FRAMING PAPER
Artificial Intelligence and Inclusive Growth: Complimentary, Contradictory or Both?
A Northern Powerhouse Perspective.

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Purpose of this Framing Paper

In the light of the 2017 White Paper *Industrial Strategy: Building a Britain fit for the future*, the UK government, and in preparing their Local Industrial Strategies (LISs), Combined Authorities (CAs) and Local Enterprise Partnerships (LEPs), will need to confront two critical forces: the rise of big data and artificial intelligence, and growing social and spatial inequalities. It is a concern that these two forces have the potential to unfold in tension. The unprecedented speed and scope of societal change that AI and the data economy will catalyse presents policy-makers with significant challenges. Their primary task will be to ensure that the social and economic opportunities presented by what some have termed a 'Fourth Industrial Revolution' are maximised, whilst the risks are minimised.

There is a pressing need then for AI and the data revolution and inclusive growth to be addressed simultaneously, nationally and in LISs, underpinned by a more comprehensive understanding of the potential impact each has on the other. To this end, the Heseltine Institute for Public Policy, Practice and Place are holding a Northern Powerhouse event on 6th February 2019 to debate:

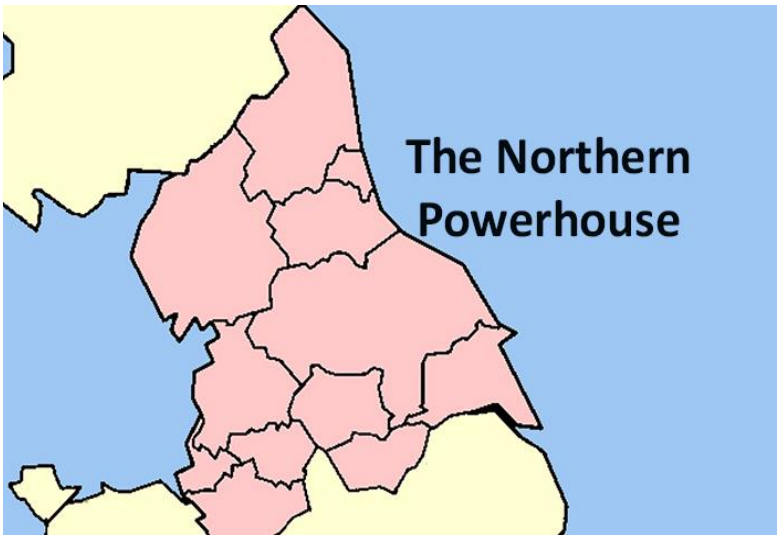
- How can public policy ensure that lagging regions in the UK are able to participate equally, fully, and productively in the data and AI revolution?
- How can public policy ensure that the data and AI revolution is harnessed to promote inclusive growth and to extend opportunities to left-behind communities?

This framing paper provides delegates with some useful background information to inform their contributions throughout the day. It draws upon desk-based research and a number of interviews with key staff in Combined Authorities and LEPs.

Background: Northern Powerhouse

Within the UK there are 38 LEPS, which have been charged with delivering LISs: the first LISs will be agreed with government by March 2019, the aim thereafter being that every part of the country will have an agreed strategy in place by early 2020. The Northern Powerhouse encompasses 11 LEP areas within the North of England (Cheshire and Warrington, Cumbria, Greater Manchester, Lancashire, Leeds, Liverpool, Humber, North East, Tees Valley, York, North Yorkshire and East Riding, and Sheffield). It is home to over 15 million people and over one million private sector businesses, has an economy worth over £340 billion GVA p.a. and accounts for 19% of UK output. It produces 19% of UK goods exports through seven international airports and 12 major ports and is home to over 20 universities, four of which are ranked in the global top 100 universities. The Northern Powerhouse strategy was launched in 2016 to work toward achieving a sustained increase in productivity across the North through tackling four perceived barriers: connectivity, skills, enterprise and innovation, and trade and investment. It also identified the key sectors the North has strengths in and the necessity to build on existing assets: manufacturing, pharmaceutical, energy, and digital.

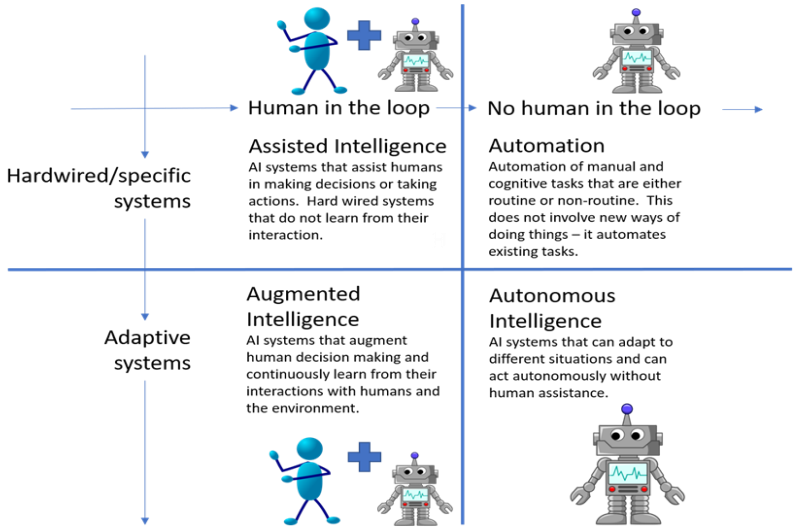
Map of Northern Powerhouse



Questions to Prompt Discussion

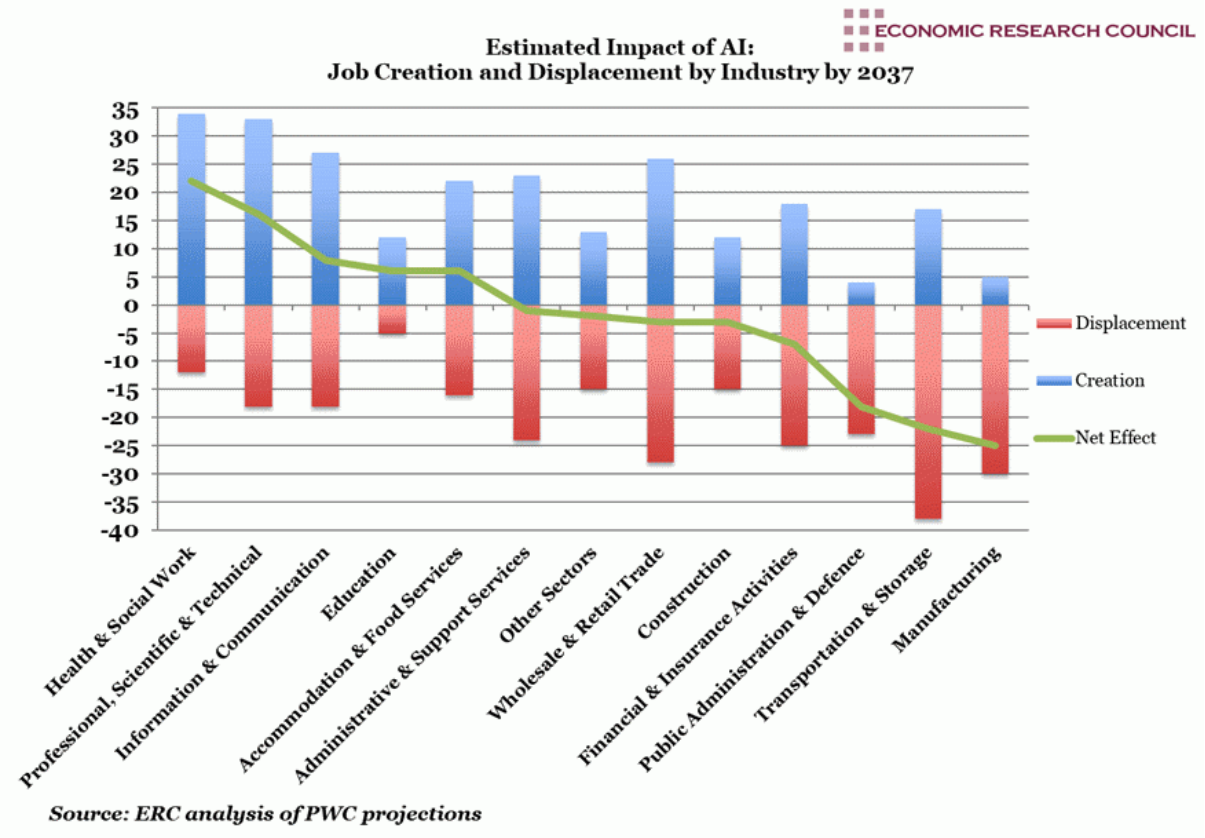
a) **Are we sufficiently aware of the scope and potential of AI technology?** Widespread adoption of AI necessitates widespread understanding of what kind of technology AI actually is and an appreciation of its disruptive potential. Arguably, there exists a degree of confusion about what AI comprises and the extent to which it requires a response from stakeholders. AI technologies have been in development for decades, but the past five years have seen an unprecedented level of interest and investment which has led to a very fast pace of new discoveries and improvements, even by the standards set by previous digital technologies. According to PWC, AI is a collective term for computer systems that can sense their environment, think, learn, and act in response to what they are sensing and their objectives: 'From the personal assistants in our mobile phones, to the profiling, customisation, and cyber protection that lie behind more and more of our commercial interactions, AI touches almost every aspect of our life. And it's only just getting started.' To support their definition, PWC dissect AI into the following categories, each of which clearly articulates the different roles of human and computer interaction in the emerging computer systems:

PWCs Typology of AI



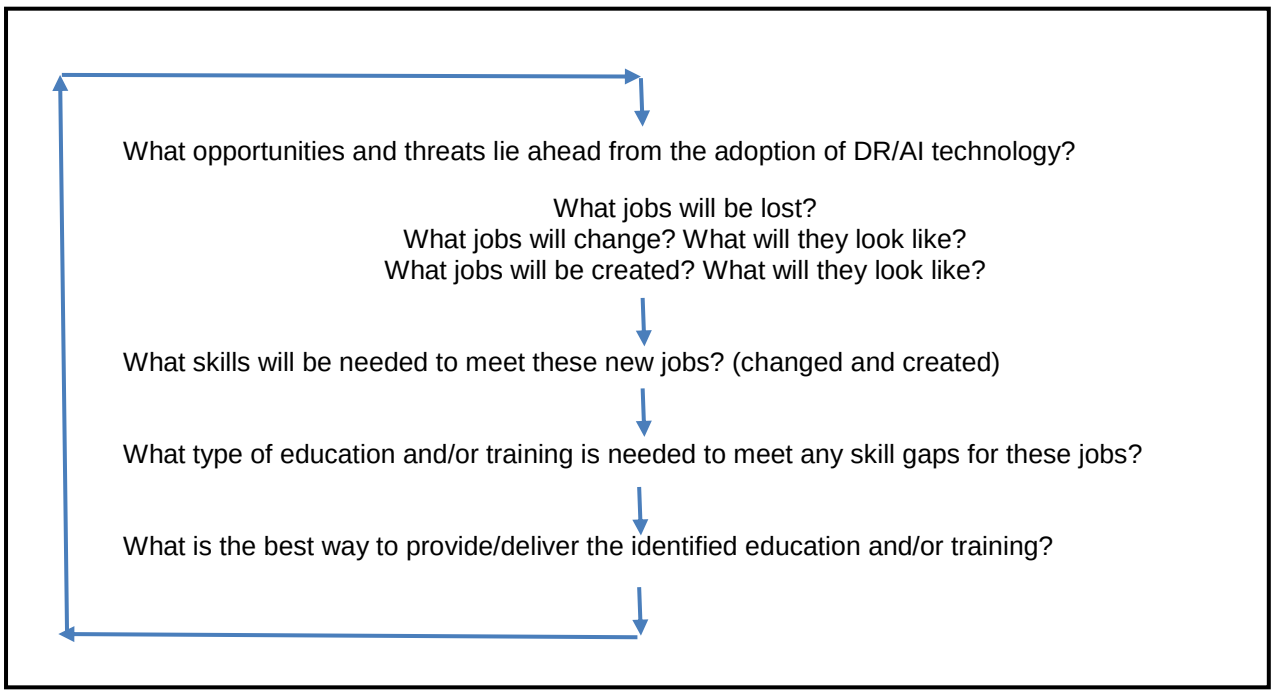
AI technologies can also be described as computational systems that aim to reproduce or surpass tasks that would require 'intelligence' if humans were to perform them, and include learning and adaption, sensory understanding and interaction, reasoning and planning, and extracting knowledge and predictions from large, diverse digital data.

b) **Can we predict the impact of AI, including on job creation and displacement by industry/sector?** Can we predict the impact of AI on the structure of the labour market and identify the sectors that are particularly likely to enjoy net job growth and those which are likely to be more vulnerable to net job losses? Projections, whilst conjectural, are reasonably consistent in their forecasts. PWC provide a baseline prediction of what the future of work might look like, which jobs are likely to disappear or change, and industries where we are likely to see completely new jobs emerging. There is it seems a belief that the Northern Powerhouse is more vulnerable to the impact of AI and automation due to it being home to the largest proportions of high-risk jobs, in sectors such as transportation and storage, manufacturing, wholesale, and retail. Is this really the case?



c) **How can we prepare for the future world of work?** Understanding the skills and jobs of the future against current jobs and those at risk of automation either by replacement or displacement is a key priority area. The key to future-proofing our workforce will be updating and matching the workforce requirements to the constantly emerging workplace opportunities. It will not be about reaching a destination, but more a continuous journey, the pace of which will only accelerate in line with the constantly emerging technologies – and we have no idea what some of these may look like. There is a case for government intervention at an earlier stage of an individual's life in terms of developing a relevant future workforce: policy-makers can learn from best practice in other parts of the world where a 'cradle to grave' policy has been adopted with interventions happening as early as kindergarten and primary school level. Alongside this, some participants felt there should be a more collaborative approach with the business sector around the skills and education agenda to keep up with the exponential growth and development of new technologies in the workplace. Many suggest that we need new ways of doing things, as what we have in place today may not be enough to get us to where we need to be tomorrow.

Future Proofing our Workforce



d) What can we do to harness the virtues and reduce the vices of an AI economy? It is generally acknowledged that the data revolution and AI will NOT in itself lead to job creation or losses or enhanced social exclusion or inclusion. It is generally accepted that AI as a technology will NOT determine whether future growth is inclusive or exclusive. It will be our CHOICE as to how we deploy these new technologies, whether they exist to serve the public good, or work towards other ends. According to the RSA, the following interventions might work to discipline the emerging AI market so that it bears more on progressive social outcomes:

- Develop an ethical framework to guide the behaviour of AI and robotics engineers
- Encourage VCs and non-profits to invest in benevolent technology that enriches the worker experience
- Establish a Centre for AI and Robotics that encourages greater take-up of innovations among industry
- Create personal training accounts that aid lifelong learning and help workers as they jump from job to job
- Shift the burden of taxation away from labour and towards capital
- Draft a blueprint for a UK sovereign wealth fund that would give every citizen a 'technological inheritance'

Summary

There is a pressing need to consider the reciprocal impacts of AI and the data revolution on inclusive growth in city-regions throughout the Northern Powerhouse. We must act to ensure that the economic, social and ethical opportunities presented are maximised whilst the risks are minimised.

Public discourse will be enriched if we better understand:

a) Exactly what kind of technology AI comprises and the range of its potential applications.
b) The impact of AI on job creation and displacement in different sectors and the differential distribution of those sectors across the Northern Powerhouse and between the Northern Powerhouse and the rest of the economy.
c) Evidence-based insights into the structure of the future world of work and a new generation of training and skills provision.
d) The forms of intervention which will enable the AI revolution to be dedicated to more progressive applications which serve the public good – specifically the anatomy of the AI marketplace and the regulatory frameworks which are needed.