2019. BEIS Select Committee Inquiry evidence submission.
- UK2070, 2019. Fairer and Stronger: Rebalancing the UK Economy. UK2070 Commission. Available at: <https://drive.google.com/file/d/1DaPIONpLXwxS1IE2kLU3aQVkoQEmFlwB/view> [Accessed 2 December 2019].
- Industrial Strategy Council. 2020. UK Regional Productivity Differences: An Evidence Review. Available at: <https://industrialstrategycouncil.org/uk-regional-productivity-differences-evidence-review>. Accessed 5 February 2020.
- Rhodes, C. 2020. Manufacturing: statistics and policy. [Briefing paper 01942]. House of Commons Library. p.4
- MTA, 2018. The True Impact of UK Manufacturing. Oxford Economics
- Centre for Cities, 2018. Places with purpose: The future of Industrial Cities, Towns and Communities. Centre for Cities. Available at: <https://www.keycities.co.uk/places-purpose-0> [Accessed 20 April 2019].
- IIPP, 2019. A Mission-Oriented UK Industrial Strategy. UCL. Available at: <https://www.ucl.ac.uk/bartlett/public-purpose/publications/2019/may/mission-oriented-uk-industrial-strategy> [Accessed 10 November 2019]. p.22.
- DEFRA. 2007. Draft Climate Change Bill. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/229024/7040.pdf [Accessed 20 January 2020].
- HM Government. 2008. Climate Change Act 2008. Available at: <http://www.legislation.gov.uk/ukpga/2008/27/contents> [Accessed 20 January 2020].
- McCann, P. 2019. Perceptions of Regional Inequality and the Geography of Discontent: Insights from the UK. UK 2070 Commission Think Piece. Available at: <http://uk2070.org.uk/wp-content/uploads/2019/01/01-McCann-UK-Regional-Inequality-Debates.pdf> [Accessed 1 December 2019].
- Travers, T., 2015. Devolving Funding and Taxation in the UK: A Unique Challenge. National Institute Economic Review, 233(1), pp.R5–R13.
- UK2070, 2019. Fairer and Stronger: Rebalancing the UK Economy. UK2070 Commission. Available at: <https://drive.google.com/file/d/1DaPIONpLXwxS1IE2kLU3aQVkoQEmFlwB/view> [Accessed 2 December 2019]. p.4.
- King, A. 2001. Does the United Kingdom still have a constitution? Hamlyn Lectures. Available at: https://socialsciences.exeter.ac.uk/media/universityofexeter/schoolofhumanitiesandsocialsciences/law/pdfs/Does_the_United_Kingdom_still_have_a_constitution.pdf/ [Accessed 1 December 2019]. p.24.
- Willett, J., and Giovanni, A. 2014. The Uneven Path of UK Devolution: Top-Down vs. Bottom-Up Regionalism in England – Cornwall and the North East Compared. Political Studies. 62(2). pp.343-360.
- Gov.uk. 2013. Devolution settlement: Scotland. Guidance. Available at: <https://www.gov.uk/guidance/devolution-settlement-scotland#the-scotland-act-1998> [Accessed 5 December 2019].
- Gov.uk. 2013. Devolution settlement: Northern Ireland. Guidance. Available at: <https://www.gov.uk/guidance/devolution-settlement-wales> [Accessed 5 December 2019].
- Gov.uk. 2013. Devolution settlement: Wales. Guidance. Available at: <https://www.gov.uk/guidance/devolution-settlement-northern-ireland> [Accessed 5 December 2019].
- Willett, J., and Giovanni, A. 2014. The Uneven Path of UK Devolution: Top-Down vs. Bottom-Up Regionalism in England – Cornwall and the North East Compared. Political Studies. 62(2). pp.343-360.
- Travers, T., 2015. Devolving Funding and Taxation in the UK: A Unique Challenge. National Institute Economic Review, 233(1), pp.R5–R13.
- UK2070. 2019. Moving up the greats: Seven National Priorities for action. UK2070 Commission. Available at: http://uk2070.org.uk/wp-content/uploads/2019/09/UK2070_SECOND_REPORT_EXECUTIVE_SUMMARY.pdf [Accessed 1 December 2019].
- Airey, J., and Fyans, J. 2019. The Delivery of an Industrial Strategy: Raising prosperity across England. Localis. p.17. [Online]. Available at: https://www.localis.org.uk/wp-content/uploads/2018/03/016_LocalisIndustrialStrategy2018_WEB_AWK_REV.pdf [Accessed 10 November 2019].
- Russell, M., and Sheldon, J. 2018. Options for an English Parliament. UCL Constitution Unit. [Online]. Available at: <https://www.ucl.ac.uk/constitution-unit/sites/constitution-unit/files/179-options-for-an-english-parliament.pdf> [Accessed 18 January 2020].
- Conservatives. 2019. Conservative 2019 Manifesto. Available at: https://assets-global.website-files.com/5da42e2cae7ebd3f8bde353c/5dda924905da587992a064ba_Conservative%202019%20Manifesto.pdf [Accessed 5 January 2020]. p.29.
- Sharpe, L., J. 1993. The European Meso: An Appraisal. In: The Rise of the Meso Government in Europe, L.J.Sharpe (ed.). London: Sage. p.1.
- Regional Studies Association. 2019. Submission of evidence to BEIS Select Committee Inquiry into Local Growth.
- BBC. 2020. Vision for South West powerhouse revealed. [Online]. Available at: <https://www.bbc.co.uk/news/uk-england-51106837> [Accessed 16 January 2020].
- Airey and Booth-Smith, 2017. The Making of an industrial strategy: Taking back control locally. London: Localis. p.41.
- Lee, N. 2017. Powerhouse of Cards? Understading the ‘Northern Powerhouse’. Regional Studies. 51(3). pp.478-489.
- Rhodes, C. 2018. Business statistics. [Briefing paper 06152]. House of Commons Library. p.6.
- Diss, O. 2019. Don't wait, innovate: Stepping up R&D from St. Austell to St. Andrews. CBI. Available at: https://www.cbi.org.uk/media/3844/12547_raising-regional-rd_online.pdf [Accessed 16 December 2019].
- BEIS, 2017. Building a Britain fit for the Future. BEIS. Available at: <https://www.gov.uk/government/publications/industrial-strategy-building-a-britain-fit-for-the-future> [Accessed 1 October 2019].
- Diss, O. 2019. Don't wait, innovate: Stepping up R&D from St. Austell to St. Andrews. CBI. Available at: https://www.cbi.org.uk/media/3844/12547_raising-regional-rd_online.pdf [Accessed 16 December 2019].
- Skidmore, C. 2020. Levelling up research and innovation right across the United Kingdom. Speech. Available at: <https://www.gov.uk/government/speeches/levelling-up-research-and-innovation-right-across-the-united-kingdom> [Accessed 1 February 2020].
- Mazzucato, M., and Dibb, G. 2020. A year to keep promises. [Online]. Available at: <https://www.researchprofessionalnews.com/r/r-news-uk-views-of-the-uk-2020-1-a-year-to-keep-promises/> [Accessed 18 January 2020].
- H.M. Government. The Queen's Speech and Associated Background Briefing, On The Occasion Of The Opening Of Parliament On Monday 14 October 2019. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/839370/Queen_s_Speech_Lobby_Pack_2019_.pdf [Accessed 22 January 2020]. p.93.
- Farmer et al. 2020. Innovating UK Innovation Policy: Making the Advanced Research Projects Agency model work here and now. Nesta. Available at: https://media.nesta.org.uk/documents/Innovating_UK_Innovation_Policy.pdf [Accessed 22 January 2020].
- IIPP, 2019. A Mission-Oriented UK Industrial Strategy. UCL. Available at: <https://www.ucl.ac.uk/bartlett/public-purpose/publications/2019/may/mission-oriented-uk-industrial-strategy> [Accessed 10 November 2019]. p.11.

43. IIPP, 2019. A Mission-Oriented UK Industrial Strategy. UCL. Available at: <https://www.ucl.ac.uk/bartlett/public-purpose/publications/2019/may/mission-oriented-uk-industrial-strategy> [Accessed 10 November 2019]. pp.24-25.
44. Mazzucato, M. *The Entrepreneurial State: Debunking Public Vs. Private Sector Myths*. London: Anthem. p.15.
45. Gov.uk. 2019. Policy paper: Contracts for Difference. Available at: <https://www.gov.uk/government/publications/contracts-for-difference/contract-for-difference#contents> [Accessed 28 January 2020].
46. Lyon, F., and Atherton, A. 2000. A business view of clustering: Lessons for cluster development policies. Foundation for SME development. [Online]. Available at: http://ibr.hi.is/sites/ibr.hi.is/files/A_business_view_of_clustering_Lessons_for_cluster_development.pdf
47. [Accessed 6 January 2020].
48. Porter, M. E. 1998. Clusters and the New Economics of Competition. *Harvard Business Review*. [Online]. Available at: <https://hbr.org/1998/11/clusters-and-the-new-economics-of-competition> [Accessed 9 January 2020].
49. Porter, M., 2003. The Economic Performance of Regions. *Regional Studies*, 37(6-7). pp. 549–578.
50. BEIS, 2017. Industrial Clusters in England. BEIS Research Paper Number 4. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/646547/NIESR_Clusters_Research_BEIS_Format_with_summary_FINAL.pdf [Accessed 15 December 2019].
51. WWCEG, 2018. Developing effective local industrial strategies. WWCEG. Available at: https://whatworksgrowth.org/public/files/18-06-21_Designing_Effective_Local_Industrial_Strategies.pdf [Accessed 10 December 2019].
52. MIT.n.d. Overview - MIT REAP: Achieving Economic Growth Through Innovation-Driven Entrepreneurship. Online. Available at: https://reap.mit.edu/assets/MITREAP_Overview_03.08.2018.pdf [Accessed 25 January 2020].
53. Smart, P., et al. 2019. Open Science and Open Innovation in a socio-political context: knowledge production for societal impact in an age of post-truth populism. *R&D Management*. 49(3). pp.279-297.
54. Newton, O. et al. n.d. Our plan for Higher Education: Diverse, employment-focused, value for money. Edge Foundation. p.6.
55. Willets, D. 2020. Designing a British DARPA. In Mansfield, I., and Owen, G. (eds). *Visions of ARPA*. Policy Exchange. Available at: <https://policyexchange.org.uk/publication/visions-of-arpa/> [Accessed 30 January 2020].
56. Cohen, M., and Levinthal, D., A. 1990. Absorptive Capacity: A New Perspective on Learning and Innovation. *Administrative Science Quarterly*, Vol. 35(1). pp.128-152.
57. Schwab, K. 2016. The Fourth Industrial Revolution: what it means, how to respond. *World Economic Forum*. [Online]. Available at: <https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/> [Accessed 3 January 2020].
58. Legard, T. 2019. Going dark: how manufacturing will evolve over the next decade. *Odgers Interim*. [Online]. Available at: <https://www.odgersinterim.com/uk/who-we-are/intelligence/going-dark-how-manufacturing-will-evolve-over-the-next-decade-4849/> [Accessed 2 January 2020].
59. Made Smarter. 2017. *Made Smarter Review 2017*. Online. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/655570/20171027_MadeSmarter_FINAL_DIGITAL.pdf [Accessed 25 January 2020].
60. Policy Links. 2017. *NEW INDUSTRIAL CAPABILITIES FOR NEW ECONOMIC GROWTH: A Review of International Policy Approaches to Strengthening Value Chain Capabilities*. Cambridge: Cambridge University.
61. Industrial Strategy Council. 2019. 20 per cent of workers could be under-skilled by 2030, new analysis finds. [Online]. Available at: <https://industrialstrategycouncil.org/20-cent-workers-could-be-under-skilled-2030-new-analysis-finds> [Accessed 24 January 2020].
62. Skills Commission. 2020. *Setting up the future: Building a Skills System for England*. Forthcoming.
63. Make UK. 2020. *UK Manufacturing Facts 2019/20*. Make UK.
64. Industrial Strategy Council. 2019. *UK Skills Mismatch in 2030*. Research Paper. Available at: <https://industrialstrategycouncil.org/sites/default/files/UK%20Skills%20Mismatch%202030%20-%20Research%20Paper.pdf> [Accessed 20 January 2020].
65. Travers, T., 2015. Devolving Funding and Taxation in the UK: A Unique Challenge. *National Institute Economic Review*, 233(1), pp.R5–R13.
66. Dupont, J. and Howard, R. 2017. *The New Industrial Strategy*. Policy Exchange. Available at: <https://policyexchange.org.uk/publication/the-new-industrial-strategy/> [Accessed 21 December 2019].
67. NAO. 2020. *Business support schemes*. Report by the Comptroller and Auditor General. [Online]. Available at: <https://www.nao.org.uk/wp-content/uploads/2020/01/Business-support-schemes.pdf> [Accessed 17 January 2020].
68. BEIS Select Committee. 2018. *Small businesses and productivity, Fifteenth Report of Session 2017–19*. HC 807.p.3. Available at: <https://publications.parliament.uk/pa/cm201719/cmselect/cmbeis/807/807.pdf> [Accessed 20 January 2020].
69. LGA, 2019. *The future of non-metropolitan England. The Post-Brexit England Commission Final Report*. Local Government Association: London. p.4.
70. BEIS, 2017. *Building a Britain fit for the Future*. BEIS. Available at: <https://www.gov.uk/government/publications/industrial-strategy-building-a-britain-fit-for-the-future> [Accessed 1 October 2019].
71. Brokenshire, J. 2018. *Local Growth:Written statement - HCWS927*. Available at: <https://www.parliament.uk/business/publications/written-questions-answers-statements/written-statement/Commons/2018-07-24/HCWS927/> [Accessed 2 January 2019].
72. Brien, P. 2019. *The UK Shared Prosperity Fund*. Commons Briefing Paper 08527. House of Commons Library. Available at: <https://researchbriefings.parliament.uk/ResearchBriefing/Summary/CBP-8527> [Accessed 20 December 2019].
73. BEIS, 2018. *Local Industrial Strategies Policy Prospectus*. BEIS. p.4. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/744544/local-industrial-strategies-policy-prospectus.pdf [Accessed 14 October 2019].
74. Bulleid, R. et al, 2019. *The Route to Clean Growth: Using Local Industrial Strategies to drive change*. Localis and Green Alliance.
75. Heseltine, M. 2012. *No Stone Unturned: In Pursuit of Growth*. BIS. Available at: <https://www.gov.uk/government/publications/no-stone-unturned-in-pursuit-of-growth> [Accessed 20 December 2019].
76. Coyle, D., and Sensier, M. 2019. *The imperial treasury: appraisal methodology and regional economic performance in the UK*. *Regional Studies*.
77. Raikes, L. 2018. *Future Transport Investment in the North: A briefing on the government's new regional analysis of the National Infrastructure and Construction Pipeline*. IPPR. Available at: <https://www.ippr.org/research/publications/future-transport-investment-in-the-north-briefing> [Accessed 21 January 2020].
78. Department for Transport. 2019. *Transport Statistics: Great Britain 2019*. Department for Transport. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/856146/tsgb-2019.pdf [Accessed 21 January 2020].
79. BEIS, 2018. *Drivers of Relocation – Final Report*. BEIS Research Paper Number 2019/002. BEIS. p.7. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/777000/Drivers-of-firm-relocation.pdf [Accessed 10 October 2019].

Notes





- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.
- 11.
- 12.
- 13.
- 14.
- 15.
- 16.
- 17.
- 18.
- 19.
- 20.
- 21.
- 22.
- 23.
- 24.
- 25.
- 26.
- 27.
- 28.
- 29.
- 30.
- 31.
- 32.
- 33.
- 34.
- 35.
- 36.
- 37.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____
21. _____
22. _____
23. _____
24. _____
25. _____
26. _____
27. _____
28. _____
29. _____
30. _____
31. _____
32. _____
33. _____
34. _____
35. _____
36. _____
37. _____



CONTACT

Policy Connect
CAN Mezzanine
7-14 Great Dover Street
London SE1 4YR

 @Policy_Connect
 policy-connect
 info@policyconnect.org.uk
 0207 202 8585

Sponsored by:

The ERA
Foundation



The Manufacturing Technologies
Association