ENERGY AND NATURAL RESOURCES

CHALLENGES

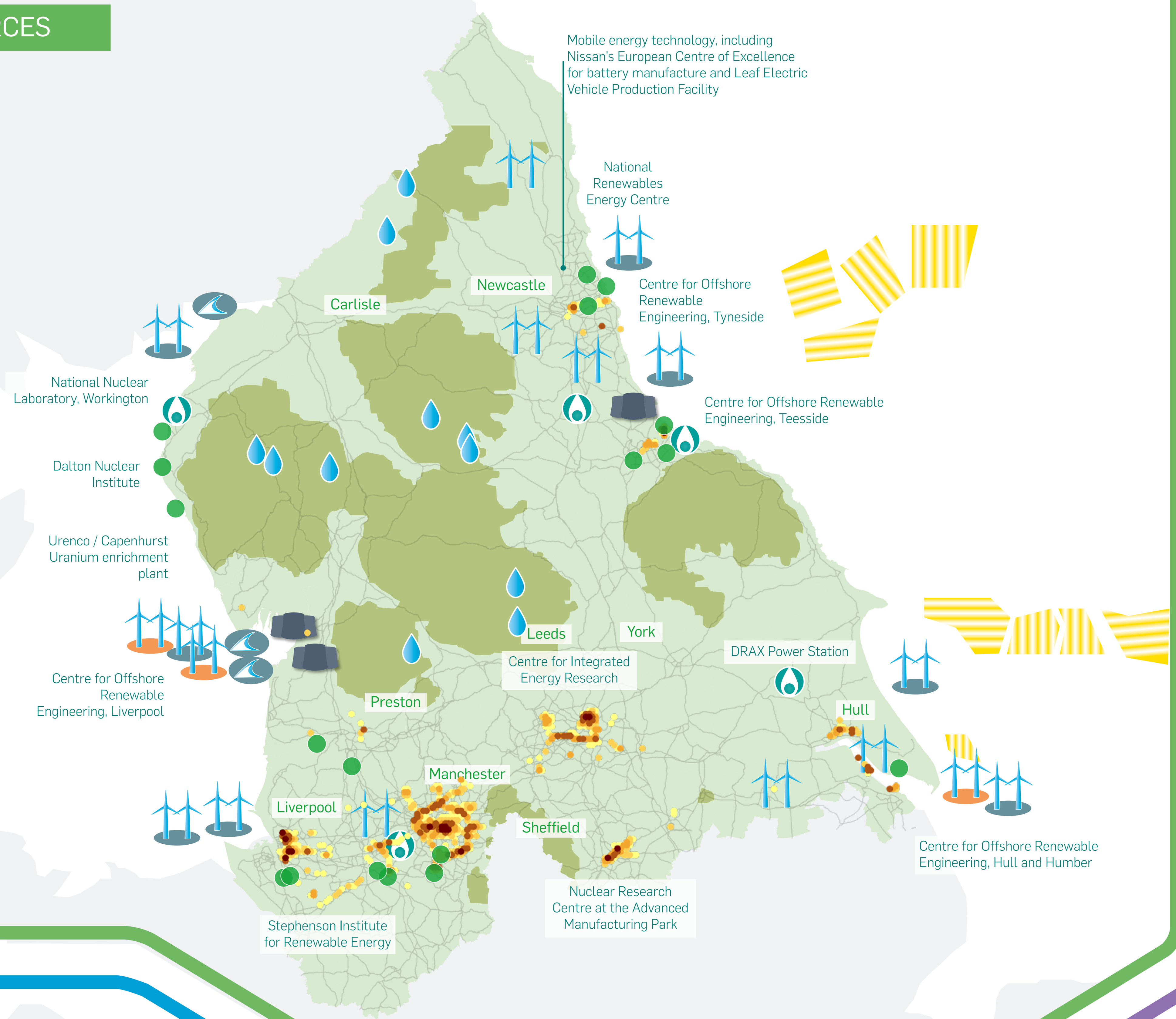
- NO2 emissions - low to high

LARGE NATURAL RESOURCES

- Reservoirs
- Areas of Outstanding Natural Beauty and National Parks

GROWING SUSTAINABLE ENERGY SECTOR

- Nuclear
- Wave and tidal developments
- Biofuels
- Priority energy and innovation research centres
- Onshore / Offshore wind
- EXISTING
- UNDER CONSTRUCTION
- PLANNED



GROWING INNOVATIVE ECOSYSTEMS

GROWING SPECIALISED INDUSTRIES

- Digital centre / Creative / media centre
- Chemicals / sci production centre
- Nuclear research centre
- Renewables energy centre
- Advanced manufacturing and engineering (AME)
- Health innovation
- Top 200 universities
- Other universities

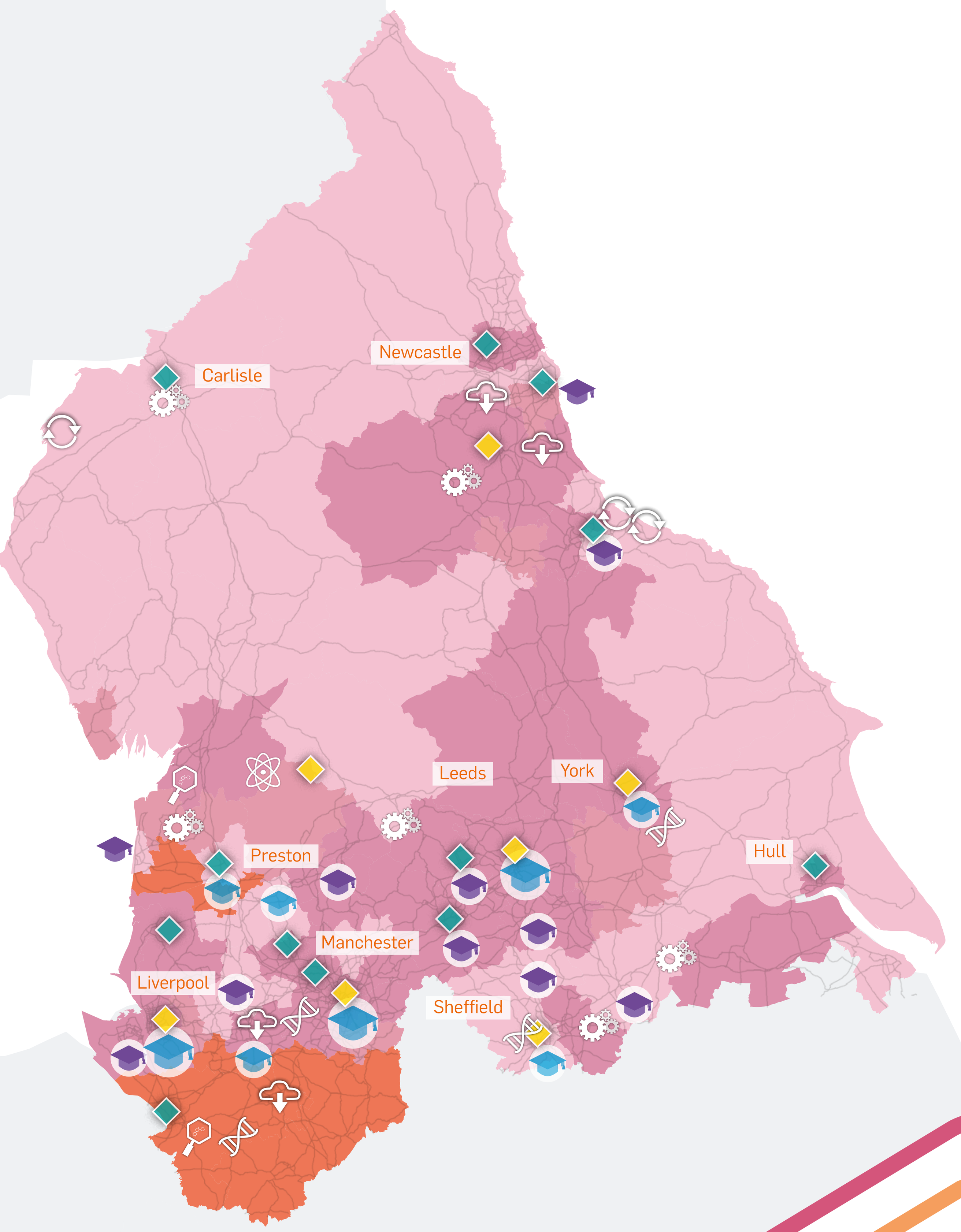
LEARNING AND RESEARCH FACILITIES

Productivity index (share of UK average):

- < 80%
- 80 - 90%
- 90 - 100%
- >100%

Graduate gain centroids:

- -1070 - 0
- 0 - 2500
- 2500 - 4665



INTRA-REGION INEQUALITIES

STRENGTHENING URBAN AREAS

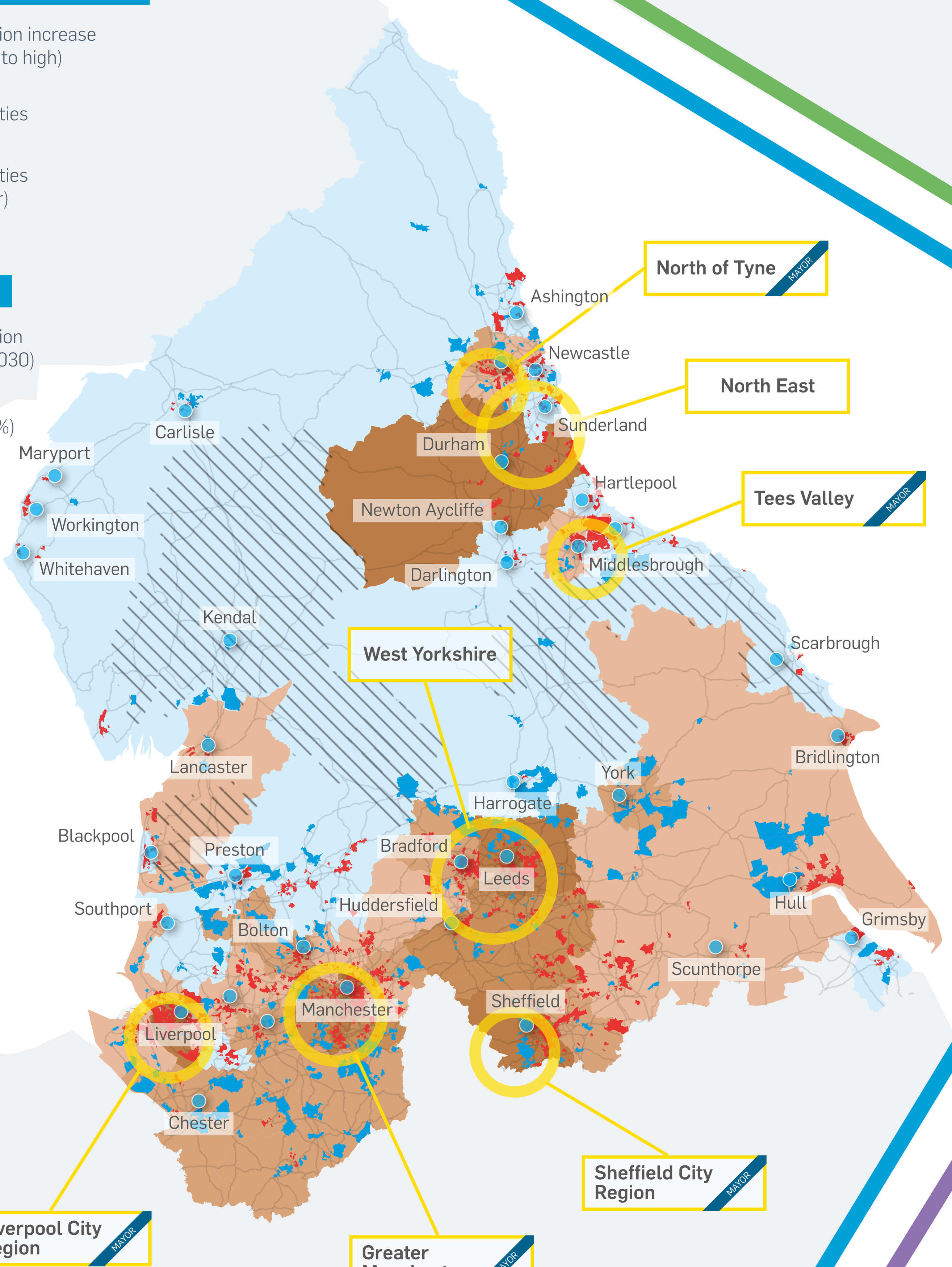
- Projected population increase (2019-2030) (low to high)
- Combined authorities
- Combined authorities (with Metro Mayor)

DECLINING RURAL AREAS

- Projected population decrease (2019-2030)
- Projected old age dependency (>60%)

INTRA-REGIONAL UNBALANCED QUALITY OF LIFE

- High levels of deprivation (top 10%)
- Low levels of deprivation (bottom 10%)



CONNECTIVITY, TRADE AND LOGISTICS

GATEWAYS

- Inland port
- Port under construction
- Port > 10k tonnes
- Port 10-50k tonnes
- Port < 50k tonnes
- Airport > 10k tonnes
- Airport 120k tonnes

MAJOR FREIGHT NETWORK

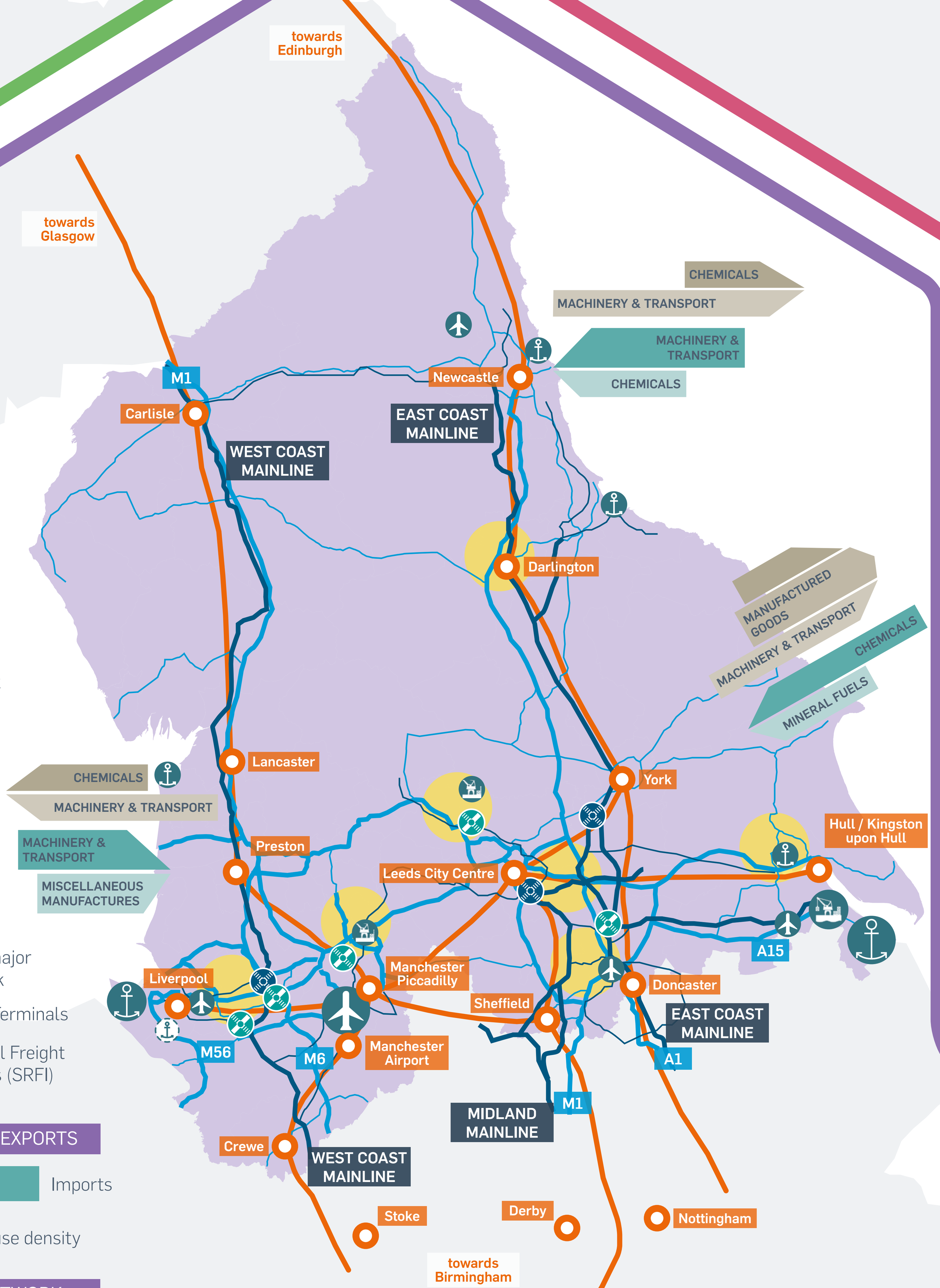
- Rail freight
- Freight via major road network
- Intermodal Terminals
- Strategic Rail Freight Interchanges (SRFI)

MAIN IMPORTS AND EXPORTS

- Exports
- Imports
- High warehouse density

FUTURE STRATEGIC CONNECTIVITY NETWORK

- Indicative High Speed & National Rail Network



CHALLENGES FOR PLACEMAKING

UNEVEN GEOGRAPHY OF PHYSICAL ASSETS

Top visitor attractions:

- Heritage
- Natural
- Combined
- National parks
- City / town locations

QUALITY OF LIFE

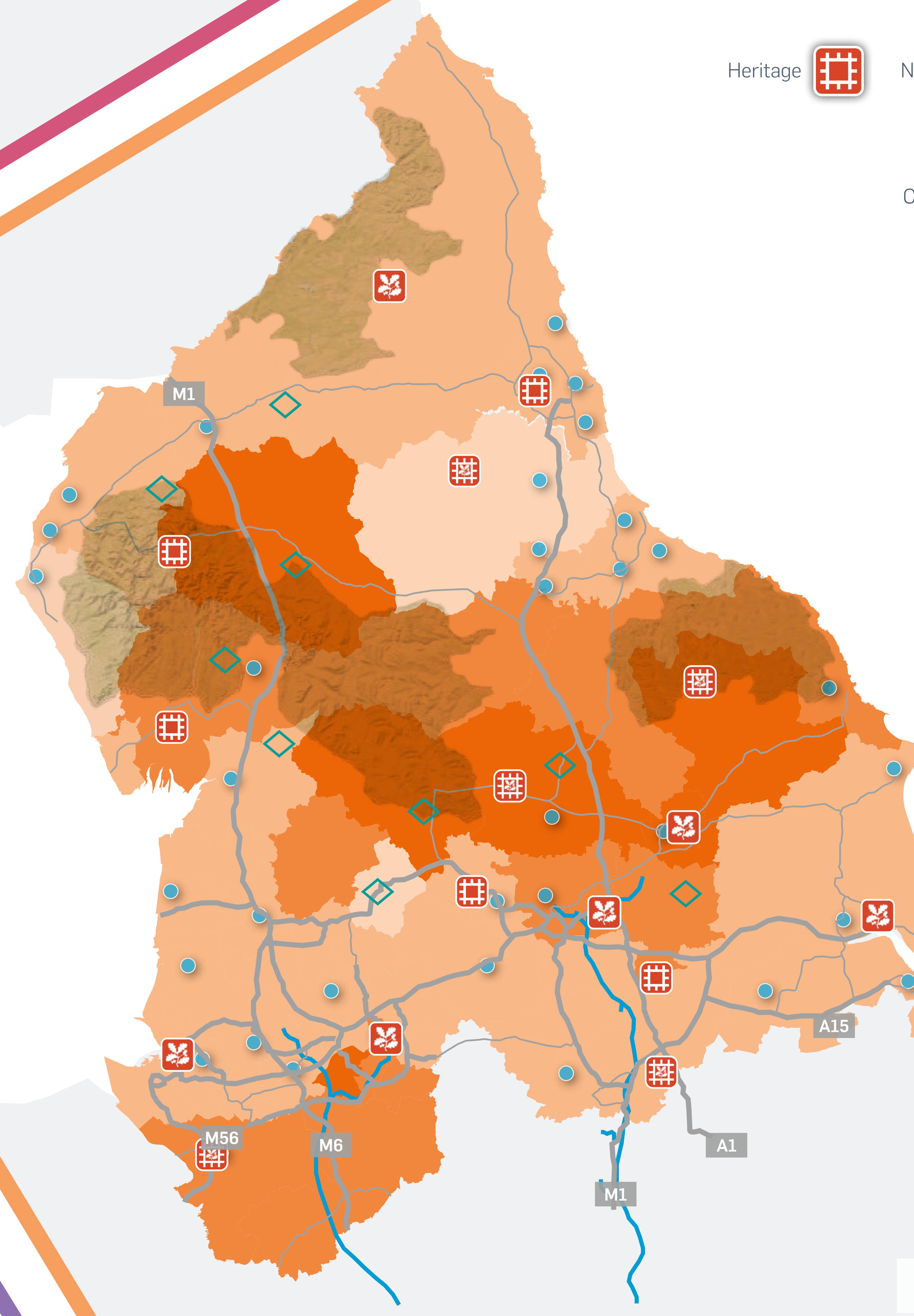
- High life satisfaction

Affordability index (house price : local wages ratio)

- 0.00 - 2.00
- 2.00 - 4.00
- 4.00 - 6.00
- 6.00 - 8.00
- 8.00 - 8.83

THE ROLE OF TRANSPORT CONNECTIVITY

- Main roads
- Other roads
- Planned strategic transport schemes

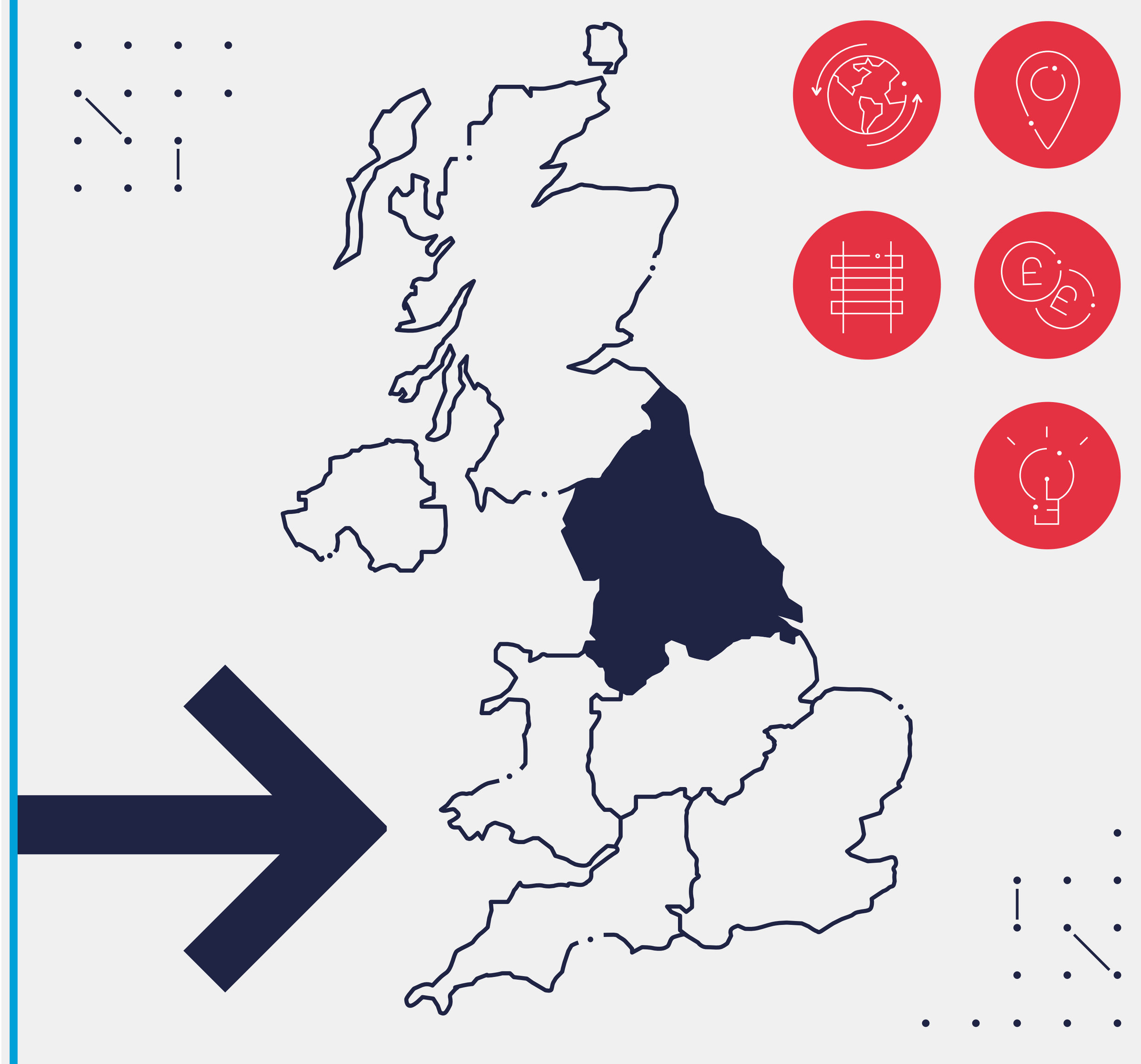


In partnership

ONE POWERHOUSE + RSA

2020

One Powerhouse Towards a spatial blueprint The North



ATKINS

Member of the SNC-Lavalin Group

The North in context.

A need to address spatial inequalities

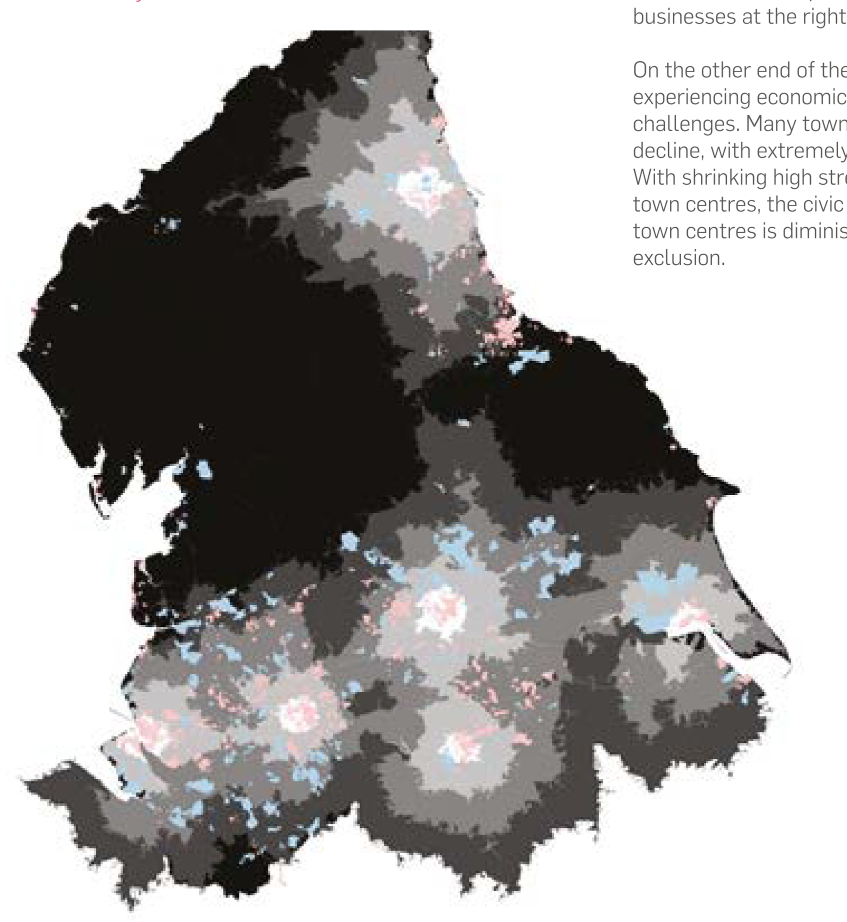
As elsewhere, the economic geography of the North relies on interconnectivity between different type of places that each play different roles to the overall economy. But what we currently see in the North is that while **some cities and towns are growing**, typically across the east-west corridor and in parts of the North East, **others are on the decline**. In addition, **population is ageing** in localised areas - usually rural - with 16 local authorities projected to have more than half their population aged 65 and above.

Social variations should also be added to these demographic variations. The North has a **disproportionally large share of deprivation areas** given its population size, with more than half of the most deprived lower super output areas (LSOAs) in England located in the megaregion. The geography of deprivation is an interesting one, showing inter-urban rather than inter-regional disparities. Despite the demographic dichotomy explained above, most of the deprived areas in the North are located in or near growing cities - however with a number of exceptions.

Those spatial inequalities are also reflected in **economic performances**. Contrary to popular belief, in many cases the **most productive places in the North** are not the main cities but rather smaller towns and peri-urban areas, such as Cheshire East, Halton and Bolsover. However, **large cities show some of the fastest growth rate** and, given how much of the regional economy they account for, will always be of central importance to the Northern economy. Key to economic development prospects is to understand the benefits that each place provides, and attract the right type of businesses at the right place.

On the other end of the spectrum, several places are experiencing economic decline, often coupled with social challenges. Many town centres particularly have been on the decline, with extremely **high vacancy rates of retail units**. With shrinking high streets and an exodus of people from town centres, the civic and community role of many Northern town centres is diminished, further aggravating social exclusion.

Most and least deprived MSOAs and travel times by car



Multiple Deprivation Index

- 10% most deprived
- 10% least deprived

Travel from Cities (15 - 30 - 45 - 60 minutes)

- 0 - 15
- 15 - 30
- 30 - 45
- 45 - 60
- > 60

Source: ONS, Index of multiple deprivation; NAPTAN

A high growth potential

If the North was a country it would be the **9th most populous in Europe and the 10th largest economy**, with a larger GDP than Belgium, Austria and the Republic of Ireland. By implication, the latent potential for growth and prosperity is considerable.

The Northern Powerhouse Independent Economic Review (NPIER) identified four **"prime capabilities"**, where the North already has advantages and where growth potentials are the highest. These are:

- **Advanced manufacturing**, whose GVA is expected to grow from £33.4bn to £58bn between 2015 and 2050, with productivity expected to more than double.
- **Health innovation**, with significant bio-pharmaceutical clusters in the North West and medi-tech clusters in the Yorkshire and Humber.
- **Digital**, fast growing across the North, with Manchester being the largest tech cluster outside of London, and other growing digital hotspots in Newcastle, Liverpool and Sheffield / Rotherham, to name a few.
- **Energy**, with half of the renewable energy generated in England coming from the North, and the sector expected to grow 71% to 2050.

To support these sectors, the North has a globally recognised **network of research institutions and universities**. For instance, the 8 largest universities in the North are gathered under the N8 research partnership with the aim of fostering collaboration between public and private research institutions. Besides research, Northern universities are **highly attractive to students**, with Manchester being the second most popular destination for UK graduates, and seven universities ranking in the top 200 best universities worldwide (Times World University Ranking).

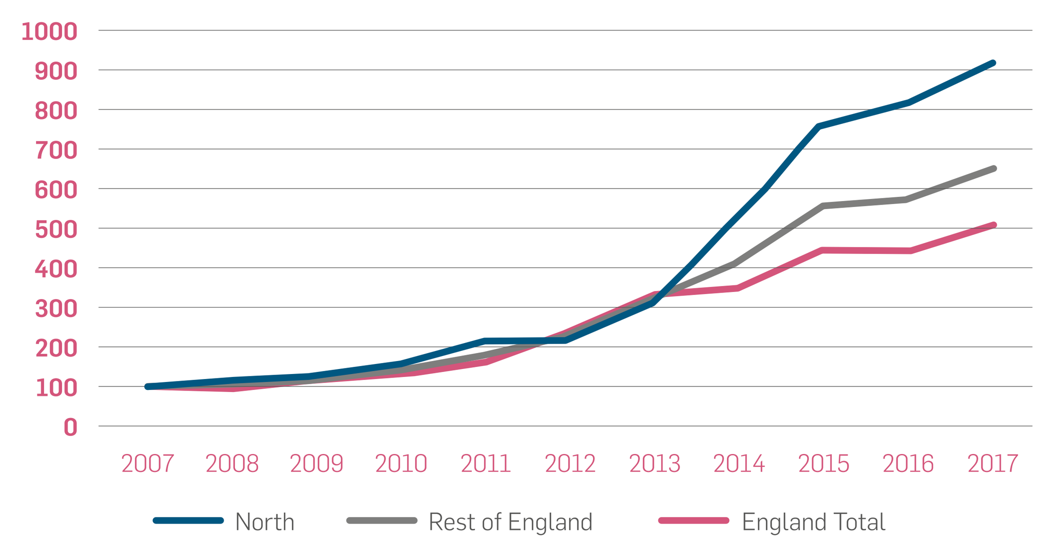
The North is also at a key position for trade, with **significant transport and logistics infrastructures**. Despite being home to around 24% of the UK population, the North transports 56% of the country's rail tonnage, 35% of its road tonnage, and accommodates 35% of total port throughput. This is supported by a **strategic road network**, **11 major ports** (including Immingham, the largest port in the country in terms of traffic; and Liverpool, which invested over £400 million in the new deep-water container terminal called Liverpool2), and a **rail network** that will undergo significant improvements thanks to the **Northern Powerhouse Rail (NPR)** investments and **High Speed 2 (HS2)**.

Finally, the North possesses significant **natural assets** that place it in a great position to champion environmental challenges. 40% of England's power stations of all types are in the North - and renewable energy is particularly on the rise. In 10 years between 2007 and 2017, the amount of renewable energy generated grew nine-fold, compared to just five times in the rest of the country. The **world's largest offshore wind farm** is located just off the coast of Hull. Potential for sectoral specialisation are thus immense.

Opportunities to develop those assets are supported by a strong sense of civic and political identity, carried by the **Northern Powerhouse** brand. The North is 'ahead of the game' by being proactive in embracing political devolution and forging the creation of strong pan-regional structures and organisations. This developed network of institutions will significantly help drive change across the region.

All this supports the idea that there is a **high potential for development** in the North, based on already existing assets and institutions - and opportunities exist to strengthen existing sectors while addressing spatial challenges. This is what this spatial blueprint aims to bring about.

Renewable Energy Generated (2007=100)



Source: BEIS

A Vision for Britain. Planned.

The One Powerhouse Consortium, supported by The Sir Hugh and Lady Ruby Sykes Charitable Trust, believes that a substantial part of the problem of regional inequality in the UK can be solved not just by money, but by the transformative potential of spatial planning.

Spatial planning is the 'where' of decisions. It looks at a defined geographical area and makes an assessment of everything contained in that area - towns, cities, housing, schools, universities, roads, rails, airports, factories, hospitals, energy sources, museums, parks and leisure activities - and makes a plan to develop those assets for the benefit of the people who live in that region, now and for the future.

Regional inequality in the UK

Today, just under half of the UK population live in regions with a comparable productivity to the poorer parts of former East Germany - and comparable living standards are worse. According to the recent UK2070 Commission, the UK today is more intraregionally unequal than Germany was in 1995. Since reunification, Germany has since pulled itself together, through decisive investment programmes underpinned by visionary spatial planning. During a similar period the UK, on the other hand, has fragmented.

The nature and extent of the so-called 'North-South' divide can be presented in many forms. Maps showing economic productivity, educational attainment and poor health all present sharp disparities between regions and nations. Current forecasts suggest the situation will only get worse and that in fact the economy of London and the South East is 'decoupling' from the rest of the UK (McCann 2016). The repercussions are stark and grow more evident all the time.

Spatially-sensitive policy is not simply a matter of social justice and political prudence. Regional prosperity drives national prosperity and so regional imbalance constrains overall performance. Accommodating agglomeration in some places while servicing mounting welfare bills in others damages the UK's fiscal balance and exacerbates the underlying problem.

The value of place and scale

There is evidence that spatial planning has already begun to deliver results in the UK. We are not alone in recognising that the two 'regional economies' that have the highest levels of productivity are those where there are coherent regional economic plans: London and Scotland.

Indeed, in England, there is good work taking place through some Local Enterprise Partnerships (LEPs) and Combined Authorities and Mayoralties but not all. In strategic planning and investment terms, these tend to be rather small and the outcome is rather patchwork.

Our Plan

The clear 'gap' in terms of economic planning in the UK, therefore, is at the level of the English regions. Any spatial strategy needs to bring together the best local industrial strategies and plans within a wider regional strategy framework. The foundations of how this can be achieved are already present. The regions of England are already coming together: The Northern Powerhouse, The Midlands Engine, The Great South West and The Wider South East all exist as functional identities.

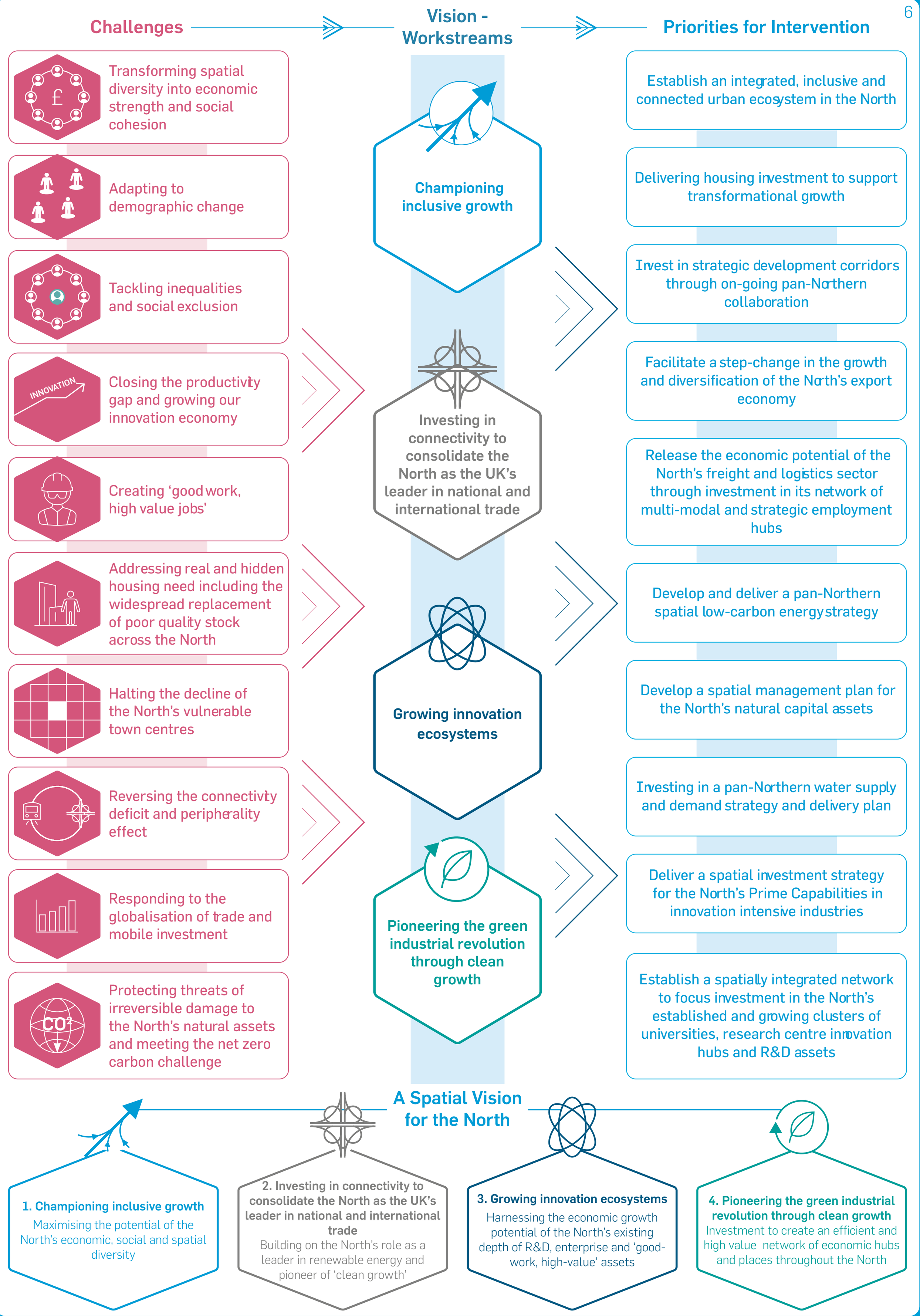
Our ambition has been to prepare a series of draft spatial blueprints that will better enable decision-making and prioritisation of investment across the country and thus help the UK as a whole develop over the long term - creating opportunity for all, jobs for all and prosperity for all.

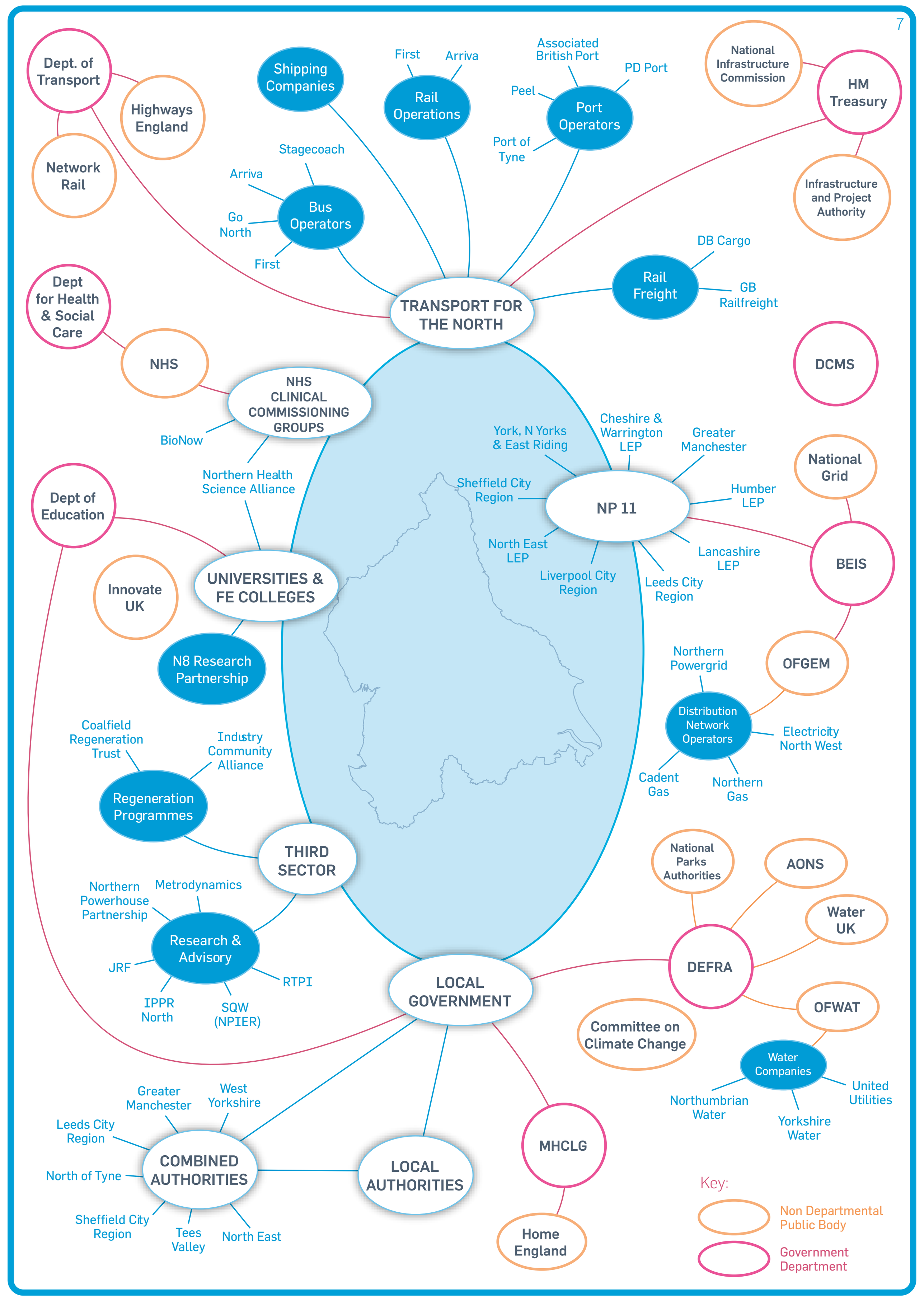
Our definition of a blueprint is that of 'an early plan or design that explains how something might be achieved' (Cambridge dictionary). While based on thorough analysis and evaluation, our draft blueprints are by no means the finished product but they point to what could be achieved with better resourcing, co-ordination and support.

The technical work has been led by planning consultancies linked to the regions: Atkins in the North, Barton Willmore in the Midlands and the South West and Aecom in the South East. The One Powerhouse Consortium has also worked hand-in-hand with the UK2070 Commission and drawn upon the support of the well-respected think tank the RSA.

Summary of the North's Challenges.

1. Transforming spatial diversity into economic strength and social cohesion
2. Adapting to demographic change
3. Tackling inequalities & social exclusion
4. Closing the productivity gap and growing our innovation economy
5. Creating 'good work, high value' jobs
6. Addressing real and hidden housing need including the widespread replacement of poor-quality stock across the North
7. Halting the decline of the North's vulnerable town centres
8. Reversing the connectivity deficit and peripherality effect
9. Responding to the globalisation of trade and mobile investment
10. Protecting threats of irreversible damage to the North's natural assets and meeting the net zero carbon challenge





About Atkins

Atkins - a member of the SNC-Lavalin Group - is one of the world's most respected design, engineering and project management consultancies.

Employing over 18,300 people across the UK, North America, Middle East and Africa, Asia Pacific and Europe, clients come to us for transformational solutions.

Atkins helps clients plan, design and enable major capital projects, and provides expert consultancy that covers the full project lifecycle across infrastructure, transportation, nuclear and power, oil and gas, engineering and design, water, the environment, defence, aerospace, communications, production and architecture.

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