

TEES VALLEY LOCAL INDUSTRIAL STRATEGY JULY 2019

LOCAL DRAFT



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EXECUTIVE SUMMARY

1. The draft Tees Valley Local Industrial Strategy sets out an ambitious plan to transform the economic performance of the area and drive an increase in productivity. It builds on the distinctiveness of the local economy and responds to the opportunities and challenges that flow from this. It centres around our niche offer in relation to clean energy, low carbon and hydrogen – aspects of the Clean Growth agenda.
2. Our platform for growth focuses on Tees Valley's strengths and challenges in relation to the 'foundations of productivity' identified in the Industrial Strategy: ideas; people; business environment; infrastructure; and place. These are positioned alongside the role and economic contribution of our priority sectors for growth: clean energy, low carbon and hydrogen; chemicals and process; advanced manufacturing; bioscience; digital; culture and tourism; business and professional services; logistics; and construction.
3. The Local Industrial Strategy identifies an overarching ambition, that: *Tees Valley will be a global leader in clean energy, low carbon and hydrogen. The area will achieve a net zero carbon industrial cluster by 2040, providing good jobs with long-term prospects that local people can access.* This ambition sits at the heart of our framework for growth.

Platform for growth

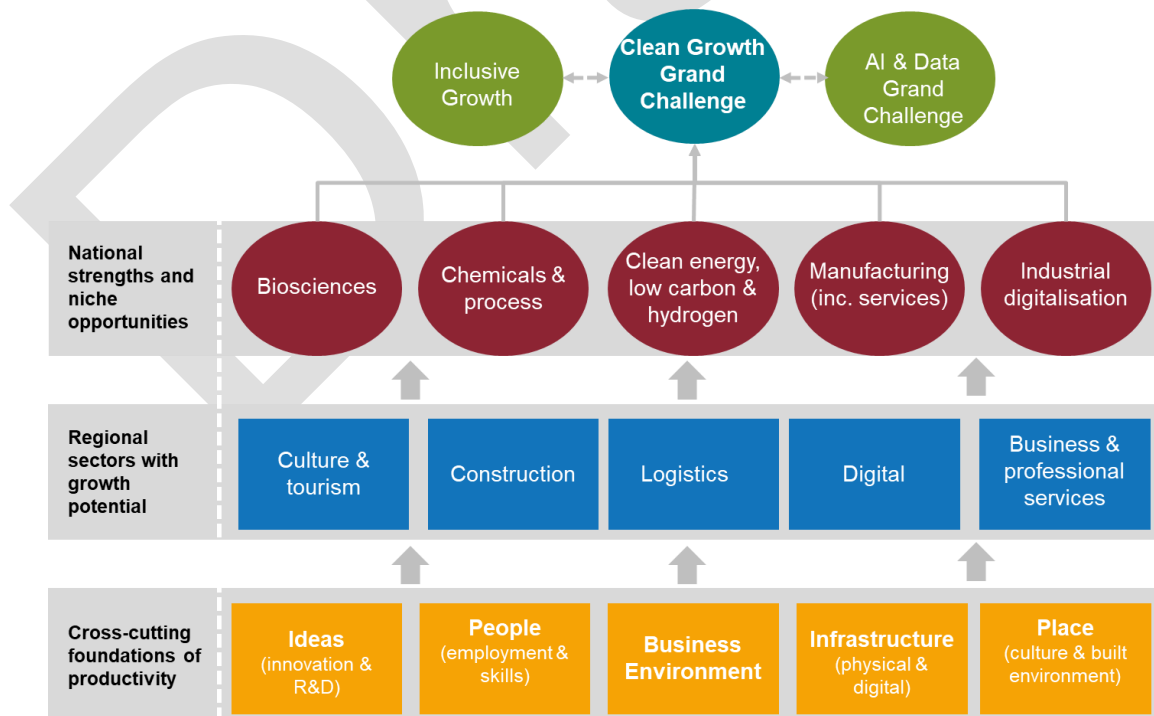
4. Tees Valley is a £13.1bn economy, with a £206m trade in goods surplus. Although the region is relatively small, we have economic assets of national significance: we are home to the UK's largest chemical complex, the UK's largest port for outward tonnage and one of the UK's leading higher education institutions for working with business (Teesside University). We have global strengths in the process chemicals and advanced manufacturing sectors, and our productivity performance exceeds national averages in process chemicals and digital. In many respects, the scale of our economic impact and influence is disproportionately large.
5. Our established industrial strengths are supported by:
 - i. Internationally excellent industrial innovation and research institutions;
 - ii. A well-established, geographically concentrated and highly integrated industrial ecosystem;
 - iii. South Tees Development Corporation area - one of the UK's greatest development opportunities; and
 - iv. A strong export-facing transport infrastructure, including the Port of Tees & Hartlepool; and Durham Tees Valley Airport.
6. Whilst the Tees Valley economy provides a strong platform for growth, a number of economic challenges exist. It is critical that these are addressed to realise our

ambitions for success, and also to retain the competitiveness of our key sectors in the future.

- i. Without solutions to decarbonise the high CO₂ emitting industries (our globally significant sectors) they will not be able to remain competitive and be sustainable in the UK;
- ii. The Tees Valley business base is under-developed relative to the size of the population and scale-up performance is weak;
- iii. Despite the presence of leading innovation and research organisations, and high levels of Innovate UK funding awards, levels of R&D activity among the local business base remain low;
- iv. Low levels of participation in the labour market and underperformance in relation to education and skills continue to impact on economic performance; and
- v. External perceptions of the area are influenced by our industrial past, and do not reflect realities of life in many parts of Tees Valley.

Core proposition

7. A 'core proposition' focused on delivering Clean Growth through clean energy, low carbon and hydrogen has been developed to achieve our ambitions for the Tees Valley economy. Our core proposition also responds to government's aim to have one net-zero industrial cluster by 2040. Our ambitions are underpinned by a breadth and depth of assets in Tees Valley, which mean that the area is uniquely well-placed to pilot and demonstrate the benefits of clean energy, low carbon and hydrogen on productivity and supply chain integration.



8. Our industrial legacy, infrastructure and geology mean that the main sources of clean energy available in the UK are already in use or can be deployed at scale in Tees Valley – for example, we already produce over 50% of the UK’s hydrogen; and significant recent investments, such as Sirius Minerals polyhalite (multi nutrient fertiliser) project, demonstrate the strength of the region’s assets. We also have an established, geographically concentrated and highly integrated cluster, which is supported by proximity to: offshore wind; decommissioning growth potential; access to carbon capture and storage; hydrogen infrastructure and expertise; and innovation specialisms.
9. Successful implementation of our core proposition will provide a renewed platform for growth, driven by inward investment, reshoring and a vibrant business base. In addition, our ambition provides an opportunity for Tees Valley to make a significant contribution to carbon emissions reductions at the national level, with the potential to deliver reductions of 80MtCO₂ over the period to 2050.

Inclusive Growth

10. Successful implementation of our core proposition will be defined not just by increasing productivity, but by ensuring that the growth of our economy is inclusive. Delivering inclusive growth will mean providing more good quality jobs with long-term prospects – jobs that local people can access. This is central to the overarching ambition for the area and will be underpinned by a series of interventions designed to create more good jobs and support more people to access good jobs with long term prospects.

Delivering the ambition

11. Interventions to deliver our ambition have been organised around five interlinked themes:
 - i. Lead the way as an exemplar region for clean energy, low carbon and hydrogen;
 - ii. Develop pioneering capabilities in industrial digitalisation and ensure implementation of digital applications at scale;
 - iii. Leverage the full potential of our innovation ecosystem in support of building innovation capability, R&D capability, commercialisation, business creation and growth;
 - iv. Grow and widen the pipeline of talent to support our competitive advantages and help more people into good jobs with long-term prospects; and
 - v. Attract investment and establish a global reputation for Tees Valley as a vibrant and thriving place to be, with world leading opportunities in clean energy, low carbon and hydrogen.
12. Further detail on the interventions is set out below.

Lead the way as an exemplar region for clean energy, low carbon and hydrogen

13. This theme focuses on developing the technology, infrastructure and supply chain linkages needed to maximise the impact of clean growth and industrial decarbonisation in Tees Valley. It seeks to ensure that the regulatory framework is fit for purpose and strengthen relationships and synergies with key national and international clusters. Priorities include:
14. Position Tees Valley as the UK's Hydrogen Capital
- i. Pursuing an ambition to establish a nationally-recognised Research and Development Centre for Hydrogen in Tees Valley. This will build on our skills, infrastructure and existing innovation assets to develop, demonstrate, and deploy new hydrogen applications
 - ii. Supporting partner bids and activity that could see the region play a critical role in delivering the first fleet of hydrogen-powered passenger trains and hydrogen fuelled vehicles.
15. Establish Tees Valley as the pioneer region for Carbon Capture, Utilisation and Storage (CCUS) and clean growth technologies
- i. Pursuing an ambition to be designated as the UK's first net-zero industrial cluster, and working with government to achieve a fully decarbonised cluster by 2040
 - ii. Working with government to pilot a CCUS financing mechanism and business models
 - iii. Seeking government support for the Oil and Gas Climate Initiative Clean Gas project to achieve financial close
 - iv. Maximising the potential allocation of Industrial Energy Transformation Fund and Industrial Strategy Challenge Funding streams to support decarbonising clusters
 - v. Developing skills and education provision for CCUS, hydrogen and other clean technologies, and working with wind, biogas and nuclear sectors to develop local capability
 - vi. Building on commitments set out in the Offshore Wind Sector Deal, supporting the further development of the existing Tees Valley cluster and supply chain links to the wider North East region
 - vii. Harnessing the strengths of our world-leading chemical sector to build and enhance our role in the electric vehicle supply chain through the production of component parts for vehicle batteries
 - viii. Prioritising Hartlepool Power Station site as a preferred location for the development and deployment of new commercial scale nuclear technologies
 - ix. Hosting a series of Industrial (and 'Open to the World') showcases of the demonstrators and pilots developed for CCUS and clean growth technologies in Tees Valley, to further cement our position as a pioneer region in both.

16. Working with government to establish the region as a Centre for Excellence in Decommissioning for offshore oil and gas
17. Cementing Tees Valley's position as an exemplar region for industrial decarbonisation and clean growth by adopting a broader approach to develop the infrastructure and regulatory environment, and through place promotion that presents a compelling and cohesive case to investors. Priorities include:
 - i. Working with government to evolve the regulatory framework in support of standalone energy projects
 - ii. Continuing to make the case to establish a Free Trade Zone
 - iii. Working with the Department for International Trade to develop an aligned and targeted approach to attract Foreign Direct Investment.

Develop pioneering capabilities in industrial digitalisation and ensure implementation of digital applications at scale

18. This theme is focused on creating the necessary conditions to accelerate the innovation and diffusion of industrial digitalisation technologies, including the development of test-bed projects and a co-ordinated package of advocacy, support, advice and funding. Growth in the digital sector will help enable this ambition, and activity will support achievement of our clean growth ambitions, whilst simultaneously supporting the growth and development of a thriving digital sector in the region.
 - i. Pursuing a Made Smarter Pilot – supporting businesses to increase productivity through the adoption of 'Made Smarter' principles and technologies, as well as up-skilling and retraining of the workforce to support Industry 4.0
 - ii. Developing proposals for a sectoral 5G Test-bed and Trials Programme, with a focus on technology testing for businesses in Tees Valley's priority sectors
 - iii. Future Mobility Zone – develop proposals for a new data driven approach which will utilise live data to develop new system approaches to manage traffic flows, enhancing regional connectivity and the role of the logistics sector in Tees Valley
 - iv. Confirming a commitment to longer term support for the Growth Hub Programme. This will simplify the business support environment in Tees Valley and provide a targeted approach for businesses of different sizes, including a focus on digitalisation and building digital capacity.

Leverage the full potential of our innovation ecosystem in support of building innovation capability, R&D capability, commercialisation, business creation and growth

19. This theme will ensure that Tees Valley accelerates growth and builds R&D capacity to deliver tangible economic and societal impacts. Interventions harness the potential of the region's national innovation assets, alongside a local business base that demonstrates specialisms in clean energy, low carbon, hydrogen, industrial

digitalisation and bioscience (including biologics and bio-processing). This builds on the region's internationally competitive innovation centres, namely the Centre for Process Innovation, Materials Processing Institute and TWI.

20. Tees Valley Combined Authority will lead a cross-sector, whole system approach to R&D and innovation. This will be particularly focused around achieving our ambition to be a global leader in clean energy, low carbon and hydrogen.
- i. An Industrial Collaboration Board will broker more effective partnership working between business, higher education and research institutes. The Board will have a remit to ensure that local strategy, programme and project development actively encourages and creates opportunities that stimulate R&D and innovation activity, and that more national innovation resource is directed towards opportunities in Tees Valley
 - ii. A Collaborative Networks Programme will focus on supply chain support and programme consortia development – supporting groups of businesses and organisations to jointly deliver pilot / demonstration projects related to industrial digitalisation and circular economy solutions
 - iii. A Memorandum of Understanding between the Combined Authority and UK Research and Innovation (UKRI) will ensure that national innovation resources are aligned with programmes and opportunities in Tees Valley
 - iv. The Combined Authority will commission bespoke research to better understand the successes, barriers and opportunities for firms innovating in Tees Valley
 - v. We will pursue the ambition for Teesside University to be recognised as a University Enterprise Zone – supporting sustainable business growth through innovation and scale-up activity
 - vi. We will seek to increase post-study work visas for international students, helping to address short-term skills shortage vacancies in key sectors
 - vii. Tees Valley, together with government will confirm a commitment to longer term support for the Growth Hub Programme, with activity focused around: start up support, growth and innovation, skills support and access to finance.

Grow and widen the pipeline of talent to support our competitive advantages and help more people into good jobs with long-term prospects

21. Develop an education and skills system for business growth
- i. Work with government to enhance the role of a Skills Advisory Panel in Tees Valley
 - ii. Work with government to co-design and pilot technical education routeways from age 14, and an appropriate 'Transition Offer' for young people in Tees Valley not immediately able to progress to a T Level at age 16.

22. Overcome business workforce planning challenges in relation to current and future skills gaps and skills needs

- i. Produce Tees Valley Sector Skills Action Plans to include detailed analysis of the current and future skills needs for identified sectors
- ii. Build on the success of the devolved Adult Education Budget and the DWP Innovation Pilot, including ring fencing the overall size of the national AEB budget
- iii. Develop and pilot a number of tailored Tees Valley retraining programmes, including comprehensive packages of personalised 'in-work' support
- iv. Any 'unutilised' Apprenticeship Levy in Tees Valley be devolved to the Combined Authority
- v. Work with Tees Valley employers and providers to consider the approach to the Industrial Placement requirements of T-Levels, creating practical and meaningful experiences in key sectors and providing opportunities that would not be available otherwise.

23. Careers education - government to devolve the Tees Valley element of both the National Careers Service and Careers and Enterprise Company budgets to Tees Valley in order that we can develop an all-age place-based programme.

24. Ensure access to learning and work through an effective and affordable transport system.

Attract investment and establish a global reputation for Tees Valley as a vibrant and thriving place to be, with world leading opportunities in clean energy, low carbon and hydrogen

25. This theme is fundamental to achieving our overall priorities as set out in the Local Industrial Strategy. It is focused on a set of interlinked priorities, based around enhancing the infrastructure, perceptions and working environment of Tees Valley as a place for inward investment and international trade. Interventions include:

- i. Maximising the potential of the South Tees Development Corporation site, with a focus on clean energy, low carbon and hydrogen. Alongside public sector commitments, a business plan will aim to secure substantial private sector investment
- ii. Continuing to make the case for establishing a test-bed for Free Trade Zone status at the South Tees Development Corporation site
- iii. Working collaboratively with the Department for International Trade to attract inward investment – developing and promoting global sales pitches in key sectors where the area has a globally competitive edge, and with a focus on Tees Valley as the UK's leading location for clean energy, low carbon and hydrogen
- iv. Implementing plans to increase the role and impact of Durham Tees Valley Airport

- v. Pursuing a Future Mobility Zone, with a data driven approach to manage traffic flows, particularly freight consignments, and enhance regional connectivity
- vi. Delivering priority transport schemes for the area, as set out in the Tees Valley Strategic Transport Plan and identified by Transport for the North: improvements at Darlington Station and Middlesbrough Station; a New Tees Crossing; Darlington Northern Link Road; and Northallerton to Teesport Rail Gauge Enhancement
- vii. Ensuring that Tees Valley businesses in flood risk areas are protected, and that natural infrastructure defences are in place to maximise productivity potential – working with the Environment Agency, Northumbrian Water and Local Authorities in the North East to support a fully integrated approach to flood risk management
- viii. Building capacity, ambition and creative talent through investment to promote a thriving culture and tourism offer within Tees Valley that supports a highly-productive economy and increases attractiveness for business. This includes co-investment with the Arts Council to maximise the potential of cultural development and cultural opportunity for all people in Tees Valley; and pursuing ambitions to establish a Tourism Action Zone
- ix. Establishing Tees Valley as exemplar region for delivering Social Value in procurement.

1. Introduction

The Tees Valley Local Industrial Strategy sets out an ambitious plan to transform the economic performance of the area and drive an increase in productivity. A plan that builds upon the distinctiveness of our local economy and responds to the opportunities and challenges that flow from this. Our approach is framed around the five foundations of productivity identified in the Industrial Strategy, aligning with government's vision to deliver economic transformation at the national level:

- Ideas
- People
- Infrastructure
- Business Environment
- Places.

Our focus will be on delivering productivity growth centred on clean energy, low carbon and hydrogen, by improving performance across each of the five foundations, and helping more local people into good jobs with long-term prospects. To achieve this, we will:

- Nurture and develop strengths in sectors with growth potential including clean energy, low carbon and hydrogen, bioscience and digital; and
- Maintain our existing competitive advantages (in the chemicals and process industries and advanced manufacturing sectors) in a rapidly changing world by positioning Tees Valley at the forefront of clean growth and industrial digitalisation.

As a joint agreement between the Combined Authority and government, the Tees Valley Local Industrial Strategy sets out both local and national commitments to deliver transformational change and increase productivity. It will require sector-specific support, as well as more overarching measures to increase Tees Valley's innovation and business growth performance, ensure a pipeline of skilled workers aligned to business needs, and strengthen and promote our outstanding quality of place offer.

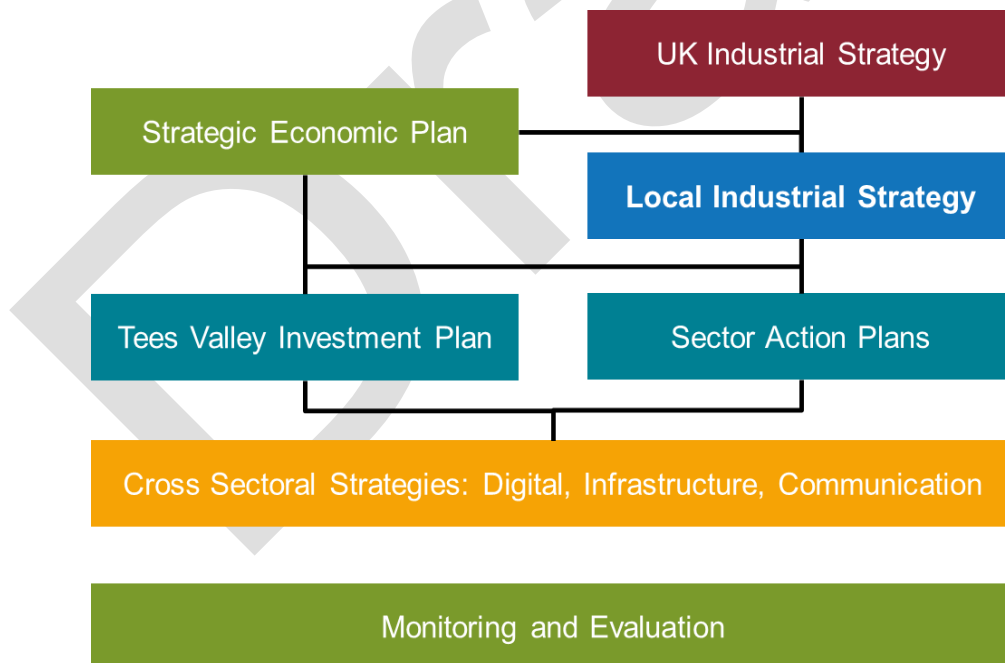
The productivity impact associated with realising our ambitions is significant. It will deliver benefits for residents and businesses in Tees Valley, support the government's vision of a prosperous Northern Powerhouse and the implementation of the Industrial Strategy.

Our approach

The Tees Valley Local Industrial Strategy has been developed by the Combined Authority working in partnership with the Tees Valley Local Enterprise Partnership (LEP), the five local authorities, government and other local stakeholders (including local businesses, sector organisations, innovation centres, academic and other partners). An extensive programme of engagement has brought together a shared ambition and priorities for success.

The strategy sets out a series of shared commitments that respond to the specific local circumstances of Tees Valley to maximise our contribution to improving productivity and delivering inclusive growth. In setting out our ambition, and the steps we must take to achieve it, the Local Industrial Strategy provides a long-term framework within which local and national partners can work collaboratively. The strategy is underpinned by a detailed and comprehensive evidence base¹ that provides a detailed understanding of our economy and its key drivers.

The Local Industrial Strategy is not a standalone document. It builds upon existing policy and strategy documents published by the Combined Authority in recent years (including the Tees Valley Strategic Economic Plan). The diagram below illustrates how the Tees Valley Local Industrial Strategy interrelates with other policy and strategy documents.



The Local Industrial Strategy sets out:

- Our **platform for growth**, with a focus on our opportunities and challenges in relation to: ideas; people and skills; business; infrastructure; and places, and the role and economic contribution of our priority sectors (section 2.0)
- **Our ambition** for Tees Valley to be a global leader in clean energy, low carbon and hydrogen (section 3.0)
- A plan for **delivering our ambition**, with interventions organised around five core themes (section 4.0):
 1. Lead the way as an exemplar region for clean energy, low carbon and hydrogen
 2. Develop pioneering capabilities in industrial digitalisation and ensure implementation of digital applications at scale
 3. Leverage the full potential of our innovation ecosystem in support of building innovation capability, R&D capability, commercialisation, business creation and growth
 4. Grow and widen the pipeline of talent to support our competitive advantages and help more local people into jobs with good long-term prospects
 5. Attract investment and establish a global reputation for Tees Valley as a vibrant and thriving place to be, with world leading opportunities in clean energy, low carbon and hydrogen.
- The **productivity impact** that the Local Industrial Strategy will deliver for: local people; local businesses; the Northern Powerhouse; and the Industrial Strategy (section 5.0).

2. Platform for growth

With a £13.1bn economy, £206m trade in goods surplus and established, globally-recognised expertise in the chemicals and process industries and advanced manufacturing sectors, Tees Valley makes a major contribution to the UK economy. Although a relatively small region, the area contains economic assets of national significance: we are home to the UK's largest chemical complex, the UK's largest exporting port and one of the UK's leading higher education institutions for working with business (Teesside University). In many respects the scale of our economic impact and influence is disproportionately large.

Our established industrial strengths are supported by:

- **Internationally excellent, industrial research institutions with a strong commercial focus** including the Centre for Process Innovation (a High Value Manufacturing Catapult Centre) and the Materials Processing Institute. Key areas of research interest include: advanced materials; low carbon energy; bioscience; and industrial digitalisation
- **A well-established, geographically concentrated and highly integrated industrial ecosystem.** We are home to the second largest chemical complex in Europeⁱⁱ with key sites situated in close proximity to each other and connected via a network of pipeline corridors. This allows for easy movement of products and feedstocks between businesses. The chemicals and process industry is also supported by local attributes that underpin a wider clean energy proposition: an established offshore wind supply chain with construction and decommissioning strengths; a cluster of clean energy producers; and high volumes of hydrogen production (Tees Valley produces more than 50% of all UK hydrogen) alongside operational distribution infrastructure
- **South Tees Development Corporation area - one of the UK's greatest development opportunities** – the site covers approximately 4,500 acres of land to the South of the River Tees, and once fully developed, has the potential to see 20,000 jobs created and add an additional £1bn per annum to the local economy
- **A strong, export-facing transport infrastructure.** The Port of Tees and Hartlepool transports England's greatest volume of commodities by sea to other ports globally. It is the UK's 7th largest port in overall terms, and a major international trade gateway for the Tees Valley, the Northern Powerhouse and beyond. Tees Valley Combined Authority has recently acquired Durham Tees Valley Airport and is committed to developing passenger and freight routes to further enhance our international connectivity. At a national level, the East Coast Mainline provides rail access to most major UK cities, with funding committed to address existing capacity issues. The A19 and A66 are key road connections, linking Tees Valley to the Major Route Network.

This Local Industrial Strategy provides a framework for delivering productivity growth and enhanced economic performance across Tees Valley – whilst helping more local people into good jobs with long-term prospects. Maintaining and building upon our established industrial strengths will play a key role and it is critical that we respond to the changing environment in

which they operate. At the same time, we will harness new opportunities and develop areas of emerging strength.

The clean growth and industrial digitalisation agendas will be fundamental in shaping successful industrial economies for the next 20 years (and beyond) and Tees Valley is uniquely placed to establish itself as an exemplar location with respect to each, building upon the strengths outlined above.

In recognition of this, the ambition at the heart of this Local Industrial Strategy is for **Tees Valley to be a global leader in clean energy, low carbon and hydrogen, achieving a net zero carbon industrial cluster by 2040 and providing good jobs with long-term prospects.** Tees Valley has a strong heritage of adapting to change and embracing innovation – from steam to steel and the development of a globally competitive chemicals cluster. We will display this same flexibility and dynamism in pursuit of this ambition.

The ambition will drive opportunities that support, and extend beyond, our traditional industrial strengths of advanced manufacturing and the chemicals and process industries. It looks to harness our capabilities in digital industries (reflecting emerging business strengths and the role of Teesside University) as well as recent investments in strategic innovation and training facilities (at the Centre for Process Innovation's National Biologics Manufacturing Centre and Teesside University's National Horizons Centre) which provide a platform for growth in biosciences. A major opportunity exists to explore value creation in the spaces located in between, or at the intersection, of these sectors – chemicals and process, advanced manufacturing, clean energy, low carbon and hydrogen, digital and biosciences. By doing this, we will future-proof the local economy and position Tees Valley to add greater value through innovation.

Whilst our economy provides a strong platform for growth, a number of challenges exist that the Local Industrial Strategy seeks to address. Failing to respond to the challenges our existing industries face risks: constraining our ability to deliver our ambition and the resultant economic benefits; and undermining the continued competitiveness of these sectors in the face of global pressures.

There are 17,230ⁱⁱⁱ businesses in Tees Valley. However, our private sector business base is underdeveloped, relative to the size of our population – a reflection of our traditional reliance upon a small number of capital-intensive industries dominated by large businesses – and scale-up performance is weak. Recent growth in the business base has been strong, supported by strong levels of entrepreneurialism, but further progress is required.

The area is home to leading research institutions and attracts high levels of Innovate UK funding. Assets such as the Centre for Process Innovation, the Materials Processing Institute and TWI provide innovation services to businesses from across the UK and draw funding into Tees Valley as a result of their world leading expertise. Levels of R&D activity amongst the local business base, however, remain low. Just 28% of projects undertaken by our research organisations were delivered in partnership with local businesses, whilst Business Expenditure on R&D within Tees Valley stands at 40% of the average across the LEP network. We need to explore ways of better connecting our private sector businesses with our research and technology organisations, our academic institutions, and strengthening collaboration between our key sectors to drive higher levels of innovation.

More generally, low levels of labour market participation and underperformance in relation to education and skills continue to impact on our economic performance. Additionally, whilst our established industrial strengths are underpinned by an adaptable and technically strong employee base, our workforce is ageing, and recruitment challenges persist. These challenges must be addressed to maintain one of our key competitive advantages.

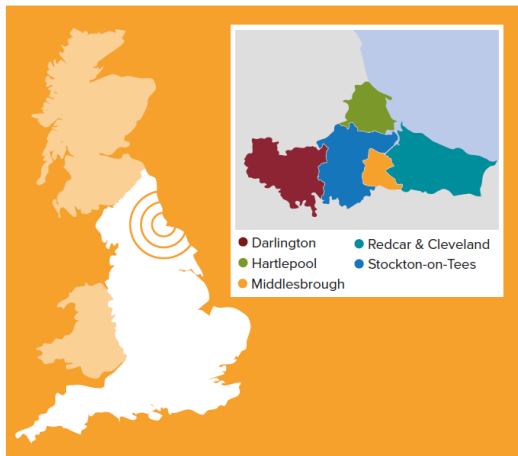
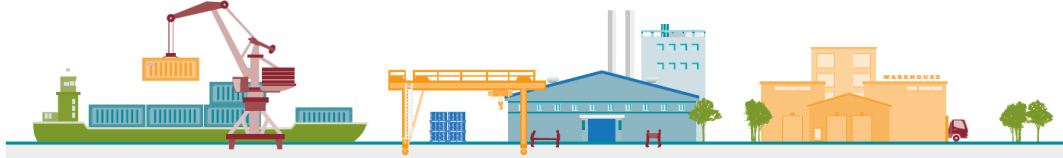
Skills and employment-focused interventions are in place, through the devolution of the Adult Education Budget and the launch of a new Education, Employability and Skills Strategy, but the impacts will not be felt in the immediate term. Further work is required to ensure a pipeline of talent that meets the needs of our priority sectors and provides the opportunity for all residents to access good jobs with long-term prospects. This is critical in allowing all residents to share in the future economic prosperity of Tees Valley – ensuring that our growth is inclusive.

External perceptions of the area are influenced by our industrial past and do not reflect the realities of life in many parts of Tees Valley. This must be addressed to better position the area to attract Foreign Direct Investment, skilled workers and visitors. The quality of life offer in many parts of Tees Valley is already excellent – costs of living are low, our culture and tourism offer is growing (with a vibrant programme of festivals and events) and our compact geography means that both spectacular countryside and dramatic coastline lie within easily reach of vibrant market towns and urban areas. Significant investment has been earmarked by the Combined Authority to build upon and better promote these assets over the next 10 years.

This section summarises the evidence which has informed and shaped the development of the Tees Valley Local Industrial Strategy. Further detail is contained within the Evidence Base Report.



Overview of the Tees Valley Economy



Key Opportunities

- 50%**
Over 50% of UK's hydrogen is produced in Tees Valley
- 4,500 acres**
The UK's largest single development site at South Tees Development Corporation
- £40bn**
Potential economic dividend from industrial decarbonisation (to 2050)
- £1,020**
Innovate UK funding per worker - four times the LEP network average (2019)
- £45m**
Committed funding for rail capacity improvements (Darlington and Middlesbrough)

Key Economic Headlines

- £13.1bn**
Gross Value Added generated (2017)
- £206m**
Trade in goods surplus (2017)
- 1st**
Home to the UK's largest chemical complex
- 17.4m tonnes**
Port of Tees and Hartlepool accounts for England's greatest volume of commodities transported by sea to other ports globally
- 27%**
Growth of business base has exceeded UK average of 24% (2012-2018)

Key Threats

- 192%**
Tees Valley's CO₂ emissions per capita is almost double the national rate (2017)
- 68%**
Low proportion of working age residents in employment (2018)
- 27%**
Skills shortage vacancies are more prevalent than at the national level (2017)
- 9,500**
Additional Tees Valley businesses required to close the 'enterprise gap' to the UK (2018)
- 1.4% p.a.**
Low growth in scale-up businesses (2014-2017)
- 28%**
Tees Valley has real strength in terms of innovation and research organisations attracting funding, but less than a third of projects were delivered in partnership with local businesses (2017/18)

Foundations of Productivity

The distinctive strengths and challenges of the Tees Valley are the basis for the interventions set out in this Local Industrial Strategy. They are based on an analysis of each of the foundations of productivity and the drivers of growth in Tees Valley.

Ideas

The Tees Valley economy has key strengths in the chemicals and process industries and advanced manufacturing, where we compete in global markets. Innovation, in its various forms, is fundamental to ensuring that these industries remain competitive – whilst also helping to move all of our sectors up the value chain to drive productivity growth.

The area benefits from a strong network of **established innovation assets**, which reflect our current and emerging sector strengths, including:

- Centre for Process Innovation: the national Catapult Centre for the UK chemical and bioscience sectors and a member of the High Value Manufacturing Catapult;
- The Materials Processing Institute: an internationally recognised research facility focussing on the development of materials and the commercialisation of technologies for industrial processes; and
- TWI: a global leader in materials research and engineering processes, with hydrogen supply chain expertise.

Teesside University is well integrated into the regional innovation system, particularly in relation to the digital and bioscience sectors (through DigitalCity and the National Horizons Centre respectively), and more generally through academic-business knowledge exchange.

Significant recent investment has **strengthened our innovation capabilities in biosciences**. This will create a platform from which to accelerate the growth of this emerging sector specialism moving forwards and includes the delivery of:

- The Centre for Process Innovation's National Biologics Manufacturing Centre: supporting the growth and development of the UK bioscience industry and supply chain, with a focus on the commercialisation of emerging technologies; and
- Teesside University's National Horizons Centre: a state-of-the art education, training, research and innovation facility based on partnership with the Centre for Process Innovation and FUJIFILM Diosynth Biotechnologies.

These investments build on the innovation focus that has been at the core of the region's economy for over 100 years. Our established and emerging innovation assets continue this tradition and are reflected in Tees Valley's strong performance in accessing Innovate UK funding in recent years^{iv}. The area ranks third nationally when compared to other LEPs (on the basis of £ per job) driven by specialisms in 'Manufacturing and Materials' and 'Health and Life Sciences'.

Looking to the future, one of the key challenges we face is in better leveraging our innovation assets to: land the commercialisation opportunities that they create; and

encourage greater levels of innovation within the local business base. It is estimated that less than a third (28%) of R&D projects undertaken by our innovation assets are delivered in partnership with local firms^v.

People and skills

The Combined Authority has a key role to play in ensuring that there is a skilled and available workforce to facilitate the creation of 17,000 new and 116,000 replacement jobs that will be available in Tees Valley by 2024 and in supporting a vibrant, diverse economy that is inclusive for all.

We want Tees Valley to be a place where everyone benefits – economically, personally, socially and culturally – from the opportunities available in the region. **Skills and workforce development** are vital to achieving this.

This reflects the fast-evolving nature of our economic landscape, with new technologies introduced at an increasing rate. This is particularly true with respect to new opportunities in emerging sectors such as clean energy, low carbon, hydrogen, bioscience and industrial digitalisation. We must ensure that we respond to the skills and development needs of the individual, the employer and the wider economy to support our growth.

Over half of the new jobs to be created in Tees Valley will require higher level technical, science and digital skills, with 45% of these in more senior and managerial roles.^{vi} At present, more than half of all local skills shortages are concentrated in high skilled occupations (despite low levels of absolute demand). With low demand for graduate level qualifications, this may result in people with no qualifications being further displaced from the labour market.^{vii}

Replacement jobs will be across a range of levels, including entry level jobs offered as part-time opportunities and apprenticeships^{viii}. For many people, these provide much needed first-time entry or re-entry to the labour market. Increasing the productivity of low-paid workers is a key route to progressing to higher value roles in the future.

Low skills remain a significant barrier to employment in Tees Valley. Achievement and participation in **academic education** is lower than average and 12% of residents have no formal qualifications. Unless there is a significant change, the proportion of people with no qualifications is projected to be twice the national average by 2030.^{ix}

Employment in Tees Valley is low, with 68% of residents in employment. **Inactivity is high** (27% of the local population) and the proportion of inactive residents who want a job is low (16%). Health and disability are significant barriers to work – rates of employment among people with disabilities are low and rates of long-term sickness among the economically inactive are high.

Another significant barrier for people in Tees Valley is that of **disconnection**. Almost 65% of deprived neighbourhoods are classified as disconnected (which could indicate poor transport links or a skills mismatch).^x Creating new employment opportunities and providing efficient and affordable transport links to these opportunities, is needed to tackle low educational participation and low employment in these areas.^{xi}

Creating more 'good' jobs and increasing the number of people in work is critical to improving productivity in Tees Valley. However, it is not enough to tackle unemployment, under-employment and create a strong workforce, capable of sustaining economic activity and growth. We will also prioritise the provision of timely and accurate Labour Market Information and careers education and connect people to appropriate education, employment and training opportunities. Through this, we will create an environment of **life-long learning and progression** – for people who are unemployed/facing redundancy, beginning their careers or looking to improve their career prospects.

Devolution of the Adult Education Budget AEB from 1 August 2019 will enable Tees Valley to align skills funding streams for a more effective and joined-up system that addresses local skills gaps and seizes opportunities to improve outcomes for residents and businesses. The Department for Work and Pensions Innovation Pilot, Tees Valley Routes to Work – a major new approach to support those most distant from the labour market to prepare for and to access work; and the Tees Valley Careers.Com initiative – the first of its kind in the UK, working hard to ensure all young people in the region have the skills they need to flourish and undertake successful and rewarding careers, represent fantastic opportunities for Tees Valley to build upon.

This Local Industrial Strategy identifies a range of measures designed to support increased productivity in Tees Valley through its people and there is enormous potential to strengthen the overall education and skills system in Tees Valley and grow a workforce to meet economic demand and ensure local people can have the careers they want and achieve their full potential in Tees Valley.

Business

Tees Valley has a dynamic and export-oriented business base. We are one of the few areas in the UK to run a trade in goods surplus and our business base has grown at a faster rate than the UK average in recent years. Teesside University is recognised as “*one of the best universities for businesses in Britain*^{xii}” and a key strength of the local business environment.

Those sectors where Tees Valley is currently globally competitive (advanced manufacturing and the chemicals and process industries) are characterised by high levels of **foreign-ownership**. This presents opportunities (the ability to import managerial and technical best practice) as well as challenges (our capacity to influence investment decisions and the development of a 'branch plant' economy). In delivering productivity growth we will explore opportunities to encourage our foreign-owned businesses to undertake more R&D and value-adding activity locally. This will be pursued by better leveraging our innovation assets and taking a lead on emerging clean growth and industrial digitalisation technologies.

Our economy is **export-facing**, with a balance of goods trade surplus of £206m in 2017. Exports are dominated by chemicals and process industries and advanced manufacturing. Supporting the growth of these sector strengths and enabling more businesses to sell into international markets can help to reduce the UK's trade deficit. Additionally, 'domestic exports' from the chemical and process industries play a key role in supporting the sustainability of manufacturing at the national level, with downstream impacts observed across 90% of all UK manufacturing^{xiii}.

A key challenge facing Tees Valley is the size of our **business base**, which is under-developed relative to our population. There are 415 enterprises for every 10,000 working age residents in the area – two thirds of the UK average. In part, this reflects our industrial heritage and a traditional (but diminishing) reliance upon a small number of large employers.

This is compounded by weak **scale-up performance**, where we lag behind other LEP areas with respect to both density and growth. The Local Industrial Strategy seeks to address the identified barriers to improved scale-up growth: access to available talent; workers' leadership and development capabilities; and access to new markets (including corporate supply chains).^{xiv} Many companies that work with our innovation assets successfully scale-up outside of Tees Valley. Part of the challenge we face is in creating an environment where more of these companies are anchored in the local area.

We have made good progress in addressing these issues. Through the LEAP 50 initiative, launched by the Combined Authority and Teesside University, we have “*responded positively*”^{xv} to improving scale-up performance. Our business base expanded by 27% between 2012 and 2018 – outstripping UK performance (24%) – and has been driven by high start-up rates. Teesside University is currently amongst the top 10 performing universities nationally in terms of graduate start-ups, with 143 active graduate start-ups turning over £20.8m^{xvi}.

Despite these successes, further progress is required. Local engagement indicates that key constraints to business growth include issues related to: recruitment and skills (of existing staff); cash flow and access to finance (including the absence of a formalised network of angel investors); and difficulties in accessing new markets/supply chain opportunities.

The Local Industrial Strategy identifies a range of measures designed to grow the business base. It is intended that these will supplement and work alongside existing assets, including: Tees Valley Growth Hub, providing funding and support to facilitate business growth; and Teesside University, a finalist in the Outstanding Entrepreneurial University Category at the 2018 Times Higher Education Awards.

Infrastructure

Tees Valley's strategic infrastructure assets make the area an excellent place to do business. Recent and planned investments will further strengthen our proposition, including better links with the Northern Powerhouse through enhanced east-west road and rail connectivity. Our East Coast Mainline station at Darlington provides connectivity to most major UK cities, with London, Edinburgh and Manchester all accessible in under two and a half hours. The Port of Tees and Hartlepool is a major deep-sea complex and an international trade gateway for Tees Valley and beyond. The Combined Authority's recent acquisition of Durham Tees Valley Airport will be supported by a strategy to deliver growth in commercial and freight services, repositioning the airport at the heart of our economic future.

The quality of our environment (and natural capital) is another important part of Tees Valley's offer. Key assets such as the River Tees and its estuary, as well as our high quality rural and coastal environments make a significant contribution to our quality of life and sense of place and are considered further in the 'place' foundation. Analysis by the Environment Agency identifies an increasing flood risk in key employment locations over the time horizon

of the Local Industrial Strategy. The necessary flood defences must be put in place so that Tees Valley remains resilient to climate change.

Most of travel to work journeys are by car and traffic is able to move well on the **local road network** on the whole. Average journey to work times and average speeds achieved on local 'A' roads both outperform national averages (although average speeds are falling across the area, and in some areas at a faster rate than nationally). Congestion pinch points exist on the strategic routes of the A19 and A66 – and on other parts of our key route network – that risk constraining future competitiveness. Transport for the North's Strategic Transport Plan recognises the need to address these to improve internal and external connectivity and unlock the economic potential of Tees Valley and the Northern Powerhouse.

The **East Coast Mainline** station at Darlington is vital to our connectivity at the national level both now and in the future – with the potential to integrate into Northern Powerhouse Rail and HS2. This will be supplemented by proposals to establish a direct route between Middlesbrough and London from 2021. Major works are required at both stations, however, to address capacity and operational flexibility issues and maximise the impact of future route development opportunities by integrating them more fully with their respective town centres. Tees Valley Combined Authority has committed £45m of funding to deliver an initial phase of works, but further funding and support is required over the medium term.

Digital connectivity is critically important to modern businesses and, in general terms, is a key strength of Tees Valley's offer. The proportion of residential and commercial properties with access to ultrafast broadband, at 90.1%, is significantly higher than the national average (55.6%) whilst we have the highest take-up of the fastest broadband speeds (>30mbit/s) of any LEP. Despite our strong headline performance, however, pockets of poor digital connectivity persist at a more localised level. We must ensure that our digital infrastructure remains fit for purpose into the future. This is essential if we are to position ourselves at the vanguard of the industrial digitalisation movement. In accordance with the Artificial Intelligence Sector Plan, our Digital Catapult will work at a national level to implement digital policies and identify needs in emerging technologies.

The **Port of Tees and Hartlepool** has been one of the UK's top ten ports (by tonnage handled) for almost 50 years, demonstrating its importance as a major trade gateway for Tees Valley, the Northern Powerhouse and Scotland. The volume of tonnage handled has declined since 2017 due to fluctuations in key markets (crude oil and dry bulk) and the closure of SSI. During the last seven years, however, the Port has experienced strong growth (12% year on year) in container traffic and invested £120m in developing and enhancing capacity. This includes: the development of a new rail terminal to reinforce the Port's position as a leading provider of port-centric logistics; and redevelopment to provide one of the deepest general-purpose quays in the UK (and the deepest on the East Coast). This recent investment leaves the port well positioned to grow, but we must continue to explore opportunities to build upon this.

The Tees Valley Combined Authority has recently purchased **Durham Tees Valley Airport**. Our aspiration is to re-establish the Airport as a major economic asset for the area, providing national and international connections for business and leisure visitors and supporting a

stronger inward investment and tourism proposition. This will be pursued via a growth strategy focused on: strategic route development; enhanced freight services; and establishing the Airport as an Enterprise Zone. Whilst passenger numbers have recently fallen to 131,500, the Airport attracted around 912,000 passengers in 2006, highlighting the potential for growth. Airport development will also link with growth in the biotechnology sector. Sustainable aviation fuel production (fuel from hydrogen) is a major aspiration for the Tees Valley biotech sector, which will play a key role in delivering clean growth. Success with this technology would attract routes to take advantage of this world-leading project.

Place

Tees Valley has a strong and distinctive sense of place. It reflects our industrial heritage, our geographical location and our compactness. The Local Industrial Strategy acknowledges, builds on and develops this. Each of our five boroughs and main towns has **distinct economic assets and opportunities** which lend themselves to particular investments. It is essential that we can unlock these in a way that benefits all our residents.

Tees Valley Spatial Portrait

Darlington is the gateway to Tees Valley, with direct connections to the A1(M) and the East Coast mainline. Improvements to the station are critical for both north-south and east-west connectivity and provide major regeneration opportunities. The town is home to major engineering and specialist services companies (Cleveland Bridge, Magnet, Cummins and Wood) including subsea and seabed companies (Deep Ocean and Modus). Central Park, (home to the Centre for Process Innovation's National Biologics Manufacturing Centre and Teesside University's National Horizons Centre) is the ideal location for bioscience development. With its proximity to the A1(M) the borough is a growing location for logistics distribution centres. With a rich heritage including the first railway from Darlington to Stockton (with a bicentenary in 2025) and a strong cultural offer including the newly renovated Hippodrome Theatre and a nationally renowned children's theatre group (Theatre Hullabaloo) the town has further opportunities to grow the visitor offer.



Darlington Station

Hartlepool has a rich maritime heritage and is home to the National Museum of the Royal Navy. Plans are in place to develop the Waterfront to create a mix of civic, cultural, leisure and visitor attractions that complement the wider Hartlepool Marina area. The town is home to the Northern School of Art, the leading provider of specialist creative art and

design in the north. It is central to the opportunity to create the biggest film studios outside London on the former council depot site, which will put Hartlepool at the centre of film making in the north. The town offers excellent opportunities for port-related industries with more than 300 acres at the Port of Hartlepool providing deep water access, warehousing and open storage. Major engineering companies include Heerema, Liberty Steel and Able, and Seaton Port offers one of the largest dry dock facilities in the world and an internationally significant recycling facility (currently decommissioning the Shell Brent Delta platform). The chemicals industry remains important to the town and clean energy production at EDF's Nuclear Power Plant generates 60GW (2% of GB's peak electricity demand).



Hartlepool Marina

Middlesbrough continues to diversify its economy. It has strengths in engineering and advanced manufacturing, including internationally renowned research capabilities at TWI and world-class research and commercial premises at TeesAMP. The digital cluster (focussed on the Boho area) is nationally recognised and has a critical role to play in driving the adoption of industrial digitalisation. Middlehaven continues to develop as a mixed-use regeneration site with leisure (Middlesbrough FC and a proposed snow centre), offices, innovative residential developments and education facilities. Centre Square will provide modern Grade A office developments and events space and the recent upgrade of the Town Hall facility provides a cultural venue with access to a new range of bars and restaurants including the quirky Bedford and Baker Street. Home to Teesside University, the development of modern student facilities and proposed student village will further integrate the role of the university within the town. The town is also home to Tees Valley's largest employer (South Tees NHS Trust). The introduction of direct rail services to London and improvements at the station and the surrounding area will form the stimulus for independent businesses in the Historic Quarter linking the centre to the Boho area.



Boho One

Redcar & Cleveland is home to Wilton International, one of the UK's most important locations for process manufacturing including global companies Sabic, Sembcorp Utilities, Ensus, Lotte Chemical, Huntsman and Falck. The South Tees Development Corporation is the single biggest development opportunity (4,500 acres) in the UK, and is run by the only Mayoral Development Corporation outside London. This presents a unique opportunity to develop the Tees Valley's strength in clean growth. With the combination of assets including large scale sites, deep access port facilities, global companies and innovation organisations including the Materials Processing Institute and the Centre for Process Innovation, the area can become the clean growth centre of the UK. The borough is still home to a significant steel industry and mining and processing of minerals is growing with Boulby mine (one of the deepest in Europe) and the new £2.3bn polyhalite mine under construction in North Yorkshire (with processing to take place at Wilton). Outdoor pursuits and a wide range of culture activities are available across the borough in the countryside, the North York Moors National Park, the heritage coastline, the beaches and the towns. These include festivals (such as The Festival of Thrift) and events. The provision of new cultural venues including Kirkleatham will continue to grow the visitor offer.



Wilton International

Stockton is home to a mix of retail and visitor opportunities including Teesside Park and market towns such as Yarm, whilst a vision for a repurposed Stockton High Street is being created. This will focus on culture, leisure, heritage and events (including SIRC and Great North City Games) to appeal to more visitors. This vision will strengthen links to the river – one of the borough and Tees Valley's greatest assets. The river offers enormous leisure and development potential with ten miles of tidal controlled river frontage and successful attractions including the Olympic-standard International White Water Course at the Tees Barrage, the Air Trail ropes course and Preston Park. The borough's economy is diverse, including biosciences with Fujifilm Diosynth Biotechnologies and Johnson Matthey, heavy industries including the expansion of the SUEZ UK energy from waste site, and a growing digital sector including fast growing Visualsoft. A range of office and industrial business accommodation is available, such as Wynyard Business Park, Teesside Industrial Estate and Belasis Business Park, together with the industrial areas of North Tees and Seal Sands, plus incubation facilities. Numbers of overseas students in the area continue to grow with Durham University's new International Study Centre.



Tees Barrage

Spectacular countryside (such as Roseberry Topping and the North York Moors National Park) and dramatic coastline (including Hartlepool Headland (part of the Durham Heritage Coast) and the Victorian Pier at Saltburn) are readily accessible from our vibrant market towns and urban areas. Our **rich and varied environments** provide the backdrop for public art of national significance – ‘Bottle of Notes’, ‘Train’ and ‘Temenos’ – as well as a variety of cultural, sporting and visitor attractions and a growing programme of festivals and events.

The area benefits from a range of **cultural and sporting attractions**. Notable cultural facilities include: the Middlesbrough Institute of Modern Art – a partnership between Teesside University and Tate Plus; the nationally recognised producing theatres of Stockton ARC and Theatre Hullabaloo in Darlington;^{xvii} and the Globe Theatre in Stockton. These are supplemented by sporting assets such as the Riverside Stadium (home of Middlesbrough Football Club) and championship golf courses at Rockliffe Hall, Seaton Carew and Wynyard Hall. In addition, there are 14 **museums** in Tees Valley, which collectively present the area’s maritime and railway heritage. Key assets include Head of Steam (the Darlington Railway Museum) and the National Museum of the Royal Navy in Hartlepool.

Our burgeoning programme of **festivals and events** (140 regular, annual events) underpin our continued work to develop and promote Tees Valley’s quality of place. Whilst some attract a primarily local audience, many have developed reputations that extend beyond the area and draw audiences into Tees Valley: Festival of Thrift; Stockton International Riverside Festival; Hartlepool Waterfront Festival; and the Middlesbrough Art Weekender^{xviii}. In 2019, Middlesbrough hosted Radio One’s Big Weekend, attracting 64,000 visitors from across the UK. Looking to the future, further opportunities to attract visitors into Tees Valley will be provided by the 2021 Rugby League World Cup (the area is confirmed as a host venue) and the Railway Bicentenary.

The above strengths are reflected in Lonely Planet identifying Tees Valley as the, “*most exciting, beautiful and friendly region in England.*”^{xix}

The ‘place’ offer of Tees Valley – and the culture, leisure and tourism sectors in particular – make an important **contribution to our economy**, both directly and indirectly. Almost 20 million people visited the area in 2018, with tourism contributing £960m to our economy and supporting 12,000 jobs. It is estimated that the cultural sector supports 2,500 jobs, although there is likely to be some overlap with the tourism data.^{xx}

The development and effective promotion of a strong sense of place is also critical – through raising Tees Valley’s profile and enhancing perceptions of the quality of life offer available – in shaping our ability to attract and retain the workforce and inward investment needed to

drive future growth. Within this context, Tees Valley's broader sense of place is also characterised by its **cost competitiveness** and the availability of a **plentiful supply of land** for employment development.

Our Enterprise Zone comprises of 460 hectares of land across 12 sites, with opportunities suited to a range of employment sectors. The South Tees Development Corporation site – the first Special Economic Area and the single biggest development opportunity in the UK – is another key employment location. Premises costs for 'Grade A' office space are lower than in other major northern cities, whilst average wages are also competitive. Despite this, the area remains an affordable location for workers, with the cost of buying or renting a home comparatively low in Tees Valley.

Whilst we benefit from several key strengths, there remains a clear need to reposition and strengthen Tees Valley's place-based proposition. **External perceptions** of the area are influenced by our industrial past and we must continue to work to raise the profile of our many assets – both individually and collectively. Lord Heseltine, in his independent review of Tees Valley in 2016, *Tees Valley: Opportunity Unlimited*, stated that:

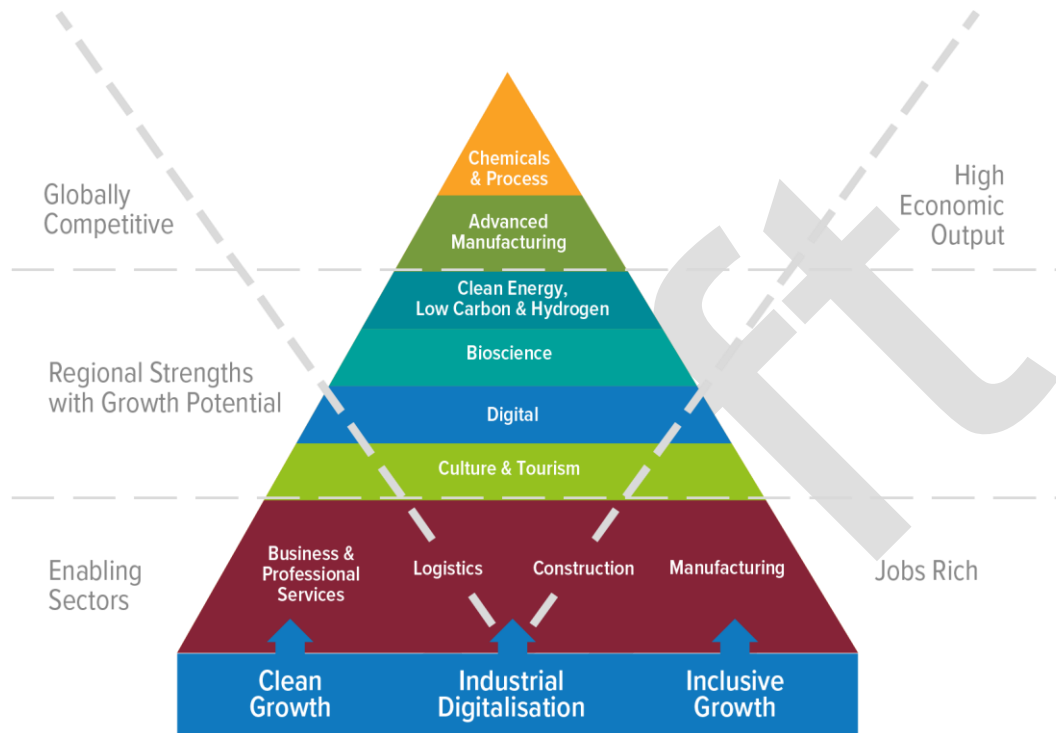
“Too little is made of these assets, and as such the Tees Valley remains a well-kept secret, rather than a place that draws visitors from the UK and abroad and a place which can attract inward migration and skills from other parts of the country and internationally.”

This is reflected in the low number of overnight visits (10% of total visitor numbers) captured by Tees Valley, which translates to low levels of visitor expenditure.

Significant investment has been earmarked by the Combined Authority to address these issues. The *Tees Valley Investment Plan (2019-2029)* has identified £60m to be invested in culture and tourism over a 10-year period. This includes major capital investment focused on Hartlepool Waterfront and the Stockton and Darlington Heritage Railway as well as destination marketing (through EnjoyTeesValley.com) and the continuation of a strong festivals and events programme. The investment will create 3,000 new jobs and £126m of Gross Value Added, attract 23 million new domestic and international visitors and **increase the length of stay and visitor expenditure.**^{xxi}

Priority Sectors for Growth

The Tees Valley business base is diverse and comprises of a range of sectors characterised by different levels of maturity, productivity and labour intensity.



Our sectors can broadly be characterised according to three categories:

- **Globally Competitive Sectors:** well-established sector strengths where the Tees Valley is widely regarded as benefitting from world class expertise and a business base comprised (largely) of globally-significant firms. Collectively, these sectors account for 14% of Tees Valley's GVA. Local concentrations of employment and economic output are typically high in these sectors, reflecting the presence of high volumes of activity;
- **Regional Sector Strengths with Growth Potential:** sectors where the Tees Valley is not currently recognised as being globally competitive, but where the conditions are in place locally – or could be established – to drive growth moving forwards. This includes areas such as clean energy, low carbon and hydrogen where Tees Valley can drive growth nationally by exploiting its unique industrial cluster, research and innovation assets, and by maximising synergies between existing sector specialisms; and
- **Enabling Sectors:** job rich sectors that account for high volumes of employment – as well as 34% of Tees Valley's GVA – and which play an important role in supporting the effective functioning of the wider economy through the goods or services that they provide. The logistics sector, for example, supports the efficient movement of raw materials and finished products, which is beneficial to all parts of the economy.

All of these sectors have a critical role to play in what makes the Tees Valley economy unique. These are explored in more detail below.

Globally Competitive Sectors

Chemicals and Process Industries

Tees Valley is home to the largest integrated chemical complex in the UK and the second largest in Europe. The sector is over-represented locally in terms of its share of businesses, jobs (5,445) and economic output (£802m), demonstrating the strength of our offer.

The average chemicals and process worker in Tees Valley generates £131,450 of GVA per annum – making the sector 2.5 times more productive than the local economy overall and 25% more productive than at the national level. The sector is a major contributor to UK exports and provides base products to support the UK's wider downstream manufacturing industry.

The former ICI sites at Billingham and Wilton are now occupied by local and international chemicals and process businesses including Huntsman, Lotte and Sabic. The evolution of these sites demonstrates both our rich heritage as a globally competitive location and our ability to respond to market shifts over time. This strategy responds to current and emerging challenges (including a growing trend for investment to focus on a smaller number of globally competitive clusters) to position Tees Valley as a location where chemicals and process businesses can continue to thrive.

Our existing network of internationally excellent innovation assets, including Centre for Process Innovation, the Materials Processing Institute and TWI will have a critically important role to play in working with industry to: future proof our chemicals and process proposition; and embed businesses within the local area.

Advanced Manufacturing

Tees Valley is home to a large, successful cluster of advanced manufacturing and engineering businesses operating across a range of industries. The sector has higher concentrations locally of economic output, jobs (18,910) and businesses (2,790). This highlights the strength and importance of the sector in the area, which is in large part due to the excellent existing infrastructure and assets that the area has to offer businesses here. Strengths in the automotive sector include: Cummins in Darlington (engine manufacturer delivering new engines to meet increasingly stringent legislation limiting vehicle emissions and part of the US-owned firm's global network of technical centres); NIFCO in Stockton on Tees (plastics manufacturer with the Japanese firm's only R&D facility outside of the Asia Pacific region. Collaborating with major automotive OEM's to develop new products to improve fuel efficiency in internal combustion engines and new products to support further developments in electric vehicles); and Elring Klinger in Redcar (specialising in lightweight solutions, e-mobility, sealing and shielding technology for automotive manufacturers).

There are similar opportunities being explored for our chemicals and process industries to support the automotive sector with the development of the upstream composites supply chains to enhance the supply of carbon fibre for further light weighting of vehicles. This demonstrates the overlap between the sectors within Tees Valley.

Tees Valley is also ideally positioned for servicing the offshore industries (renewables and decommissioning). Investment in innovation crossovers between digital and advanced manufacturing in offshore has established local firm Modus Ltd as a world leader and first mover in the operation of hybrid Autonomous Underwater Vehicles (AUVs), providing subsea surveying and inspection activities across the offshore wind, oil and gas sectors.

CASE STUDY: Wilton Engineering

Based on a 54 acre site at Port Clarence, Wilton Engineering provides multi-discipline engineering services. The firm specialises in the fabrication and construction of very large complicated structures, as well as services to the onshore and offshore energy industries including subsea and wind.

Wilton Engineering has a diverse portfolio of work, including several significant export contracts and received a 2019 Board of Trade Award from the Department for International Trade. The award, which celebrates innovative businesses and their contribution to UK prosperity, reflected the firm's internationally excellent work in the energy sector (a key priority for Tees Valley).



Regional Strengths with Growth Potential

Clean energy, low carbon and hydrogen

Tees Valley is in the vanguard of the transition to a UK economy built around clean energy and specifically low carbon hydrogen as a major energy vector for the future, delivering opportunities for achieving clean growth at an affordable and declining cost. The area is geographically concentrated and has a highly integrated and well-established industrial ecosystem, which underpins activity through energy production and use across our key industrial sites, such as energy intensive industries at Wilton, Billingham and Seal Sands that are connected via pipeline corridors.

Internationally significant, locally-based innovation assets such as the Centre for Process Innovation, TWI and the Materials Processing Institute are pioneering research focussed on low carbon energy and circular economy principles including how to reduce carbon emissions and re-use waste in industrial processes.

The Clean Gas Project and our CCS Cluster are core to delivering a net zero cluster by 2040. Our existing engineering capability and research & innovation specialisms support this and would provide the technology and engineering know how for deploying both CCUS and hydrogen production at scale and developing a UK supply chain.

The increasing pressure to recycle plastics provides a real opportunity for the Tees Valley's substantial waste and resources processing sector to use hydrogen, its transport infrastructure and (bio) processing technology skills to lead polymer recycling and reuse as part of a wider circular economy opportunity.

We are the UK's largest producer of hydrogen and have significant expertise in operating hydrogen systems at scale. We are also developing activity to support hydrogen transport across road and rail.

Seaton Port is Europe's most advanced disposal facility (providing a platform for growth in decommissioning) and we have clusters of activity related to:

- Biomass, biofuel, bioethanol and energy from waste plants;
- Clean energy producers (including EDF and SUEZ); and
- Offshore wind supply chain companies and deep-water port access to offshore wind developments. Tees Valley has been designated by government as a Centre for Offshore Renewable Engineering.

The sector is over-represented locally in terms of its share of businesses, jobs (7,760) and economic output (£727m). It is a key priority in the SEP and been actively promoted by the Teesside Collective in recent years, as well as being acknowledged by Rt Hon Lord Heseltine in his independent review of the Tees Valley economy.

The potential opportunity associated with clean energy, low carbon and hydrogen is significant. Government expects the clean growth sector to increase four times faster than the economy as a whole in future. [i] Established industrial locations will be important in positioning the area to capitalise on this growth. So too will the South Tees Development Corporation site – which we will work with the Department for International Trade to promote as a leading location for environmentally sustainable industrial growth and is already attracting strong interest from occupiers in clean energy and related sectors.

CASE STUDY: Able UK

Able UK has developed from an innovative demolition specialist to a major player in the demolition, decommissioning, site reclamation and port development sectors. The firm own and operate several marine facilities on the River Tees and have invested heavily in these to compete successfully for major contracts in the offshore wind sector and in the decommissioning and recycling of offshore structures.

Able Seaton Port (ASP) in Hartlepool is one of the company's key assets. The site boasts probably the strongest quay in Europe, as well as significant crane capacity and has been constructed to meet the requirements of the heavy fabrication industry. This resulted in the site being selected for the Shell Brent Decommissioning Project – 4 platforms totalling almost 90,000t to decommission – the largest single North Sea decommissioning project undertaken to date. In January 2019 the 90th and final shipment of foundations left ASP destined for the 1200MW Hornsea Project One Offshore Wind Farm, which will become the world's largest of its kind. In September 2020 ASP will be the installation port for the Innogy 860MW Triton Knoll wind farm turbine package.



Bioscience

Tees Valley is home to a strong, distinctive and rapidly growing cluster of bioscience companies with significant opportunities for growth.^{xxii} This includes 495 companies across 27 individual industries, 7,975 bio-related jobs (higher than the national average) and sales of £2.5bn.

The area contains multinationals FDB, Marlow Foods and GSK, an integrated chemicals complex and biorefinery, a small but growing biologics base and the South Tees Innovation Hub. Additionally, it is home to some of the UK's foremost assets in biologics and industrial biotechnology R&D and collaboration hubs.

The Centre for Process Innovation is the UK's largest innovation centre working in the biosciences, with the large-scale Biotechnology Centre at Wilton developing process for international companies up to large pilot scale and its National Biologics Manufacturing Centre working closely with companies of all sizes to develop the next generation of biological pharmaceuticals. These two facilities have world leading capability in bioscience innovation and are regularly chosen over other centres outside of the UK to provide innovation services in process definition, scale-up and piloting.

The National Horizons Centre is focused on addressing skills gaps (a major issue for the biosciences). The Centre and partners will work together to develop employees with broad and higher-level skillsets required by a modern biosciences sector; the underpinning digital

skills required to maximise technological potential within industry; and commercial acumen and business relationship skills.

These assets present the opportunity to create a distinctive local bioscience strategy that actively encourages and creates opportunities for cross-sectoral working by direct identification of specific links between individual companies. Using locally adapted “Golden Triangle” principles of industry and research/innovation critical mass, we will develop a long-term vision for a distinctive bioscience cluster.

CASE STUDY: FUJIFILM Diosynth Biotechnologies

A world leader in the development and manufacture of biologics, vaccines and advanced therapies, FUJIFILM has been based in Tees Valley since 1996, employing approximately 700 people and investing around £100m into the local economy over 20 years.

FUJIFILM’s mammalian cell culture manufacturing facility at its UK headquarters in Billingham is the first of its kind in the UK and its £7m state of the art bioscience facility at Wilton demonstrates the confidence of international-scale companies investing in the area.

Further investment is planned by the firm, the importance of which is recognised in the Life Sciences Sector Deal, with funding recently acquired to build a BioCampus in Stockton-on-Tees. This represents a key strand of Tees Valley’s ambitions to grow the bioscience sector locally, alongside recent investments at the National Biologics Manufacturing Centre and the National Horizons Centre.



Digital

Our digital sector is made up of an exciting mix of young, vibrant businesses, including home grown global leaders such as Visualsoft, Clicksco, Cubic and Double Eleven. The sector employs 7,800 people in Tees Valley, with average salaries remaining competitive – in the national and regional context – whilst remaining high value. The average digital worker in Tees Valley generates £103,050 of GVA per annum, making the sector 10% more productive than at the national level and one of the most productive parts of the local economy.

Teesside University is one of the UK’s leading higher education institutions in animation and computer gaming, producing digital talent that is in demand internationally. Each year it hosts the Animex festival, attracting global leaders and showcasing innovation in the

sector. The University and DigitalCity work closely together to provide mentoring and support for entrepreneurs looking to adopt digital technologies.

Our digital businesses are characterised by a strong appetite to innovate and grow. The proportion of Tees Valley businesses involved in innovation activity is higher in digital than any other sector of our economy, whilst the R&D intensity of the sector has increased by 145% in recent years. No other LEP saw digital innovation rise at a faster rate. We need to harness this strength to increase the density of businesses and employment in the sector, which are both low.

Increased density will not be driven by the digital sector in isolation, however. Part of Tees Valley's distinctiveness is the combination of a burgeoning digital sector and industrial sectors that are beginning to explore the potential of industrial digitalisation. This presents an opportunity to better integrate the local digital supply chain to increase the size of the local workforce and business base, whilst also driving up productivity.

CASE STUDY: Cubic Transportation Systems

A technology-driven, market-leading provider of integrated solutions to reduce urban congestion and help travellers make the most efficient use of the transport network in real time. Cubic is an international business with a presence in almost 60 countries. Cubic's Global Operations Centre (GOC) is in Stockton and employs 240 people.

The GOC utilises Cubic's latest innovations – including cloud-based enterprise software and advanced analytics. The firm's Transport Management Plan (TMP) – a ground-breaking, fully multimodal congestion management system, which led to Cubic receiving the Innovation Award at the 2019 Teesside Regional North East Business Awards – was developed from Stockton. The TMP is in the process of being rolled out in Sydney, Australia, demonstrating the global significance of the product.



Enabling Sectors

Professional and Business Services

The professional and business services sector is a key source of employment in Tees Valley, with 31,315 jobs across 2,840 businesses. However, concentrations of employment in Tees Valley (relative to the national average) are low across most sub-sectors – except for the Call Centre market.

This reflects the positioning of the Tees Valley as a low-cost location with modern, purpose-built facilities. Teesside University produces many graduates each year, providing valuable skills and expertise for the sector (including disciplines such as management and accountancy) and we must look to increase the number that remain in Tees Valley after graduating.

Significant employers in the sector include RPMI and Lattimer Hinks (in relation to financial and professional services) and Virgin Media, Santander and EE (contact centres and business processing).

In addition to the direct economic contribution outlined above, the technical and administrative services provided by the sector help to support the operation of businesses across the wider Tees Valley economy.

Logistics

Our logistics proposition reflects our strong exporting and industrial heritage. It is underpinned by key assets including the Port of Tees and Hartlepool – providing direct trade routes across the globe – excellent pipeline infrastructure and rail connectivity to key development sites. The Combined Authority's acquisition of Durham Tees Valley Airport – which has previously handled freight services – offers a further opportunity to strengthen our logistics offer.

Logistics is an important sector, supporting 17,090 jobs locally. It also serves as a key enabler of the wider Tees Valley economy, playing a vital role in supporting the success of higher value sectors such as chemicals and manufacturing.

Our position as a leading specialist in port-centric logistics is supported by Teesport Logistics Park – the largest retailer-backed, port-centric logistics park in the UK – with occupiers including Tesco and Asda. Recent investment in a new rail terminal at the Port of Tees and Hartlepool has strengthened our proposition. Tees Valley has also attracted large scale distribution investment elsewhere in the area – including Clipper Logistics and current development by DB Symmetry.

A shift towards increasing automation is expected to increase productivity in the logistics sector and it is vital that the necessary skills and infrastructure are in place locally to capitalise on the opportunities that this presents. Key education assets including the Logistics Academy at Stockton Riverside College and the High Tide Foundation will play an important role in addressing any emerging skills needs.

The importance of east-west transport connectivity is recognised by the Northern Powerhouse, with a growing emphasis on strengthening the UK's import and export routes to international markets through transport investment. The Port of Tees and Hartlepool will complement the new opportunities being developed at Liverpool SuperPort to allow the Northern Powerhouse to offer truly global trade routes.

Construction

The construction sector is an important part of our economy, with an economic output of £840m and 12,100 workers. Particular subsector strengths include: construction of roads and motorways; utilities and civil engineering projects; and test drilling and boring.

Construction also acts as a key enabler of our wider prosperity. It is fundamental to delivering the commercial and industrial premises required by a modern economy, as well as the infrastructure needed to support the effective movement of goods and people.

The productivity of the local construction workforce exceeds the Tees Valley average and innovations such as digitalisation, BIM and offsite construction provide opportunities to improve productivity further. The adoption of these innovations, however, is reliant upon a responsive skills system that supports new working practices.

In addition, a continued – and increasing – commitment to social value and intelligent procurement presents further opportunities to support growth. We will look to ensure that our construction businesses are best placed to identify, respond to and deliver projects coming onstream in Tees Valley.

3. Our ambition

Tees Valley will be a global leader in clean energy, low carbon and hydrogen. The area will achieve a net zero carbon industrial cluster by 2040, providing good jobs with long-term prospects that local people can access.

The Local Industrial Strategy complements and supports existing policy and strategy documents, including the Tees Valley Strategic Economic Plan. This document responds to the Industrial Strategy and the Local Industrial Policy Prospectus, which both emphasise the need to focus on the ability to influence the five foundations of productivity and the Grand Challenges to drive productivity growth.

This section sets out: the rationale underpinning the ambition; why it is important at a local and national level; and the role/local distinctiveness of each key sector in supporting and adding value to the core proposition. The table below summarises a range of key metrics to demonstrate the contribution of each key sector to the Tees Valley economy.

	Productivity (£/worker)	Output	Employment	Businesses
Chemicals and process	£131,450	£802m	5,445	80
	124%	LQ = 2.6	LQ = 2.2	LQ = 1.4
(Advanced) manufacturing	£51,700	£1,090m	18,910	2,790
	75%	LQ = 1.1	LQ = 1.5	LQ = 2.5
Clean energy, low carbon and hydrogen	£81,350	£727m	7,760	385
	77%	LQ = 1.1	LQ = 1.4	LQ = 1.2
Bioscience^{xxiii}	N/A	N/A	7,975	495
	N/A	N/A	LQ = 1.8	N/A
Logistics	£39,500	£784m	17,090	950
	71%	LQ = 0.8	LQ = 0.9	LQ = 0.8
Digital	£103,050	£741m	7,800	750
	110%	LQ = 0.9	LQ = 0.6	LQ = 0.5

Green = 100% or more of England average / Amber = 51% to 100% of England average
Red = Less than 50% of England average

Core Proposition

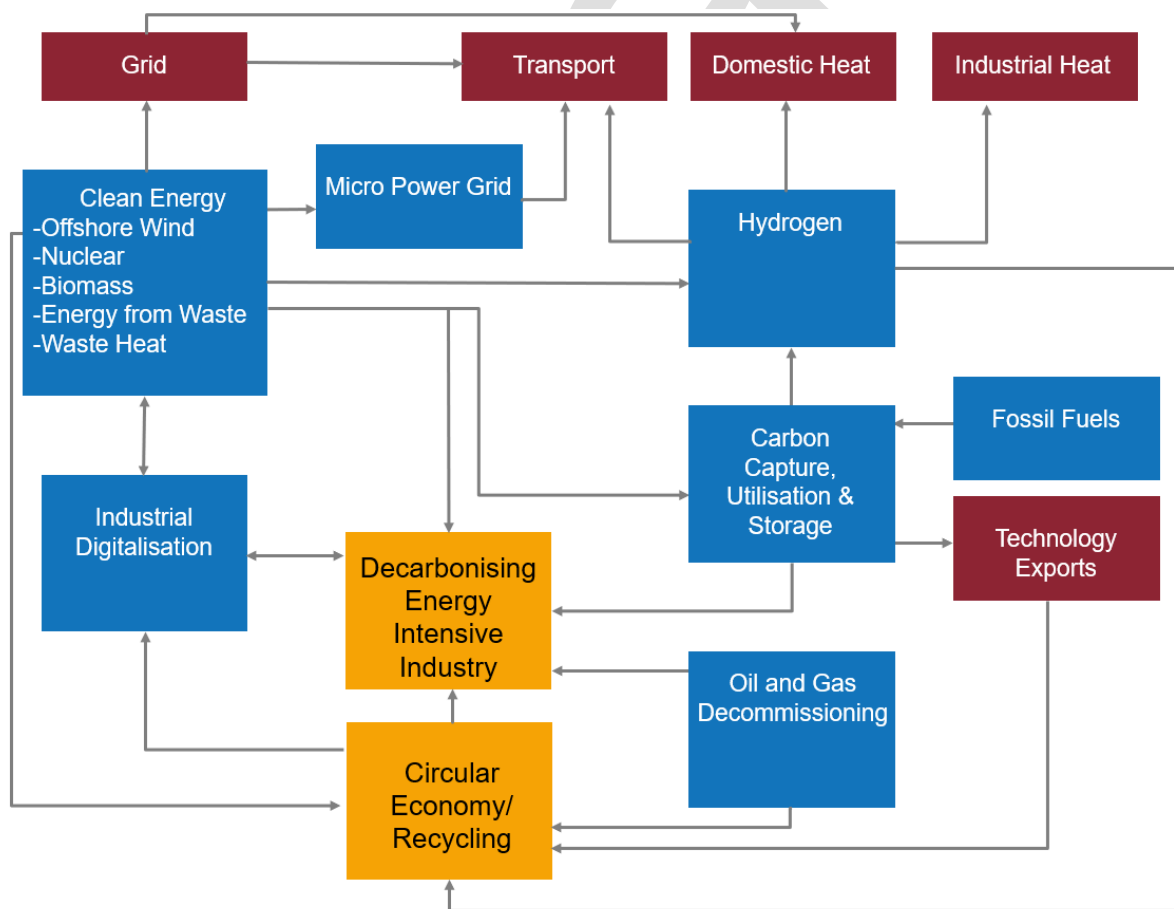
In harnessing the unique strengths and opportunities of the Tees Valley economy, our ambition responds to the government's aim set out in its Industrial Clusters Mission, to have one net-zero industrial cluster by 2040. It is underpinned by the breadth and depth of assets which mean Tees Valley is uniquely placed to pilot and demonstrate the benefits of clean growth, particularly in relation to clean energy, low carbon and hydrogen, on productivity and supply chain integration.

Industrial decarbonisation is a core component of our clean growth proposition. Reflecting the recommendations of our Low Carbon Industrial Cluster Sector Research, this will be pursued through a range of initiatives including: Carbon Capture, Utilisation and Storage (CCUS), clean energy production including using hydrogen as an energy vector (with potential applications linked to industrial heat, domestic heat and transport), and chemical feedstock for low carbon fuels, chemicals and plastics.

Our proposition is broader than this, however, as summarised in the figure below. The drivers extend beyond industrial decarbonisation to include offshore/clean energy¹ generation and decommissioning as part of the application of the circular economy to forge a more sustainable economic future for Tees Valley.

We will also look to pioneer industrial digitalisation technologies. The success of our clean growth ambition will be dependent upon stronger interdependencies, as businesses in one sector rely upon outputs from another as feedstocks. This will require smart, responsive relationships between businesses and industrial digitalisation will be critical in facilitating this.

Our core proposition, therefore, is well aligned with government's Industrial Strategy Challenge Fund – particularly the 'Industrial Decarbonisation' and 'Manufacturing Made Smarter' challenges.



¹ Includes nuclear. The Nuclear Sector Deal recognises that the future success of the industry is central to achieving Government's Clean Growth Grand Challenge

The Tees Valley Opportunity

Our industrial legacy, infrastructure and geology mean that the main sources of low or zero carbon energy available within the UK are already in use or can be deployed at scale by 2040 within Tees Valley (excluding hydropower). A well-established, geographically concentrated and highly integrated industrial cluster is already in situ and is supported by:

- **Hydrogen infrastructure and expertise:** we produce over 50% of the UK's hydrogen, with significant experience of operating hydrogen systems at scale and with an operational distribution infrastructure in place;
- **Access to carbon dioxide capture, utilisation and storage:** we are the location of the world's first gas-powered energy plant to deploy full-chain Carbon Capture Utilisation and Storage at scale through the OGCI project. We are situated close to potential North Sea carbon storage sites and benefit from an established network of pipeline corridors connecting our key industrial sites;
- **Decommissioning growth potential:** major investment by Able UK at Seaton Port (linked to the decommissioning of Brent Delta) has equipped the area with facilities that are unique to the UK. This leaves us well placed to secure further business in an area of growth;
- **Proximity to offshore wind:** we are ideally positioned to connect with and provide deep water port access to large scale offshore wind power developments;
- **Hartlepool Power Station:** facilities already exist to supply nuclear based, low carbon electricity to over 2 million homes. The infrastructure and experience are in Tees Valley to develop and deploy next generation nuclear power; and
- **Existing innovation specialisms:** we benefit from an established network of innovation assets with internationally significant capabilities linked to clean growth and industrial decarbonisation.

Rationale

Tees Valley is ready to embrace the challenges of clean energy, low carbon and hydrogen as part of the next phase of the continued evolution of our economic base. The successful application of industrial decarbonisation, is critical to maintaining and strengthening our competitive position in relation to some of our key industrial strengths by addressing three strategic challenges facing the area:

- **High concentration of Energy Intensive Industries (EIs):** EIs represent a key strength of our local economy and will remain so in future. To facilitate their continued success, whilst complying with the Climate Change Act and supporting achievement of the government's net-zero carbon target by 2050, we must decouple economic growth from CO₂ emissions;
- **De-risk EIs against rising carbon costs:** many of our EIs operate in international markets. They must be price competitive in a global context and this is heavily influenced by energy prices. Electricity prices paid by EIs in the UK are amongst the

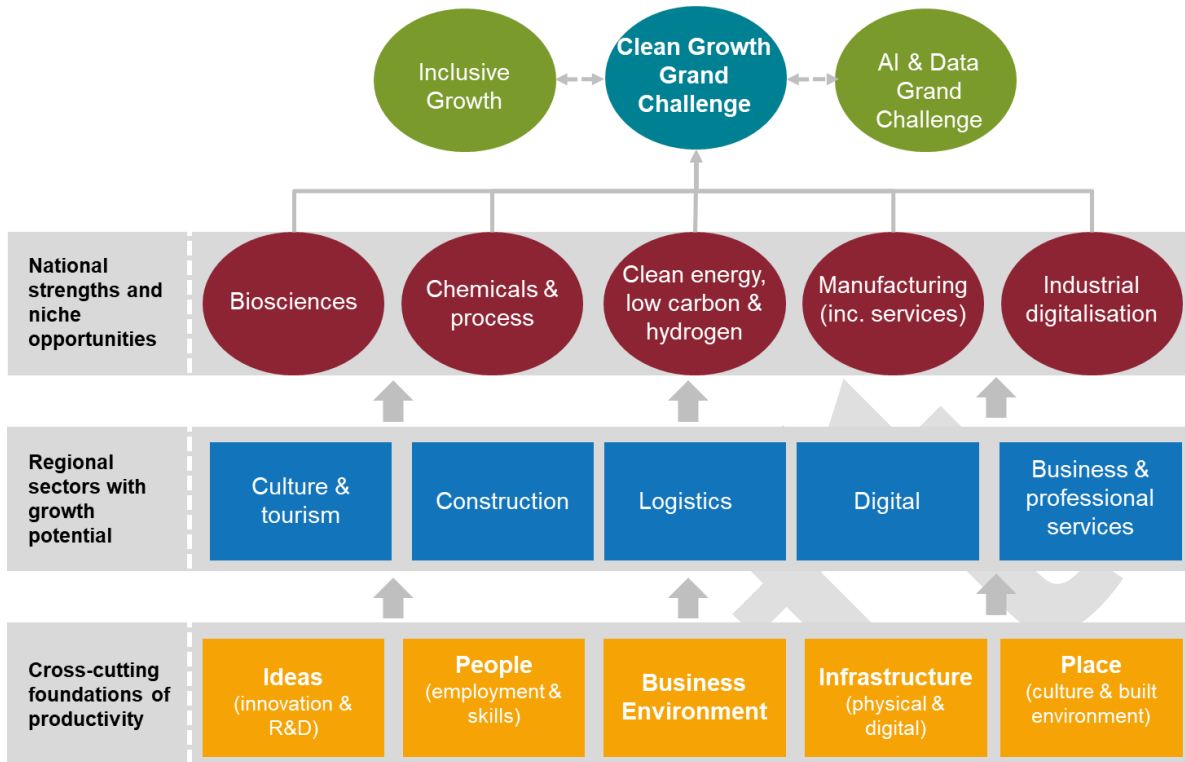
highest in Europe and the prospect of rising costs of CO₂ emissions represent a key competitiveness issue; and

- **Increased international competition:** Tees Valley competes globally for inward investment in the chemicals and process industries. The sector is increasingly clustered around a small number of internationally significant locations – it is critical that we maintain our position as a major European chemicals complex. The characteristics of successful chemicals and process clusters include: availability of feedstock supplies at competitive prices; and energy and utilities at competitive prices. Clean growth can help to underpin both.

Our ambition to establish Tees Valley as a globally-competitive clean energy, low carbon and hydrogen economy is not simply a response to these strategic challenges. Successful implementation – and our ability to establish ‘early mover’ advantage – will provide a renewed platform for growth, driven by inward investment, re-shoring and a vibrant indigenous business base:

- It will help to establish Tees Valley as the location of choice for global businesses looking to reduce their exposure to future CO₂ emissions costs, supporting existing branch plants, and the ambitions of global businesses seeking to invest;
- It will create a stronger platform for testing and commercialisation of new technologies at scale, which will significantly enhance the manufacturing and long-term productive capacity of the economy;
- It will act as the catalyst for the development of new product bases, by exploring the potential to exploit synergies within and between our national strengths and niche opportunities (shown in red on the diagram overleaf); and
- It will create new opportunities within our regional sectors with growth potential (shown in blue on the diagram overleaf). These sectors benefit from growth in the local economy more generally, which creates additional demand for goods and services. By establishing ourselves as an exemplar region for clean energy, low carbon and hydrogen, there is also an opportunity for these sectors to develop niche services tailored to the evolving needs of clean growth businesses, which can ultimately be exported beyond Tees Valley to other locations.

In addition, our ambition provides an opportunity for Tees Valley to make a significant contribution to carbon emissions reductions at the national level. The area has the potential to deliver reductions of 80MtCO₂ over the period to 2050.



Chemicals and process

The importance of the chemicals and process industries to the Tees Valley economy – and the need to retain existing businesses and support the growth of the sector by responding to strategic challenges – is a key driver of our clean growth ambition.

The scale, clustering and integration of our chemicals and process industries are fundamental to the strength of our clean growth proposition. They provide a critical mass of activity, as well as a strong pipeline network which links our major industrial locations and can facilitate the easy movement of materials, feedstocks and waste products.

Investment in resource efficiency and circular economy principles – to support the shift to clean growth – represents a significant opportunity to re-shore activity in the sector and build new product bases through the use, re-use and remanufacture of raw materials and products. In addition, it can help to reverse the current fragmentation of supply chains by increasing interdependencies between businesses across the sector and the wider Tees Valley economy. This will help to embed businesses within the area.

Clean energy, low carbon and hydrogen

As one of the UK's most significant sources of CO₂ emissions, Tees Valley has a vital role to play in meeting the government's net zero emissions target by 2050. The Committee on Climate Change has identified that this is possible but only with deployment at significant scale of CCUS technology and low carbon hydrogen as an energy vector.

The Tees Valley has been identified by the Oil & Gas Climate Initiative as uniquely placed to enable the first deployment of CCUS technology to energy production. With a tight cluster of industrial emitters supporting deploying CCUS technology on their assets and easy access

to vast subsea storage for the CO₂ in the southern north sea, the region provides a low cost solution to eliminating industrial and power generation emissions in the 2020s. The CCUS infrastructure would support further CCUS deployment along the east coast industrial clusters, with opportunities for shipping of emissions from other emitters to ensure reliable operation.

With appropriately sized transport and storage infrastructure the Tees Valley will be able to attract growing energy intensive investment despite the emissions target, and provide the materials needed to deliver the clean economy of the future. This is particularly important if the UK is to retain its position at the forefront of decarbonising heat (industrial and domestic) and transport through the use of hydrogen at scale and exploit the opportunities this will provide for a UK supply chain. This is essential as the electricity grid is incapable of supporting our ambitions without incurring excessive costs.

Given the need to achieve rapid decarbonisation large volumes of decarbonised hydrogen are needed at low cost and this can only be achieved quickly enough using natural gas coupled with CCUS. Renewable electricity can then be included to make hydrogen as it becomes increasingly available beyond 2030. Again, the Tees Valley's proximity to the Dogger Bank puts it in prime position to host both production routes and to provide low carbon electricity and hydrogen to the UK energy system.

Other opportunities for decarbonising energy are linked to using a CCUS infrastructure to create negative emissions from the second largest UK biomass power plant at Tees Dock, to capture CO₂ from the production of biofuels (bioethanol and biodiesel) and to include nuclear power perhaps from Small Modular Reactors at existing nuclear installations.

Manufacturing

Tees Valley's manufacturing and engineering sector benefits from excellent existing infrastructure and assets which have led to new investments in advanced materials – these will form the future of manufacturing in the UK and support the clean growth agenda. The area is home to key businesses active in both the upstream and downstream composites industry. For example, Liberty Metals have developed speciality metal powders research expertise (supported by the Material Processing Institute) capable of developing and manufacturing new speciality alloy metal powders for additive manufacturing applications. The market for this capability is set to be worth more than £1bn by 2026.

There is an increasing demand to build renewable energy assets and Tees Valley is fast emerging as an energy powerhouse. Our concentration of industry along the coastline perfectly places the region as the go-to location for green energy schemes. Companies such as Wilton Engineering and JDR Cables are adapting to demand as we lead the way in building a greener economy.

A growing number of our advanced manufacturers are already developing products that align with the clean growth agenda in the automotive sector. This includes: MCIS-UK (founded to undertake commercial production of formulated electrolyte – a key component of the lithium ion batteries); Nifco UK (working with OEMs on the design of new products to support further development in the production of electric motor vehicles); and Cummins

(delivering new automotive engines to meet increasingly stringent legislation regarding vehicle emissions).

Biosciences

In shifting reliance from fossil-based to renewable resources and delivering low-carbon bio-based products and processes, the biosciences sector in Tees Valley has a fundamental role to play as a driver of clean growth. Development of bio-based materials, such as chemicals and plastics, is both important in supporting the economic viability of biorefineries and best-placed to reduce emissions globally.

Tees Valley's inherent strengths as a 'bio-cluster' have consistently been acknowledged. Tees Valley is regarded as a centre of biorefining & biomass manufacture expertise, with strengths in the food, drink & chemical markets poised for maximizing industrial biotechnologies & techniques. The specific focus of bioscience expertise in Tees Valley is advanced biotech manufacturing, critically positioned around the advanced biorefinery centre in Redcar, the Ensus bioethanol plants at Wilton, and a globally-competitive industrial base. There are considerable opportunities to disperse biopharmaceutical and bioprocessing expertise and technologies across other science-based sectors.

The greatest opportunity lies in the adoption of biotechnological techniques in industrial manufacturing, particularly for medium-high value products such as speciality chemicals. Supported by industrial and public R&D (notably in the Centre for Process Innovation) this will result in cost-effective production processes alongside reduced fossil-based dependency and increased product sustainability.

The strength of the Tees Valley integrated chemicals complex presents a significant advantage for the development of the biosciences, both as a supply source for the manufacture of products, in GMP expertise (in biopharmaceuticals) and in the key characteristics it shares, particularly in the area of industrial biotechnology, which cuts across pharmaceutical, good and industrial process sectors. Of the process industries, chemicals and food and drink are identified as prime contenders for the disruptive application of industrial biotechnologies.

The UK national bioeconomy strategy identifies the significant clean growth potential of the biosciences in "using renewable biological resources to replace fossil resources in innovative products, processes and services". Tees Valley's strong industry base and industrial biotech expertise, coupled with established collaborative networks such as NEPIC, an innovation ecosystem and significant assets in the form of the Centre for Process Innovation and the National Horizons Centre, key industry players such as FDB, Ensus, Marlow Foods and GSK, put it in prime position to help drive clean growth through bioscience developments. The adoption of bio-based production processes for fuel, food and pharma, facilitated by concerted cooperation and integration between all players in the value chain, will directly support the growth of a low-carbon, high-productivity Tees Valley economy.

Industrial digitalisation

Aspects of industrial digitalisation are already being embraced by those sectors that underpin our clean growth ambition. The chemicals and process industries are already

dependent upon high levels of automation for process control, whilst the visualisation (amongst other technologies) of manufacturing operations has proved effective in training staff, operating and maintaining plant.

Significant opportunity exists to drive productivity gains by further embedding industrial digitalisation practices within our economy. The use of AI technologies and data analytics within chemical and bio manufacturing industries as part of an Internet of Things approach, are key to maximising the efficiency and safety of industrial processes to mitigate supply chain risk and improve productivity. Experiences in the process sector in Tees Valley have shown relatively simple applications of sensors and real time data analysis have led to significant energy cost savings and improved productivity. In the offshore wind market, we can see how advanced data simulation at the engineering stage for foundations reduce installation costs. At the same time, environmental data can inform development and maintenance alongside trend modelling to support active management of the contribution the sector can make to the National Grid. In the pharmaceutical sector blockchain and Internet of Things are supporting greater traceability and more bespoke tailored drugs that can be produced in smaller batches opening up new markets as well improving productivity due to a lower reliance on paper-based systems, which often result in downtime due to checking and cross-referenced.

In overall terms, the delivery of our clean growth ambition will be underpinned by strong supply chain linkages within and between our key sectors, enabling outputs from one process to be harnessed as feedstocks in another. Industrial digitalisation will be critical in facilitating this, with the analysis of big data supporting more effective, real-time monitoring of processes and products to inform upstream and downstream supply chain partners.

Cross-Cutting Theme: Inclusive Growth

The successful implementation of our core proposition will be defined not just by increasing productivity, but by ensuring that the growth of our economy is inclusive – creating the necessary conditions to enable all Tees Valley residents to benefit from our future prosperity. Delivering inclusive growth will mean providing more good quality jobs with long-term prospects – jobs which can be accessed by local people. This is central to the overarching ambition for the area identified through the Local Industrial Strategy process and will be underpinned by a series of interventions designed to:

- Create more 'good' jobs; and
- Support more local people to access 'good' jobs.

Each of the five foundations of productivity has a role to play in supporting inclusive growth and this is reflected in its identification as a cross-cutting theme. The following paragraphs consider the relationship between inclusive growth and each of the foundations.

Inclusive growth will be pursued for, and by, our **people**. We will look to provide greater access to training for those in work – enabling people to upskill and creating opportunities for progression – and those seeking routes to work. This will be delivered through greater partnership working with our businesses – increasing employer engagement in training and ensuring that provision is tailored to business needs.

In addition, we will work to improve levels of educational attainment and improve the performance of our secondary schools, by implementing our Education, Employment and Skills Strategy – ‘Inspiring Our Future’. This will be supported by initiatives to raise the expectations of our young people that they can have their career of choice in Tees Valley, building upon the early success of TeesValleyCareers.com to provide meaningful work experience.

By focusing on new **ideas**, we are seeking to deliver a step change in innovation and R&D activity. This is critical to moving our existing businesses up the value chain and creating new business opportunities in high value sectors. In this way, we can create more ‘good’ employment opportunities. Universities will also have an important role to play – helping to drive the innovation agenda and providing access to a talented, highly skilled workforce.

The development of a stronger **business environment** will support higher rates of business growth and the creation of more employment opportunities. In part, this will be pursued through support for start-ups and scale-ups. Opportunities also exist, however, to adopt a more targeted and co-ordinated approach to procurement (and supply chain development) in order to: facilitate the growth of local firms; and place greater emphasis on the impact of social value.

Ensuring that the **infrastructure** of Tees Valley is fit for purpose will support inclusive growth by enabling all residents to easily access employment and learning opportunities. This must be underpinned by strong digital connectivity, an affordable and effective public transport system and a resilient road network. We will work with partners to progress our priority transport schemes, whilst also looking to establish Tees Valley as a Future Mobility Zone.

We will look to develop our culture and leisure offer to improve our sense of **place** and enhance awareness and perceptions of the Tees Valley offer – harnessing the power of the ‘Enjoy Tees Valley’ campaign. This will help to create employment opportunities at all skill levels – both within the culture and leisure sectors, but also across the economy more broadly by strengthening our inward investment proposition. An improved culture and leisure offer will also help us to attract and retain more talented people and acting as a pathway to raising aspirations amongst our population.

Case Study: Grangetown Hub

The Grangetown Training and Employment Hub originated from out of an under-used community centre, and now provides support to residents who are out of work or looking for a better job. The Hub works closely with employers to meet their recruitment needs and offers services that include:

- Facilities for recruitment events, job fairs, interviews
- Publicising job opportunities
- An extensive CV database of highly skilled, semi-skilled and unskilled individuals
- CV sifting, shortlisting and selection process
- Upskilling residents to meet employers needs

Based within the heart of the community, the Hub has been a huge success, and in February 2019 had helped over 1000 people into new employment. It is delivered through a

partnership between, Redcar and Cleveland Borough Council, Jobcentre Plus, Beyond Housing, Work Programme providers, training providers and individual projects such as the Youth Engagement Initiative and the Tees Valley Routes to Work Project. The model has been recognised nationally as best practice, winning Best Service Delivery Model at the 2018 Local Government Chronicle Awards.

Draft

4. Delivering the ambition

Lead the way as an exemplar region for clean energy, low carbon and hydrogen

A key priority for Tees Valley Combined Authority is to establish the area as a leading business location for clean energy, low carbon and hydrogen, including the application of industrial decarbonisation and clean growth technologies. A unique combination of inter-related sector specialisms and infrastructure assets mean that Tees Valley is an ideal location to pilot and demonstrate the benefits of clean growth. These include:

- An established industrial ecosystem anchored by the second largest chemicals complex in Europe;
- High levels of integration, with pipeline corridors connecting key industrial locations;
- Proximity to potential North Sea carbon dioxide storage sites and offshore wind power developments;
- Infrastructure and expertise to operate Hydrogen systems at scale; and
- A network of innovation assets with internationally significant capabilities in related disciplines.

These factors also mean that Tees Valley is ideally placed to make a major contribution to meet the government's commitment to net zero carbon emissions by 2050.

Industrial decarbonisation and clean growth will decouple economic growth from CO₂ emissions and provide reliable, cost-competitive access to energy and feedstocks for industrial occupiers. This will help to establish Tees Valley as the location of choice for energy intensive industries within an increasingly competitive global investment marketplace. It will also create opportunities to drive local innovation and productivity, through exploring the opportunities that exist – in bridging the spaces between the individual sectors that underpin the clean growth proposition – to deliver new products and processes.

This theme focuses on: developing the technology, infrastructure and supply chain linkages needed to maximise the impact of clean energy, low carbon, hydrogen and industrial decarbonisation in Tees Valley; ensuring that the regulatory framework is fit for purpose; and strengthening relationships and synergies with key national and international clusters. The successful implementation of these priority actions will help to strengthen the performance of Tees Valley with respect to the 'Ideas' and 'Business Environment' foundations of productivity, as well as the Clean Growth Grand Challenge.

Position Tees Valley as the UK's Hydrogen Capital

Tees Valley is the UK's largest producer of hydrogen, responsible for over 50% of the UK's production. Hydrogen is more than just an industrial feedstock, paired with CCUS and renewable energy, it represents a low carbon fuel for homes, vehicles, and industry. As a leading hydrogen producer, with a well-developed CCUS project, and links to large offshore wind farms, Tees Valley has an ambition to be the UK's low carbon hydrogen fuel production centre, with a focus on deployment and commercial applications.

We propose to work with government to establish a nationally-recognised Research and Development Centre for Hydrogen in Tees Valley. This will build on the skills, infrastructure, and existing innovation strengths to develop, demonstrate and deploy new hydrogen applications. This will include specific support for developing innovative technologies to address other key hurdles in the overall decarbonisation challenge. The Centre will enhance the vital national role we will play to increase the use of hydrogen as a clean energy source – for transport, industry and communities.

Focus of the Hydrogen Centre's activity will include:

- Development of new processes for making products such as net zero carbon aviation fuels through a hydrogen-based bio centre using CO₂ as a main feedstock, supported by the availability of low carbon hydrogen and the region's growing biotech capability at the Centre for Process Innovation and elsewhere;
- Exploring biotechnology approaches using hydrogen to provide a potential solution to the problem of recycling and reusing polymers, which Tees Valley is ideally situated to develop and deploy at scale;
- Building on the hydrogen refuelling stations already under development, at the Material Processing Institute and Teesside Advanced Manufacturing Park, to expand transport applications within the region, and specifically working with Northern Rail on the deployment of hydrogen trains, which could see Tees Valley play a critical role in delivering a new generation of clean energy transport through the maintenance and fuelling of Hydrogen Multi Unit Trains in the area; and
- Exploring the use of hydrogen applications in industry and supporting the development of the hydrogen in homes safety case by identifying community pilots.

It is estimated that in realising our ambitions, the hydrogen sector could add up to £7bn to the region's economy between 2018 and 2050 and create around 1,000 jobs.

Establish Tees Valley as the pioneer region for CCUS and clean growth technologies

Carbon Capture Utilisation and Storage

Tees Valley is one of the most carbon intense regions of the UK, with emissions per capita over twice the national average.

CCUS is essential to decarbonise the economy at least cost, the UK cannot achieve its carbon targets without employing the technology, particularly in its industrial clusters where limited opportunities to significantly cut emissions exist. Recognising the opportunity CCUS brings, the government's policy is to have the option to deploy CCUS at scale during the 2030s. The action plan set out by government is for the first facility to be commissioning by the mid-2020s. Cost is a key barrier to deploying the technology, and Tees Valley proposes to work with government to inform the most appropriate financing mechanism to take this technology forward.

Working closely with industry, the Combined Authority has presented the business case for a CCUS network capable of handling significant volumes of UK emissions in the region. Over

the past year we have seen a group of six major oil and gas companies, who are part of the Oil & Gas Climate Initiative (OGCI), develop proposals for what will be the world's largest CCUS equipped gas fired power station - the Clean Gas Project - in the Tees Valley. In addition, we have witnessed one of the world's largest chemical company's substitute by-product hydrogen for natural gas in their process for making ethylene, significantly reducing CO₂ emissions as a result. The region's energy intensive industries can also adapt to use hydrogen as a fuel, given the right economics. This would be made possible with the deployment of CCUS at scale, which the power project above could provide. The infrastructure would support further decarbonisation opportunities for both heat and transport and is essential if the Committee on Climate Change's carbon budgets are to be met.

What is now required is a concerted effort between the Combined Authority, local industry, the Clean Gas project, the finance community and the government to take these plans into reality. To achieve this, firstly, Tees Valley will pursue an ambition to be designated as the UK's first net-zero industrial cluster by 2040, secondly, government support is sought for the OGCI Clean Gas project to achieve financial close, and thirdly, it is proposed that government and industry pilot the CCUS financing mechanism and business models in Tees Valley, including a mechanism to support deployment of hydrogen into the energy system. This could result in the world's largest power, industry and hydrogen CCUS network in operation by the mid-2020s, in line with the government's ambitions to tackle climate change.

Industrial Energy Transformation Fund (IETF) and Industrial Strategy Challenge Funding (ISCF) streams are key to decarbonising clusters, and as a leading industrial cluster, Tees Valley intends to maximise the benefits of these, and other resources through the delivery of local projects. The Combined Authority proposes to work with government to achieve this, harnessing the role of the cluster to co-ordinate available funding to develop and invest in large and small-scale projects, develop business cases, and co-ordinate industry investment to deliver greater impact from these funds. This can support a greater return on investment, through taking a cluster-based approach.

In addition, the Combined Authority will ensure the cluster is ready to employ new innovative technologies by developing skills and education provision for CCUS, hydrogen and other clean technologies, and will work with process, wind, biomass energy, biogas and nuclear sectors to develop local capability. Further detail regarding our approach to skills development can be found in the paragraphs outlining how we will *Grow and widen the pipeline of talent to support our competitive advantages and help move local people into good jobs with long-term prospects.*

Offshore Wind

Building on commitments set out in the Offshore Wind Sector Deal, Tees Valley Combined Authority will support the further development of the existing cluster that exists in the area, with supply chain links extending into the wider North East region. This will capitalise on existing assets and provide sector leadership to create more opportunities for growth and investment.

Nuclear Energy

Nuclear energy is key to a low-carbon energy future, and the Nuclear Sector Deal recognises that the future success of the industry is central to achieving government's Clean Growth Grand Challenge. The Hartlepool Power Station provides the infrastructure, facilities, and decades of skills and experience to help realise the government's ambition to ensure that nuclear energy continues to power the UK for years to come through major innovation, cutting edge technology and a highly skilled workforce. The Combined Authority therefore proposes that the Hartlepool Power Station is prioritised as a preferred location for the development and deployment of new commercial scale nuclear technologies.

Battery Production

Tees Valley will harness the strengths of our world-leading chemical sector to build and enhance our role in the electric vehicle supply chain through the production of component parts for vehicle batteries.

The UK will require several giga-factories to meet the replacement demand for electric vehicles over the coming years, which will lead to increased demand for chemical manufacture. The scale of this market will be significant, with a recent report^{xxiv} estimating the value for upstream chemicals will be £4.2bn by 2030. Tees Valley is ideally placed to benefit from this, and a proactive approach will be taken to attract inward investment and work with existing businesses to inform their future growth and investment plans. This will be aligned with a joined-up approach to support R&D and innovation activity, skills development and business growth in the battery supply chain.

International Showcase

Tees Valley's position as an exemplar region will be cemented through a pioneering approach locally, coupled with national and international awareness raising of regional activity. A series of Industrial (and 'open to the world') Showcases of the demonstrators and pilots developed for CCUS and clean growth technologies will take place in Tees Valley. Activity will be led by local stakeholders, and it is proposed that government supports capacity building, promoting the strength and uniqueness of our demonstrators nationally and internationally. The aim is to raise the visibility and impact of the technologies developed and reach out to new stakeholders to develop the value chain.

Establish a Centre of Excellence in Decommissioning for offshore oil and gas

Tees Valley Combined Authority proposes to work with government to establish the region as a Centre for Excellence in Decommissioning for offshore oil and gas. Over the longer term, this will deliver a cost-effective solution that maximises the return to the UK in delivering (and with strong potential to exceed) the government's mandated requirement of 35% cost return in off shore disposal.

Tees Valley is the ideal location to develop national capacity for decommissioning, building upon existing skills and supply chain linkages, and harnessing the unique infrastructure assets that exist in the region.

Our approach will include:

- Development and management of a rolling strategic plan for Tees Valley decommissioning and marine environment remediation;
- Targeting marketing and PR that raises the profile of Tees Valley as a decommissioning centre, and to attract inward investment;
- Supporting the development of key sites and ensure a package of support is available, as part of a wider inward investment offer, to facilitate new business development and growth in Tees Valley that can contribute towards a decommissioning cluster. This will include initial testing of business case potential for development at the South Bank Quay and other industrial sites / facilities that are no longer in operation. It will also involve exploration of sites and premises for multi-user centre of excellence offices; and
- Exploring policy options that will increase the competitiveness of the UK decommissioning market, particularly in relation to European centres. This will aim to ensure that UK plc undertakes a greater share of the de-segregation of off-shore facilities currently commissioned by government, increasing the productivity and turnover of UK business in related industries.

This will result in increased economic output and business growth opportunities in a growing market. Forecasts for decommissioning suggests an anticipated market value of £2bn p.a. to 2025, with £17bn - £20bn expenditure forecast in the UK Continental Shelf during this time. Potential exists for Tees Valley to capture around 25% of the market², which could result in an annual baseline throughput of around £500m.

Infrastructure, regulatory environment and place promotion

Tees Valley's position as an exemplar region for industrial decarbonisation and clean growth will be cemented by a broader approach to develop the infrastructure and regulatory environment, and by undertaking place promotion to ensure the region's holistic offer presents a compelling and cohesive case to investors.

Evolving the regulatory framework

Tees Valley Combined Authority proposes to work with government to evolve the regulatory framework in support of standalone energy projects that can meet the needs of key industrial sectors such as chemical process and advanced manufacturing. It is proposed that the government initiates a review of the National Planning Policy Framework relating to the threshold for Nationally Significant Infrastructure Projects, particularly as it relates to the development of electricity power stations over 50MW.

As a highly industrialised area, Tees Valley businesses require high levels of power and continuity of supply. These demands are only likely to increase as development plans for the South Tees Development Corporation area and other key investment projects are realised. Alongside this, other industrial sites will continue to evolve, driven by growth in internationally significant sectors (including chemical processing and advanced manufacturing). Tees Valley is a prime location to understand the requirements for timely land-based power stations to be deployed, as part of a wider framework to deliver growth through major industrial developments.

A planning framework that reflects the changing nature of industrial energy requirements, aligned with strategies for local economic growth has the potential to increase investment and economic output in new energy sectors. It can ensure a proactive approach to meet anticipated energy needs in a timely and streamlined way that aligns to a wider business support and investment offer.

Support for micro power grids, which enable localised control of electricity, are also a key priority for Tees Valley, in meeting the energy needs of business at key sites going forward. For example, at Wilton International and the South Tees Development site.

Making the case to establish a Free Trade Zone

The Combined Authority will build upon the existing sector strengths of our globally-facing export infrastructure, by making the case to establish a Free Trade Zone (FTZ), using the South Tees Development Corporation site as a test case that can inform the future direction of national policy. The scale of the development opportunity at the South Tees site is currently unrivalled in the UK, particularly as it relates to developing industrial infrastructure to deliver local and national ambitions for Clean Growth, and the site therefore provides a unique opportunity to accelerate the pace at which these ambitions are delivered. Tees Valley Combined Authority will continue to explore the optimal configuration for an FTZ and intends to work with government to understand the impact of economic modelling and suite of interventions that can support delivery of the Industrial Strategy. The economic impact of establishing an FTZ could be significant, including: increased inward investment, with the potential for £25bn expected capital flows for land development over 25 years; the potential for 16,000 additional jobs in Tees Valley because of investment; and additional public revenues, which could potentially increase by £1bn once the FTZ is complete. Our modelling shows that if 5 pilot sites were rolled out across the UK, potential to generate £4bn GVA and 70,000 jobs^{xxv}

Our approach to develop a test-bed for FTZ status is considered further in relation to our proposals to: *Attract investment and establish a global reputation for Tees Valley as a vibrant and thriving place to be, with world leading opportunities in clean energy, low carbon and hydrogen.*

A targeted approach to attract Foreign Direct Investment

As part of the wider approach to attract investment and establish a global reputation for Tees Valley as an area with world leading opportunities in clean energy, low carbon and hydrogen, the Combined Authority proposes to work with the Department for International Trade to target foreign direct investment. Together, we can lead a collaborative approach involving local industry and other stakeholders to map existing supply chains and target strategic priorities for international engagement, including for clean energy, low carbon, hydrogen and decommissioning. As part of this strengthened approach to joint working, it is proposed that the Department for International Trade works with Tees Valley Combined Authority to ensure that regional priorities are aligned with opportunities emerging globally.

This will involve a key focus on the South Tees Development site. Also recognising the key role that biosciences have in delivering our core proposition, our approach will include

working with government to pursue Life Sciences Opportunity Status for Tees Valley, focused on promoting the opportunities at Central Park to inward investors.

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Develop pioneering capabilities in industrial digitalisation and ensure implementation of digital applications at scale

At a global level, the fourth industrial revolution is taking shape, with a focus on developing and integrating digital technologies to deliver process and supply chain improvements. With globally competitive industrial sectors and established digital expertise, Tees Valley is ideally positioned to be at the vanguard of industrial digitalisation.

Initiatives such as DigitalCity and the Material Processing Institute's 'Future Steel Factory' digital demonstrator are already setting an ambitious direction of travel for Tees Valley businesses. Tees Valley also has outstanding and unique European biotechnologies facilities at the Centre for Process Innovation, enabling industries to benefit from R&D and reach into new markets. Building upon this, and other locally-led initiatives, Tees Valley will continue to develop, demonstrate and embed digital approaches across the regional economy.

Tees Valley can take a national lead on elements of Industrial Digitalisation relating to manufacturing and the chemical and process industries, supporting growth in clean energy, low carbon and hydrogen. Coupled with this, the potential to develop a national test-bed for a Free Trade Zone can serve to pilot new trade tech solutions in an industrial environment at scale, to support trade and increase levels of export.

Industrial Digitalisation will play a critical role in delivering the potential of the Tees Valley economy. It will be fundamental to maintain and reinforce the area's competitive advantage and export competitiveness with respect to manufacturing and the chemical and process industries, driving productivity improvements by moving businesses up the value chain. In addition, the size of the local industrial base – coupled with the opportunity to export digital solutions to businesses outside of Tees Valley – can provide a platform for the growth for the local digital sector.

This theme is focused on creating the necessary conditions to accelerate the innovation and diffusion of Industrial Digitalisation technologies, including the development of test-bed projects and a co-ordinated package of advocacy, support, advice and funding. Its successful delivery will help to strengthen the 'Ideas' and 'Business Environment' foundations of productivity, whilst also contributing towards the 'Artificial Intelligence and Data' Grand Challenge.

Tees Valley will pilot a cohesive, digital ecosystem to accelerate the innovation and diffusion of industrial digitalisation technologies that can support achievement of our Clean Growth ambitions, whilst simultaneously supporting the growth and development of a thriving Digital sector in the region.

Made Smarter Tees Valley Pilot

The concentration of advanced manufacturing firms in Tees Valley is the highest in the country at around two and a half times the national average, creating significant opportunities to test and deploy new approaches to industrial digitalisation.

Tees Valley proposes to work with government to deliver a Made Smarter pilot, which will provide an awareness raising programme, develop test-beds and demonstration resources

to businesses to understand the challenges and opportunities created by digitalisation. Support will be provided for businesses to undertake digital audits and develop tech roadmaps for their business from which businesses can develop action plans and access financial support to implement and build skills within the business. Where supply chains face particular challenges, collaborative open innovation models will be used to work together to overcome these or maximise opportunities. Finally, as the workforce of smart manufacturers grows, retraining opportunities will be developed, and young people supported into the sector.

The productivity impact of potential activity is highlighted in the government-commissioned Made Smarter review, which identified a positive impact of £455bn for UK manufacturing over the next decade through increased digitisation, predicting manufacturing sector growth of between 1.5 and 3% a year, the creation of 175,000 jobs and a 4.5% reduction in CO₂ emissions. The review predicted that digitisation can improve industrial productivity by more than 25% by 2025. Whilst global total labour productivity growth was negative 0.2% between 2010 and 2014, the embrace of digitisation has the potential to allow levels to recover to 2%.^{xxvi}

5G Test-bed and Trials Programme

To ensure that Tees Valley is at the forefront of new developments to support industrial digitalisation, there is a need to 'future proof' Tees Valley businesses and infrastructure. The Combined Authority proposes to work with central government, Digital Catapult, public sector bodies, Teesside University, Durham University and local businesses, to develop sector focused 5G Test-bed and Trials. This will focus on:

- Technology testing and application in key sectors to build and support development of supply chain linkages;
- Technology testing for equipment manufacturers, network operators and network planners (testing new or existing 5G technology to assess the impact of a variety environmental, topographical, built environment and human factors on signal transmission);
- Active promotion of 5G solutions to digitally immature sectors or those operating in a hazardous environment (micro and SMEs in traditional industries); and
- Supporting commercialisation of new products/processes emerging from the application of 5G solutions (in particular the use of big data).

The programme will enable the roll out of 5G technologies across a range of industries, with a focus on chemicals and process; manufacturing and logistics. Tees Valley and the Wilton site was identified in the Heseltine Review, as a key place to test new approaches to sustainability. Having one of Europe's largest integrated industrial complexes, targeted investment in Tees Valley could help maintain the future of existing industries and to develop new economic opportunities, particularly in relation to clean growth. The Wilton site also benefits from being fibre enabled, meaning that the area is in a ready position to deploy a 5G test-bed. The port also provides an opportunity to test the deployment of new technology

solutions that can support supply chain development and increase trade through enhanced mechanisms to enable customs and trade.

A new data driven approach to increase productivity in the logistics sector and improve overall connectivity

Tees Valley Combined Authority will improve the live data collected from the existing road network and the logistics sector to develop new system approaches to manage traffic flows, particularly freight consignments, enhancing regional connectivity and the role of the logistics sector in Tees Valley. This forms part of our ambition to establish a Future Mobility Zone in the area.

The approach to traffic management will be expanded beyond the current role of Urban Traffic Management and Control (UTMC) by using advanced Intelligent Transport Systems to create a live environment in which to capture data and foster collaboration between producers and users of freight data across different modes with a focus on:

- Using real time data for users to improve the flow of traffic, particularly freight movements serving key trade and employment assets at the ports of Tees and Hartlepool; and
- Providing better intelligence to transport planners.

Activity has the potential to promote optimisation of the movement of freight within the supply chain and to create a new freight brokering marketplace – increasing productivity through enhanced ways of working in the logistics sector. Increases in productivity will also be demonstrated because of less congestion and delays overall on the road network.

Full Fibre

We will aim to aggregate the opportunities created through industrial digitalisation testbeds, Future Mobility Zone and other publicly-led digital infrastructure projects, to work with the private sector to accelerate full fibre roll out across Tees Valley. This will seek to maximise the impact of our investments and ensure the future competitiveness of Tees Valley businesses.

Tees Valley Growth Hub

The Tees Valley Growth Hub plays a critical role in supporting business development and growth. The Combined Authority intends to work with government to confirm a commitment to longer term support for the Growth Hub Programme. This will continue to simplify the business support environment in Tees Valley and provide a targeted approach for businesses of different sizes, including a focus around digitalisation and building digital capacity.

The Tees Valley Growth Hub, branded as “Business Compass” provides a single gateway for business to connect with support, finance and funding designed to assist local businesses with growth aspirations to scale-up and achieve their potential. The Growth Hub has demonstrated significant success in directly assisting more than 1,400 businesses since it was established, with a combination of Information, Diagnostics and Brokerage alongside

grant funding designed to encourage business growth and access to improved digital connectivity.

Alongside a wider suite of support, the future focus of activity will enable companies in Tees Valley to maximise the potential of digital. This includes:

- Targeted start-up and scale-up programmes for digital businesses. Providing support to digital leaders to grow their businesses within a supportive and challenging peer led programme. This will align with complementary support in the area, including University-led programmes and a pilot of the US Babson Programme;
- Development of supply chain approaches to overcome common digital challenges or opportunities in key sectors such as manufacturing, process and logistics;
- Focusing on key emerging technologies such as immersive tech and artificial intelligence and machine learning. Helping innovation embed within businesses and enable them to compete globally; and
- Aligning with skills programmes to develop a digital talent pipeline and workforce for a fully digital economy.

Activity will increase business density and increase levels of economic output among Tees Valley businesses. Department for Business, Energy and Industrial Strategy figures indicate that Growth Hubs have created 29,020 private sector jobs nationwide, and safeguarded 17,540 more, while increasing GVA by £434m.

Leverage the full potential of our innovation ecosystem in support of building innovation capability, R&D capability, commercialisation, business creation and growth

Tees Valley's innovation ecosystem is anchored by a number of internationally-excellent research and technology organisations with complementary specialisms in current and emerging sector strengths. This includes: clean energy, low carbon and hydrogen; chemicals and process; advanced materials (including graphene and printable electronics); biosciences and industrial digitalisation.

In addition, major recent investment in the National Biologics Manufacturing Centre and the National Horizons Centre provide a strong platform for the development of innovation activity linked to the emerging bioscience sector.

Reflecting the area's heritage of manufacturing excellence, and unique international pilot capabilities (for example at the National Industrial Biotechnology Facility), innovation in Tees Valley is largely focused on demonstration, pilot production and scale-up activity – readying products to move towards commercialisation.

At present, much of the R&D activity undertaken by Research and Technology Organisations in Tees Valley is commissioned by, or done in partnership with national and international organisations, with spin-out business opportunities being 'repatriated'. Moving forwards, a clear opportunity exists for Tees Valley to adopt a more agile and co-ordinated approach to targeting and landing commercialisation opportunities. This includes better connecting local firms with the existing innovation ecosystem to drive up the R&D intensity of the business base and help firms grow or move up the value chain. Such activity must also be supported – as part of a whole-system approach – with greater innovation funding and mechanisms to more fully embed innovation within the local business culture.

In pursuing the above, this theme will help to strengthen the performance of Tees Valley with respect to the 'Ideas' foundation of productivity and support achievement of the government's 2.4% R&D target. Our approach will centre around the region's national innovation assets, alongside a local business base that demonstrates specialisms in clean energy, low carbon and hydrogen, industrial digitalisation and bioscience (including biologics and bio-processing). It will enable Tees Valley to realise its full R&D potential for local and national benefit, including commercialisation of new technologies at scale.

Tees Valley Combined Authority will lead a cross-sector, whole system approach to R&D and innovation

To drive a step change in innovation activity in Tees Valley, an Industrial Collaboration Board will broker more effective partnership working between business, higher education and research institutes. It will include representation from Research and Technology Organisations in Tees Valley, alongside Durham and Teesside Universities, UK Research and Innovation (UKRI) and the Department for International Trade. The Board will have a remit to ensure that local strategy, programme and project development actively encourages and creates opportunities for cross-sectoral working that stimulates R&D and innovation activity – and that this translates into commercialisation. It is proposed that the involvement of UKRI and the Department for International Trade will ensure national innovation resources

are aligned with programmes and opportunities in Tees Valley. To ensure that Tees Valley maintains and further develops its competitive edge in key sectors, activity led by the Board will have an emphasis on supporting the innovation in clean energy, low carbon, hydrogen, bioscience and industrial digitalisation.

The Industrial Collaboration Board will also provide leadership and oversee implementation of the Tees Valley Collaborative Networks Programme. This £1.7m, three-year programme will involve two key strands of activity:

- Supply chain support focused on key sectors for Tees Valley, building knowledge and brokerage and developing a manufacturing support service; and
- Programme consortia development, focused on supporting groups of businesses and organisations to jointly deliver pilot / demonstration projects related to Industrial Digitalisation and Circular Economy solutions (delivering Clean Growth).

A key innovation challenge for Tees Valley is to ensure that local and national innovation strengths, for example Research and Technology Organisations, make a tangible difference to local companies. To support the achievement of this, it is proposed that a Memorandum of Understanding be agreed between the Combined Authority and UKRI to ensure that Tees Valley businesses benefit from the activity funded and undertaken by innovation bodies both locally and nationally. There will be a particular focus on activities that support the achievement of clean energy, low carbon and hydrogen ambitions. The MoU can align to Growth Hub activity in Tees Valley, and will facilitate ways of working that increase business access to available funding, as well as the development of a High Value Manufacturing Catapult 'hub and spoke' model, which can maximise the benefits of national High Value Manufacturing Catapult expertise for local business growth and sustainability, particularly in the manufacturing sector.

Alongside this, the Combined Authority will commission bespoke research to better understand the successes, barriers and opportunities for firms innovating in Tees Valley, and particularly experiences in accessing innovation funding. The Combined Authority intends to work with government to maximise the value of this research, connecting the region with lessons of good practice from elsewhere.

Activity will lead to increased economic output because of more Tees Valley firms engaging in innovation activity, recognising that highly productive economies are associated with efficient innovation systems.^{xxvii}

Tees Valley will pursue the ambition for Teesside University to be recognised as a University Enterprise Zone

A University Enterprise Zone can build upon, and further cement the University's role to promote and support sustainable business growth through innovation and scale-up activity. The University's role is instrumental in enabling the development of a vibrant tech sector, and in building the propensity of our SMEs to innovate and grow, particularly in target sectors.

DigitalCity sits at the cornerstone of our University Enterprise Zone proposal. This has and will continue to be critical in supporting industrial digitalisation by delivering an increased

pipeline of high-growth start-ups and providing direct access for business to facilities and expertise that can help them to innovate and commercialise.

Activity will deliver increased university start-ups and higher levels of business density.

Increasing post-study work visas for international students

Recognising the importance of enterprise and entrepreneurship in relation to innovation, R&D and business growth, Tees Valley Combined Authority, Durham University and Teesside University propose to work with the Department for Education to understand the demand for post-study Start-up Visas in the region, based upon anticipated economic benefits in key growth sectors, and with a view to increasing the quota of post study 'Start-up' Visas for International Students in Tees Valley. A collaborative approach will seek to ensure that an appropriate number of Visas are available via Durham and Teesside Universities going forward, aligned to the growth priorities for the Tees Valley economy.

This will support Tees Valley to address short-term skills shortage vacancies in key sectors including chemicals & process, advanced manufacturing, clean energy, low carbon and hydrogen, at the same time as encouraging companies to see Tees Valley as a place to find higher-level skills that meet their business needs.

A commitment to longer term support for the Growth Hub Programme

The Tees Valley Growth Hub plays a critical role to simplify the business support environment in Tees Valley and provide a targeted approach for businesses of different sizes, focused around: start up support; growth and innovation; skills support; and access to finance.

The Tees Valley Growth Hub, branded as "Business Compass" provides a single gateway for business to connect with support, finance and funding designed to assist local businesses with growth aspirations to scale-up and achieve their potential. The Growth Hub has demonstrated significant success in directly assisting over 1,400 businesses with a combination of information, diagnostics and brokerage alongside grant funding designed to encourage business growth, innovation through new product development, enhanced energy efficiency and access to improved digital connectivity.

We are committed to the Growth Hub model in Tees Valley and are continually developing the offer to align with the changing needs of Tees Valley businesses. Moving forward we intend to continue to focus upon themes of start up support, growth and innovation whilst widening the scope of Growth Hub activities to incorporate:

- Skills support – assisting businesses to identify and address skills gaps, building leadership, management and operational capacity to drive improved productivity and growth;
- Access to finance – supporting businesses to focus upon financial strategy and development of financial planning, systems and controls to ensure they are ready to take on investment when needed. Additional signposting and brokerage support will also be added to ensure businesses are positioned to take on the most appropriate type of

finance to support their growth plans and their chances of successfully securing funds are maximised; and

- Start-up/scale-up – providing support as a means of driving innovation, focussed on businesses in Tees Valley’s priority sectors. This will support business at different stages of development, working closely with Teesside University to build upon the strong number of graduate enterprises, and proactively working with eligible businesses to realise their scale up potential through programmes including Babson Fellowship and LEAP50.

Activity will increase business density and increase levels of economic output among Tees Valley businesses. Department for Business, Energy and Industrial Strategy figures indicate that Growth Hubs have created 29,020 private sector jobs nationwide, and safeguarded 17,540 more, while increasing GVA by £434m.

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Grow and widen the pipeline of talent to support our competitive advantages and help more local people into good jobs with long-term prospects

This theme is focussed on developing and delivering a skilled and available workforce to meet economic demand in Tees Valley, now and in the future. Working in partnership with key sectors and maximising existing devolved powers and funding, Tees Valley will develop an agile and responsive education and skills system that meets the needs of all local people and businesses, recognising that these are inextricably linked to the future economic success of Tees Valley.

Access to globally competitive skills and expertise is at the heart of Tees Valley's existing strengths in manufacturing and chemicals and process industries and is critical to maintaining competitive advantage moving forwards. The success of emerging, knowledge-intensive sectors such as digital and bioscience will also be shaped by the availability of a skilled, dynamic and flexible workforce. However, existing enabling sectors, which for many people, provide essential entry to employment and in-work development and progression opportunities, should not be overlooked and have an equally important role in this agenda.

Skills and workforce development have a vital role to play in moving businesses up the value chain but it is the people, our current and future workforce, who are at the heart of the significant opportunities that exist locally to increase economic output and reduce the productivity gap.

Ensuring that future economic growth is inclusive is key to the success of this theme and will only be achieved by recognising and enabling the economic contribution of every individual in Tees Valley, irrespective of their level of educational achievement.

To strengthen the 'People' foundation of productivity within Tees Valley we will prioritise connecting local people with economic opportunities, increasing access to and engagement in the labour market through robust sector skills pathways and raise expectations of gaining and sustaining good quality work in Tees Valley.

Develop a skills system for business growth

We want to create a high quality, demand-led, responsive education and skills system that takes a sector skills routeway approach. It will be a system where employers, individuals and providers inform and shape the policy, design the skills programmes and, as a result, is more responsive and flexible to meet needs, thereby ensuring more prosperous careers for Tees Valley residents.

The Tees Valley Education, Employment & Skills Partnership Board will take on the role and functions of the Tees Valley Skills Advisory Panel. The Tees Valley Skills Advisory Panel will work jointly with government, in particular Department for Education, Department for Work and Pensions and the Institute for Apprenticeships and Technical Education. It is proposed to develop an enhanced relationship that formally recognises the Tees Valley Skills Advisory Panel as a 'statutory consultee body' contributing towards the shaping and co-production of future education, employment and skills policy, including the UK Shared Prosperity Fund.

The Combined Authority proposes to work with the Department for Education and the Department for Work and Pensions to support cross-departmental Data Sharing that will provide access to data which is not readily available e.g. Apprenticeship Levy/employer data and characteristics of the unemployed (including skills levels). This enhanced relationship will enable us to better understand the current and future skills needs and labour market challenges in Tees Valley.

Tees Valley will develop sector skills routeways that will align both academic and technical qualifications, including the new T Levels. These will enable the unemployed, economically inactive and economically active Tees Valley residents to develop, and/or further develop the work-based skills and competencies required by the local economy. The skills routeways will be directly linked to growing and high demand sectors and through collaborative working will address the current and future skills required. Activity, funding and information across providers and stakeholders, will be aligned to increase the coherence of skills provision to deliver the skills routeways. This approach will support the provision of skills for both inward investment and business growth, alongside supporting Tees Valley residents to identify, access and achieve industry standard skills routeways to access the jobs of the future.

For those in employment, but in low skilled, low paid jobs, it is important to ensure they are given opportunity and support to progress into higher skilled, better paid jobs, thus creating vacancies in entry-level jobs for new recruits. It is essential that the education and skills system includes re-training opportunities that support local people to navigate and access the changing labour market and optimise their career paths.

For those people who are unemployed and economically inactive the education and skills system must provide them with appropriate up-skilling or re-skilling. This cohort of people are a potential pool of labour from which our businesses can find much needed future recruits.

Despite Tees Valley enjoying above average primary education attainment, the comparative secondary education attainment is poor. Raising attainment and outcomes in secondary education is acknowledged as critical to local inclusive growth and economic development. Tees Valley Combined Authority proposes to work jointly with government, the Department for Education and the Institute for Apprenticeships and Technical Education, to co-design and pilot technical education routeways from age 14, and an appropriate 'Transition Offer' for young people in Tees Valley not immediately able to progress to a T Level at age 16. We also propose to work with the Education and Skills Funding Agency to develop and implement a Tees Valley apprenticeship model that will maximise the use of the Apprenticeship Levy in Tees Valley and will look at the support needed for employers who do not pay the Levy.

Overcome business workforce planning challenges in relation to current and future skills gaps and skills needs

Productivity and competitiveness of businesses in Tees Valley are dependent upon the skills of the workforce and the challenges facing many of our sectors should not be underestimated. Up-to-date skills, at all levels, are essential if employers are to maximise their productivity and growth potential. It is becoming increasingly important that education and

skills provision must focus even more closely on those skills that underpin economic growth and support high value-added employment, including progression to it.

Many employers want to influence and shape the education and skills landscape, welcoming the opportunity to work closely with the Combined Authority and key partners to provide an invaluable industry perspective. However, too often the biggest barrier is time – employers need to keep tight control on time spent out of the workplace that does not directly contribute to their business. Getting genuine input from employers is a challenge, but one that we have to overcome if we are to effectively address current and future workforce planning challenges and be able to effectively articulate skills needs.

To support this ambition, Tees Valley Skills Advisory Panel proposes to work jointly with government to develop an enhanced relationship that formally recognises the Tees Valley Skills Advisory Panel as a 'statutory consultee body', contributing towards the shaping and co-production of future education, employment and skills policy. We will produce Tees Valley Sector Skills Action Plans to include detailed analysis of the current and future skills needs for identified sectors to inform the development of appropriate routeways, at all levels.

We will build on the success of the devolved Adult Education Budget and the Department for Work and Pensions Innovation Pilot - Tees Valley Routes to Work, with the priority being to continue to increase the number of skilled Tees Valley residents and improve literacy and numeracy to support even more unemployed people to progress into and remain in employment.

To maximise the impact of devolved Adult Education Budget (AEB), it is proposed that Tees Valley AEB allocation is not adversely affected by the overall size of the national AEB, should this be reduced by HMT in the future. The Tees Valley devolved value as a minimum should be ring-fenced at that of the 2019/20 Academic Year budget.

In addition, for those currently outside of the labour market, we will explore transitional employment opportunities by maximising the Innovation Pilot flexibilities to utilise existing funding to support the development and implementation of transitional employment programme.

For those in employment, we will develop and pilot tailored Tees Valley retraining programmes which draw on the analysis undertaken by the Tees Valley Skills Advisory Panel and Sector Skills Action Plans and align that retraining to Local Industrial Strategy key sectors, particularly to support our ambitions for clean energy, low carbon and hydrogen. This will include: developing and delivering comprehensive packages of personalised 'in-work' support that is relevant to the Tees Valley economy, in order to promote and support in-work progression, particularly for those in low-paid/low skilled employment, for those in priority sectors where there are significant skills gaps and skills shortages; increasing the skills levels of employed people from the existing level to at least the next level, to encourage progression in employment; and supporting the alignment of existing and new funding streams to support the sector skills action plans. As part of this work, we will make the fullest and best use of existing and new Technical Education opportunities, Apprenticeships and T Levels and maximise the opportunity to support growth via public procurement and local supply chain development.

Work will be undertaken to explore additional appropriate solutions to create Apprenticeships at all levels, including Degree Apprenticeships, and sector-based approaches, alongside the opportunity for Levy-paying employers to transfer a proportion of their Apprenticeship Levy. As part of this work, we will review performance of the devolved Apprenticeship Grant for Employers and subsequent Apprenticeship Support for Employers programmes in Tees Valley.

We propose to work with the Department for Education Skills Advisory Panel (SAP) Programme Team to utilise and further develop the SAP Toolkit to access/receive information/data relating to Tees Valley Levy-paying employers. We propose that government identifies businesses in Tees Valley with 'unutilised' Apprenticeship Levy, this should include national Levy-paying businesses with satellite bases in Tees Valley. It is proposed that unutilised resource is then devolved to the Combined Authority for redistribution to non-Levy paying businesses in priority sectors. This work will also enhance the work with Tees Valley employers and providers to develop the approach to the Industrial Placement requirements of T-Levels, creating practical and meaningful experiences in key sectors and providing opportunities that would not be available otherwise.

Careers education

Notwithstanding the above, our future economic success most importantly requires everyone to understand the new jobs and opportunities that will be created so that our local workforce has the skills that employers require. Industrial digitalisation across all sectors will require Tees Valley to develop a digital talent pipeline and workforce that is suitably skilled for a fully digital economy.

It is vitally important that people in Tees Valley are fully aware of all the opportunities available to them and to make sure they have access to and are given appropriate and relevant information, advice and guidance to make well-informed decisions about education, employment and training choices.

To achieve this, it is proposed that government devolve the Tees Valley element of both the National Careers Service and Careers and Enterprise Company budgets to Tees Valley in order that we can develop an all-age place-based programme, locally directing the use of the funds and in doing so, build on the success of the TeesValleyCareers.com programme and Careers Hub to support more employers to engage with schools and providers to better prepare young people and adults to achieve better long term outcomes, improve destinations and progression.

Ensure access to learning and work through an effective and affordable transport system

Alongside the measures outlined above, there is also a more basic need to ensure that our residents can readily access the learning and employment opportunities that are available. This requires the provision of a fit for purpose transport infrastructure, whilst the importance of digital connectivity will continue to increase over time.

Access to opportunities is important for all, but particularly for those that are furthest from the labour market, where barriers regarding the cost or ease of travel will be felt

disproportionately. In recognition of this, we will also work to ensure the provision of effective and affordable public transport – as well as walking and cycling routes – which connect residents with key employment locations, as well as learning and training providers.

Our priorities in relation to transport provision, which will act in support of the above, are set out elsewhere in this document.

Draft

Attract investment and establish a global reputation for Tees Valley as a vibrant and thriving place to be, with world leading opportunities in clean energy, low carbon and hydrogen

Tees Valley has extensive development sites, opportunities and financial incentives including the UK's first Special Economic Area at the South Tees Development Corporation, together with seven Enterprise Zones. Recent and planned investment in key rail and road infrastructure and the airport will enhance Tees Valley's national and international connectivity moving forwards. The quality of life, business and employer offer in many parts of Tees Valley is also excellent, with the area benefiting from low business costs, alongside low costs of living, short commuter journey times, excellent employers and access to a diverse range of high quality rural, coastal and urban environments. These qualities can help attract investment and create opportunities for the talented workers needed to drive future productivity growth.

Tees Valley has a strong offer as a premier location for inward investment and international trade. However, greater external recognition of the area's strengths is required – alongside continued investment – to promote Tees Valley and position it as a leading destination for investment across a wider range of sectors.

Alongside this, Tees Valley has an on-going commitment to be an inclusive economy. An economy that provides a supportive business environment, with good jobs that have long-term prospects, and where the opportunities and benefits of growth are shared by all.

This theme is fundamental to achieving our overall priorities set out in the Local Industrial Strategy. It is focused on a set of interlinked priorities, based around enhancing the infrastructure, perceptions and working environment of Tees Valley as a place to locate, invest and grow. Achievement will be pursued through investment in the area's economic and transport infrastructure – to ensure that key sites are developable, protected and well connected internally and externally – and in delivering a thriving cultural offer. These interventions will be supported by pro-active marketing of the local area, along with a supportive business and employment offer.

This theme offers an opportunity to strengthen the 'Place' and 'Infrastructure' foundations of productivity within Tees Valley. It also forms a critical element of delivering our cross-cutting theme of inclusive growth.

South Tees Development Corporation

The South Tees Development Corporation is the UK's single biggest development opportunity and the country's first ever Special Economic Area. The site which covers 4,500 acres of the former SSI Steelworks is of significant national importance, closely aligned with government's Industrial Strategy.

Following £137m of government funding, land remediation, decontamination and keep safe works are well under way. 1,420 acres of land was acquired in early 2019 which included 1.3km of prime river frontage, adjacent to Teesport and Redcar Bulk Terminal – the northern gateway for global shippers and the deepest quay on the east coast of England respectively.

A further 870 acres is under negotiation through compulsory purchase proceedings which will bring together a developable land mass of almost 2,300 acres.

Phase one is actively being marketed, highlighting its key benefits including prime transport infrastructure, developer-ready land and a £14m government fund to support further infrastructure improvements. From summer 2019, a strategic private sector land, property and investment partner will proactively promote the whole site to global investors.

The Development Corporation Masterplan will create a world leading industrial heart focused on advanced manufacturing, clean energy and a circular economy through industrial symbiosis.

The focus on environmentally sustainable industrialisation requires close collaboration on ensuring maximum supply chain value retention from Offshore Wind Supply Agreements; a strong commitment to Carbon Capture, Utilisation and Storage; gaining maximum leverage from our expertise and experience in the hydrogen driven economy and ensuring that the benefits of the micro power grid, a key part of our energy intensive business proposition, are fully supported moving forward.

To maximise the economic potential of the site, direct discussions continue to take place with a range of potential occupants/investors; an investable information memorandum is in place that can secure substantial private sector investment based on the market opportunity that exists; and a shared marketing approach is proposed with the Department for International Trade. This can ensure a co-ordinated approach to promote the Tees Valley as a leading location to invest for clean energy, low carbon, hydrogen and environmentally sustainable industrial growth.

Developing a test-bed for Free Trade Zone status

To further enhance and accelerate growth potential of the South Tees Development Corporation, Tees Valley Combined Authority will explore options to establish the UK's first test-bed for a Free Trade Zone (FTZ) across the site. FTZ options were presented to Government in April 2019, setting out proposals that provide a compelling case to attract inward investment.

An FTZ policy for the UK would not just be a signal to the world that we are open for business, it would herald a new age for regional development, building on devolution to put some of the country's most in-need communities at the forefront of rebalancing our economy.

The policy would involve benefits targeted specifically to businesses which may otherwise choose not to invest at all, or to invest outside of the UK, and builds on the strength of the opportunities across the Development Corporation site.

With strong links to the priority for pioneering capabilities in industrial digitalisation, a Free Zone test-bed would enable the Combined Authority to work with industry and government to explore the emergence of newer technologies such as blockchain and distributed ledgers, augmented with 'smart' or 'data driven' contracts for commercial purposes and to facilitate

supply chain management. It will also support moves to create a 'smart port', the foundations for which Tees Valley is already exploring through the development of our Future Mobility Zone proposals.

Analysis commissioned by the Combined Authority suggests a successful FTZ could create £2bn of additional annual GVA, along with 32,000 jobs at Teesport and in local supply chains after 25 years. This includes and builds on the expected results of the South Tees Development Corporation Master Plan. If other sites can be as successful as the Tees Valley, a wider roll out of free zones to five other sites chosen for their port and existing comparative advantage could mean 70,500 jobs, and a £4.2bn contribution to GDP after 25 years.

Implement plans to increase the role and impact of Durham Tees Valley Airport

In 2018, Tees Valley Combined Authority agreed terms to bring Durham Tees Valley Airport back into public ownership, and to secure a long-term, sustainable future for this vital asset in the region.

Tees Valley will now implement plans to maximise the impact of the Airport and will work with government as we realise this ambition, including through the Department for International Trade's inward investment propositions and positioning of the region as a place to invest and grow a business in the region's priority sectors.

The Airport acts as the international gateway for the region to global markets. With multiple daily connections to Amsterdam Schiphol, people of Tees Valley, North Yorkshire and wider North East can access over 200 worldwide destinations. This crucial connectivity is of paramount importance to the region's prosperity, encourages inward investment, tourism and attracts foreign direct investment – safe in the knowledge that you can conduct global business from Tees Valley. Connectivity to emerging markets within the Middle East, Far East, Africa and South America are crucial to key sectors of Tees Valley such as advanced manufacturing and chemical processing.

Our region plays a critical role in the North Sea oil, gas, offshore and renewables sector and as such is well served by daily connections to Scotland, its Highlands and Islands as well as onward connectivity to Scandinavia. As Tees Valley increasingly plays a pivotal role within this sector, this connectivity enhances the region's super-cluster status.

In addition, there is the consideration of regional pride and identity, which many residents of the Tees Valley associate with the Airport. Having a thriving international asset in the region affects the reputation and image of the Tees Valley, beyond the immediately identifiable impact on GVA.

A number of key objectives to achieve critical success include:

- The attraction of 10 additional routes by 2022
- The attraction of a low-cost carrier by 2022
- An Increase in passenger volume to 1.4 million by 2023

- The increase of freight tonnage to 500 tonnes per annum by 2023
- Develop the land and property opportunities to create a logistics, aeronautical and business park.

Pursue a Future Mobility Zone, with a data driven approach

Tees Valley Combined Authority will improve the live data collected from the existing road network and the logistics sector to develop new system approaches to manage traffic flows, particularly freight consignments, enhancing regional connectivity and the role of the logistics sector in Tees Valley.

The approach to traffic management will be expanded beyond the current role of Urban Management Transport and Control (UTMC) by using advanced Intelligent Transport Systems to create a live environment in which to capture data and foster collaboration between producers and users of freight data across different modes with a particular focus on:

- Using real time data for users to improve the flow of traffic, particularly freight movements serving key trade and employment assets at the ports of Tees and Hartlepool; and
- Providing better intelligence to transport planners.

Freight Data produced by the public sector is currently fragmented and not always sufficiently timely or comprehensive enough to inform transport planning or the development of local investment priorities. The integration of traditional data from freight movements (sea, rail, road, air, etc.) and new modes of freight movement (connected vehicles) will provide improved historical information for planning purposes and real time data for dynamic routing decisions.

Activity has the potential to promote optimisation of the movement of freight within the supply chain and to create a new freight brokering marketplace – increasing productivity through enhanced ways of working in the logistics sector. Increases in productivity will also be seen as a result of less congestion and delays overall on the road network.

Deliver the transport infrastructure to support the efficient functioning of the local economy

Efficient transport infrastructure is critical to support productivity gains, by increasing the potential for trade and also supporting access to labour. Transport priorities for Tees Valley are particularly relevant to meet the needs of businesses in priority sectors, many of which are clustered at key industrial sites. In addition, as a polycentric region, covering five distinct areas, supporting the movement of people across the region to access work, learning and leisure opportunities is essential for future economic success.

Tees Valley has identified priority transport schemes, which have all been included in Transport for the North's Investment Programme as specific interventions that are required before 2027, highlighting not only their local importance, but also their pan-northern and

national significance. The Combined Authority will work with government to secure the successful completion of the following schemes:

- Improvements at Darlington Station
- Improvements at Middlesbrough Station
- New Tees crossing
- Darlington Northern Link Road
- Northallerton to Teesport Rail Gauge Enhancement.

Delivery of these schemes will ensure provision of reliable and resilient transport network across all modes, which is vital to support future growth aspirations and improve productivity. They will play a central role to deliver a diversified, high value, low carbon economy, providing the links for people and goods to connect to the wider economy.

Ensuring natural infrastructure defences are in place to protect key sites and economic assets that are critical for a thriving and productive Tees Valley economy

Tees Valley Combined Authority will ensure that local businesses in flood risk areas are protected, and that natural infrastructure defences are in place to maximise productivity potential, working with partners to enable a fully integrated approach to flood risk management.

The Tees Tidal Flood Risk Management Strategy identified priority schemes to mitigate tidal risk within the Tees Estuary up to the Tees Barrage. These schemes are needed to ensure defences are in place to protect key sites and economic assets that are critical for a thriving and productive Tees Valley economy, both in terms of the risks of annual flood events and for longer-term climate change resilience.

The Strategy identified the economic damage of not progressing the priority schemes to be in excess of £1bn. In addition, consultation with major businesses in the estuary has identified that significant tidal flooding could result in a loss to the national economy of over £2.5bn annually.

Tees Valley Combined Authority will work with Environment Agency, Northumbrian Water and Local Authorities in the North East to support a fully integrated approach to flood risk management. There will be an initial focus on priority schemes, based upon flood risk models completed in 2019. These cells pose a significant risk to the economy and company productivity in Tees Valley, if interventions are not put in place in the next 10 years:

- Portrack – covering the A1046 (Portrack Lane) / A19 junction, North Tees Industrial Estate, the Portrack Interchange Business Park and the Portrack Industrial Estate;
- Teesside Park / A66 – Teesside Park is currently protected to a high standard by existing defences, which are thought to be sufficient to deal with sea level rise. However low points have been identified where the A66 crosses the Old River Tees. This major trunk road is therefore likely to become increasingly at risk with sea level rise. Teesside

Park is also very low and there is a danger that flow routes from the A66 into this retail area could result in significant, very hazardous flooding;

- Greatham North East (Venator Plant and A174) – this flood cell is protected by old flood defences, which require replacement to ensure continued protection of this flood cell now and into the future; and
- Transporter (Middlehaven) and Riverside Park – both these cells become increasingly at risk as sea levels rise.

Failure to invest and deliver the priority schemes identified will have a negative impact on the economy in the event of flooding. Wages and productivity levels will decline as businesses will not be able to trade normally, supply chains will be disrupted and there will be disruption and delay to road transport.

Build capacity, ambition and creative talent to develop a thriving Tees Valley cultural scene and raise the level of investment in Tees Valley culture

The Combined Authority will build capacity, ambition and creative talent through investment to promote a thriving cultural offer within Tees Valley that supports a highly productive economy and increases attractiveness for business.

Alongside locally-led activity to develop a UK City of Culture 2025 bid and further develop the 'Enjoy Tees Valley' brand, we propose to work with the Arts Council to co-invest, and maximise the potential of cultural development and cultural opportunity for all people in the Tees Valley. National Funding can be aligned with local priorities for investment, through a shared approach to developing the Arts Council new 10 Year Strategy. This will seek to ensure the levels of Arts investment in Tees Valley have parity with other parts of the country that have a recognised and thriving cultural offer.

In promoting the region's offer, Tees Valley will work with Visit England to explore national and international markets and ensure that relevant aspects of the Tees Valley offer are included in Visit England's promotional work.

The tourism sector in Tees Valley continues to grow, and building on priorities in the Tourism Sector Deal, we will pursue ambitions to establish Tees Valley as a Tourism Zone. This will focus on the integral role of tourism in delivering increased productivity, by growing skills, improving accessibility, improving job quality and developing our overall tourism offer.

Activity will seek to increase SME growth in the cultural, creative and tourism sectors, at the same time as changing perceptions and increasing visitor spend.

Evidence from the Arts Council suggests that a vibrant arts and cultural scene helps to improve the attractiveness of areas to skilled workers, with NESTA also finding evidence that skilled workers are often prepared to sacrifice higher wages to locate in areas with strong cultural clustering as these contribute to the local quality of life.

Delivering Inclusive Growth through Social Value in procurement

In 2018, the Tees Valley Combined Authority agreed a commitment to increase local impact by delivering responsibilities, using investment and influencing power to maximise economic, social and environmental benefits for all residents and businesses in Tees Valley.

Delivering Social Value in public procurement is critical to this. Social Value is already a core principle of procurement among public sector bodies in Tees Valley. However, we want to ensure that Social Value in procurement increases in emphasis, to ensure that it consistently:

- Provides procurement opportunities accessible to local employers, while ensuring good value for money in public funding;
- Harnesses the local economic impact of new investment, supporting local businesses to secure supply chain opportunities; and
- Supports local people to access good quality jobs.

The Combined Authority, together with partners from the public, private and voluntary sectors in Tees Valley will enhance, promote, implement and monitor a more dynamic approach to Social Value in procurement. This will include:

- Generating momentum to build a Tees Valley commitment to increase Social Value through procurement and support local companies to benefit from public procurement opportunities. We will use our leadership role and take a proactive approach to communications, including: showcases and seminars to promote best practice and encourage employer engagement; and support training and capacity building for local SMEs to access contracts;
- Raising awareness of local supply chains and procurement opportunities. Utilising established mechanisms and providing a streamlined offer of information and support;
- Working with large scale businesses and anchor institutions to understand their procurement approaches – including best practice and issues affecting their ability to buy locally. We will seek to identify gaps in the local supply chain and support business opportunities to address these; and
- Monitoring Impact – developing a baseline of public sector spend and identifying Social Value Champions to manage progress and ensure demonstrable impact.

The Industrial Strategy Green Paper described how public procurement can be used strategically to support key sectors, technology and innovation, noting that the public sector spends around £268bn per year, equivalent to 14% of GDP. Used strategically, this can encourage innovation, increase investment in skills and strengthen the overall business environment.

5. The productivity impact

Our strategy will enhance the productivity performance of Tees Valley and accelerate local economic growth, support the Northern Powerhouse and the national Industrial Strategy. The growth of our economy will be inclusive. We will focus on improving productivity, by creating more good jobs, but also on supporting more local people to access these jobs. Through this approach we will create the conditions to allow all Tees Valley residents and businesses to benefit from our future prosperity.

For Local People

Inclusive growth is a cross-cutting theme of the Local Industrial Strategy. Our aim is to ensure that all our residents and communities share the benefits of Tees Valley's improved economic performance, through improved living standards and enhanced quality of life.

- **As an exemplar region for clean energy, low carbon and hydrogen**, we will materially improve the quality of Tees Valley as a place to live, including through better air quality and enhanced environment.
- **A balanced approach to priority sectors will be adopted in support of inclusive growth.** Our strategy aims to strike the optimal balance between productivity growth – targeting support towards our most productive sectors – and inclusive growth – providing access to employment opportunities across all occupation levels and industries.
- **Productivity improvements will create good jobs for our residents, driving up wages and delivering increased prosperity.** Wages will rise as workers become more productive, helping to enhance living standards.
- **Targeted education, employment and skills interventions will position Tees Valley as a place of opportunity for all residents.** We will raise aspirations and create more pathways to provide those seeking routes to work with the skills they need. We will improve access to training for those in work – allowing them to upskill as our economy evolves and creating opportunities for progression.
- **Improved infrastructure and enhanced connectivity will make it easier for residents to access opportunities to work, learn and play.** Improved physical and digital connectivity will make it easier for residents to access employment and training opportunities, as well as our natural and cultural assets. Addressing congestion on key routes and delivering a more effective local rail network will reduce commuting times, lead to better air quality and improve people's quality of life.
- **A more developed cultural offer will make Tees Valley a better, more attractive place to live.** We will raise levels of cultural investment and build our cultural capacity. We recognise the important role that culture plays in creating employment opportunities – at all skills levels – as well as its contribution to enriching people's lives and enhancing civic pride.

For Tees Valley Businesses

The success of our business base is critical to our future economic performance. Through the Local Industrial Strategy, we aim to increase levels of business density and scale-up, whilst also moving businesses up the value chain by providing the necessary infrastructure, skills and innovation support.

- **Businesses will be supported to embrace innovation (and industrial digitalisation) to increase productivity and profitability.** We will maximise the opportunities for our businesses to collaborate on innovation and engage with our existing innovation assets. This will help them to increase their profitability and productivity. All types of innovation are recognised as boosting productivity at the firm level, even where they do not advance the technological frontier, whilst industrial digitalisation has the potential to increase labour productivity growth from 0.2% to 2.0% per annum.^{xxviii}
- **We will help our businesses to start-up and grow through targeted support.** We will increase business start-ups by leveraging our innovation assets, establishing a University Enterprise Zone and providing tailored business support. This will help to increase our business density and generate additional economic output.
- **Enhancing our cultural offer and improving perceptions of Tees Valley will help our businesses to attract and retain talent.** Increased investment in, and the promotion of our cultural offer will help to build capacity and shift perceptions of Tees Valley. A vibrant arts and culture scene can play a key role in improving a location's attractiveness to skilled workers and will help our businesses to access the talent they need to thrive.
- **A high quality, demand-led, responsive education and skills system will ensure that business recruitment needs can be met at all levels.** We will engage closely with our businesses to develop Sector Skills Action Plans to identify and deliver the specific skills our key sectors need. By effectively matching skills to business needs, we will enhance labour and firm productivity.
- **Improved infrastructure will enhance business efficiency.** Improved physical and digital connectivity will help businesses to operate more smoothly, reducing congestion and delays on the transport network. In addition, the growth of Durham Tees Valley Airport will provide important international connections for existing and prospective businesses. Returning the airport to its pre-2006 peak would generate an additional £210m per annum for the Tees Valley economy.
- **Establishing Tees Valley as an exemplar region for clean growth will safeguard existing businesses and create new market opportunities.** Embracing clean growth will address several strategic challenges that are critical to safeguarding the future of our chemicals and process industries and retaining the economic value that they create. Our chemicals and process sector support £802m of GVA per annum (with a further £727m supported by energy and the circular economy). It will also generate new business opportunities in Tees Valley, positioning us to compete for investment from global businesses looking to reduce their exposure to CO₂ emissions costs and acting as the catalyst for the development of new product bases.

For the Northern Powerhouse

In delivering the Local Industrial Strategy, we will increase our contribution to the productivity of the Northern Powerhouse. This will be achieved by working collaboratively to promote synergies in our priority sectors and enhancing our physical connectivity to other regions.

- **Improving road and rail transport links will help to support the effective movement of goods and people.** The expansion of supply chains and markets is reliant upon effective transport connections, and faster journey times can help to increase productivity. Enhanced connectivity, particularly to adjacent LEP areas, can also help to extend labour markets – driving up productivity by better matching job opportunities with appropriately skilled workers.
- **Supporting the growth of our international gateways will improve access to global trade routes.** The growth of Port of Tees and Hartlepool (and improved east-west connectivity) will complement Liverpool SuperPort, enabling the Northern Powerhouse to offer truly global trade routes. This will benefit existing businesses (providing access to markets and supply chains) and help the Northern Powerhouse to compete for future inward investment opportunities.
- **In establishing Tees Valley as the UK's Hydrogen Capital, we will support the prosperity and competitive advantages of the Northern Powerhouse.** Whilst the benefits to the Northern Powerhouse have not been quantified, it is estimated that the hydrogen sector could add £7 billion to the Tees Valley economy between 2018 and 2050.
- **We will promote synergies with complementary clusters across the Northern Powerhouse in our efforts to position Tees Valley as a leading location for clean growth.** Working with the Department for International Trade, we will market the process, chemicals and energy offer of the Northern Powerhouse, recognising the synergies that exist between the clusters in Humberside, Liverpool and Cheshire. In doing so, we will help to increase demand and strengthen the overall proposition of the north, delivering increased investment, increased business density and higher levels of economic output.

For national Industrial Strategy

The successful implementation of our Local Industrial Strategy will increase Tees Valley's contribution to national economic growth and enable the area to play a leading role in addressing two of the Grand Challenges (Clean Growth and AI and Data) identified by government.

- **Investing in clean energy, low carbon and hydrogen in Tees Valley will enable us to take the lead on addressing government's Clean Growth Grand Challenge.** Tees Valley is uniquely placed to pilot and demonstrate the benefits of clean growth sectors. The potential exists to reduce emissions by 80MtCO₂ to 2050, generating £40 billion in GVA at the national level, with further benefits linked to the opportunity to export the solutions implemented at the local level.
- **Driving productivity growth and raising participation rates will help to reduce the output gap to the UK economy.** Our strategy aims to increase levels of productivity and support more of our residents into work. In doing so, we will look to close the gap to UK performance in relation to GVA per capita, which could create up to £5.2 billion of additional economic output.
- **Attracting greater levels of inward investment will create additional jobs and economic output in the UK economy.** We will strengthen our inward investment proposition by: establishing 'early mover' advantage in clean growth technologies; working with the Department for International Trade to target opportunities in key sectors; and adopting a more agile approach to landing innovation-led commercialisation opportunities. This will help the UK to compete more effectively for international opportunities in high value sectors such as clean growth, energy and bioscience. Our inward investment offer could be strengthened further by establishing a Free Trade Zone test-bed at the South Tees Development Corporation site.
- **Leveraging our innovation assets will move Tees Valley closer to government's R&D spending target and increase productivity.** Government is aiming to increase expenditure on R&D to 2.4% economic output by 2027. Our strategy looks to increase investment in R&D and innovation locally, which will in turn improve the productivity of the local economy, by helping to move businesses up the value chain.
- **Establishing a Centre of Excellence for decommissioning will strengthen the UK proposition in a growing market.** Our aim is to develop an integrated supply chain, enabling the UK to compete more effectively with Dutch and Norwegian facilities for future decommissioning contracts. This could position Tees Valley to land contracts with a value of £500m per annum.
- **Supporting the future success of our chemicals and process industries will protect vital downstream supply chain relationships.** Creating the conditions to enable the chemicals and process industries to prosper in Tees Valley over the long-term will safeguard the direct economic contribution of the sector and create new opportunities for re-shoring. The chemicals and process industries also have supply chain impacts for 90% of UK manufacturing; supporting their continued success can help to enhance the productivity of UK manufacturing.

Notes and references

- ⁱ Background documents include: The Tees Valley Economic Assessment; The Tees Valley Business Survey; Tees Valley Higher Education Report; Productivity Papers and Sector Action Plans; Durham University analysis of the drivers of productivity by sector; and deep dive of the digital and bioscience sectors
- ⁱⁱ Based upon manufacturing capacity
- ⁱⁱⁱ Tees Valley Economic Assessment (2018)
- ^{iv} £1,020 awarded for every job in Tees Valley. Based upon Innovate UK data (2007-2019) and ONS Job Density data
- ^v Based upon an analysis of data from the Centre for Process Innovation and the Materials Processing Institute (2017/18)
- ^{vi} Tees Valley Economic Assessment (2018)
- ^{vii} L&W Institute (2019)
- ^{viii} Tees Valley Economic Assessment (2018)
- ^{ix} L&W Institute (2019)
- ^x Rae, A. Hamilton, R.Crisp, R. and Powell, R. (2016) Overcoming deprivation and disconnection in UK cities. York: JRF
- ^{xi} JRF Inspiring Social Change (2017)
- ^{xii} Vince Cable, MP
- ^{xiii} Northern Powerhouse Chemical & Process Sector Science and Innovation Audit (2018)
- ^{xiv} Annual ScaleUp Review, ScaleUp Institute (2017)
- ^{xv} Annual ScaleUp Review, ScaleUp Institute (2018)
- ^{xvi} Higher Education Business and Community Interaction Survey (HEBCIS) (2018)
- ^{xvii} Culture and Visitor Sector Analysis and Baseline Insights, Amion (May 2019)
- ^{xviii} Culture and Visitor Sector Analysis and Baseline Insights, Amion (May 2019)
- ^{xix} www.enjoyteesvalley.com
- ^{xx} Culture and Visitor Sector Analysis and Baseline Insights, Amion (May 2019)
- ^{xxi} Culture and Visitor Sector Analysis and Baseline Insights, Amion (May 2019)
- ^{xxii} Opportunities for the Tees Valley Bioscience Sector, Teesside University (2019)
- ^{xxiii} Opportunities for the Tees Valley Bioscience Sector, Teesside University (2019). Some data/national comparators unavailable due to the bespoke sector definition applied
- ^{xxiv} E4Tech study sponsored by the Advanced Propulsion Centre (APC) and the UK KTN
- ^{xxv} Vivid Economics, 2019
- ^{xxvi} McKinsey & Company, "Digital in Chemicals: From Technology to Impact," July 2017
- ^{xxvii} Huggins et al., 2014
- ^{xxviii} McKinsey & Company, "Digital in Chemicals: From Technology to Impact," July 2017
- McKinsey & Company, "Digital in Chemicals: From Technology to Impact," July 2017.