Transport for the North

NPIER: Capabilities, Local Data and Narratives

Workstream 3: Economic Scenario Analysis

TRANSPORT FOR THE NORTH

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clarity from complexity

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1 Workstream 3: Economic Scenario Analysis

1.1 Introduction and overview

Transport for the North (TfN) has commissioned Cambridge Econometrics (CE) and SQW to undertake a preparatory stage of work to inform a potential refresh of the original Northern Powerhouse Independent Economic Review (NPIER). Published in 2016, the NPIER set out an analysis of the North's 'productivity gap', identified a series of key sector capabilities where the North was, or had the potential to be, internationally competitive, and set out a transformational vision for the North's economy by 2050.

The NPIER provided evidence which underpinned TfN's Strategic Transport Plan, helped to inform wider economic policy across the North, and led to an ongoing programme of economic research. Since 2016 there have been a number of structural economic changes which have impacted the North's economy and political landscape, including; the vote to leave the EU, the creation of additional Metro Mayors across the Northern region, Climate Change and Net Zero and most recently the Covid-19 pandemic.

In this context it has been agreed that now is the time to begin planning for a refresh of the NPIER in 2022. As part of this planning exercise, CE and SQW have been tasked with reviewing the key sector capabilities identified in the original NPIER; preparing a local area literature and evidence review; and to identify options for the development of scenarios to inform a refreshed Northern 'economic narrative'. This will result in an 'insights, issues and choices' paper, which will be completed in Spring 2022.

This standalone technical paper has been produced to feed into the final 'insights, issues and choices' paper, and specifically considers the options and appetite for the use and development of economic scenarios as part of a refreshed NPIER. It should be emphasised that the brief for this workstream was not to explicitly develop the scenarios, which would be provided by a separate commission.

Instead, the focus has been on reviewing existing examples and approaches, to better understand the work of peer organisations and potential best practice. Additionally, a series of stakeholder workshops have been undertaken to gather views from Northern partners on the development of economic scenarios, and to test the idea of using a broader range of metrics to define the North's transformational 2050 ambitions.

1.2 Background and relevant work to date

A key part of TfN's evidence base is the NPIER, which represented a unique collaboration with TfN partners and central government. As the first pan-Northern economic assessment, it produced long-term economic projections that quantified the impact of closing the productivity gap between the North and the rest of the UK.

Specifically, two scenarios were presented in the transformational forecasts; a Business as Usual (BAU) and transformational scenario. By 2050 in the transformational scenario the North's Gross Value Added (GVA) was £100bn higher, with an additional 850,000 jobs compared to the BAU scenario. Both scenarios considered only a limited range of outcome metrics, including GVA, jobs and productivity.

These two scenarios enable a comparison between two states; however there were some limitations to this approach, whilst the scope of outcome metrics was narrow, and since the publication of the NPIER, Northern partners, central government and wider organisations have begun to explore multi-scenario approaches using a broader range of metrics, to reflect high levels of uncertainty, and shifting policy themes and priorities.

For instance, TfN have recently produced a series of Future Travel Scenarios, which have been well received by partners and industry, winning several awards for the approach. Bodies such as the UK 2070 Commission have also sought to apply scenario analysis to better understand sub-national growth trajectories, whilst the scope of the UK Government's Levelling Up paper provides additional examples and opportunities for scenario analysis.

1.3 What is the purpose of scenario analysis? And how should it be done?

Economic modelling, including the production of forecasts and scenarios can be extremely valuable in helping policymakers both articulate and understand the impacts of their policies in a transparent, sophisticated and quantified manner.

When used appropriately and effectively, economic modelling can be a powerful learning tool which helps users to assess the impact of decisions, or differences in unforeseeable initial conditions, on the economy.

Economic models build upon a range of transparent assumptions about relationships and trends within the economy to model the trajectories of a wide range of variables in an internally self-consistent manner.

Of course, different economic models have different representations of the economy and each model will bring their own strengths and weaknesses, but largely depend on how well they provide a representation of reality.

To be clear, all models are simplifications of reality, otherwise they would be as complex as reality itself. Most important is whether the model includes (in a reasonable way) all the necessary components to assess the policy that is being tested.

If it does, then economic modelling can provide powerful insights to support policy analysis.

Purpose

Economic forecasting and scenario analysis can be used by policymakers – particularly within transport and economic development domains - for a range of purposes, as detailed below:

1. **As a way of conceptualising and quantifying an ambition**

- Often depicted as a “transformational” or “aspirational” vision based on a few simple optimistic assumptions or targets
- Here the desired policy outcome is specified first, and the policy required to deliver this outcome is then explored as a subsequent question
- Although this can seem like putting the cart before the horse, it can be legitimately used as a way of articulating a vision, against which more realistic policies can be appraised
- The inversion of the aspirational scenario, the “worst case scenario”, is also sometimes articulated as an outcome to be avoided

2. **As a reality check – where are we actually heading?**
   - Quite often used as a contrast with the aspirational vision
   - Based on “best guess” assumptions, rather than idealised ones
   - The question this then requires policymakers to consider is: how do we bridge the gap between reality and aspiration?
3. **As a form of sensitivity analysis to external factors**
   - If you’re not sure what the right “best guess” assumption is about a particular trend, try different assumptions and see what happens!
   - If there are multiple uncertainties, different combinations of assumptions can be combined in a “matrix” approach
   - This then provides a wider range of different outcomes – without even beginning to consider the application of policy
4. **As a way of exploring the impacts and payoffs of different policy options**
   - The baseline trajectory or matrix of scenarios can then have policies tested upon them
   - Can help to answer the “how do we get there?” question
   - Policy analysis is particularly valuable when the optimum policy combination is uncertain or disputed
   - Testing a range of policies against a range of scenarios provides more insight as to the possible range of outcomes than simply testing one policy on one scenario.

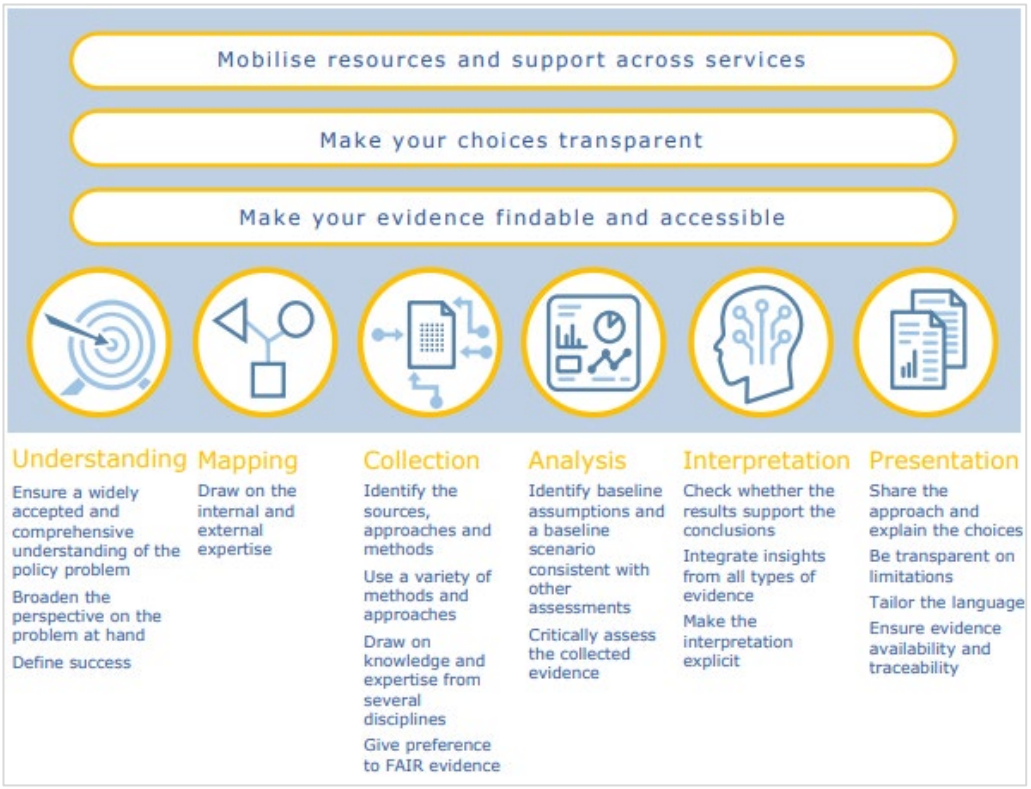
Process

Economic modelling and scenario analysis is playing an ever-larger role in policy development and appraisal. For instance, the recommendations of the European Union’s Better Regulation Guidelines has seen greater use of economic modelling, including scenario analysis, to assess – both ex ante and ex post - the impacts of a new policy.

Though intended for “internal instruction”, the guidelines have been widely used and adopted. Additionally, the guidelines go some way to outlining the required standards and ‘best practice’ in economic modelling and scenario

analysis, with a strong emphasis on transparency and communication, as the 'six steps' to evidence-informed policymaking in Figure 1.1 show.

Figure 1.1: Six steps to evidence-informed policymaking



Source: European Union

Building on these principles, broadly speaking a robust, high quality scenario development and appraisal process is expected to - as a minimum - incorporate the following:

1. **Agreement of parameters.** This usually requires a significant degree of stakeholder discussion to ensure there is support and buy-in around these decisions before the modelling takes place. This can include reaching a consensus in terms of:
    - Agreement on assumptions: this includes both the common assumptions across all scenarios and the varying assumptions between scenarios
    - Agreement on appraisal framework: this includes the range of metrics that the outcomes of different scenarios will be tested against, and the weighting given to each
    - Agreement on which policies or policy packages should be tested in the model and how they should be represented
2. **Economic modelling.** The economic modellers take the agreed assumptions and policy interventions and feed them into their model, and produce a set of quantitative outcomes against the agreed metrics. As noted previously, different models have different representations of the economy and each will bring their own strengths and weaknesses.

3. **Scenario or policy appraisal.** The output metrics are then scored against the agreed framework to identify the optimum policy combination. If a number of policy packages have been tested against a range of different scenarios, they will have an individual score for each, and there are choices here about how to combine them.

Use and best practice

A wide range of devolved and sub-national organisations in the UK depend on and regularly use economic modelling and scenario analysis. Such work forms a critical part of their evidence base which underpins resulting strategy and policy development.

As part of this workstream, we have collected and reviewed both first- and second-hand evidence (the former, from a series of dedicated workshops, the latter using desk-based research) on the relevant modelling and scenario work of peer devolved and sub-national bodies in the UK.

Generally, we found the purpose and processes associated with economic modelling and scenario analysis was relatively consistent across organisations, but with some subtle nuances, and emerging trends and practices.

This was particularly evident in terms of the breadth and quality of stakeholder engagement (which was highly varied across examples), the range of parameters considered (particularly in terms of scenario themes and outcome metrics), and the final target audience.

Interestingly, those citing more recent examples explained how the purpose and design of scenarios had been being broadened, looking beyond narrow economy and transport parameters (e.g. including factors such as climate and air quality, inequality, skills etc.).

The case study provided below highlights a specific example of how a peer organisation has successfully used and applied scenario analysis in their strategy development. This particular example exhibits some of the 'best practice' processes outlined earlier in this section.

The rest of this paper looks in more detail at these contrasting approaches and outcomes, particularly in terms of scenario design and policy. A more detailed review of the evidence is provided in the appendices of this paper, including the testimony collected through the stakeholder workshops.

Case study: how are other organisations using scenario analysis?

Transport for the South East (TfSE), recognising that simply accommodating projected future road demand was incompatible with wider social and environmental objectives, set out to develop a Transport Strategy for the South East to 2050 with a clear focus on balancing economic, social and environmental sustainability ahead of "growth at any cost".

To start, an economic baseline scenario was generated by economic modellers using the latest available projections. To align with TfSE's preferred geographical definition in this project, data at a detailed spatial (MSOA) level were also calculated and scaled to the wider sub-region's projections.

By working closely with the modellers, TfSE devised four internally self-consistent, narrative-driven scenarios that were of particular interest to key stakeholders. The modellers then identified what levers in the model best represented these adjustments.

Modifications utilised included population growth rates, the creation of new knowledge institutions, and changes to the assumptions about the growth rates of certain sectors based on possible policy responses. These were either specified by individual targeted spatial area or evenly distributed across the sub-region.

For this project, changes to transport infrastructure were deliberately not used as lever, as pressures on the existing transport system were a desired outcome, however in previous studies, changes to travel times have been used as a key driver.

The four scenarios modelled were:

- London Hub: This scenario explored the implication of a policy of extensive and ambitious housebuilding programme centred around commuter routes into Greater London.
- Our Route to Growth: This scenario simulates the impacts of a policy of high levels of institutional investment and employment growth in the targeted tradeable sectors in 8 core cities of the study area.
- Digital Future: the baseline levels of population growth is maintained in this scenario while the implications of rapid global technological advance and adoption for the way in which people live, work and travel, and the demand for different types of occupational roles is varied.
- Sustainable Future: the main goal of this scenario is to represent a more ethical and environmentally sustainable economy by assuming there are a reduction in consumption of material goods, leading to a fall in output in associated supply chains, a switch to renewable and distributed energy consumption, and to active and public modes of transportation.

After consultation with stakeholders, an additional hybrid scenario was developed to form the basis of the economic vision and transport strategy:

- Sustainable Route to Growth: This scenario is a combination of inherently compatible elements of the Our Route to Growth and Sustainable Future scenarios. It focuses on sustainable growth in key urban areas while maintaining social and environmental justice.

All the results were carefully reviewed and taken into consideration by TfSE to develop an ultimate Transport strategy for the study area to 2050, which, in addition to the Scenario Forecasting Technical Report, can be found here on the TfSE website.

Transport priorities identified in the strategy include the prioritisation of integrated public transport systems ahead of facilitating unlimited growth in car usage and measures to encourage and facilitate active modes of transport.

1.4 Scenario design and policy

The EU's Better Regulation Guidelines emphasise the importance of embedding strategic foresighting into scenario design. This ensures scenarios can be better "used to assess and stress test how policies and policy objectives would perform in these situations."

Acknowledging the fact that "*design of scenarios is resource and time consuming*", the guidelines suggest building on existing, including stakeholder-led, foresighting and scenario work, with Table 1.1 summarising a range of scenario futures proposed by the EU's own strategic forecasting work.

Table 1.1: Overview of futures considered in the EU's Megatrends Hub

Continuing urbanisation By 2050, the urban population could reach 9 billion. Cities are increasingly functioning autonomously, setting new social and economic standards.	**Growing consumption** By 2030, the consumer class is expected to reach 5 billion people. This means 2 billion more people with increased purchasing power than today.	**Diversifying inequalities** Absolute number of people living in extreme poverty has been declining. The gaps between the wealthiest and poorest of the population are widening.	**Increasing demo-graphic imbalances** World population may reach 8.5 billion by 2030, with rapid growth in many developing economies, while shrinking in many developed countries.
Diversification of education and learning New generations and hyperconnectivity are rapidly changing both educational needs and modes of delivery.	**Shifting health challenges** Science and better living standards reduced infectious diseases. Unhealthy lifestyles, pollution, other anthropogenic causes turn into health burdens.	**Accelerating technological change and hyperconnectivity** Technologies are changing the nature and speed of new scientific discoveries and are transforming systems of production, management, and governance.	**Changing nature of work** New generations entering the workforce and older generations working longer are changing employment, career models, and organisational structures.
Expanding influence of east and south The shift of economic power from the established Western economies and Japan towards the emerging economies in the East and South is set to continue.	**Increasing significance of migration** The social and political significance of migration has increased. Migration flows and dynamics have become more mixed in an interconnected world.	**Increasing influence of new governing systems** Non-state actors, global conscientiousness, social media and internationalisation of decision-making are forming new, multi- layered governing systems.	**Changing security paradigm** Diversification of threats and actors is generating new challenges to the defence and security communities, as well as to society as a whole.
Aggravating resource scarcity Demand for water, food, energy, land and minerals are rising substantially, making natural resources increasingly scarce and more expensive.	**Climate change and environmental degradation** Continued unabated, anthropogenic pollution and greenhouse gas emissions will further increase changing climate patterns.		

Source: European Union

Traditionally, such futures are often presented with a clear dichotomy between exogenous assumptions and endogenous policy choices; of course in reality this is more likely to represent a continuous scale of options depending upon the level of influence policymakers and other stakeholders have over different outcomes.

For example, is national government policy, or local area plans, exogenous or endogenous factors? Behavioural changes - for example the tendency to work remotely - are often presented as entirely exogenous, but of course policymakers do have significant power to shape and influence such decisions.

With this in mind, it can be useful to develop a matrix approach to scenario design in order to capture all possible futures by identifying interaction effects across different dimensions of uncertainty, and the role of endogenous policy choices.

Here, it can also be useful to consult relevant stakeholders, to understand if they think embolden ambitions or would seek to lower them due to having to appeal to the lowest common denominator; or where there are too many uncertainties or unknowns currently to practically design and run a scenario.

Initially, this matrix could be populated on the basis of the following categories of uncertainty i.e. topics where it may be worthwhile testing different assumptions and their effects on the evolution of the wider economy:

1) **Macroeconomic Conditions:** will the UK adjust successfully to Brexit? Will UK labour productivity growth ever return to the pre-Global Financial Crisis trend?

2) **Spatial Development Patterns:** where will we build the houses, factories and offices of 2050, and how will we connect them?

3) **Behavioural Trends:** where and when will people work, for how long? How much will people still travel to city centres to work? Where and how will they spend their leisure time?

4) **Demographic Futures:** what will happen to patterns of domestic and international migration, labour market participation, regional education provision and graduate retention?

5) **Strategic Interventions:** what will be the leading sectors of tomorrow and what interventions might be made to facilitate this? Energy? Tech? Tourism? Manufacturing? What might be the key non-transport interventions?

And one obviously endogenous policy choice for a sub-national transport body[1] (such as TfN) is:

6) **Transport Policy Options:** should we prioritise private, public, or active modes? Should we focus on local, regional or international connectivity?

In addition to this, as well as identifying sources of uncertainty, risk and opportunity, a multi-criteria evaluation framework comprising different outcome metrics could also be proposed as part of the scenario design process.

Here, consideration should be given – ideally through consultation with stakeholders - to what outcome metrics are most important for the (both

[1] Although it is worth noting that for some other organisations, for example a local planning body, wider regional transport strategies would be an exogenous factor.

positive and negative) futures to be appraised against. This would provide a "scoresheet" against which different scenarios can be consistently and rigorously quantified.

In our desk-based review of peer organisations in the UK, we found a range of futures were considered during the scenario design process, though these were relatively standard across organisations, whilst the vast majority were focussed on positive-led outcomes.

Topics and themes which were commonplace included:

- Growth and productivity
- Urbanisation and agglomeration,
- Demography and population growth
- Transport use and commuting

There were however some - typically recent or forthcoming - examples of less-standardized and more tailored/nuanced scenarios. These often placed a greater emphasis on the local economic context and the priorities of relevant (both national and local) stakeholders and policies.

Additionally, these examples were typically also more open to both positive and negative-led outcomes, and included topics and themes such as:

- 'Net zero' and decarbonisation
- Inequality and living standards (including health)
- Technology adoption and innovation
- Covid-19 pandemic related impacts (notably remote working)

The stakeholder workshops further emphasis this shift in thinking. For instance, when asked to provide examples of economic modelling and scenario work, many acknowledged that to date, these had been quite traditional, positive-led growth/economy-options focussed.

Some discussed a widening of scenario futures and outcome metrics in ongoing or forthcoming work, to reflect the broadening of policy aims and related thinking – with a particular and widespread interest in factors relating to inclusivity and 'net zero', as well as considering negative outcomes.

There were however some cautious reflections over how such a broadening of scenario parameters and metrics would be interpreted by key end-users and decision-makers (such as central government).

Additionally, some stakeholders also referred to the importance of distinguishing between policy-based scenarios, and more exogenous-led scenarios, as alluded to in our guidance earlier in this section.

The case study provided below highlights a recent example of scenario design undertaken by a peer organisation, and shows how a broader range of futures are being considered, and how interactions and uncertainties across these are treated, whilst ensuring strong links to existing policy aims and objectives.

Case study: what scenarios are other organisations looking at?

Transport East, in the preparation of an overall evidence base to support its Transport Strategy, undertook an extensive scenario development and testing exercise which would build on existing evidence and consultation to provide corroboration and validation of its strategic approach.

The purpose of this exercise was to identify a set of possible futures for the region, to quantify these in a rigorous manner, and then to explore their implications for the ability of the ultimate Transport Strategy to deliver both the non-transport and transport outcomes identified by earlier consultation and evidence.

The set of possible futures were developed in conjunction with key local stakeholders. Against the backdrop of the emerging Covid-19 pandemic, it was agreed that three separate dimensions should be explored:

1) overall levels of regional economic growth – meaning population, employment and productivity growth;
2) the future spatial distribution of housing supply within the region, and finally;
3) the extent to which future workers continue to work remotely or return to commuting to places of work.

These three dimensions were combined to give: three levels of regional growth, two spatial distribution scenarios, and two differing assumptions about levels of remote working, to create 12 overall scenarios.

A number of assumptions were made to create a range of alternative potential outcomes regarding the future of the Transport East area. These assumptions, classified in three broad categories (Economic, Spatial and Workplace) were as follows:

- Three Economic Trajectories
  - Central Trajectory
  - High Investment, High Housing Growth
  - Low Investment, Low Housing Growth
- Two Spatial Scenarios
  - Centralised
  - Dispersed
- Two Workplace Scenarios
  - Back to normal
  - Remote

The range of scenario modelling identified a number of factors that, in isolation, increase the likelihood of Transport East and stakeholders key objectives being obtained, including higher levels of investment, better jobs and productivity (partly facilitated through greater remote working), and reduced car dependency, and the related decrease in carbon emissions.

1.5 Metrics and policy appraisal framework

As detailed in previous sections, a key element of the scenario design process is to define an ambition - or a series of ambitions (both positive and negative) – with an accompanying set of clear and quantifiable metrics.

Broadly speaking, the reasoning for this is three-fold, and relates back to the overall role and purpose of scenario analysis in policy design and development:

1) **Messaging**
    - Highlighting this is an issue that we care about (e.g. 'net zero'), this is what we are trying to do – showing "we're taking this seriously"
2) **Monitoring**
    - Showing an understanding of the situation, diagnosing the problem, and most importantly, demonstrating an ability to discernibly track progress
3) **Enabling a policy appraisal framework**
    - Testing the impact of relevant policies on progress against the things that matter

In our desk-based review of peer organisations, we found a relatively limited range of metrics were applied during relevant economic modelling and scenario analysis work.

To some extent, this could reflect potential data availability/quality issues (particularly in terms of forecast data), as well as the typically narrower, growth/economy-focussed scope of the futures being considered.

For instance, metrics commonplace across practically all considered examples were relatively standard, readily available growth/economy metrics, including:

- Gross value added (GVA)
- Labour productivity
- Employment
- Population

Even those scenarios with broader parameters, including futures relating to decarbonisation and 'net zero', retained this relatively narrow set of quantifiable metrics, and often appraised these alternative scenarios in qualitative terms.

Though our focus was on economic scenarios, given the majority of organisations we reviewed had devolved transport powers, unsurprisingly a number of scenarios also drew on a range of transport related metrics.

The stakeholder workshops did however reveal a potential openness to considering broader, alternative metrics. For instance, a number of stakeholders acknowledged the previously high emphasis on growth and productivity metrics.

Others discussed a widening of metrics in ongoing and forthcoming scenario work, whilst some were already developing 'scorecards' and other relevant frameworks to incorporate these metrics.

As noted in the previous section however, there was some cautious feedback on this, with several stakeholders asking whether moving away from 'jobs' and 'growth' metrics could affect discussions with key end-users and decision-makers (such as central government).

Others reflected on the fact current government and policy guidance (including the UK Government's 'Green Book' and EU's 'Better Regulation Guidelines') do still allow for these broader metrics, but that clear, understandable and politically popular 'jobs' and 'growth' metrics still matter.

Generally, there was agreement that, even if well-evidenced, work was required to convince key stakeholders and decision-makers that these broader metrics can be incorporated into economic modelling and scenario analysis.

The case study below reviews a range of subnational, national and international organisations who have engaged with broader and alternative metrics, either in terms of modelling and scenario analysis, or in policy appraisal scorecards and frameworks.

Case study: what broader metrics are other organisations using?

Gross National Happiness Index (GNHI)

The term was first conceptualized by Bhutan in 1972 and formally adopted in 2008, with the UN urging other nations to follow suit in 2011. The Alkire Foster methodology used here is interesting because it considers both the depth (percentage of people identified as happy) and breadth (percentage of domains in which people are not yet happy in).

The method could be applied to variables readily available from the ONS and other statistical bodies. However, implementing a dedicated survey to cross-reference these results, as in the GNHI, would be a costly and time-consuming exercise, and susceptible to data quality issues.

Metrics considered within the index, which are supplemented with survey data, include: real GDP per capita, social support, healthy life expectancy, freedom to make life choices, generosity, and perceptions of corruption.

Sustainable Development Goals (SDGs)

The SDGs were first introduced by the UN in 2015. Since then, progress has been monitored with reports in 2015, 2016, 2019 and 2023. In 2017, specific targets were introduced for each goal in order to make them more 'actionable'. A tracker compiles available data on each goal and country.

While the goals include a comprehensive list of 'quality life' metrics, many are not produced to the required spatial detail and frequency, and are often only applicable to developing countries. This limits how easily some of the SDG's metrics could be replicated, however inspiration can be drawn from the subjects it deals with, as shown by the Bristol's adaption of the SDG's.

Metrics used to monitor the goals include those relating to: poverty and hunger, health and wellbeing, quality education, access to affordable and clean energy and water, decent work and economic growth, and inequality.

The Better Life Index

Created by the OECD in 2011, the index collects a range of socio-economic indicators for 41 countries (including the UK) and includes dedicated gender and age parameters. A series of 'How's Life?' reports have been published, every two years starting in 2011.

Many of the indicators used in the index are clearly referenced and already readily available from the ONS and other statistical bodies, with sufficient spatial and temporal coverage. These provide clear inspiration for potential well-being and quality of life metrics.

Metrics considered within the index include those relating to housing, income, jobs, community, education, environment, civic engagement, health, life satisfaction, safety, and work-life balance.

The Changing Wealth of Nations

Accounting for wealth can help to better assess the longer-term prospects of society, particularly relative to the narrow employment and output-based metrics. Changes in wealth have been shown to determine the potential for future income, consumption, and sustainability.

The World Bank's measurement of national wealth is based on natural, human and produced capital, and builds on long-standing wealth accounting concepts and methods. Detailed reports are available for 2006, 2011, 2018 and 2021, whereas comprehensive data covers the period from 1995 to 2018, with 52 indicators used.

An increasing number of the required wealth accounting metrics are now being produced by the ONS and related bodies, and with greater frequency and detail, though not yet to the extent of a precise replication. Metrics considered within the framework include those relating to: natural capital, produced capital, net foreign assets, and human capital.

Levelling Up the United Kingdom

In 2022, the UK Government published it's Levelling Up policy paper. Alongside outlining a range of programmes, policies and ambitions, the paper detailed 12 new 'missions' across four broad areas. Accompanying these missions are a clearly defined and presented range of 'headline' and 'supporting' metrics from which progress will be monitored.

Additionally, each 'mission' and metric operates within a capital framework, which according to the paper capture the main drivers of economic and social outcomes for places. The six capitals in the framework are: physical, intangible, human, financial, social and institutional capital.

Many of the metrics proposed in the paper are readily available from the ONS and related bodies, and are widely utilised in the North by TfN and partners. Additionally, the paper is clear in specifying additional data improvements that are being sought, particularly to support the capitals framework, whilst both the missions and metrics are open to consultation.

Headline metrics used to monitor progress against the missions include: productivity, pay, employment rates, R&D, physical and digital connectivity, educational attainment, life expectancy, life satisfaction, crime, and housing quality. Natural and environmental capital are a notable omission.

The Five Capitals

The Five Capitals Model provides a basis for understanding sustainability in terms of the economic concept of wealth creation or 'capital'. The model can be used to allow organisations to develop a vision of what sustainability looks like for its own operations, products and services.

The vision is developed by considering what an organisation needs to do in order to maximise the value of each capital. However, an organisation needs to consider the impact of its activities on each of the capitals in an integrated way in order to avoid 'trade-offs'. The five capitals are: manufactured, financial, social, human, and natural. The framework is open to what metrics are used to represent these.

1.6 Stakeholder perspectives on scenario analysis

A key element of this workstream has been to consult with Northern partners, in terms of both developing thinking around the potential creation of economic scenarios for the North, and testing the use of broader metrics to measure the North's economy and prosperity.

Representatives from more than 50 different organisations were invited to attend a series of workshops over January and February 2022, including:

- Business North
- Centre for Local Economic Strategies
- Centre for Regional Economic and Social Research
- Core Cities
- Cumbria County Council
- Department of Business, Energy and Industrial strategy (BEIS)
- Department for International Trade (DIT)
- Department for Levelling Up, Housing and Communities (DLUHC)
- Greater Manchester Combined Authority
- HM Treasury (HMT)
- Homes for the North
- IPPR North
- Joseph Rowntree Foundation
- Leeds City Region Enterprise Partnership
- Liverpool City Region Combined Authority
- N8 Research
- National Infrastructure Commission
- Northern Powerhouse Partnership
- North East LEP
- RTPI
- Sheffield City Region Combined Authority
- Tees Valley LEP
- UK 2070 Commission
- West Yorkshire Combined Authority

Stakeholders were asked which parameters and futures, or combination of futures, would be most useful to consider using scenario analysis. They were also consulted on what outcomes, or combination of outcomes, would they characterise as aspirations to be pursued, and which as risks to be avoided.

Another topic that was presented for discussion would be whether there is buy in or value from having ambitious headlines and scenarios for the North, to use as a device to inform, agree and drive future strategies, such as a refreshed NPIER.

A summary of the general discussion from each workshop is provided below, whilst detailed meeting notes (outlining attendees and their attributed comments, as well as workshop prompts and questions) have been provided in the appendices of this paper.

Regions and Devolved Nations Workshop

Stakeholders started by providing examples of key policy and strategic documents – interestingly, those citing more recent examples explained they were taking a broader perspective and looking beyond a narrow transport and economy focus (e.g. considering climate and air quality, inequality, skills). This shift in thinking was further reflected in the discussion of key narratives and theory of change, with stakeholders referencing fair work and quality jobs, inequality, digital, and trade, amongst others. A suggestion that the climate transition agenda should be seen as an increasingly central element of regional strategy was generally well received.

There was some debate on the relevance and importance of agglomeration as a theory of change, with stakeholders agreeing on its continued centrality as a narrative, but with the need to think in a more nuanced way about the concept, and in particular the impact of increased remote working on its efficacy as a mechanism. The UK government's Levelling Up agenda and its accompanying White Paper were also discussed, and though stakeholders acknowledge it represents a key narrative, there was some concern over whether its hyper-

localised focus posed a risk to regional/devolved bodies working on a larger scale. This larger scale was considered a more appropriate spatial scale for tackling a wide range of strategic issues, from transport and land use to innovation and skills policies. On wider risks and uncertainties, stakeholders reached unanimous agreement on those posed by governance and funding, especially for non-statutory bodies.

Discussion then moved on to stakeholder's use of scenario modelling. All provided robust examples, though many acknowledged these were quite traditional, growth/economy-options focussed. Some discussed a widening of metrics in future scenario work, to reflect changing policy themes and priorities e.g. inclusivity, net zero, although there was some cautious reflection over its interpretation by key end-users and decision-makers (such as government). One stakeholder also discussed the importance of carefully distinguishing between policy-based scenarios, and more exogenous-led scenarios.

Finally, on the discussion of examples and best practice, the majority of stakeholders referenced London and its funding and governance arrangements as a leading exemplar for regional and devolved bodies. Some stakeholders also stressed the need for a better exploration and understanding of global best practice, across transport and the economy, but also in terms of work across broader dimensions such as quality of life, inequality, and innovation.

Wider Stakeholder Workshop 1

The workshop started with a broad consensus on how the NPIER's vision should acknowledge and align with other ambitions and plans, notably the Governments Levelling Up White Paper, and the UK 2070 Commission. This led to some discussion on the merits of incorporating broader measures of levelling up and economic progress, though some acknowledged that this may make a clear and coherent vision difficult.

There was then some engaging debate on the role and merits of agglomeration and climate/net zero ambitions as part of the North's vision and as a theory of change. On climate, stakeholders agreed it warranted greater consideration, whilst some felt leveraging the North's green economy strengths could help levelling up. But one urged caution given parts of the North's economy and its industry are highly vulnerable to climate change mitigation strategies, and this could actually hinder the North's ambition to level up.

On agglomeration, stakeholders cited research showing agglomeration benefits were limited in the North, although some felt positive signs were emerging. Stakeholders were asked whether the North's industrial capabilities hinder agglomeration, and whether the Covid-19 pandemic might affect how we think about it. Stakeholders responded strongly that the theory of agglomeration was still robust and relevant for the North, but a key barrier to realising its potential benefits was poor transport and connectivity, with many citing London and the South East as a positive example.

The agglomeration debate expanded into a critique of the 'cities vs. towns' argument, which stakeholders felt had emerged as a purely political narrative and was not supported by evidence, but agreed better inter and intra-urban connectivity would help address some of this narrative. On uncertainties and

risks, stakeholders agreed budget and resource issues would be the most significant, whilst others referenced climate risks, global macroeconomic uncertainty, and inequality/distribution of growth, amongst others.

Finally, on the discussion around the audience and scope of the NPIER, generally stakeholders felt a broader scope would be welcomed, and listed some potential benefits (including wider opportunities for funding, support, and interest), but they did not agree on how broad this should be, with some feeling the higher-level, productivity/growth focus was one of the strengths of the original NPIER.

Wider Stakeholder Workshop 2

The workshop started with a broad agreement on the need for the NPIER's vision to acknowledge and align with the governments Levelling Up White Paper, although one stakeholder did express the need to balance this with a longer-term vision that transcends short-term political narrative and priorities. On levelling up, most stakeholders felt there was value in looking at broader inequality/health/distributional effects beyond the standard growth and productivity metrics.

Interestingly, the discussion then moved on to the topic of scenarios and their role within the NPIER. One stakeholder felt that previous scenarios have been informed by positive potentials, and perhaps consideration should be given to negative ones. Another recommended that aligning with any new or forthcoming government scenario work (perhaps those linked to levelling up) could benefit the NPIER.

As with the first workshop, the concept of agglomeration was discussed, with agreement reached around the need to move beyond the simplistic "bigger is better" narrative, and onto a more spatially and sectorally focused narrative of agglomeration.

The scenarios discussion continued when considering narratives and theories of change. Stakeholders discussed the use and merits of micro decision-making in scenarios to address some of the North's barriers to growth, not least around location decision-making, i.e. why firms/people choose to locate where they do. Scenarios also featured in the discussion of uncertainties and risk, with a strong focus on the issue and treatment of displacement. The work of the UK2070 Commission was heavily referenced here.

Finally, on the topic of scope and audience, stakeholders engaged in some interesting discussion on broadening the reach and focus of the NPIER. Though all felt there was a strong argument and potential benefits to thinking about broader aspects – particularly in terms of funding, momentum and interest - there was some concern that including too many factors and dimensions could make it difficult to create a coherent narrative that talks to the right people.

1.7 Reflections and recommendations

It is clear that, not least given the substantial amount of change over the last five years, that the development of updated economic scenarios will help to ensure the NPIER is dynamic and resilient to change, with an improved understanding of the key risks and payoffs imbedded in any policy choice. Our

consultation with key stakehlders also revealed a strong appetite and interest for the development of such a programme of work.

The economic narratives discussed centred around the trio of goals of redoubling efforts to boost regional innovation, productivity and global competitiveness, more directly addressing the increasingly pressing concerns over poverty, quality of life, cost of living, inequality of both outcome and opportunity for Northern residents, and making the necessary changes to urgently effect a rapid climate transition. The latter was seen not only as a pressing need, but also as a significant opportunity for the North. The need to identify and implement complementary solutions – the search for a just transition – is paramount here.

The narrative of agglomeration was central to the 2016 NPIER and continues to be of relevance. All three stakeholder groups agreed on the need to avoid simplistic arguments and instead think more critically and *systemically* about the mechanisms through which agglomeration benefits manifest, how these interact with pan-regional context and capabilities, and the levers that might be available to policy makers to encourage them.

Of course, the success and widespread adoption of the original NPIER is closely tied to headline ambitions and measures of GVA, productivity and employment. However, when considering such a long-term intervention as the NPIER, with wide-ranging economic and social implications, it is important to consider other outcomes of interest.

The assumption that wellbeing is directly proportional to growth suggests no other measure would be necessary, yet the absence of such a direct relationship justifies looking at alternative measures. For example, better access to health, a cleaner environment and a reduction in relative poverty would be considered as a success in the 'levelling up' discourse without necessarily showing up in GDP figures.

When consulting with stakeholders, we also saw a clear enthusiasm for the broadening of metrics to measure the North's economy and prosperity, particularly relating to environment and inequality. Yet this enthusiasm was tempered with some caution, and the consensus wasn't always clear on how broad these metrics – and the NPIER as a whole - should go.

In our appraisal of broader measures of economic success and prosperity, we found alternative concepts typically revolve around concepts of ensuring high levels of welfare and wellbeing (for instance, the OECD's Better Life Index, and the UN's SDGs), and building and maintaining wealth, broadly defined (for instance by the World Bank and in the Levelling Up White Paper).

Such approaches can be blended to articulate a clearer and more distinct philosophy, for instance: *the proper goal of an economic system is to maximise the **welfare** of the current generation and the **wealth** passed down to the next, and to enable this, we need to build a productive, innovative, **high value economy.***

As a result, metrics designed to reflect a wider remit could incorporate these three priorities, as shown in Table 1.2 below:

- **Ensuring welfare today**
  - *Quality of Life, Health, Prosperity*
- **Building the wealth of tomorrow**
  - *Natural & Built Environment, Physical Capital, Functioning systems*
- **With a productive and high value economy**
  - *Productivity, Innovation, Skills, Investment*

Table 1.2: Potential scenario outcome metrics for the North

The Welfare of Today: following the UN and OECD	**The Wealth of Tomorrow:** following the World Bank and Levelling Up	**A Productive Economy:** following measures of economic growth and dynamism
Low Levels of Poverty	An Inhabitable Climate	GDP Growth
Low Levels of Unemployment*	Renewable Natural Capital	Labour Productivity*
Access to Education*	Air, Food, and Water Quality and Security	Real Median Wage Growth*
Health and Mental Wellbeing*	Biodiversity	Investment (tangibles and intangibles)*
Low Levels of Crime*	Tangible and Intangible Produced Capital*	R&D and Innovation Metrics*
Access to Essential Services*	Housing and Built Environment*	Business Base Start-ups
Access to Housing*	Infrastructure*	Global Market Export Share*

Note: * denotes metric also included in UK Government Levelling Up outcome metrics

Scenario Choices

In terms of the scenarios that might be modelled, we return to our five broad areas of uncertainty outlined in section 1.4:

- **Macroeconomic Conditions**
- **Spatial Development Patterns**
- **Behavioural Trends**
- **Demographic Futures**
- **Strategic Interventions**

The 2022 scenarios might choose to update the existing set of travel scenarios modelled to date: these considered a wide range of uncertainties, including overall levels of growth (transformational vs baseline), patterns of spatial development (dispersed vs compact) and behavioural trends (digital vs travel friendly). Sufficient new data, insight and evidence has become available in the past few years that the process of re-running scenarios along these same dimensions with updated or extended assumptions would be a worthwhile exercise.

Alternately, it may be sensible to explore different dimensions of uncertainty. Scenarios exploring assumptions around demographics and sectoral growth interventions may provide a complementary lens that can be combined orthogonally with the existing Travel Scenarios in order to broaden the total range of possibilities being explored.

1.8 Appendices

Provided here are a copy of the meeting notes (including comment attributions, and question prompts) from the three stakeholder workshops undertaken as part of this workstream. Note that these notes are intended as a general summary, and do not provide a verbatim record.

In addition to this, also provided here is the supporting analysis for the peer review of scenario work undertaken by other strategic transport bodies in England, which has been referenced throughout this paper.

Regions and Devolved Nations Workshop

31st January 14:00-15:30, MS Teams

Attendees, and organisation represented:

- Adam Brown (ALB), Cambridge Econometrics
- Ben Gardiner (BG), Cambridge Econometrics
- Alexander Frost (AF), Cambridge Econometrics
- Emma Woods (EW), Transport for the North
- Emma Orsolic (EO), Transport for the North
- Delma Dwight (DD), Midlands Engine Observatory
- Henry Kelly (HK), Midlands Connect
- Karen Chapman (KC), Transport East
- Kenny Richmond (KR), Scottish Enterprise
- Mark Valleley (MV), Transport for the South East
- Rick Clayton (RC), Peninsula Transport
- Jen Rae (JR), NP11

Discussion Point 1: Policy Documents • What key policy or strategy documents have you created that you feel have been particularly successful? • Who was the ultimate audience and what case did you make? What was the impact?	• HK: most impactful work we have done is take the National Infrastructure Commission's 1.2% of GDP infrastructure spending target and assess committed schemes and longer-term pipeline – results showed underinvestment relative to this target, especially longer term. Audience was DfT (Department for Transport) and Treasury. Conclusion - important to accelerate pipeline development and build longer term supply chain capacity. • DD: from a boarder perspective, the Midlands IER – a robust evidence base provided a grounding on barriers to growth, and what issues were holding back the Midlands. Looked at pan-region priorities and opportunities. Audience was primarily local partners, who could use the 'real-time' evidence of the IER and monitor against this. • KR: business planning based on central (Scottish) government plans/strategies. Themes-focussed research and strategies, including on exporting, inward investment, and capital investment, focused on identifying gaps, opportunities, and partner responsibilities. Audience is primarily partners, to support partnership working, which has been productive. • MV: produced an economic connectivity review. Identifying the 'size of the prize' if ambitious levels of economic growth are realised. Focussed on sector strengths and distribution, and broader facilitators of growth, such as housing, skills, employment space, and international opportunities and inequality.

	Audience was primarily central government and constituent authorities. If to repeat the exercise, would take a broader perspective beyond the 'economic prize', given shifting policy priorities. • KC: compiled a regional evidence base to support local strategy - four themes: global, coast, decarbonisation, and connecting centres. But agree it should consider broader factors. Some local partners have started to incorporate broader socio-economic factors (including inequality, air quality etc.), which is starting to influence thinking. • MV: producing a new strategic investment plan. Main change in thinking has been an assessment of carbon emissions – a new parameter with a much stronger focus on it than before.
Discussion Point 2: Key Narratives and Risks • What do you consider to be the key narratives that UK pan-regional bodies, regions and devolved nations need to embrace? Where are the big opportunities? • What are the key risks or uncertainties for UK regions and devolved nations?	• KR: in our forthcoming work, addressing net zero/climate emergency – both from an environmental but economic opportunity – fair work and quality/good jobs agenda, and digital connectivity and accessibility. Demographic trends/challenges also scrutinized. Within these, focus on distinguishing short-term vs. long-term. • KC: finance and governance biggest risks. UK regions, despite STB's (Strategic Transport Bodies), do not always align with existing governance and funding boundaries. Need greater clarity on these to ensure quality delivery. • HK: making progress in aligning transport and economic priorities and better partnership working. STB's have no strategic funding and limited policy levers, so focus on convincing and lobbying central government. Levelling Up White Paper looks to take a much more targeted, local scale focus, which is a risk to pan-regional bodies working on a larger scale. Important not to neglect 'within region' inequalities when discussing levelling up. • MV: key narratives for us include 'Global Britain' (focus on international gateways), the 'green recovery' and related sector opportunities and needs, housing issues (which need significant infrastructure assistance), and levelling up has to be a key part of anyone's narrative. Risk that levelling up focus is narrow and localised, whilst uncertain funding environment continues to be a risk. • DD: have produced research on risk and uncertainty, particularly in terms of governance, policy and funding. Similar narratives to others (levelling up, net zero, digital), but also considering supply chains (opportunities and resilience) and labour markets. • ALB: agglomeration has been a key narrative over the past decade or so. Should this still be a key narrative? How might this have changed? • MV: the pandemic may change agglomeration in terms of remote working, but movement and connectivity of goods and non-tradeable is still relevant for agglomeration. • EW: some research shows agglomeration has not necessarily worked in practice in the UK – especially in the North and Midlands – even if theoretically robust.

	• BG: importance of distinguishing between businesses and people in agglomeration argument. Centre for Cities have found less-dense cities in the UK have lagged international counterparts. • JR: on agglomeration, cluster development and cluster innovation needs to be understood and undertaken at a below national but above local level – important role for pan-regional bodies.
Discussion Point 3: Use of Scenario Modelling • Within your geography, what scenario modelling have you undertaken and for what purpose? • How did you design your scenarios? How have you used the outputs of the analysis? • What metrics did you use to measure the outcomes and how were these selected?	• KR: considered some trade scenarios looking at different export opportunities. Also considered a number of post-Covid scenarios, and how this may impact local strategy development and policies. Incorporated independent/expert insights and local knowledge. • KC: commissioned scenarios looking at different transport investment trajectories, and 'size of the prize' in terms of the economy and housing. A strong focus on spatial patterns and implications, to generate local discussion and agreement. • MV: pre-Covid, did a traditional scenario planning exercise looking at four stakeholder-informed scenarios, which teased out different parameters. Using the outcomes, and further stakeholder engagement, adopted a preferred scenario which informed a longer-term vision. Land use, sectors, modal split and other factors were considered within these. • DD: have used a bespoke model extensively to compile a broader vision. Considering e.g. different industry, productivity and population assumptions. Can also use it bottom-up to model a specific intervention or program. But need to think dynamically about how these bottom-up interventions can change the longer-term trajectory. • HK: Alternative Futures Scenarios primarily looked at different economic trajectories, but did provide a rural-urban split, which is useful post-Covid. Not used much but useful for sensitivity testing. Looking ahead, will aim to distinguish between policy-based scenarios, and more exogenous-led scenarios – essentially need two axes for each scenario. A shortcoming of the original NPIER. Also need a better understanding of freight in future scenarios, historically have been passenger focussed. • KR: our focus not so much on understanding policy implications but to better understand future trends and uncertainties. Would be interesting to use scenarios to test different economic strategy approaches e.g. growth led, society led, net zero led. • DD: widening of metrics in future scenarios, to reflect change in policy environment e.g. inclusivity and net zero. Previously focussed on growth and productivity. Have produced scorecards to incorporate these metrics. • EW: does moving away from jobs and growth affect discussions with central government? Current Green Book does actually allow for these broader metrics, but jobs still matter. • HK: politics means narrow growth and jobs narrative is prioritised. Some work required to incorporate these broader metrics into funding approaches, even if well evidenced.

	• MV: recent messaging from DfT (Department for Transport) has been to provide a broader, strategic case, rather than narrow economic focus. But unsure how this sits with Treasury, who are providing the ultimate sign off.
Discussion Point 4: Examples and Best Practice • Thinking further afield for a moment: what are the key lessons that we can learn from elsewhere in the UK or around the world? • Where are the precedents for positive change or examples of best practice? Equally, are there any lessons of things to avoid?	• MV: clearest lesson from the UK is London – a joined-up, single entity in control of planning, transport, environment etc. Has led to more effective policy making and outcomes. • KC: on inequalities, increasingly starting to see a broader understanding besides just financial inequality (e.g. gender, health, age). Would be useful to learn best case examples of this from around the world. Integrated ticketing (such as Oyster in London) is also a significant precedent, but difficult to adopt in practice. • KR: looking at other best practice agencies and bodies around certain themes e.g. on innovation, looking at global leaders (e.g. Scandinavia). • MV: need to start looking at the funding environment in other countries, is there best practice we can learn? How have those who have invested heavily in transport (as % of GDP) fared? Do we need to think differently about how transport users are priced? • HK: we have a quality-of-life objective, looking for a good methodology of trying to quantify that. Have commissioned research to look at from a health economics/wellbeing perspective.

Wider Stakeholder Workshop 1

2nd February 09:00-10:30, MS Teams

Attendees, and organisation represented:

- Adam Brown (ALB), Cambridge Econometrics
- Ben Gardiner (BG), Cambridge Econometrics
- Alexander Frost (AF), Cambridge Econometrics
- Emma Woods (EW), Transport for the North
- Emma Orsolic (EO), Transport for the North
- Dr Annette Bramley (AB), N8 Research Partnership
- Andrew Morrison (AM), Department for Transport
- Professor Philip McCann (PM), University of Sheffield
- Professor Vincent Goodstadt (VG), UK2070 Commission

Discussion Point 1: A Vision for The North • What realistically could the North look like in 2050, and what are the key details to that vision? • What should the North's ambitions be?	• PM: any vision should address the potential overlap with the UK2070 commission (the independent inquiry into city and regional inequalities in the UK), and explore consistencies and contradictions, alongside that of other relevant work, such as by IPPR North. • AM: there is a need to go beyond the simple forecasting of the economic growth and productivity of the North. Explore broader socioeconomic forces, which we know have changed the economy in the past. Look at the recent, big picture macro events (education and skills, migration from Europe, rise of China) and explore what is possible within these. • PM: thinking should be within the government's framework presented in the Levelling Up White Paper, which has made a welcome move towards broader measures of success beyond just growth and productivity. • EW: others, including the Productivity Institute, also has a view on levelling up, which should be considered. Essential to be coherent within the possibilities of the different government aspirations and actions. • AB: the transition to net-zero should be used as an economic vision for the North. Strengths in science, skills, and business can be leveraged to level up through the 'green economy'. Spill-over benefits from this could include health and productivity related gains. There should be a focus on investment in research and education, and on the strengths of the North's spatial clusters. Longer term ambitions should be consistent with these strengths and weaknesses. Bringing different government agendas and aspirations together could be an obstacle in developing a coherent vision however.

	• AM: important to articulate the benefits of cities and agglomeration in the North. Any vision should prioritise investing in transport and infrastructure within the North to increase agglomeration benefits. • EW: agglomeration has had a significant influence on regional policy over recent decades, and influenced the 2016 NPIER. Will the role and importance of agglomeration change in a post-Covid world? • PM: important to reframe rather than replace the North's agglomeration narrative. Northern cities underperform given their size and go against agglomeration theory. But progress is being made and agglomeration benefits are emerging. London and the South East show textbook agglomeration benefits, given high accessibility and connectivity between cities. This should be replicated in the North. • ALB: the capabilities of the North broadly lie in industries like manufacturing, logistics and energy, which we know don't require high-density areas, and do not benefit from agglomeration in the same way as service-based sectors (which are more prevalent in London/South East.) • VG: theoretically agglomeration can work in the North, but to be realised connectivity and accessibility needs to be the same as London and the South East. Important to note that services linked to the North's capabilities still benefit from agglomeration, even if those capabilities do not. Improving intra-urban connectivity would help enhance these benefits. • PM: the difficulty with a 'green recovery' agenda is that the economy of the North, particularly its industry (which is concentrated in certain towns and cities), is vulnerable to climate change mitigation strategies. With such an agenda, it would be important to keep Northern business downside from the associated risks, otherwise it could backfire and actually worsen spatial inequalities.
Discussion Point 2: Narrative and Opportunities • What is the economic narrative, the theory of change? • What are the key opportunities, and what do we need to do to seize them?	• PM: the two most urbanised areas in the UK outside London are the North West and North East conurbations. Solving the North's underperforming city problem is therefore key to any theory of change. The challenges of the 'green recovery' agenda should also be linked to this. The main theme is connectivity here, both within and between urban centres. Also, the UK 'city-town gap' (which posits towns are neglected and underperforming relative to cities) is a myth but is still widely used as a political narrative. • AM: city performance is typically mirrored in surrounding towns. Importance of developing attractive residential towns with commuting potential – connectivity is important here. • VG: underperforming spatial units can be unique, but have some common characteristics and needs. The green agenda and the national Industrial Strategy should have both figured in a levelling up strategy. The latter is now less apparent, suggesting a stronger focus on global competitiveness and exports, which could benefit some industries and areas in the North.

	• BG: sceptical about trickledown effect for high-performing cities to surrounding towns. The narrative should not be framed as cities vs. towns, but rather focus on their contextual issues and potential synergies. • PM: the most prosperous places in the North (in terms of life expectancy, income etc.) are towns. But these areas are dominated by people working in adjacent cities. Therefore, the distinction is not about cities vs towns, but prosperity and isolation. Underperforming towns often former industrial/coalfield communities, and there should be a focus on these (some work has already been done to date) to counter the simple 'cities vs. towns' narrative.
Discussion Point 3: Risk and Uncertainties • How could things go wrong? • What kind of uncertainties need to be planned for? • Are there payoffs or difficult decisions? Who should make them?	• VG: the failure to be proactive with any strategy or vision is a risk. Budget and resource issues also often impede plans from turning into actions. Important to agree the longer-term, higher-level targets and aspirations, which can help generate the required resources over the longer timeframe. • AB: vulnerability to extreme climate and weather events, which are increasingly prevalent in the North, is a risk. Long-term planning e.g. to 2050 needs to go beyond shorter-sighted private and public decision making, which might not always account for these risks. • AM: the global macro environment presents risks, some of which we know already e.g. rise of China, changing relationship with the EU, dominance of London/SE. Inequality and distribution of wealth also a risk to any growth-oriented strategy. • VG: when planning for the future, many bodies do so assuming the continuing growth of London and the South East, at the cost of the Midlands and North. These assumptions are often embedded in strategic frameworks and thinking, and will present a risk.
Discussion Point 4: The Role of The NPIER • Who is the key audience for the NPIER? • Should the focus be kept narrow – productivity and employment, capabilities and sectors, or should it widen out to consider broader social and environmental aspects?	• VG: supports the broader scope of a review, beyond a narrow growth and productivity focus. A narrow focus can miss the big picture and oversimplify the required resources and actions. • AM: the focus should still be on productivity and growth, as it is a clear and established sign of improving people's lives. However, there should be discussion of wider issues like health, wellbeing and net zero. It needs to try and distinguish between the symptoms and causes of the North's problems e.g. why improve workers health if still in low-wage, unproductive jobs? • AB: broader wellbeing indicators should be included in a long-term plan to 2050. Each part has unintended consequences which need to be understood though. A broader review which helps set the context and ambition, can involve and guide decision-making and interventions across a wider ranging of organisations. • PM: agrees that productivity underlines other wellbeing and socioeconomic dimensions. Exceptions can be high-productivity locations e.g. oil, high-amenity areas. Broader socioeconomic measures can broaden the audience, interest and discussion though. But the ultimate audience is government, and the Treasury in particular. Therefore they need to be persuaded that it is an economically viable plan.

If you lose focus on economy and productivity you risk getting side-lined to other, less well-resourced departments.

- VG: agrees that the Treasury prioritises and supports economic growth, but the Treasury also supports the priorities of the Department of Health and others. Therefore a holistic message is required to get full support.
- EW: broader wellbeing measures are becoming more prevalent with partners in the North e.g. local strategies and plans are distinguishing between ‘quality jobs’ vs just ‘productive jobs’.

Wider Stakeholder Workshop 2

3rd February 14:00-15:30, MS Teams

Attendees, and organisation represented:

- Adam Brown (ALB), Cambridge Econometrics
- Ben Gardiner (BG), Cambridge Econometrics
- Alexander Frost (AF), Cambridge Econometrics
- Emma Woods (EW), Transport for the North
- Gillian Roll (GR), Home Group
- Joseph Simmons (JS), Department for Transport
- Claire Worsdall (CW), Department for Transport
- Edward Perchard (EP), Cities and Local Growth Unit

Discussion Point 1: A Vision for The North • What realistically could the North look like in 2050, and what are the key details to that vision? • What should the North's ambitions be?	• GR: importance of aligning to the Levelling Up White Paper, which presents a more holistic view of growth – not just about the economy. The overall thinking should be quite broad, but not too broad that it becomes meaningless. Some key drivers need to be considered. Energy is a significant growth area in the North, education and skills continue to be fundamental, whilst housing is key in enabling growth, and should be captured in the vision. Questions whether the North should aim to match the South, realise the levelling up white paper, or build its own trajectory. • CW: agrees that there is value in looking at inequality, health and distributional effects beyond the standard growth and productivity metrics. • JS: it is important that the North's ambitions take government ambitions into account, such as the Levelling Up White Paper, but should also look beyond short-term, political priorities. • CW: the Transport for the North Future Travel scenarios were all informed by positive potentials. For the NPIER scenario development, shouldn't negative potentials also be considered? • EW: explains that the aim will be to propose a balanced list of scenarios to partners, each with a particular theme. For example, one based on 'agglomeration and cities narrative' could work for Manchester but not Cumbria. Another scenario could be more town-focused. This range gives more flexibility and can test for a response to each scenario. • JS: the scenario development should aim to consider any scenarios used by government, if available, and make sure they broadly match. This might make potential plans more likely to pass from government.

	• EW: the previous NPIER exceeded government scenarios to reach the level of growth desired by the North. Will still aim to incorporate scenarios developed by government, particularly on the levelling up agenda. • BG: hasn't heard of any new or forthcoming government scenario work. The 2016 government scenario was a calculation 'what-if the North achieved the South's productivity'.
Discussion Point 2: Narrative and Opportunities • What is the economic narrative, the theory of change? • What are the key opportunities, and what do we need to do to seize them?	• JS: the theory of change has been discussed widely. For example, the North produces many high-quality students, but the majority leave for London or other places. A theory of change could be around how we make them stay. But this should also be balanced with potential consequences e.g. gentrification. • CW: why do firms choose to locate there? If students stayed in the North so would firms. But who makes the first move? Evidence around location decision-making is not great, and perhaps needs to be addressed. Working through the logic driving labour and firm spatial decisions is important. • EW: clarifies that there was no micro-level decision-making applied to the Future Travel Scenarios. • JS: also does not recall the Future Travel Scenario models examining what leads to spatial decisions, but that they were simply taken as an exogenous assumption. • EW: research has shown that in terms of location decision-making, habit and familiarity means people tend to look at places within a 20-mile radius. • GR: pre-Brexit the North East had a trade surplus, one of the few areas in the UK to do so. There are businesses there, but it is public-sector oriented. The BBC and Treasury have opened branches in an attempt to attract more graduates, and more firms, establishing a virtuous cycle. Graduate perceptions about North-South divide are key in their decision-making. For example perceptions on house prices, vibrancy and connectivity are key factors in the decision graduates make. Anchor institutions can help shape this, and can also have a positive effect of the perception of an area. • EW: CLES have done community wealth building projects in Preston, looking at anchor institutions and their local procurement spend. This system has had a positive impact on local areas. • AF: understanding the role of anchor institutions in local economies is more prevalent outside the UK, particularly in the US, where they form part of an areas Comprehensive Economic Development Strategy.
Discussion Point 3: Risk and Uncertainties • How could things go wrong? • What kind of uncertainties need to be planned for?	• CW: any scenarios for the North need to be in relation to wider trends within the country and globally. They should consider how the North responds to external shocks and macro downside risks. Also, most scenario's typically present a scenario of 'winners and losers', therefore there is a trade-off involved. • GR: agrees that there will be trade-offs e.g., when looking at a particular goal, such as reducing inequality. Reducing uncertainty is about the resilience of the North to withstand shocks. The ability

• Are there payoffs or difficult decisions? Who should make them?	to respond to new challenges is key, and is important to build resilience within the North. Devolution may make a difference to resilience but depends on the allocation of central funding. • JS: need to be considerate of political realism and aligning with government aims. There is significant political uncertainty that comes with each new term in office. The issue of displacement is also important and should be considered - would high growth in the North be new or coming from adjacent regions (Midlands/South East/London)? • EW: the displacement point was raised after the 2016 NPIER. The UK2070 Commission's modelling has a range of scenarios that treat displacement differently. These range from a current spatial distribution of productivity to partial and full levelling up. Using UK2070 as a basis could add credibility. The modelling of UK2070 was done by University of Cambridge academics. • BG: the UK2070 work overcomes the regional displacement issues by taking a holistic, UK-wide approach. The NPIER scenarios should try and build on and 'stand on the shoulders' of the UK2070 scenarios, rather than work in parallel. • EW: the UK2070 scenarios go beyond just economic-based scenarios, with a strong focus on transport/connectivity e.g. explores roles of improved inter-urban connectivity in the North. The Commission also has extensive, more holistic research and evidence beyond just economics and transport. Also appraises international case studies and best practice e.g. Germany 'OstPolitik' after reunification in 1990.
Discussion Point 4: The Role of The NPIER • Who is the key audience for the NPIER? • Should the focus be kept narrow – productivity and employment, capabilities and sectors, or should it widen out to consider broader social and environmental aspects?	• JS: decision-makers are a key part of the audience. Also local stakeholders would want to 'see the size of the prize'. The argument over the credibility of the scenarios will have a political angle. Do you want the NPIER to inform decision-making or promote the vision for the North? Or both? • GR: government - and their funding - remain an important audience. But looking more broadly, it should continue to focus on informing potential external investors and telling them the North's story. It should look at wellbeing and other indicators, to try and use the NPIER to leverage funding for levelling up besides just transport and infrastructure. DfT (Department for Transport) was the key audience in the 2016 NPIER, but it should think more holistically now. • EW: from a transport point of view, although the audience is central government each department has their own priorities which are relevant. Given the changing funding and policy context, there may need to be a greater focus on government than in the previous NPIER. • CW: it is a strong argument to think about broader aspects, but the more factors and dimensions that are included the harder it is to create a coherent narrative that 'talks to people'. As a 'word of caution' against trying to appease everyone by broadening the NPIER out too much.

- EW: Steer's Review of the 2016 NPIER found that the broader the NPIER is made and the more metrics you include, the harder it will be to build a consensus. They found that the high-level economic targets were understandable and easy to support and action.

Examples of scenario work undertaken by peer sub-national transport bodies (STBs)

STB	Scenario themes and futures	Scenario metrics (if specified)	Stakeholder involvement	Future scenario work
England's Economic Heartland	• Policy direction • Technology adoption • Decarbonisation • Demographics • Last mile connectivity	Not specified	Stakeholders were heavily involved in the development of the scenarios, with two workshops "attended by key stakeholders"	Not mentioned
Midlands Connect	• Urbanisation • Productivity • Commuting patterns • Technology adoption	Population (with urban/rural split), employment, car trips (with urban/rural split), productivity	10 organisations "representing widespread stakeholder types attended workshops" to help identify scenario parameters	Not mentioned
Transport East	• Urbanisation • Digitalisation • Remote working • Economic growth	Population, employment, GVA, productivity, commuting flows, remote working	A steering group, including local transport officers, was consulted during the scenario development.	Not mentioned
Transport for the South East	• Urbanisation • Inequality • Industry growth and specialisation • Demographics • Decarbonisation	Population, employment, GVA, productivity, commuting flows (and by mode)	18 stakeholders were involved in the scenario development, representing "a wide variety of public and private sector organisations"	Have been awarded funding to develop decarbonisation scenarios, which will feed into a forthcoming decarbonisation toolkit
Western Gateway	• Economic growth • Technology adoption • Decarbonisation • Connectivity • Urbanisation	Not specified	Yes, currently being consulted upon. An additional round of consultation is due Autumn 2022.	Scenarios development and assessment currently ongoing
Peninsula Transport	• Decarbonisation • Urbanisation • Productivity • Digitalisation	Not specified	Not specified	Development of decarbonisation scenarios currently underway through their 'Carbon Transition Strategy'