



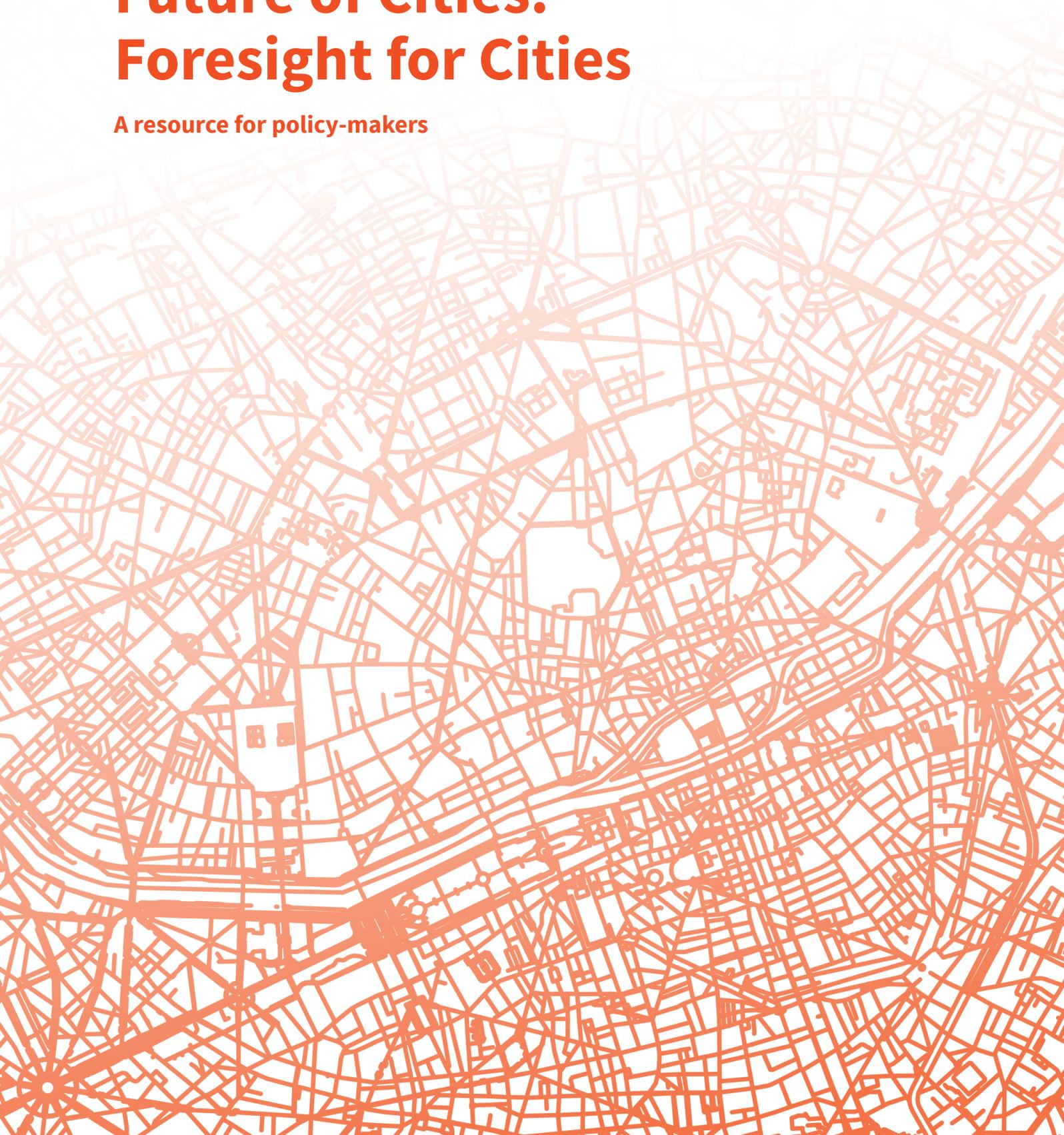
Government  
Office for Science

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Foresight

# Future of Cities: Foresight for Cities

A resource for policy-makers



# Foresight Future of Cities Project

The Foresight Future of Cities Project is run from within the Government Office for Science (GO-Science) and was launched in June 2013 by Sir Mark Walport. This major project has developed an evidence base on the future of UK cities to inform decision-makers. It has used evidence and futures analysis, taking a view towards 2065, considering how people will live, work and interact in our cities 50 years from now. The project has focused on taking a holistic, long-term view of the future of UK cities, working across spatial scales from the national system of cities to city and sub-city systems.

Foresight is not alone in this space. Through the lifetime of the project we have seen an increasing number of organisations taking an interest in the future of cities. Along with this, there has been a growing amount of research and analysis on the future of cities, both in the UK and around the world. We have sought to work with these organisations and drawn upon much of this work.

We have collected evidence in a variety of ways, from the commissioning of working papers and essays, to running futures workshops, and visiting, supporting and working with more than 20 cities of various types and sizes across the breadth of the country. There is a considerable evidence base available on the project's website including the peer reviewed working papers, essays and workshop reports.

This report provides a value proposition to encourage mid-sized and smaller cities in the UK to engage in foresight exercises and offers practical lessons for implementing and managing a city foresight process. This is aimed primarily at local government officials and partners. It sits alongside two other deliverables in the Future of Cities project's final outputs:

- *The Science of Cities and Future Research Priorities* – examines what science can offer to understanding the future of cities, and in what direction research could most usefully be focused in future.
- *Graduate Mobility and Productivity: An experiment in open policy-making* – adopts a place-based open policy-making approach to a key challenge emerging from the Future of Cities project's evidence base. This demonstrator project encourages collaboration between national government and key local actors including local government, universities and employers to meet national policy challenges.

This report can be used as a basis for understanding key foresight methods and the value they can bring to decision-makers, particularly in local government.



## City Foreword

**Peter Marland**

Leader of the Milton Keynes Council

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For our cities to be leaders in the future, we need to make decisions now about where we want to go and how we are planning on getting there. For Milton Keynes there was a strong consensus that we needed to explore potential long-term futures, as part of the emergence of Milton Keynes as a UK city and economy of increasing significance.

City leaders and officials need the tools and resources to develop a compelling future identity and vision for a city, and Milton Keynes has historically been a city with a very strong sense of identity and future brand. Adaptation and evolution of this identity is critical, without losing sight of the uniqueness of Milton Keynes

City foresighting, as outlined in this report, is about feasible, low cost, high value activities that provide an evidence base for developing such a vision for the future. It is a credible approach that fits with the realities of the environment that Councils now operate in.

We welcome this report's messages and contribution - no other such resource exists, and we have been fortunate to benefit from this. I recommend that other city leaders digest the value proposition for city foresight and then take some time to experiment with the approaches.



## National Foreword

### Tom Walker

Director, Cities and Local Growth Unit,  
Department for Communities and Local Government

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The future success of our cities is crucial to the future success of our nation. Social, environmental and economic changes are not abstract national issues; they are played out locally.

The UK is a system of highly diverse cities. Each has a distinctive history and its own bespoke set of relationships with its neighbours and with central government.

Devolution means that cities will be in greater control of their assets, finances, service delivery and strategic policy choices over the next decades than they have been in the past. As the places that attract high value firms and skilled workers, cities will need to harness their unique resources if the country is to address its long-term productivity problem and lead the world in innovation and competitiveness.

Decisions taken now will determine the health, wealth and resilience of cities and the nation in the future. Cities are repositioning themselves for future roles, not just in their region, but nationally and internationally in order to adapt to meet the challenges of the 21st century.

Devolution provides cities with new tools to effect change where needed and build upon existing strengths to shape resilient local economies and places. Effective decision making in this respect will require the consideration of a wide range of evidence, understanding the national and local contexts as well as a clear vision for the future of our cities. City foresight can give decision makers comprehensive evidence of anticipated and possible future change in an increasingly complex and interconnected environment.

Cities and national governments are already developing new ways to work across sectors and scales. New governance arrangements will ensure enhanced visibility and opportunities to exercise leadership that helps to drive action through local authorities and their partners. A compelling plan for a city's future development trajectory, supported by evidence and analysis, can provide assurance for existing businesses and attract additional growth and investment to a place. Cities need to champion their individuality, build on local strengths and pursue local priorities, but also be supported to join up ideas, people and skills between cities and across city-regions.

Working together, national and local government can strengthen the way they examine the possibilities for the future of cities and take action to shape that future. This report helps to equip national and local government for the journey ahead. I welcome the contribution that this report makes and I recommend it to everyone committed to the future wealth and prosperity of our cities.



## Lead Expert Foreword

**Corinne Swain**

Foresight Future of Cities Lead Expert

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For those of us privileged to have been part of this Future of Cities project, we have seen first hand the benefits of long-term thinking for individual cities. There are also gains at national level by building capacity and confidence in support of the city devolution agenda.

In this report we have conceptualised foresighting as a journey. But this journey is not necessarily rigid or linear. Cities can dip into futures and foresight techniques at a number of stages, and use any of the sample techniques highlighted here that best suit their individual circumstances.

The city foresight exercises supported through this Future of Cities work have largely been piloted in the larger cities of the UK. By drawing on this experience we hope to stimulate smaller cities to embark on similar exercises. In so doing we hope that local authorities and their partners will discover the lost art of visionary planning.



# Executive Summary

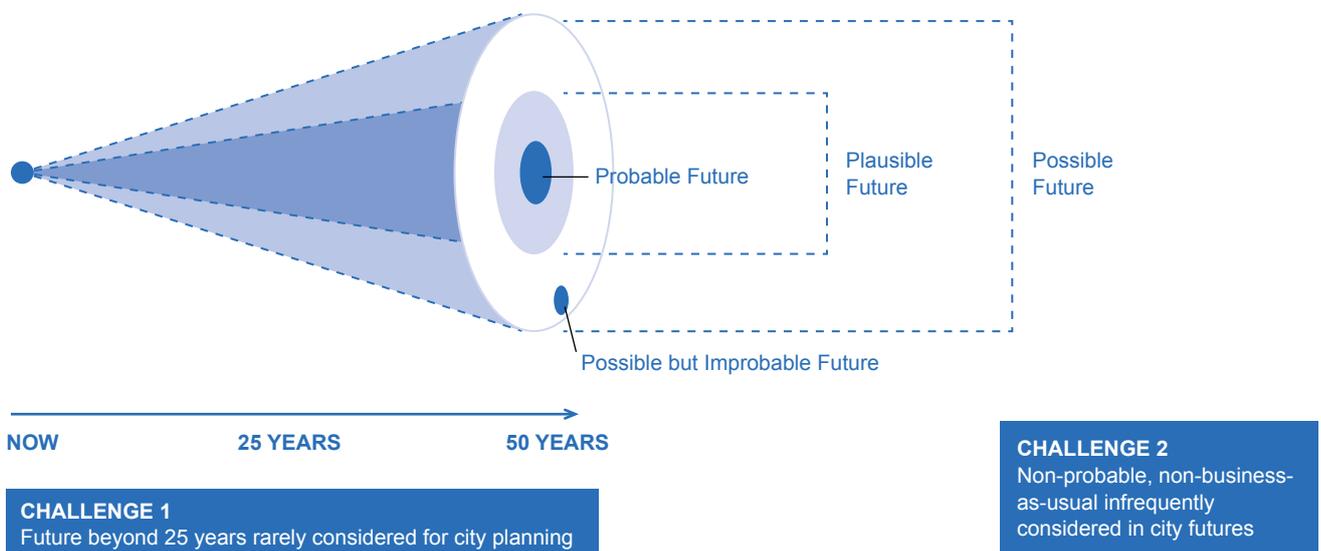
At a time of greater devolution, UK cities are gaining influence and prominence on the national stage. Waves of City, Growth and Devolution deals are changing the control that cities have over their assets, finances, service delivery models and policy choices. The decisions made in this process will shape the future of our cities for decades to come.

Changing governance structures present an opportunity for cities to reposition themselves for new future roles – at city-regional, national and even international levels. Decision-makers will benefit greatly from evidence of the context, opportunities and risks faced by each city. Better harnessing of the unique strengths and resources of individual cities will lead to a more productive and competitive national system of cities.

City foresight is the science of thinking about the future of cities. It draws on diverse methods to give decision-makers comprehensive evidence about anticipated and possible future change. With ever increasing volumes of available data and emerging new analytical approaches, cities need to be equipped for complex decision-making about the future in a way that engages the appropriate partners and communities.

Currently the UK rarely looks very far into the future of its cities, or considers the full richness of possibilities. Working together, national and local governments can change this by strengthening the mechanisms and processes available for cities to examine the long term and take evidence-based action to shape their own futures.

## Two current challenges in long-term thinking about UK city futures



City foresight does not need to be resource-intensive to be valuable. Even small-scale uses of its principles, or applying a single technique in a meeting, can deliver benefits.

Because foresight has many possible impacts and benefits, it can be helpful to differentiate between value gained from the *content* generated by exercises (the insights and stories revealed) and value that comes from engaging in the *process*. These benefits to a broad range of internal and external city stakeholders are summarised in Table 1.

**Table 1. Benefits of city foresight**

<b>Exposing local strengths</b>	Creative exploration of long-term aspirations and policy options brings fresh perspectives on unique local assets, as well as the ways by which these can combine into a distinct future city brand and identity
<b>Enhancing resilience</b>	Collaborative sense checking of assumptions about future change leads to early identification of risk and builds relationships that enhance cities' capacities to cope with change and disruption
<b>Strategy refinement</b>	Increased clarity and alignment of place-specific aspirations, local assets, opportunities, and enhanced awareness of risks yield more robust strategic 'roadmaps' towards the future
<b>Investor confidence</b>	Active shaping by city leadership of future trajectories fosters external confidence in a city's management of its assets and risk. Compelling narratives about a city's long-term prospects further enhance its attractiveness to businesses and skilled workers
<b>Strategic partnerships</b>	Joint identification of future business and development opportunities across wider geographies builds coalitions and leads to greater data sharing and closer alignment of cities' policies
<b>Tackling challenges</b>	The future provides a safe space for engaging with persistent, politically charged challenges
<b>Civic engagement</b>	Creative engagement with public provides opportunities to demonstrate city leadership qualities and enhance civic pride

This report is intended as a resource for all those interested in undertaking long-term thinking and analysis at the city level. It presents insights and lessons from the Foresight Future of Cities project in working with city governments to integrate long-term evidence into their decision-making processes.

We recommend that national and local government take the following actions to support the wider use of city foresight:

## ACTIONS FOR CITY GOVERNMENTS

### 1. Consider the long-term future in shorter-term city decision making

Cities can display leadership by establishing foresight processes that demonstrate to national government their individual and collective capability for driving the development of the UK's system of cities.

### 2. Establish platforms for city foresight

Cities can establish mechanisms for collaborations between local, city-regional and national partners to explore the future. Establishing such networks can provide timely access to valuable knowledge, and lead to wider ownership of policy issues.

### 3. Share lessons learnt about the practice and impact of city foresight

Cities can learn from each other about the strengths and weaknesses of different approaches to engaging with the long-term future. Exchanging insights will provide evidence of the value added by different approaches in different contexts.

### 4. Be creative and experiment with foresight exercises

Cities are encouraged to experiment with some of the techniques set out in this report and adapt these to their own needs and circumstances. Foresight activities should be continuous and evolving, and avoid resource-intensive distractions, such as glossy 'final' one-off reports.

## ACTIONS FOR NATIONAL GOVERNMENT



### 1. Encourage evidence-based explorations of cities' long-term futures

There is scope for more widespread and systematic articulation of cities' long-term priorities. When engaging with their city counterparts, national government policy can bring a bigger picture context to complement cities' own long-term aspirations.

### 2. Give cities licence to experiment

To let all cities set new directions using strategic visions and narratives, legally sanctioned, statutory local plan examination could clarify distinctions between aspired futures (visions), expected futures (analysis of current projections) and plausible futures (alternative scenarios).

### 3. Provide evidence for cities to consider their future position within the national system of cities

Three sets of future evidence would be helpful for cities to check their local assumptions within possible future change at the national system of cities level: departmental scenario work and horizon-scanning undertaken by central government; variant sub-national population projections for England; and, exploratory scenarios of alternative future population distribution and options for future national infrastructure investment.

### 4. Take account of local intelligence in national policy decisions

Closer understanding of the mechanisms and processes by which evidence about the future is collected and used at a local level can lead to enhanced national policy approaches to long-term challenges.

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## The impact of city foresight (techniques in collaboration on a project)

### CIVIC ENGAGEMENT

Creative engagement with public provides opportunities to demonstrate city leadership qualities and enhance civic pride

See Lancaster city foresight work on p. 32

### INVESTOR CONFIDENCE

Active shaping by city leadership of future trajectories fosters external confidence in a city's management of its assets and risk. Compelling narratives about a city's long-term prospects further enhance its attractiveness to businesses and skilled workers

See Liverpool city foresight work on p. 40

### EXPOSING LOCAL STRENGTHS

Creative exploration of long-term aspirations and policy options brings fresh perspectives on unique local assets, as well as the ways by which these can combine into a distinct future city brand and identity

See Birmingham city foresight work on p. 41

### ENHANCING RESILIENCE

Collaborative sense checking of assumptions about future change leads to early identification of risk and builds relationships that enhance cities' capacities to cope with change and disruption

See Bristol city foresight work on p. 37

### STRATEGIC PARTNERSHIPS

Joint identification of future business and development opportunities across wider geographies builds coalitions and leads to greater data sharing and closer alignment of cities' policies

See Newcastle city foresight work on p. 22

### TACKLING CHALLENGES

The future provides a safe space for engaging with persistent, politically charged challenges

See Rochdale city foresight work on p. 47

### IDENTIFYING OPPORTUNITIES

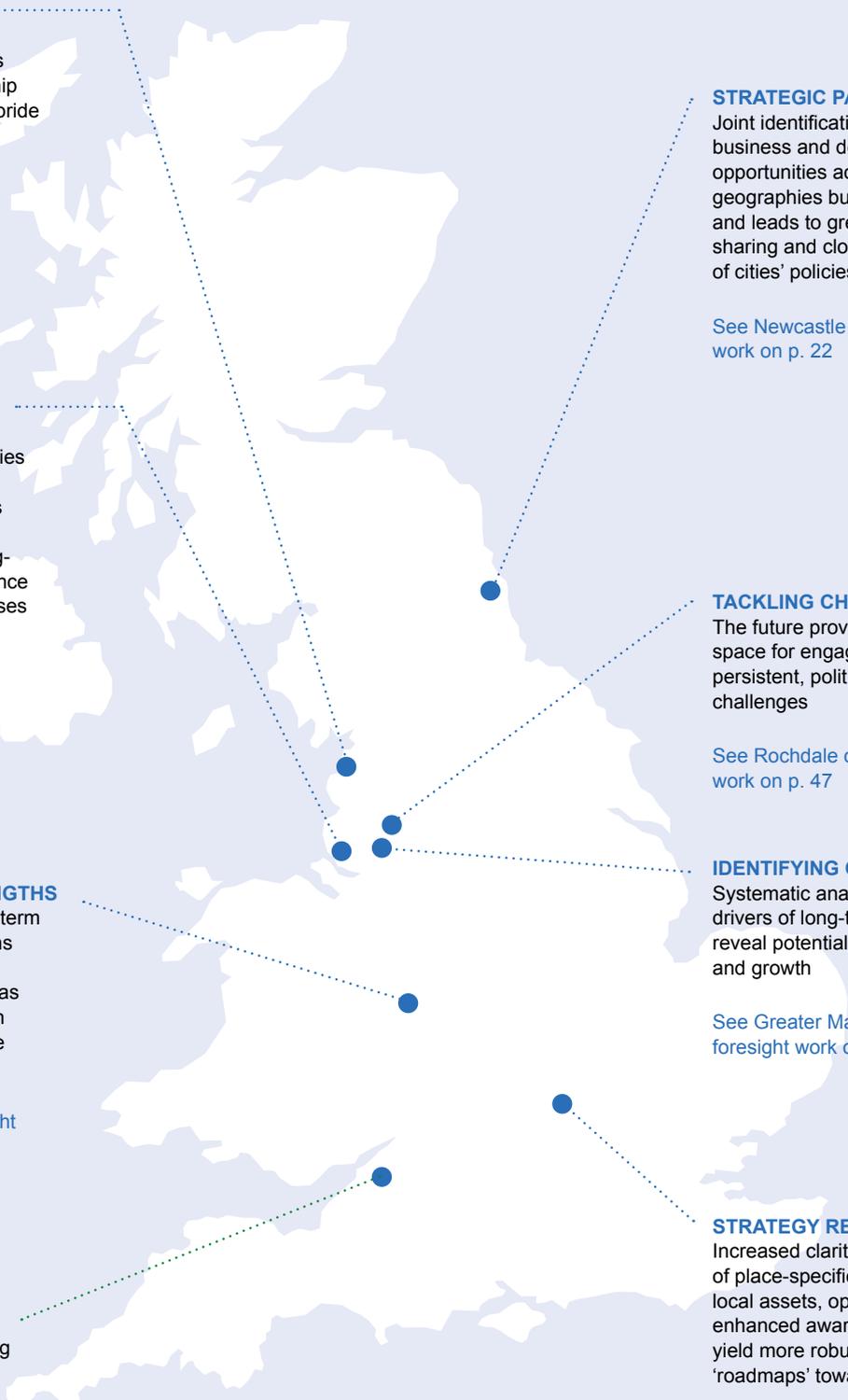
Systematic analysis of influential drivers of long-term change can reveal potential areas for innovation and growth

See Greater Manchester city foresight work on p. 31

### STRATEGY REFINEMENT

Increased clarity and alignment of place-specific aspirations, local assets, opportunities, and enhanced awareness of risks yield more robust strategic 'roadmaps' towards the future

See Milton Keynes city foresight work on p. 36



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# 1: Engaging In City Foresighting

*“Designing the future shape of the city can be a discipline practised by many, rather than an art mastered by few”.*

John Goddard, Emeritus Professor of Regional Development Studies,  
Newcastle University

## What is city foresighting?

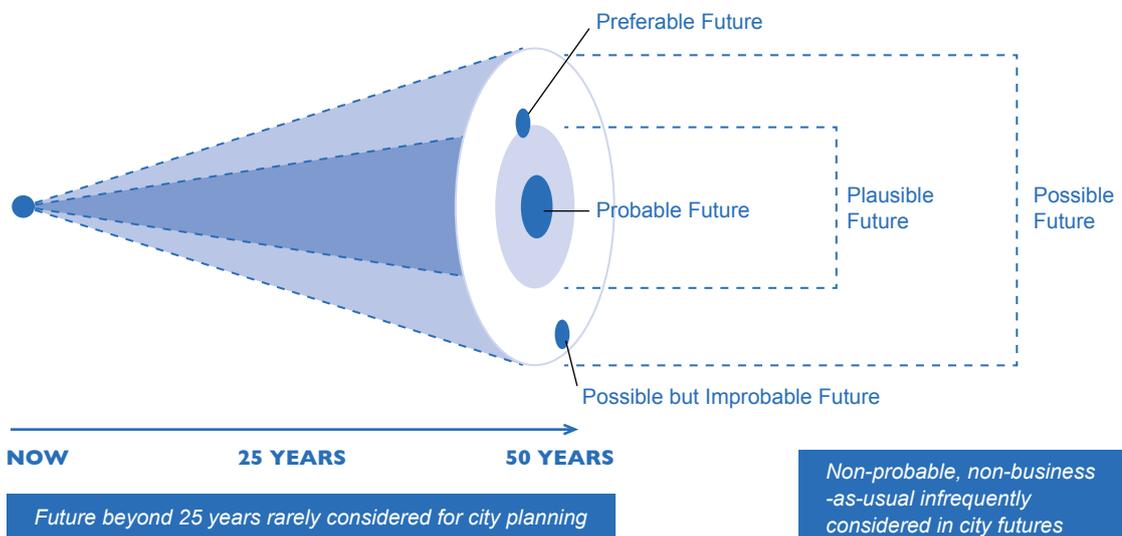
City foresight is the science of thinking about the future of a city. Our cities are extraordinarily dynamic and the future is always uncertain, so anyone looking to lead the UK’s cities towards more prosperous futures must inevitably engage with many complex choices. City foresight provides these leaders with a set of intellectual, practical and political tools to enhance their decision-making capabilities.

In practice, it involves exercises to:

- **uncover new ideas**
- **challenge existing assumptions about the future**
- **explore the interactions between future trends and the forces driving change**

City foresight does not require complicated or expensive projects. Instead, it makes use of clear and straightforward activities that give high value for relatively low cost.

**Figure 1. City foresighting considers different types of futures**



There are two great limitations to how the future of cities is explored today (see Figure 1's 'cone of future possibility').

First: most thinking about the future in city-level planning looks no further than 15-20 years ahead, yet the long-term future is important for cities. A horizon of 50 years can support the exploration of a wider range of creative and possible futures. At the start of the Future of Cities project, a few cities already engaged with timescales beyond 25 years (including Glasgow 2061<sup>1</sup> and One Planet Cardiff 2050<sup>2</sup>), but they were very much the exception.

Second: few analyses venture beyond 'business-as-usual' or 'probable' views of the future. Such omissions could mean that a city is not prepared for a range of possible, even preferable, outcomes.

This short-termism is a relatively recent phenomenon. Historically, creative thinking about the long-term future of cities was more common – for example, Abercrombie's 1944 Plan for Greater London and the masterplans for the New Towns both envisaged city development over periods up to 50 years. There is tremendous potential for city foresight to help us regain a broader perspective, and build the tools, evidence sources and capabilities needed for longer-term thinking.

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## Who should be engaged in city foresight?

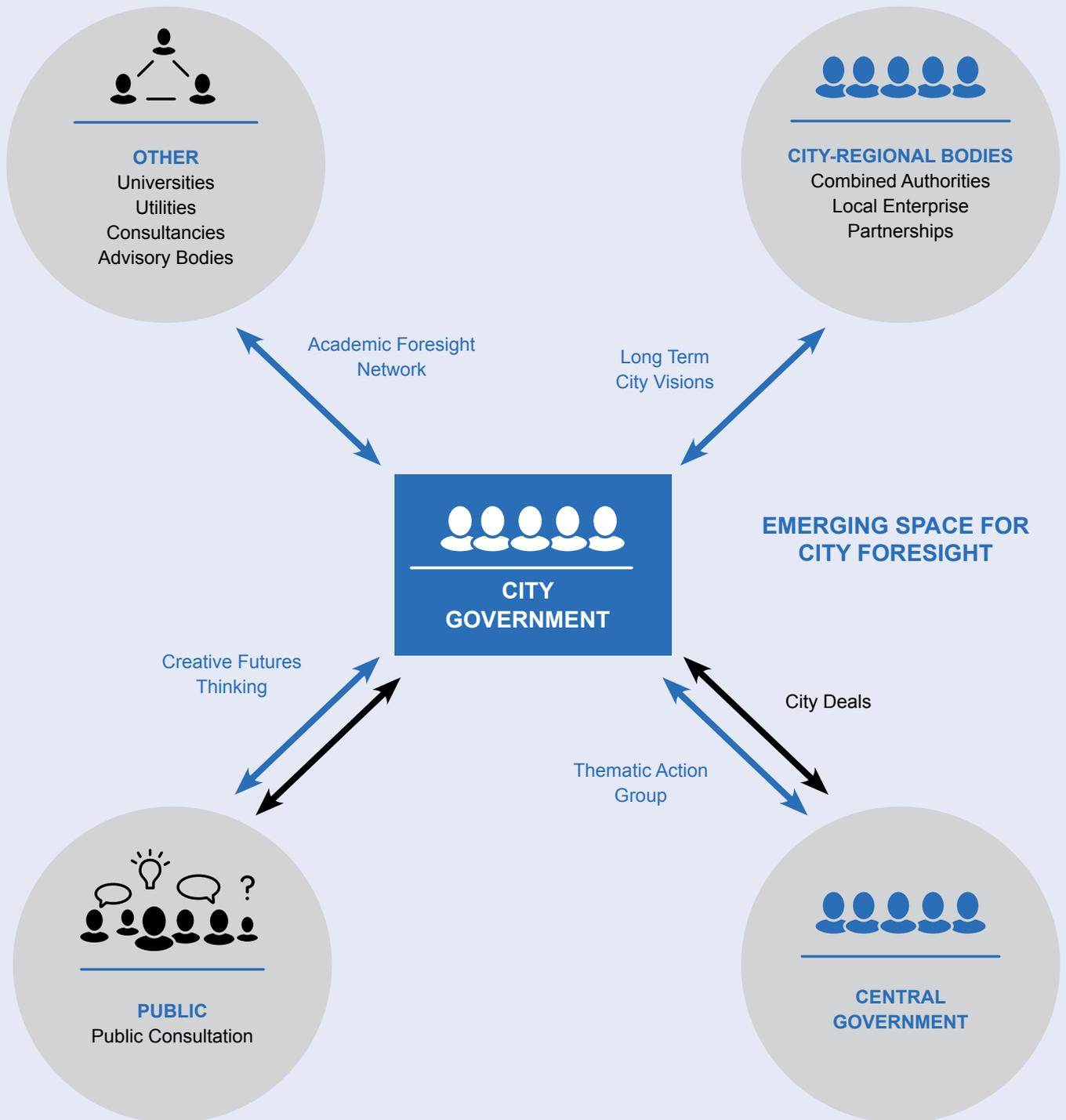
Gathering evidence about the future of cities is no longer the preserve of a single institutional body. Many actors are responsible for delivering city-level services, including businesses, universities and other non-public bodies. Diverse participation in anticipating a city's future is therefore essential for ensuring timely and effective access to a broad range of knowledge.

City governments are likely to remain best placed to coordinate foresight activities and broker the required relationships. The main actors already communicate through various routes, but city foresight can help to develop new and more effective mechanisms for collaboration. Figure 2 highlights some of the existing and emerging mechanisms, including four ideas piloted in the Future of Cities project.

**Figure 2. City foresight engages many stakeholder groups and can stimulate new forms of relationships and insight**

↔ Existing mechanisms for city future intelligence sharing

↔ *Future of Cities* piloted mechanisms





## 2: Valuing City Foresight

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*“Cities need to be able to align their unique strengths with their long-term priorities in order to achieve more prosperous futures. This in turn will lead to enhanced national performance.”*

Rt Hon Greg Clark, Secretary of State for Communities and Local Government

Today, as central government is devolving power and responsibility, there is much to be gained from taking a systematic view of the long-term future of our cities. It is also a time when public institutions are being reshaped to achieve greater operational efficiency and effectiveness, and so decision-makers need tools and processes that have high impact with relatively low resource investment.

City foresight can respond to these needs. Its activities can be low cost, transferable, and simultaneously unlock multiple benefits, which can be seen across the two primary levels of governance: the national ‘system of cities’ level and the local ‘city system’ level.

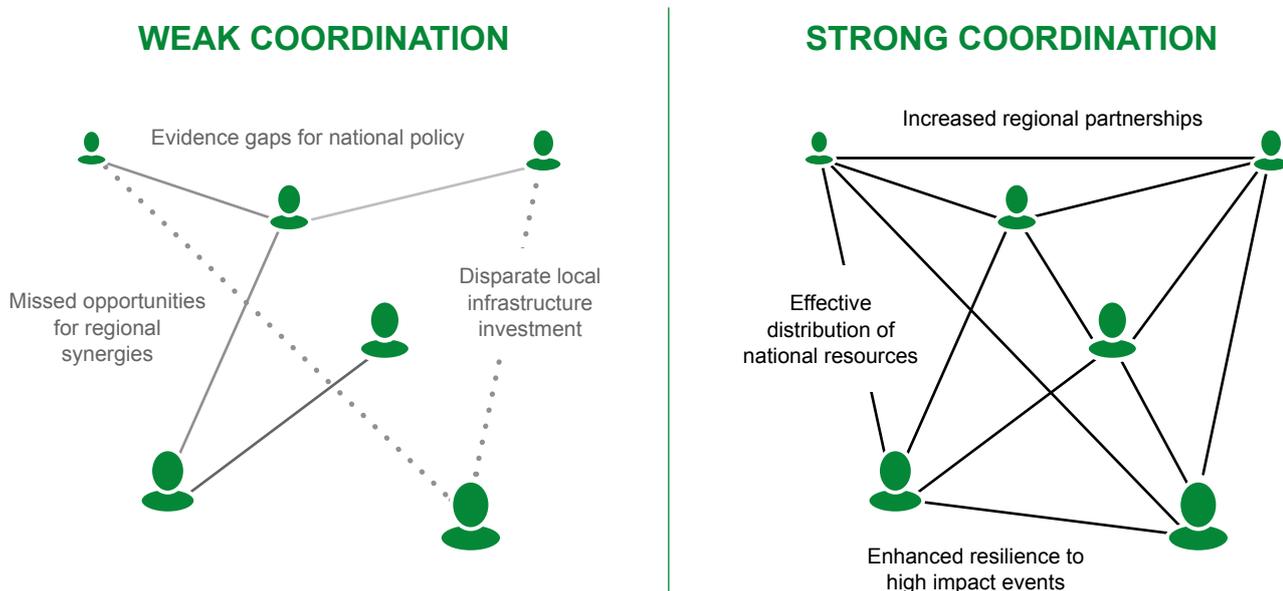
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### Strengthening the national system of cities

Considering the distant future provides greater clarity about a city’s aspirations. The resultant transparency can enhance collaboration between cities and maximise the impact of national investment by aligning individual agendas and infrastructure development programmes. Such a collaborative research effort between the city regions of Leeds, Liverpool, Manchester, Newcastle and Sheffield that explored the future of the Northern Powerhouse resulted in the *One North*<sup>3</sup> proposition for enhanced rail network investment.

For central government, better local intelligence supports more efficient distribution and coordination of national resources. It can also be used to harness the uniqueness and richness of individual UK cities to effectively deliver long-term national policy objectives.

**Figure 3. Proactive management of the UK system of cities coordinates distributed local intelligence**



The resilience of the national system of cities depends on individual cities' capacities to cope with change, whether in relation to skills, the built environment or climate. Such adaptability arises from anticipating uncertainties, and building relationships and partnerships, all outcomes of foresighting. Futures work in Bristol is, for example, localising food production. If a future event caused major disruptions to the international food supply chains<sup>4</sup>, the actions taken in Bristol today could reduce national risk and emergency response dependency. Futures work can identify the potential for similar schemes across other policy areas and UK cities.

### Strengthening individual city systems

The direct value of foresight exercises comes from the content they generate – the insights and stories revealed. But engaging in the process also produces other benefits that are often less visible and that remain hidden, such as new relationships and commitment to long-term change. Beneficial outcomes of the latter type are frequently omitted, however, from summaries of the value added by city foresight work and proposals for securing resourcing for city foresight work. The Future of Cities project has found it helpful to explicitly highlight between two distinct but related types of value illustrated in Figure 4 below. Examples of value added and impact at the city level from Foresight Future of Cities local projects are highlighted in Figure 5.

**Figure 4. Benefits and outcomes from city foresight**

### Tangible outcomes at city level

Thinking about the long-term future can prompt creative thinking about the assets and potential roles of a city. It can open people’s minds to novel ideas and new perspectives about their city-regions and reduce the extent to which existing behaviours and trends lock a city’s future into a narrow set of possibilities.

Narratives that challenge the *status quo* can be particularly powerful for cities struggling to find a new brand and identity in the post-industrial age. Stories about ‘imagined’ alternative future trajectories of a city, where underpinned with evidence of opportunities and identified risks, can be particularly compelling and may also instil greater external investor confidence in local businesses and infrastructure development. Insights gained from city foresight may also strengthen advocacy with central government and funding bids for specific projects. Similarly, cities perceived to work with a positive ‘roadmap’ towards the future will likely appeal as a future place of living and working for graduates and other highly skilled workers.

Cities often struggle to articulate future aspirations beyond generic objectives of ‘liveability’ or ‘competitiveness’, and here the output of foresight can be especially valuable. By facilitating deeper appreciation of local characteristics – the local ‘DNA’ of the city – it can provide the ingredients for a unique future brand that makes a city stand out from its national and international competitors.

Foresight can also help local government align cross-sectoral policy objectives and priorities, while collaborative exercises involving non-public bodies can identify new business opportunities and refine strategies for commercial competitiveness.

## Figure 5. Impact of city foresight

Highlighted below are examples of impact created by city-level foresight work as part of the Future of Cities project. Predominantly 'tangible outcomes' are marked in red. Those with mostly 'hidden outcomes' are marked in blue.

### STRENGTHENING FUNDING BIDS

Newcastle's foresight project contributed to securing £40m funding for a National Institute of Ageing Science and Innovation, aligning city council policy and university research on demographics, well-being, housing and transport

### CIVIC ENGAGEMENT

Competition engaged Lancaster schoolchildren in either drawing or describing what the future of the city might be. A Youth Chamber has consequently been set up to provide a continuing forum for engaging young people on local policy issues

### ADJUST STRATEGIES

Liverpool 2065 trends study led to major housing provider refocusing spatial strategy towards developing the connecting Manchester corridor

### IDENTIFY BUSINESS OPPORTUNITIES

An exercise in Birmingham and the West Midlands identified the potential for small niche enterprises engaged in custom manufacturing to harness feedback through social media to cut costs

### EXPOSE LOCAL DNA

Milton Keynes's MK:2050 Futures commission is refreshing its thinking about its unique identity by enabling greater freedom for exploring a range of future influences and aspirations that go beyond the customary spatial imperatives of the statutory local plan system

### ENHANCING RESILIENCE

A workshop on long-term economic and environmental aspirations underlined the benefits of strengthening relationships between Bristol's community networks for greater future resilience

### BUILDING WIDER GEOGRAPHY COALITIONS

Creation of a Newcastle City Futures Development Group as a collaborative arrangement between local universities, Newcastle City Council, the NELEP, and other policy organisations for developing emerging and new areas of research that could be of benefit to the city

### NARRATIVES TO CHALLENGE STATUS QUO

Long-term thinking highlighted Rochdale's potential as a differentiated manufacturing and logistics economy with quality living offer, challenging existing constraining external perceptions of the city as primarily a distribution pit-stop for Greater Manchester area

### ALIGNING SECTORS

Foresight work in Leeds resulted in social care city officers and health professionals sharing offices within a new Institute of Data Analytics in order to speed up the integration of patient records with social care information

### STRATEGIC PARTNERSHIPS FOR SPECIFIC ISSUES

Future drivers analysis identified a long-term opportunity for Greater Manchester to take industrial leadership on ageing. An 'ageing hub' will be created as a strategic partnership, which will support Devolution Deal health and skills programmes

### GENERATE NOVEL IDEAS

Ideas for a drinks industry mimicking the pleasurable effects of alcohol without the adverse health risks was among the visions for Cambridge in 2065 produced by invited experts

### IDENTIFYING RISKS

A Greater London transport model demonstrated the long-term effect of pricing out cars on commuter routes, and identified where public transport capacity must expand to maintain the city's economy

Crucially, the future provides a safe place to think about the present. Politically charged areas – such as social cohesion, local identity, and inequality – can be explored more comfortably using alternative future scenarios. These can lead to evidence-based identification of risks that will be faced unless action is taken soon, such as social unrest and intergenerational tensions. Detroit provides a powerful example: faced with a growing gap between revenue and expenditure, the city government used long-term land-use scenarios to demonstrate that the costs of renewing and maintaining six infrastructure systems could be cut by 23% by consolidating development around several higher density nodes and employment centres.

### Hidden outcomes at city level

The process of thinking long-term and across wider geographies has many beneficial side effects. It can break down ideas and perceptions that are restricting a city's possibilities, such as the traditional competition between industrial centres in northern England. It can spur new forms of coalition building – between cities, across political divides and between the public and private sectors. It can emotionally engage citizens, and allow city workers to think more freely.

Several cities have benefited from new strategic partnerships for specific local issues as a result of foresighting – such as the Newcastle City Futures Development Group (see 'Newcastle City Futures 2065', page 22). The relationships established and trust created through the practice of joint reflection builds ability to cope with future change, enhancing the resilience of a city. More immediate benefits may come from increased sharing of data and evidence, with use in a variety of spheres including statutory planning.

City foresight exercises may offer newly elected Mayors an opportunity to demonstrate their leadership qualities in setting a new and distinctive direction for their areas, while engaging creatively with partners and citizens, including young people. Futures thinking encourages an emotional engagement that may motivate people to get more involved in civic matters – such as finding opportunities for new social enterprises to deliver public services, or organising crowdsourced funding for environmental projects. This in turn may engender civic pride, rebuild trust in municipal leadership, and increase electoral turnout.

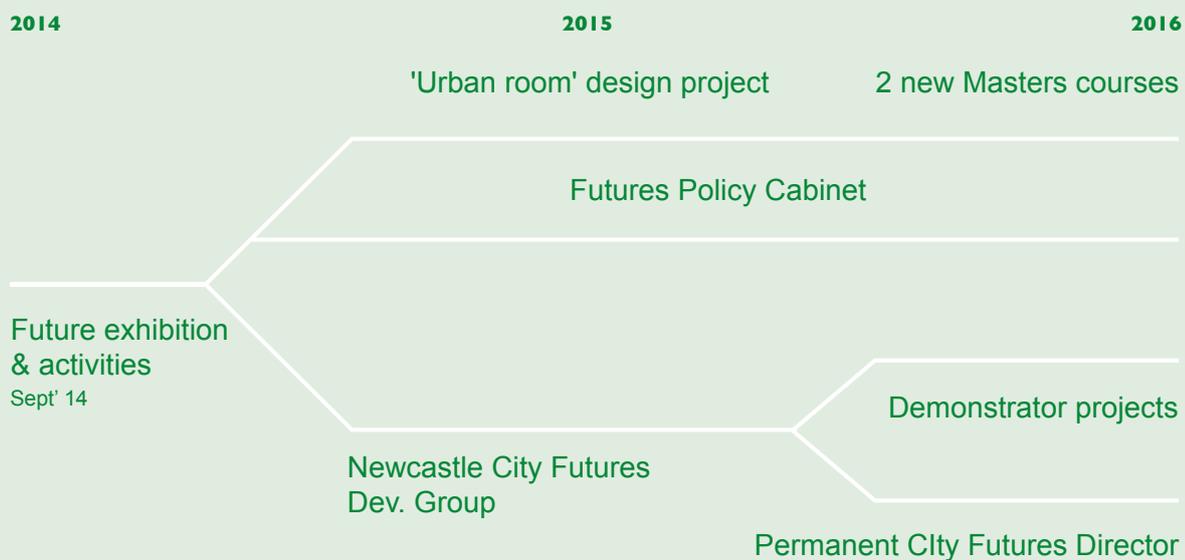
There are also individual benefits for those who participate in city foresighting exercises. Local authority officers may relish the space it provides for thinking freely, without reference to party political ideologies. It can let them step outside of bureaucratic hierarchy and express their views openly; indeed there are ways of providing comments anonymously in a live foresight forum through digital techniques if sharing views more openly is a constraint. As one project partner observed: *“Being part of discussion about the long-term future gives us a break from the stressed reality of our short-term looking day jobs, and refreshes our minds.”*

## Newcastle City Futures 2065

City foresight can provide many benefits. The nature of the work means that some outcomes are immediately apparent, such as contribution of new ideas, and clarification of critical mechanisms for change etc. Other equally positive impacts, such as the building of new relationships and creation of trust, may take a little longer to become visible. Giving equal attention to the more tangible content and often hidden process-driven dimensions of city foresight can increase the likelihood of visible and reportable impact.

This two-pronged approach has worked well for the Newcastle City Futures 2065 project. The project engaged more than 2,500 people in a pop-up exhibition and other foresight exercises, producing 3 distinctive scenarios for change in the wider region, as well as establishing an ongoing conversation about the city's future.

**Figure 6. Timeline of selected Newcastle city foresight project impacts**



Dissemination of the outputs has led to diverse impacts. Amongst the outcomes are:

- **funding leverage** for a £40m National Institute of Ageing Science and Innovation, aligning City Council policy and university research priorities;
- **demonstrator projects** identified from multi-stakeholders discussions, including smart housing for an ageing society pilots and crowdsourced metro train designs;
- **a new cross-sector forum.** The Newcastle City Futures Development Group is a collaborative arrangement between Newcastle and Northumbria universities, Newcastle City Council, the NELEP, and other policy organisations. Its purpose is to discuss emerging areas for collaboration that could benefit the city; and
- **city's policy cabinet** collaborating with the city's Universities to curate and prepare futures-oriented issues for the City's quarterly open, public policy cabinet forums.

## 3: Implementing City Foresight

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*“We are only at the beginning of urban civilization; it is up to us to bring it about ourselves using the pre-existing conditions as our point of departure... The urbanists of the twentieth century will have to construct adventures.”*

Internationale situationniste, 1959<sup>5</sup>

Journeys into the future will have different purposes. These differing needs for the type of insight required about the future will be best served by different types of thinking. We suggest that there are broadly five types of purposeful thinking for city foresight: ‘visioning’, ‘analysing’, ‘designing’, ‘testing’ and ‘assembling’.

These types of thinking share similarities with the five stages of the government’s policy development cycle<sup>6</sup> and with strategy development tools used in planning and project management fields. So even if foresighting is not familiar to city leaders, much of its underpinning logic will be.

**Figure 7. Five types of thinking in city foresight**



**Visioning** activities provide intelligence for setting the direction of future change. This involves articulating aspirations; constructing visions; identifying value-based goals, etc. These can be explorative or normative and underpin the desired directions and outcomes of long-term development. Their purpose is to provide direction throughout the foresight journey.

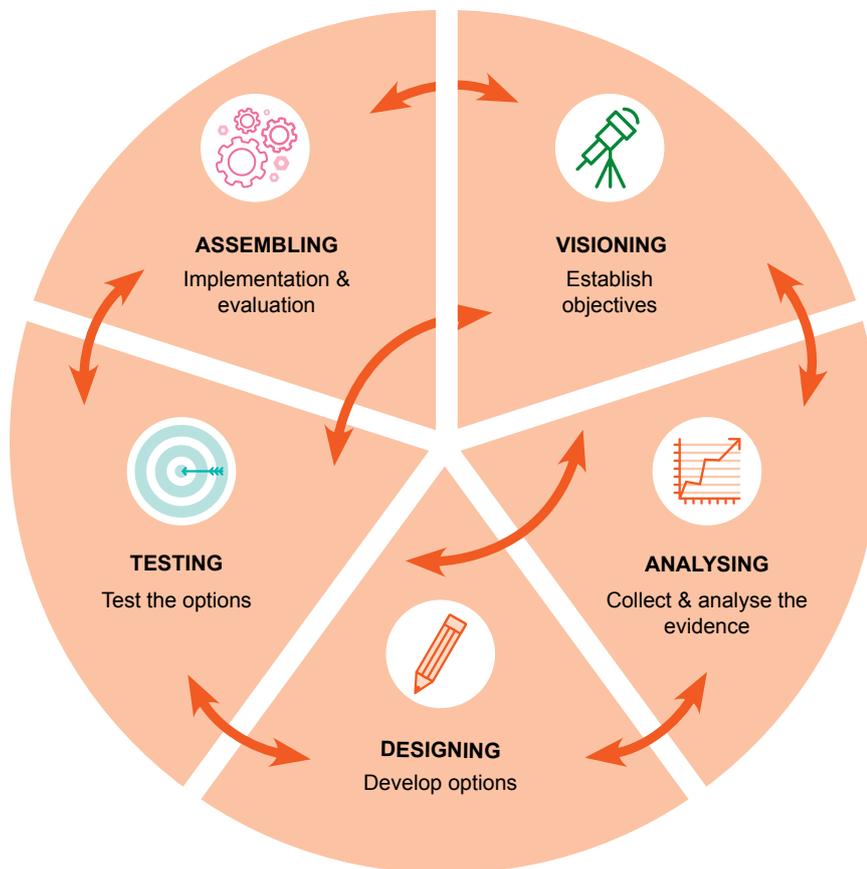
**Analysing** activities integrate intelligence about assets, constraints and opportunities. This can involve considering parameters that affect future supply and demand for services, including physical constraints, demographic forecasts, infrastructure capacity and financial resources. Their purpose is to identify signals of future change.

**Designing** activities develop new possibilities and options for the future by engaging in creative imagination and construction of alternative trajectories for future change. Their purpose is to construct a set of scenarios ('designs') that can deliver on aspirations and take into account the analytical constraints and anticipated drivers of change.

**Testing** activities test these options. This involves considering risk by exploring whether different options will cope with a range of possible future outcomes. Their purpose is to check the robustness of different designs.

**Assembling** activities identify possible levers for effecting change. This involves considering delivery models, technological innovation, financing, institutional reform, skills investment, regulatory development, etc. Their purpose is to integrate intelligence about envisioned directions of change, with intelligence from analysis, design and testing of potential futures into coherent and plausible roadmaps.

**Figure 8. Dynamic interaction between the types of city foresight thinking**



Adapted from: HM Government (2014) Futures Toolkit. Available at: <https://www.gov.uk/government/publications/futures-toolkit-for-policy-makers-and-analysts>

The different modes of thinking about the future are complementary and can be engaged iteratively, feeding back insights between each other. For example, considering a city's long-term objectives through visioning can feed into exploring development options with design-driven future thinking. In turn, this might lead to new insights on the aspirations for the future of a city that can be revisited with visioning.

Moving through a complete cycle of types of foresight thinking will not necessarily result in a fully emerged strategy. Instead a city may want to revisit different types of foresight thinking several times in order to address all the questions that need to be considered. Figure 8 illustrates the iterative and continuous nature of city foresight thinking.

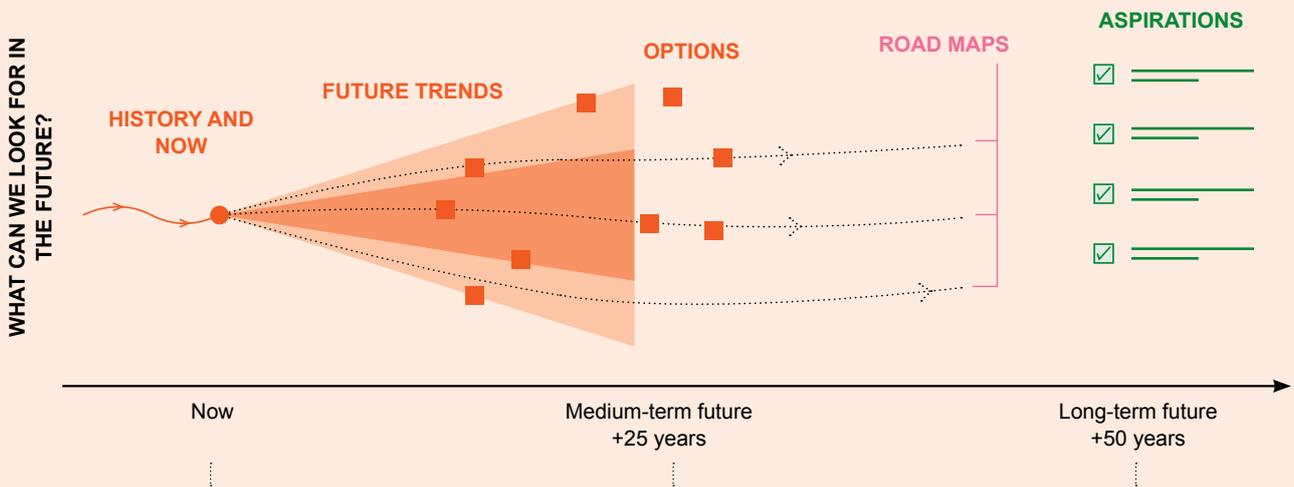
## Sequencing the city foresight journey

There is no right or wrong approach to structuring the journey into a city's future. Where city stakeholders have no predisposition to a particular starting point or route, the Future of Cities project has found the approach outlined below useful. It begins with consideration of the very distant future, followed by exploring what might occur between then and the present for imagined change to happen (see Figure 9).

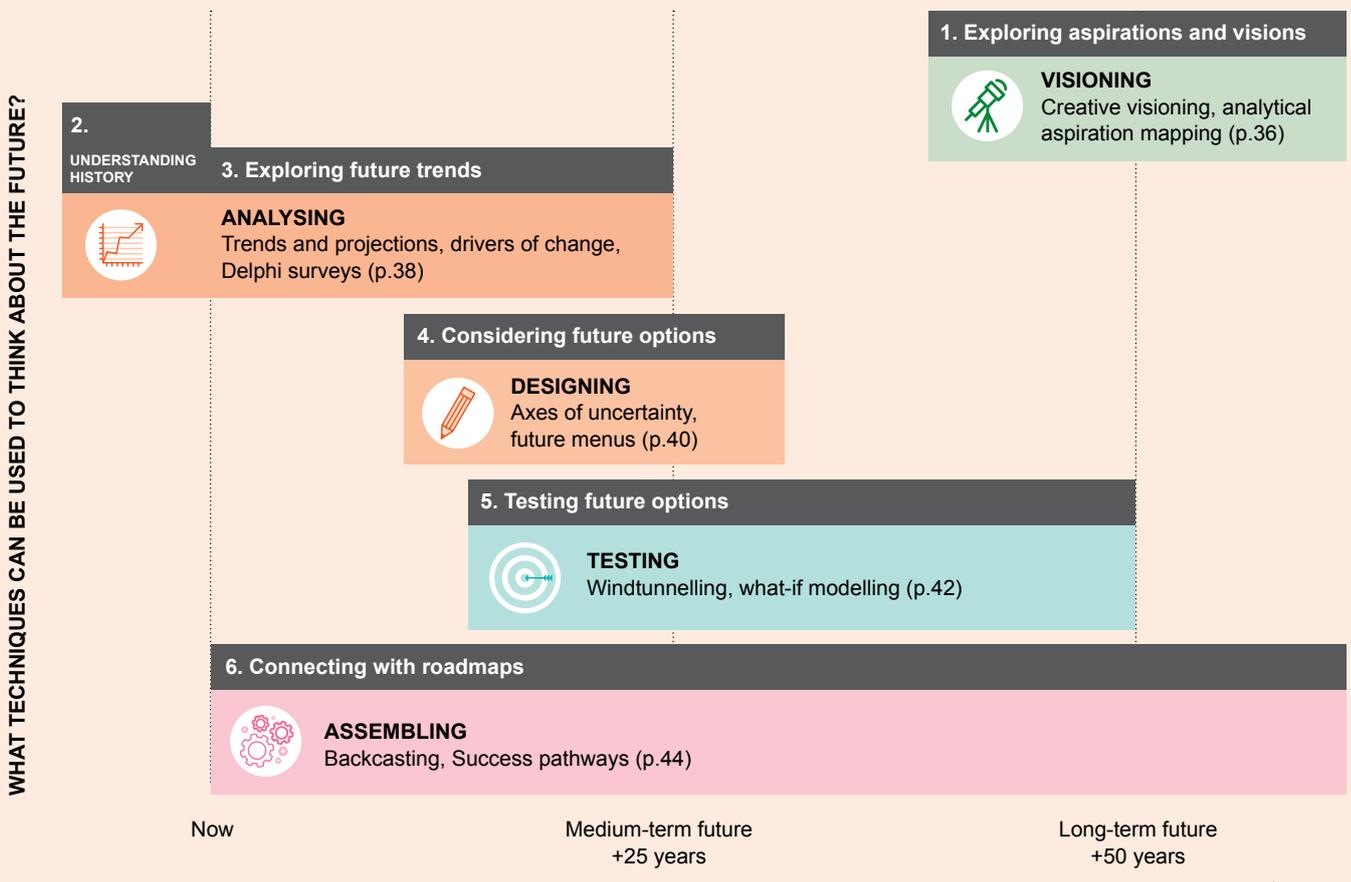
1. **Exploring aspirations and visions.** It can be helpful to begin the city foresight journey by considering the very distant future. Stakeholders often find it challenging to rapidly launch themselves into future-oriented mind-sets, and yet engaging with the most distant and usually least familiar-feeling future can be very helpful. Exploring visions and aspirational values can be one of the most easily accessible starting points for conversations about the future of a city.
2. **Understanding histories and now.** Considerations of the future of a particular city are usually more compelling when informed by the historical influences that have shaped a city's definitive factors. Highlighting trends and sequences of events that characterise the current state and context of a city will provide a helpful point of departure for thinking about its future.
3. **Exploring future trends.** Exploring possible change offers a familiar way to embark on a journey into the future from the 'now'. This can often feel most plausible over a period of up to 15-20 years into the future. Beyond that, projection of existing trends may feel increasingly problematic to participants and they will often feel more comfortable moving onto more creative approaches.
4. **Considering future options.** Creative exploration of future policy or development options between now and the distant future will generate anchoring ideas for what the future might look like in terms of programmes, investments, interventions and actions. This process can be started by reviewing the content of existing strategies for action.
5. **Testing future options.** Decision-making about the future must take into account uncertainties and risk. This stage of the foresight journey explores whether ideas about the future are likely to cope with a range of wider future outcomes. Individuals imagine 'What if this future came to pass? How might others respond?', and consequently change designs, reject some, and adapt their actions.
6. **Connecting with roadmaps.** Finally, a roadmap can link the current state of a city with its future aspirations via a route that incorporates preferred policy options and identified levers for affecting change. Every stage of the route must be tested for the implications of underlying assumptions and risks. Connecting different aspects and evidence about the future into a joined-up picture enables decision makers more easily make sense of the choice in available policy options. Comparison of alternative 'roadmaps' provides them with a means of reducing a wide range of options into a workable set for taking evidence-supported action.

**Figure 9. City foresight journey**

Different dimensions feed into thinking about the future of a city. Reflecting on history helps us make sense of existing assets and identities of a city. Exploring short-medium future horizons highlights possible and plausible future trends and options for change. In the long-term it is particularly helpful to consider the city aspirations and visions. Future ‘roadmaps’ connect the present, future options and long-term aspirations together into plausible future narratives that span across the short, medium, long future time horizons.



The five types of foresight thinking have differing strengths in revealing insights about the different dimensions of a city’s future. Some approaches are more disposed to generate intelligence about the near-term future, others more suited to exploring distant prospects. The bars below indicate the time horizons to which foresight thinking types and associated techniques are particularly well-suited. Numbers provide a suggested sequence for structuring new journeys into a city’s future.



## Organising the practical process

As with most planning endeavours, the coordination, integration and application of intelligence generated by city foresight will benefit greatly from a complementary project delivery process. There is no universal blueprint for this behind-the-scenes work, but from the experience of the Foresight Future of Cities partners, there are broadly four steps that are useful.

### The project manager's perspective:

- 1. Justification and set up.** Stakeholders have to be convinced that there is a need to think about the long-term future, and value in investing the resources in doing so. Support of project sponsors, including elected members and senior officers, must be sought. Then the foresighting to be undertaken should be scoped, identifying evidence gaps affecting long-term decision-making for the city.

> **Output: project proposal and a foresight journey timeline<sup>7</sup>.**
- 2. Underpinning research.** Supporting research can then identify: what long-term thinking exercises have already been undertaken? What existing planning processes should be linked into? What are existing ideas on the future direction of a city's development? It can be helpful to conduct a series of interviews with key stakeholders to identify their needs and expectations of the process.

> **Output: Interim analytical report or slides to be presented at a kick off meeting.**
- 3. Foresight exercises.** Participants in the process have to be equipped with the means to think about the future in a systematic way and given space to think creatively. Individual exercises need to be devised, using and adapting techniques according to the intended outcomes. External facilitation can be extremely beneficial for workshops.

> **Output: Summary notes of individual foresight exercises.**
- 4. Distilling and disseminating insights.** Translating insights gained through foresight exercises into policy directions is challenging. Stakeholders can often be eager for immediate results, whereas some foresight exercises need several iterations before producing clear outcomes. It can also be helpful to have a non-technical specialist such as a science writer or journalist involved to produce accessible story-based accounts of any meetings or workshop outcomes.

> **Output: Final report (not essential) and recommendations for the next steps.**

Engagement with futures thinking need not be limited to periods when a plan or vision document is being produced. There is merit in sustaining light-touch forms of collaborative long-term thinking in parallel with statutory planning activities. Such platforms can be formal or informal structures providing space for interaction and dialogue about the future of a place. For example, Milton Keynes' 2050 Futures Commission provides a reference point for local stakeholders who want to explore questions about the long-term future that do not necessarily sit within statutory activities or business planning.

## Engagement and responsibilities

City foresight is not only undertaken by city governments. Other actors can bring different types of knowledge and power to the process. Table 2 summarises the main responsibilities and requirements for engagement by a wide range of actors in a city foresight process.

**Table 2. Actors with potential input into city foresight**

<i>City government</i>	
<b>Elected members</b>	With major influence on the content and process of city foresight, they are representatives for the future interests of a place. Being responsible for spending, they have to see the benefits of thinking about the long-term.
<b>Officers</b>	They will either be tasked with delivering exercises to feed into city foresight or they will have initiated and convinced councillors of the benefits of the process. Their knowledge of particular sets of evidence and tools will shape the practical execution of the process.
<i>Emerging city-regional bodies</i>	
<b>Emerging combined authorities</b>	Where cities span several local authorities, the preparation of shared strategy documents will benefit from analysis and exercises that consider relationships over a wider area.
<b>Local Enterprise Partnerships</b>	They can bring a wider business perspective to city foresight, as well as a wider geographic view to cities where the administrative boundaries are smaller than the city's main economic assets (e.g. York, Oxford or Luton).
<i>Public</i>	
<b>Public</b>	Foresighting offers an opportunity to involve people in more engaging ways than traditional public consultation.

<b>Other</b>	
<b>Utilities</b>	Except in major cities, there has previously been little incentive for utility companies to participate in city planning. Thinking creatively about the longer term, including low carbon futures, may stimulate their interest.
<b>Businesses, civil society</b>	Businesses interests are linked to demand for employment, transport investment, etc. Some private sector businesses tend to think short term, and some companies may not have loyalty to a particular city if their ownership changes, particularly after foreign take-overs. Other actors, such as citizens planning a family life or other social institutions may be advocates of long-term thinking, such as the Joseph Rowntree Foundation in York.
<b>Universities</b>	Universities play an important role in using expertise on evidence and analysis to bring people and organisations together to consider difficult challenges. They can partner with host cities and offer an external but vested presence, feeding into foresight processes or convening them <sup>8</sup> .
<b>Consultancies and advisers</b>	Private sector consultancies may be prepared to share their expertise where they have strong loyalties to a particular city. They would, however, generally be commissioned to undertake an analytical or facilitation role. Advisory bodies such as CABI, the Design Council or groups of professionals, such as the Academy of Urbanism may provide peer review inputs to aspects of futures thinking.
<b>National government</b>	
<b>Departments</b>	Individual government departments develop policies and programmes that will directly or indirectly realise major policy objectives within cities. Few work with explicit mechanisms that engage city-level stakeholders in the design of policy.
<b>Department for Communities and Local Government</b>	Responsible for allocating local government funding, for planning policy and procedures. Home to the Cities Policy Unit, which was created in 2011 with the goal of working with both cities and national government “to help cities turn new ideas into successful plans”. They are responsible for the development of new City Deals.

## Greater Manchester 2040+: collaboratively revealing opportunities

Within a context of greater devolution of powers to the city-level, city foresight can offer mechanisms for enhancing communication, awareness, and shared understanding between different stakeholder groups of the long-term trends, issues and opportunities affecting neighbouring city-level authorities.

A Greater Manchester collaboration between New Economy and the University of Manchester used foresight exercises to initiate dialogues about the long-term aspirations for the wider city-region of young people, academia, national government, business, the voluntary sector, and local communities<sup>9</sup>.

**Figure 10. Bringing multiple stakeholders together to think about long-term trends can reveal opportunities for innovation and growth**



Consideration of the major future ‘drivers of change’ likely to affect Greater Manchester revealed ‘Ageing’ trends as potentially considerably positive opportunities for enhancing regional growth, as opposed to a challenge for the city services to have to engage with over the coming years. Analysis revealed particular regional strengths to develop industrial and research leadership in age-friendly design; ageing skin health solutions; wearables for health and sport; and innovations to extend ‘healthy’ working lives.

As a result, the Greater Manchester Combined Authority has appointed a Chief Executive with particular responsibility for an Ageing thematic portfolio at the Greater Manchester level. A new Greater Manchester ‘Ageing Hub’ has also been created to provide the devolving city-region with a strategic approach and resource to collaboratively address the challenges and grasp the opportunities of ageing.

## Engaging with the future: young people

*“The local community has a choice of the direction of travel it wants to pursue. It is clear however that choices made by one generation of that community might be different from the future of another generation”*

Andrew Dobson, Head of Regeneration and Planning, Lancaster City Council

Young people have to be included in discussion about the future of cities. Outcomes of policies and decisions made in the near term will shape the cities that they will live in. Young people can offer enthusiastic engagement and have little inhibition in their creativity and critical thought. Children generally find it easier to use physical objects to express the future rather than describe processes, so encouraging them to imagine and draw a future vision for their city can be engaging, as witnessed by the success of Lancaster’s competition<sup>10</sup> (in which over 70 young people participated). Young people do not shy away from subjects sensitive to party political overtones when discussed by adults, such as the aspiration contributed by one of the children’s entries for Lancaster 2065 that *“everyone has the same amount of money so bullies cannot say they are rich”*. In Londonderry (Derry), the prospect of work being displayed in the town centre was used as an incentive for children to submit their visions (and perhaps also for parents to encourage them).

**Figure 11. Engaging with Lancaster’s future: young people**



## Technologies for engagement

New digital platforms provide greater availability of data and emerging analytics. This allows baseline information for city and city-regional forecasting exercises to be assembled more efficiently than in the past for the analysing stage of city foresight. Techniques, such as Interactive GIS and city dashboards, allow such data to be communicated more easily, and interrogated to reveal big picture trends.

Technology is also enabling a sharing of information with citizens that enhances transparency such as through London's DataStore (<http://data.london.gov.uk/>), and this is increasing general understanding of future challenges. As more and more smart phone apps are available which translate this data onto a mapped basis, peoples' ability to understand geographical patterns is also increasing. This creates more informed residents. A greater willingness to engage in discussions about the future of their city may also be engendered by the growing popularity of on-line platforms (for example, the SpaceHive platforms at [www.spacehive.com](http://www.spacehive.com)) to crowd source ideas for neighbourhood and environmental improvements.

The creation of virtual environments, including through the use of augmented reality techniques, is another way of bringing issues alive, e.g. simulating the possible implications of extreme weather events or of different transportation systems on the future built form of that city. Such techniques can be a useful preliminary to the designing stage of city foresight, in helping to illustrate that the future could be radically different from the past.

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## Resource requirements

Foresight exercises should be mindful of the staff and budget resources available and be designed accordingly. Workshops are likely to be a key part of the process with custom designed exercises to stimulate new forms of thinking not just traditional discussion in roundtable format. Some of the projections-based national scenarios devised in the Future of Cities project will be available "off-the-shelf"<sup>11</sup> for cities to adapt for their own use.

Workshops and events can be designed to involve as few as about 10 people from different parts of a city governance structure to many hundreds of residents, as achieved in Newcastle's Urban Room (see Chapter 2). It depends on what individual cities hope to achieve through a foresighting approach. But the local authority officers will need to lead the process and hence will need to take time out of their day jobs to engage in this new way of thinking. It also takes time to develop relationships with a range of stakeholders.

A local authority will need to agree a budget for its key officers to coordinate city foresight exercises, and any external facilitation if used. Most workshop participants from stakeholder organisations are likely to attend at their own

expense and make other in-kind contributions. Events may take place over several months or be restricted to a single workshop, though few of the city projects supported by the national Future of Cities project were undertaken in less than about four months.

Budgeting can be in phases dependent on the success of the process. For example a temporary budget was agreed in Milton Keynes for city staff to coordinate a city future commission. Staff costs do not necessarily stop at the conclusion of the main exercise. To gain maximum benefit from the process a focal point to maintain the momentum may be useful, e.g. Newcastle has initiated funding of a city futures director.

## 4: Practising City Foresight: Sample Techniques

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*“Scenarios deal with two worlds: the world of facts and the world of perceptions. They explore for facts but they aim at perceptions inside the heads of decision makers.”*

Pierre Wack, 1985<sup>12</sup>

This section illustrates some practical exercises and techniques for the five different types of city foresight thinking outlined in Chapter 3. It provides an overview of sample techniques such as ‘creative visioning’ and ‘drivers for change’, with short descriptions of their use, summaries of lessons learnt, and specific considerations.<sup>13</sup>

The selection is drawn from city foresight experiments that were part of the Future of Cities project, and examples of where and how they have been used in the Future of Cities project and elsewhere are included.<sup>16</sup> References to where further details of their use can be seen in more action are provided in Appendix B.

As cities will be at different points in the foresight learning and practising journey, they are advised to choose the tools most suited to their needs from this sample ‘menu’.



## Visioning



Approaches to future city visioning range from highly creative to highly formal. For cities this mode of thought is especially about exploring the long-term purpose and role of a place. This can be achieved by individual and collective construction of visions, as well as through structured explorations of aspirations and priorities, all rooted in place rather than generic goals. There is no one true future vision for a city; instead, many visions should be explored and complementary visions aligned. The nature of this process is inevitably political. Diverse participation will enhance ownership of a vision and increase its eventual impact.

### Creative visioning

Generating visions and goals for the future through dialogue, fiction or craft. Participants are encouraged to explore desired and required change. Can make use of 'personas' (see below), 'postcards from the future', or use of physical models. Outputs are easily used for the continued engagement and inspiration of a wider audience.

As used in:

[www](#)

[2065 Visions of Cambridge](#)

[Newcastle City Futures](#)

[Milton Keynes 2050](#)

[Rochdale 2065 workshop](#)

1 Provide worksheets with name, age and sketch of citizen from 2065

2 Participants fill in the blanks

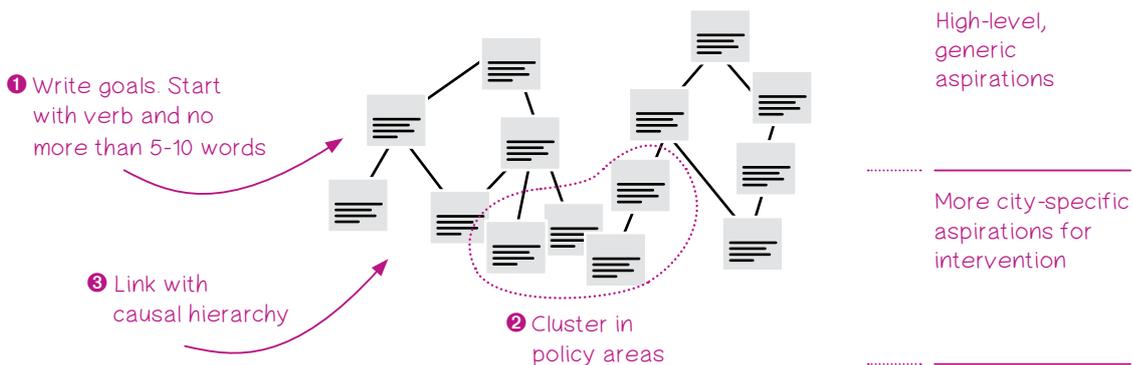
3 Use as warm-up exercise to immerse in distant future and uncover aspirations

### Analytical aspiration mapping

Exploring the relationships between specific goals to identify programme synergies, priorities and areas in need of further exploration. It can be helpful to provide a focal question, such as “By 2065, what do we aspire to achieve in our city?”

www

Bristol Active Cities Summit  
 Rochdale 2065 workshop

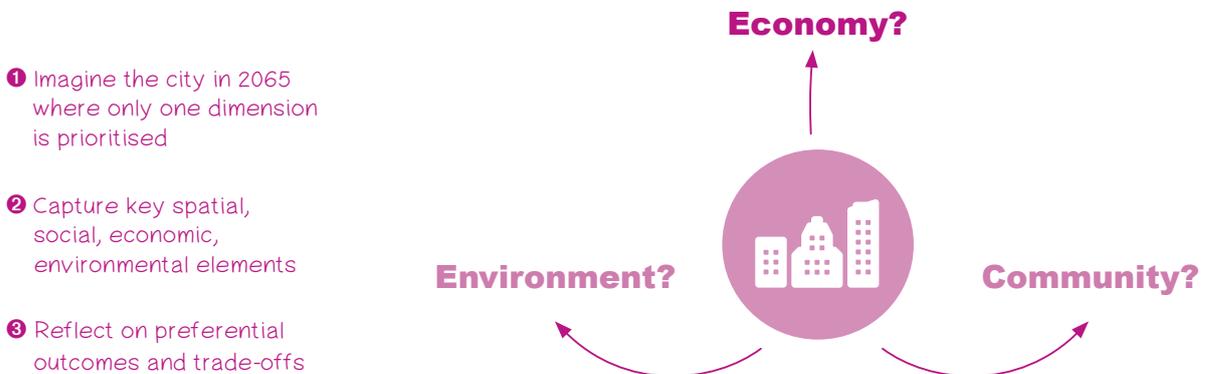


### Aspirational extremes

Three alternative futures of a city are explored in which each future prioritises one of the three pillars of sustainable development (people, environment, economy). Imagining extreme futures in which participants have to ignore specific sets of development objectives and values can be challenging and the use of maps can support participants in translating values and aspirations into specific interventions.

www

As used in:  
 Bristol workshop with Liveable Cities  
 Birmingham workshop with Liveable Cities



## Analysis

The role of analysis in city foresight is to systematically explore and characterise the expected nature of future change in cities. This will often start with characterising baseline performance; benchmarking this against national, city-regional and other cities' data in order to gauge relative strengths and weaknesses; and bringing together existing sources of intelligence about a city's future. Many of the techniques for this stage will be familiar to planners, economists and transport planners.

### Trends and projections

Trends are broad patterns of change. Extrapolating historical trends into the future using differing assumptions can help explore likely levels of service demand and supply. The description of the possible underlying influences can lead to more in-depth understanding of the forces driving change.

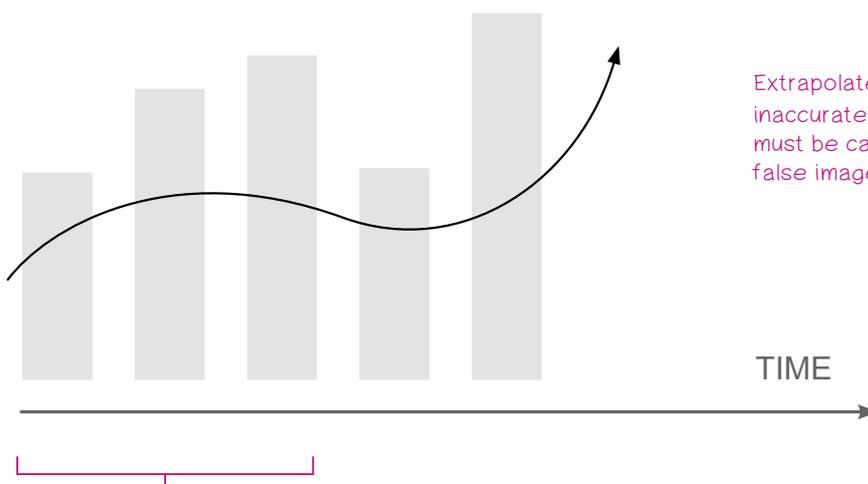
As used in:

[www](#)

[2062 Cities population projections](#)

[2037 City job surplus scenarios](#)

Very familiar to  
majority of audiences



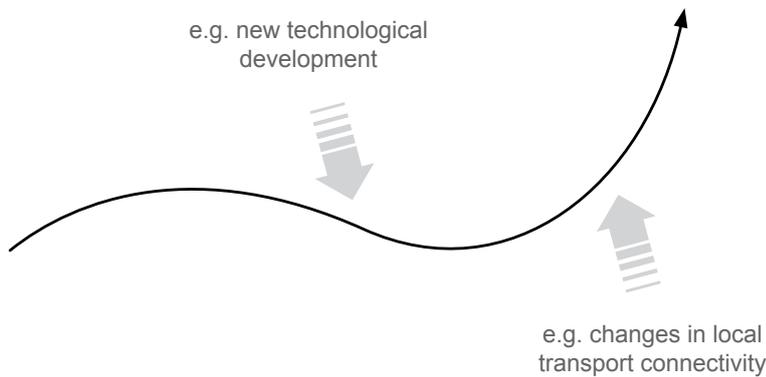
Tends to be most suited to  
short to mid-term thinking

Extrapolated trends are usually  
inaccurate and decision-makers  
must be careful not to present a  
false image of future certainty.

## Drivers of change

Review of broad range of future-looking evidence sources to identify factors driving and shaping change. May uncover novel and unexpected future issues and opportunities, but can require considerable time and resources. Can be done by individuals or groups.

- 1 Specify area of interest. E.g. future family relocation movement to a city



- 2 Indicate relative degree of influence and likely 'tipping points' for significant changes in behaviour

Benefits from reviewing news material both on and off-topic

As used in: [www](#)  
 Birmingham and West Midlands 2060  
 Greater Manchester 2040+

## Delphi

Iterative, dispersed consultation process of working towards consensus between experts on expected future events and trends and key uncertainties. Anonymity removes the pressure to conform.

Useful to have 3 rounds of communication between analysis and responses - can be time consuming

As used in: [www](#)  
 Newcastle 2065 City Futures

Benefits from diversity in expert group membership



- 1 Define questions for survey
- 2 Revise survey for following rounds to explore the most common responses

## Designing

Imagining alternative futures for a particular city or city region is often done most constructively through group exercises, ideally with good facilitation and including a range of stakeholders. This opens minds and provides the space for thinking in creative ways. There are various ways of constructing ideas about the future that give more or less weight to the findings of visioning and analysing. 'Success scenarios' flow primarily from the visioning stage, whereas a wider range of scenarios emerge from the analysis of trends, drivers and uncertainties. Maps and infographics can make data analysis more accessible to provoke discussion of alternative futures. It may be helpful to identify an individual with good storytelling skills to write a description of each scenario. The resulting narratives of the future can then be used as the basis for creating exercises to assist in the work of testing and delivering.

### Axes of uncertainty

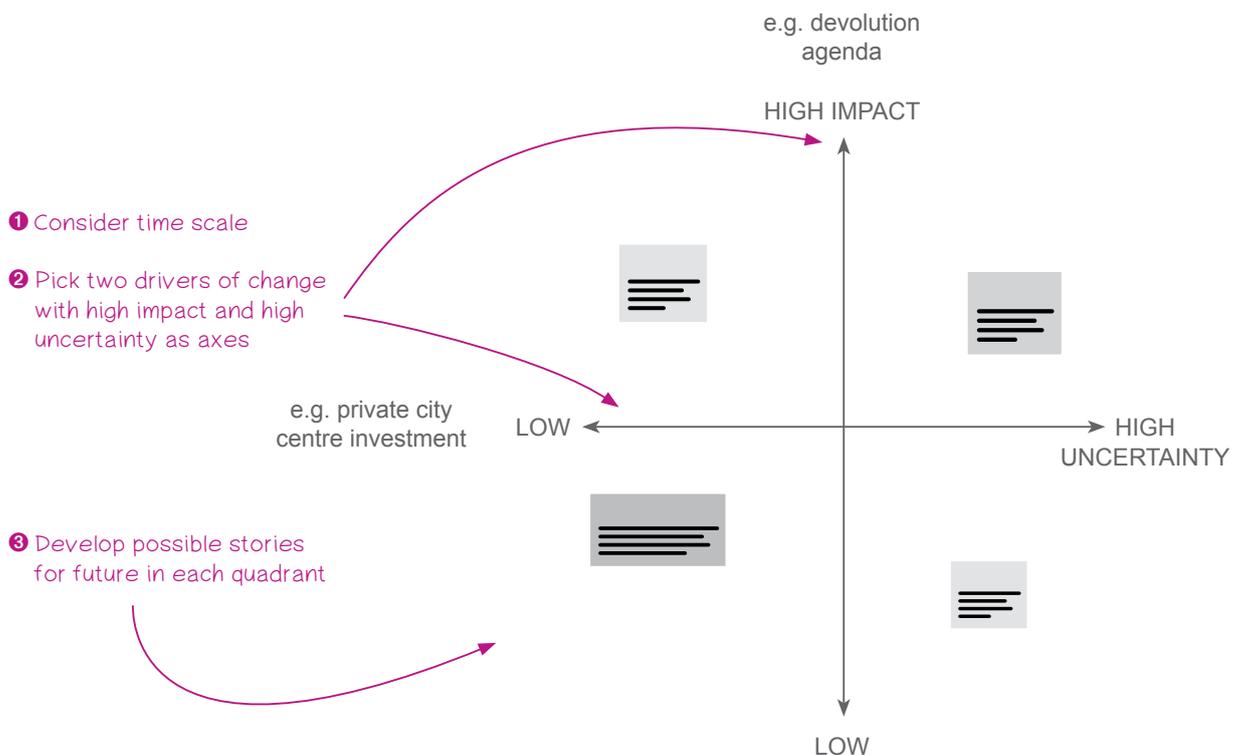
Produces four contrasting narratives about the future to stimulate creative thinking about possible, alternative patterns of city development and change. If analysis reveals no high-impact and uncertain drivers, other tools should be used instead.

As used in:

[www](#)

[Liverpool 2065 research](#)

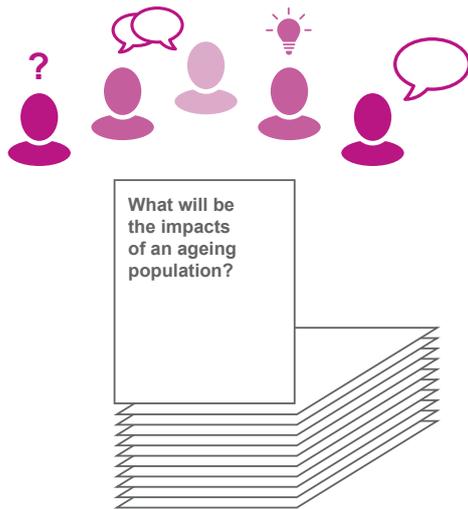
[Public Policy in Future Cities](#)



### Card based provocations

Use of a game with role playing and cards to raise awareness, stimulate conversation about the future, and explore alternative options for a stated purpose. Cards can contain drivers of change, provocative questions about why or how change happens, or future events. Typically range across several domains, such as social, technological, economic, environmental, and political.

As used in: [www](#)  
 Birmingham workshop with Liveable Cities  
 Bristol workshop with Liveable Cities

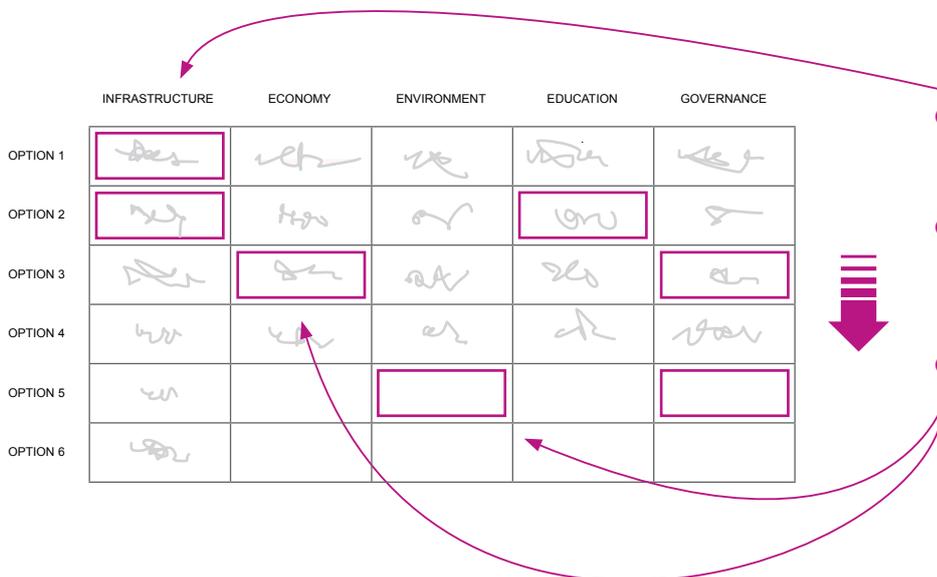


- 1 Develop provocations or use pre-existing set available online
- 2 Chose a random card
- 3 Discuss implications for question or issue of interest

### Menu of futures options

Consolidates combinations of solutions for a city’s future challenges from a wide-ranging set of possible sector-specific solutions. Derived from more formal ‘morphological analysis’<sup>14</sup>, this can be especially helpful in tackling complex problems involving many different dimensions.

As used in: [www](#)  
 Rochdale 2065 workshop



- 1 Specify policy dimensions to be considered
- 2 Add as many different ideas as possible for options and solutions in each column
- 3 Consider what different combinations of options could work and eliminate incompatible combinations

## 🎯 Testing

This involves considering risk in future decision-making. It explores whether identified options (typically produced by 'design' thinking, and often in the form of physical interventions or policies) are likely to cope with a range of possible future outcomes. This often involves 'wind tunnelling' of options: testing them in several different scenarios to yield 'what-if' stories – 'What if this future came to pass?', 'How might others respond'? This stage of the foresight journey challenges mental models, i.e. the way we see the world. Stakeholders should be able to learn something useful. Insights will allow them to change designs, reject some, and ultimately adapt their actions.

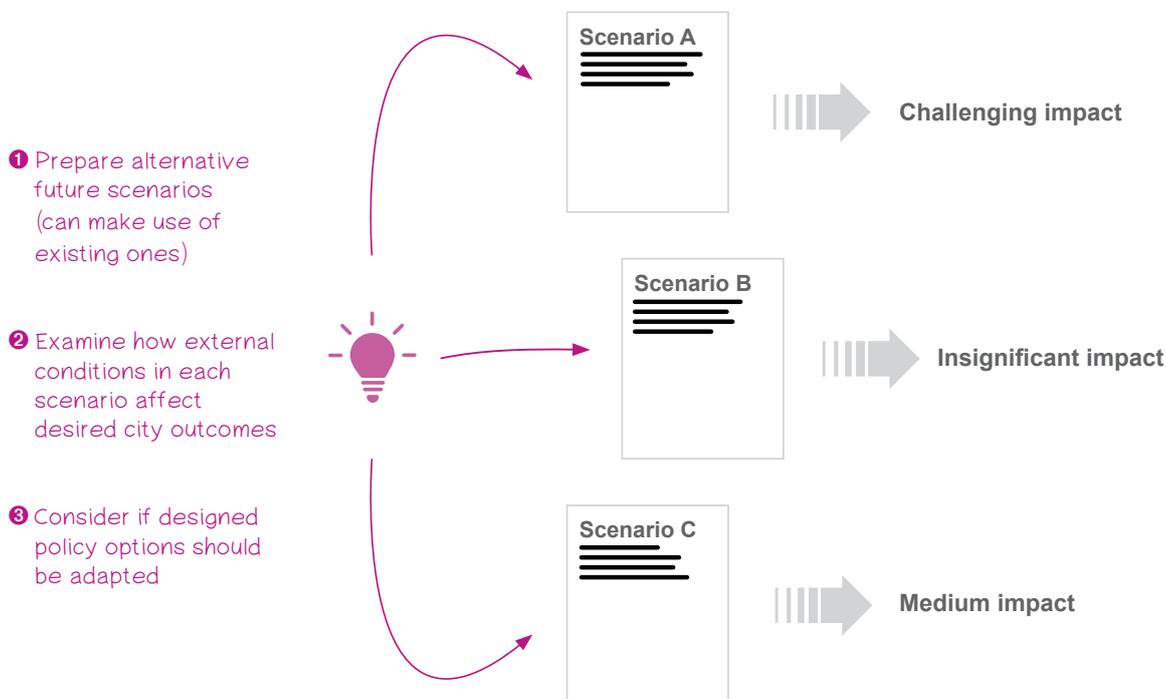
### Wind tunnelling

Policy interventions are tested under different scenarios of external conditions to check how robust and viable they are across a range of future outcomes. Often reveals hidden assumptions about the future and enhances the adaptability of policy ideas and designs.

As used in:

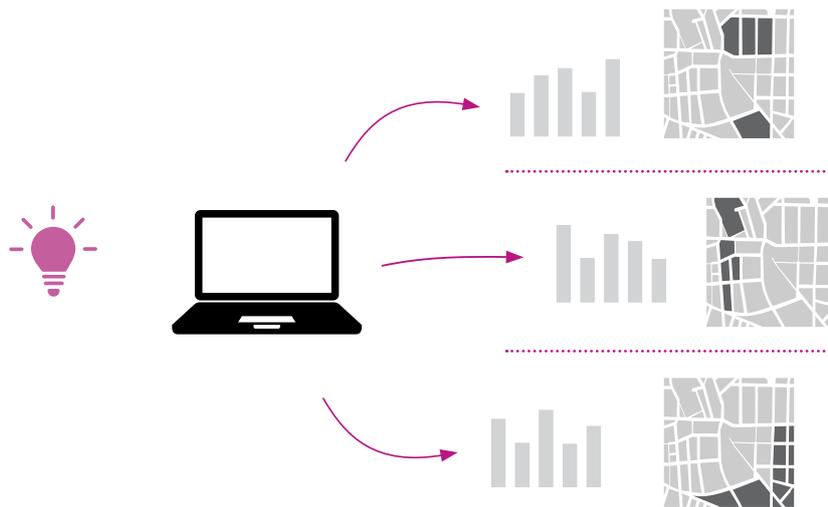
[www](#)

[Welsh Cities 2065](#)



## What-if modelling

Explores how outcomes for a question of interest vary with a combination of different factors. Typically uses quantitative and mapped outputs to help with comparison of outcomes across different scenarios.



As used in:

www

CASA city regional travel-to-work analysis

Requires high levels of computational skill and processing capability. However, once model is constructed, alternative assumptions can be tested and compared relatively quickly.

## Future roleplaying

Creative simulation by a group of possible responses to future policy action in an unpredictable but risk-free environment. Integrates judgement and creativity about multiple decision-making variables without the need for computational analysis. Best used to explore one or two specific questions about a city's future - otherwise can get too complicated for participants. Typically requires 1-2 days of participation.

As used in:

www

Not used for Future of Cities project

- 1 Participants are briefed with details of the scenario, the stakeholder group they represent and their goals (as individuals or teams)
- 2 Clarify constraints on actions (i.e. limited financial resources)
- 3 Team respond to a challenge
- 4 Iteratively, teams react to moves of other teams
- 5 Group reflects on findings and resemblance to reality



# Assembling

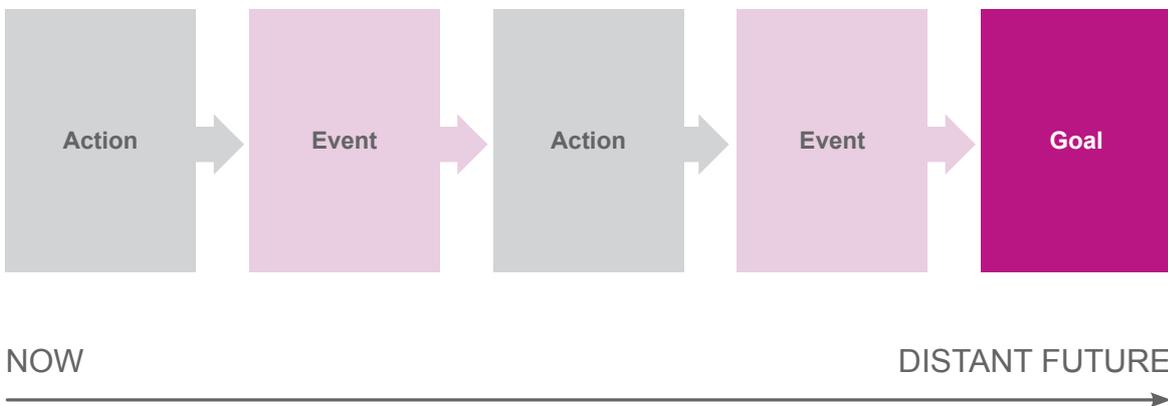
Approaches to future city visioning range from highly creative to highly formal. For cities this mode of thought is especially about exploring the long-term purpose and role of a place. This can be achieved by individual and collective construction of visions, as well as through structured explorations of aspirations and priorities, all rooted in place rather than generic goals. There is no one true future vision for a city; instead, many visions should be explored and complementary visions aligned. The nature of this process is inevitably political.<sup>16</sup> Diverse participation will enhance ownership of a vision and increase its eventual impact.

## Backcasting

Works backwards from a specific goals and explores what actions should be taken to get there. Avoids pitfalls of dominant tendencies to extrapolate from the present.

As used in: [www](#)  
[UK Water and Future Cities showcase](#)  
[Greater Manchester 2040+](#)  
[Newcastle 2065 City Futures](#)

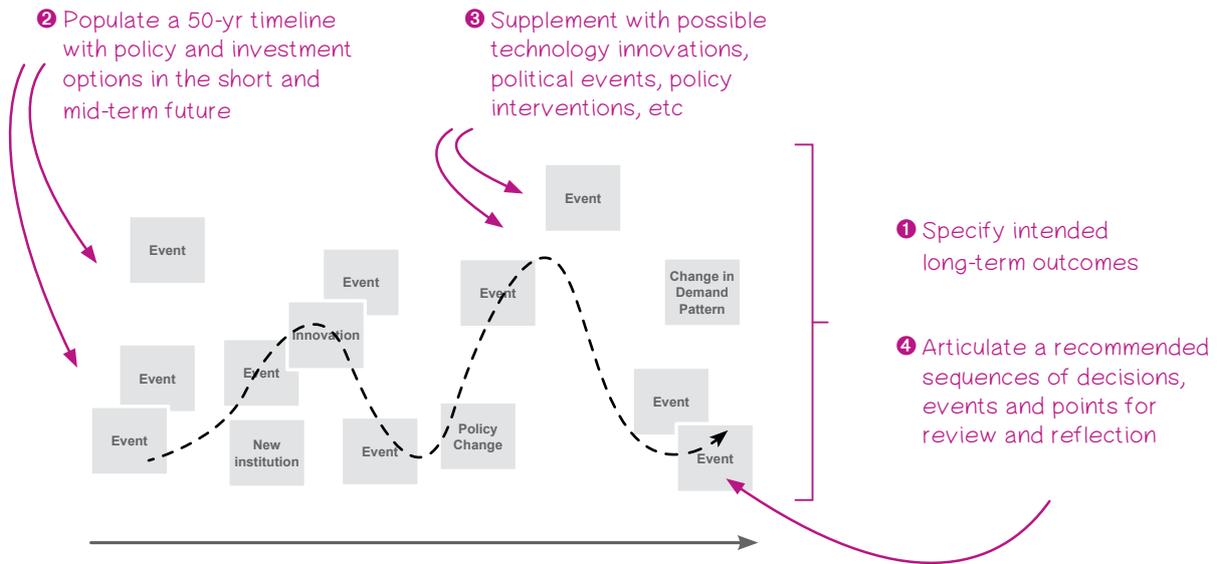
- ③ Use as warm-up exercise to immerse in distant future and uncover aspirations
- ④ Explore possible barriers and enablers
- ① Consider a preferred future outcome for one policy area
- ② Identify key differences between preferred future and the present



### Roadmapping

Outlines a staged framework for action across multiple policy areas that connects desired outcomes and goals for a city’s long-term future with its present assets, development plans through specific future policy options. Incorporates lessons learnt from wind-tunnelling.

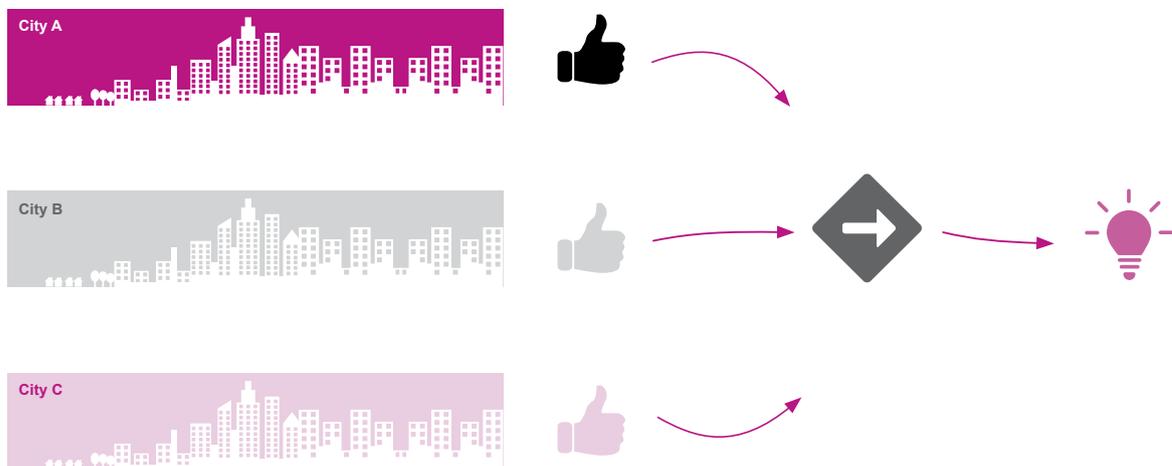
As used in: [www](#)  
[Rochdale 2065 workshop](#)  
[Newcastle City Futures 2065](#)



### Success pathways

Uses exemplary cases to identify how other cities have achieved particular outcomes. Is dependent on awareness of on-going city experiments and lessons learnt, as well as rigorous comparative research to understand the transferable elements of the underpinning mechanisms for change.

As used in: [www](#)  
[Greater Manchester 2040+](#)



## **City foresight as a continuous process: the case of Singapore<sup>15</sup>**

Following independence in 1965, with no primary natural resources or economic hinterland, Singapore's policymakers recognised the need to anticipate the future and influence developments in innovative ways in order to sustain growth and development. The use of scenario planning to structure foresight exercises was formally adopted in the 1980s, and has been increasingly used to generate narratives of the future – imagining how the world may evolve and what problems, challenges and opportunities might arise for the city.

By the mid-1990s, the successes of this approach in innovation and economic competitiveness had cemented a proactive philosophy of policy making within the government. The city officials' manual for public service delivery advocates "the need for change as a permanent state". Complete cycles of foresighting are now undertaken every 5 years.

## 1-day Rochdale city foresight journey

Foresight techniques can be combined and adapted to match a city’s unique needs with its time and resource availabilities. In October 2015, Rochdale officials, elected members and representatives of the city’s economic and educational sectors came together to explore a diverse range of aspects about the city’s long-term future in a single, 1-day workshop.

It can be challenging to keep a clear distinction between the different types of evidence generated during discussions about the distant future (e.g. aspirations, likely trends of change and possible policy ideas, as well as the different relationships between them). In Rochdale the outputs from the day’s four different sessions were connected by mapping them into an outline of the city foresight journey (p.27) on the wall. At the end of the day participants could then review the day’s work in one place and identify the aspects they felt should be explored further to inform the city’s repositioning itself towards its future.<sup>16</sup>

### 1. Aspirations (90mins)

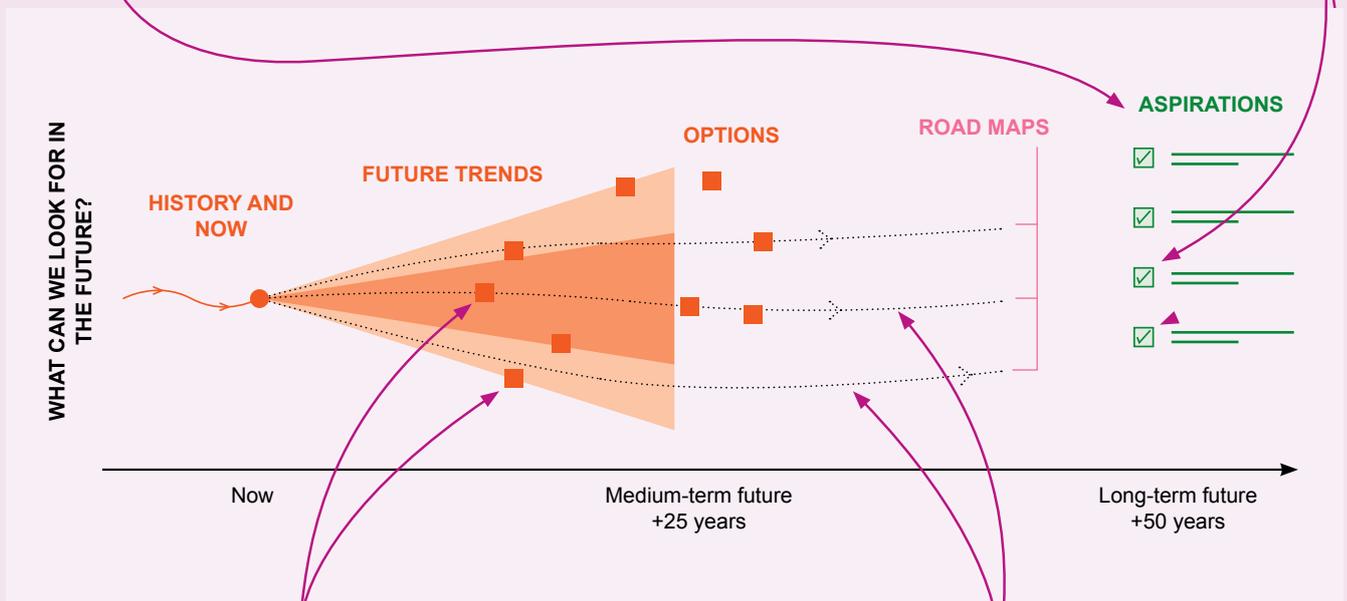


The first session used 2065 persona worksheets as a creative futures warm up to identify the group’s aspirations for Rochdale future.

### 2. Goals & priorities (90mins)



Aspirations were translated into actionable goals. A ‘goal map’ identified the relationships between these goals. Voting determined 4 key priorities for the city’s future.

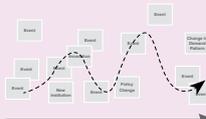


### 3. Developing a ‘menu of future options’ (45mins)

Option	Goal	Priority	Impact	Cost
...	...	...	...	...
...	...	...	...	...
...	...	...	...	...
...	...	...	...	...
...	...	...	...	...

Lists of possible policy options were created for each of the 4 prioritised goals, as well as related goals that would help achieve them.

### 4. Roadmap for the future (45mins)



The final session mapped possible sequences of policy choices from the previously developed ‘menu’ that could achieve the goals and aspirations identified for Rochdale in 2065.



## 5: Recommendations

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The opportunities to reposition cities for new future roles will expand as devolution continues. City authorities, new city-regional bodies and others will need to forge new relationships, allay old rivalries, and pursue a new sense of common identity and direction of travel.

City foresighting can help this process, and we have identified eight particular areas where government action can encourage the uptake of foresight and enhance its benefits.

### ACTIONS FOR CITY GOVERNMENTS



#### **Consider the long-term future in shorter-term city decision making**

Cities can display leadership by establishing foresight processes that demonstrate to national government their individual and collective capability for driving the development of the UK's system of cities. These processes can be particularly valuable for identifying unique local factors that affect the city's long-term performance. They should be complementary to statutory planning, drawing on a broader range of evidence sources and with more distant time horizons.

#### **Establish platforms for city foresight**

Cities can establish mechanisms for collaborations between local, city-regional and national partners to explore the future. Establishing such networks can provide timely access to valuable knowledge, and lead to wider ownership of policy issues and better capabilities to manage future risk. Local universities can contribute significantly to such networks.

#### **Share lessons learnt about the practice and impact of city foresight**

Cities can learn from each other about the strengths and weaknesses of different approaches to engaging with the long-term future. Exchanging insights will provide evidence of the value added by different approaches in different contexts, and should make city foresight more effective.

#### **Be creative and experiment with foresight exercises**

Cities are encouraged to experiment with some of the techniques set out in this report and adapt these to their own needs and circumstances. Foresight activities should be continuous and evolving, and avoid resource-intensive distractions, such as glossy 'final' one-off reports.

## ACTIONS FOR NATIONAL GOVERNMENT



### **Encourage evidence-based explorations of cities' long-term futures**

There is scope for more widespread and systematic articulation of cities' long-term priorities. At the moment cities are not required to consider their futures beyond a 25-year time frame, but perhaps they should. When engaging with their city counterparts, national government policy can bring a bigger picture context to complement cities' own long-term aspirations. This might be especially effective as part of future City Deal, Growth Deal and Devolution negotiations.

### **Give cities licence to experiment**

Ambitious future visions are sometimes perceived as disadvantageous by cities, especially where these challenge current trends. Statutory local plans, which largely determine where housing is built, are currently examined against strict criteria, which start from the latest Office for National Statistics (ONS) demographic projections. As a result, the UK's larger cities that have seen the majority of recent population growth are often advantaged, while cities with lower recent growth such as Durham<sup>17</sup> may find it more difficult to justify bold visions. To let all cities set new directions using strategic visions and narratives, it would be helpful during plan examination to distinguish between aspired futures (visions), expected futures (analysis of current projections) and plausible futures (alternative scenarios).

### **Provide evidence for cities to consider their future position within the national system of cities**

There is currently little information for cities to use 'off-the-shelf' to set local planning within the context of possible futures for the national system of cities. As a result, cities often find it hard to check their assumptions, for example about future housing and infrastructure investment, and to identify possible synergies or conflicts with decisions made in neighbouring or other cities. National government could help by providing three sets of future evidence: departmental scenario work and horizon-scanning undertaken by central government (already existing, but not always made publicly available); variant sub-national population projections for England (already produced for major Scottish cities); and, exploratory scenarios of alternative future population distribution and options for future national infrastructure investment (could be initiated by the National Infrastructure Commission).

### **Take account of local intelligence in national policy decisions**

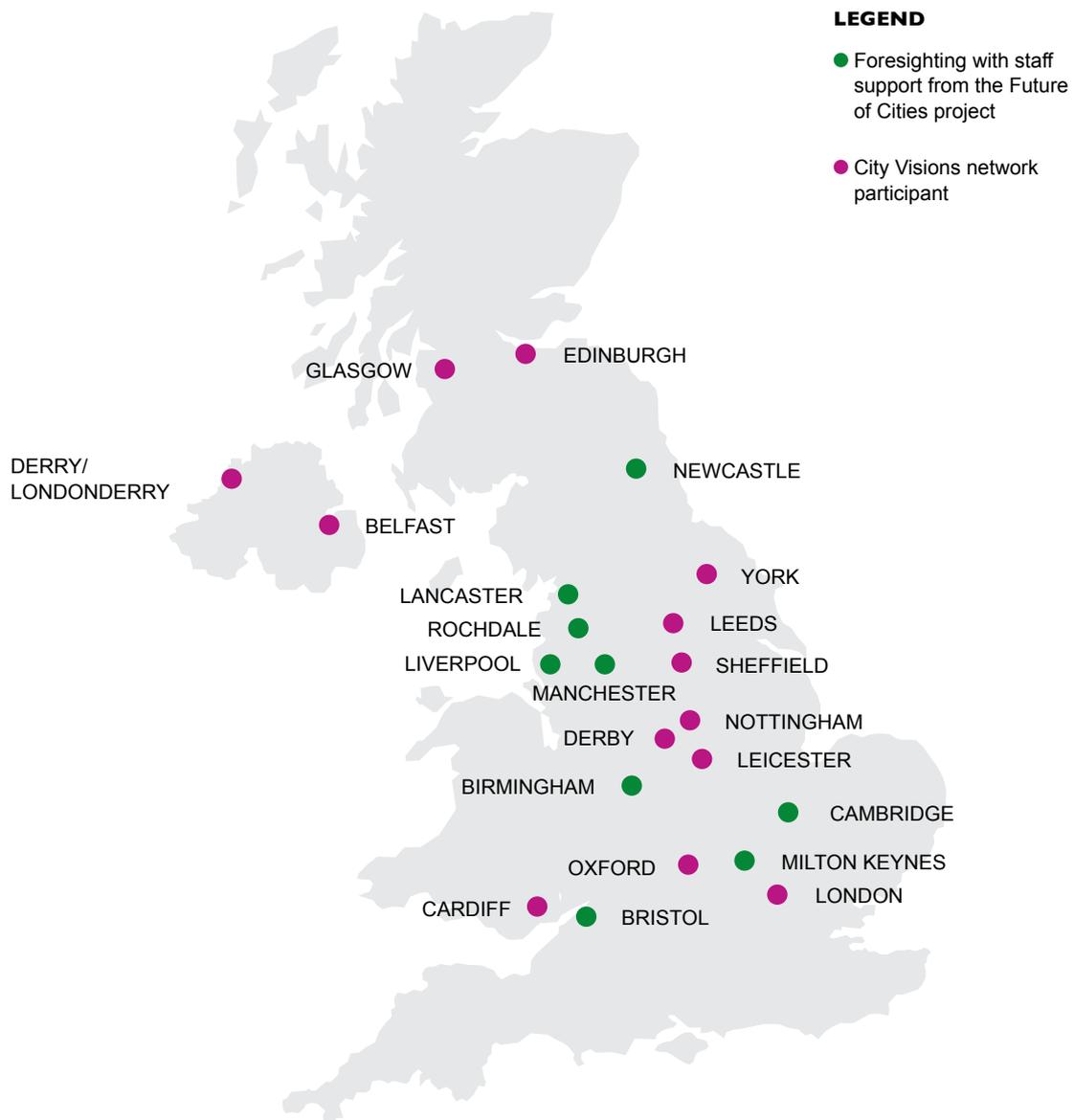
National government and city-region partnerships will collaborate in new ways to develop innovative, integrated policy approaches to long-term challenges, such as achieving greater diversity and balance between regional economies. In order to have better oversight of the types of evidence available and their likely assumptions and limitations, national policy makers might benefit from closer understanding of the mechanisms and processes by which evidence about the future is collected and used at a local level<sup>18</sup>.

## Appendix A: Cities involved in Future of Cities project foresight work

The Foresight Future of Cities project engaged with city partners through a series of city visits, workshops, public lectures and local city foresight projects. As a mechanism for sharing ideas and exchanging lessons learnt about the role, value and practice of thinking about the long-term future of cities, a 'City Visions' network was established. This network held three formal gatherings throughout the duration of the project, and the table and map below provide an overview of its participants, as well as links to where to find out more about their city foresight work.

City	City Visions network participant	City foresight with support from the Future of Cities project	Where to find more
Belfast	•		
Birmingham	•	•	<a href="http://www.sustainabilitywestmidlands.org.uk/resources/8476/">http://www.sustainabilitywestmidlands.org.uk/resources/8476/</a>
Bristol	•	•	<a href="http://www.100resilientcities.org/cities/entry/bristols-resilience-challenge#/-_/">http://www.100resilientcities.org/cities/entry/bristols-resilience-challenge#/-_/</a>
Cambridge	•	•	<a href="http://www.csap.cam.ac.uk/media/uploads/files/1/foresight-project-report-single-pages-low-res.pdf">http://www.csap.cam.ac.uk/media/uploads/files/1/foresight-project-report-single-pages-low-res.pdf</a>
Cardiff	•		<a href="http://www.retrofit2050.org.uk/sites/default/files/resources/City-Regional-Scenarios-Report.pdf">http://www.retrofit2050.org.uk/sites/default/files/resources/City-Regional-Scenarios-Report.pdf</a>
Derby	•		
Londonderry	•		
Glasgow	•		<a href="http://open.glasgow.gov.uk/the-future-city-journey/">http://open.glasgow.gov.uk/the-future-city-journey/</a>
Greater Manchester	•	•	<a href="http://gm2040.com/">http://gm2040.com/</a>
Lancaster	•	•	<a href="http://www.lancaster-chamber.org.uk/page/186/Future-of-Cities-Report.htm">http://www.lancaster-chamber.org.uk/page/186/Future-of-Cities-Report.htm</a>
Leeds	•		<a href="http://www.leeds.gov.uk/council/pages/leeds-2050-study-.asp">http://www.leeds.gov.uk/council/pages/leeds-2050-study-.asp</a>
Liverpool	•	•	
London	•		<a href="http://www.london.gov.uk/WHAT-WE-DO/BUSINESS-AND-ECONOMY/BETTER-INFRASTRUCTURE">http://www.london.gov.uk/WHAT-WE-DO/BUSINESS-AND-ECONOMY/BETTER-INFRASTRUCTURE</a>
Milton Keynes	•	•	<a href="http://www.milton-keynes.gov.uk/your-council-and-elections/council-information-and-accounts/strategies-plans-and-policies/mk-futures-2050-commission">http://www.milton-keynes.gov.uk/your-council-and-elections/council-information-and-accounts/strategies-plans-and-policies/mk-futures-2050-commission</a>

Newcastle	•	•	<a href="http://www.newcastlecityfutures.org/">http://www.newcastlecityfutures.org/</a>
Nottingham	•		
Oxford	•		
Reading	•		<a href="http://www.livingreading.co.uk/reading-2050">http://www.livingreading.co.uk/reading-2050</a>
Rochdale	•	•	
Sheffield	•		
York	•		



# Appendix B: Further details for the city foresight sample techniques in action

As referenced in chapter 4	Further detail can be found at
2037 City job surplus scenarios	Swain, C. Steenmans, I. (2016) <i>The future of UK cities: 3 contrasting scenarios</i> . London: Government Office for Science.
2062 Cities population projections	Champion, T. (2015) <i>What do the latest official sub-national population projections suggest for Great Britain's 63 cities?</i> , London: Government Office for Science
2065 Visions of Cambridge	Stamati, K., Almond, R. and Faul M. V. (2015) <i>Visions of Cambridge in 2065</i> , Cambridge: Centre for Science and Policy
Birmingham and West Midlands 2060	Sustainability West Midlands (2015) <i>The Future We Made: Birmingham and the West Midlands Futures Toolkit 2020-2060</i> , Birmingham: Sustainability West Midlands.
Birmingham and Bristol workshops with Liveable Cities	Hunt, D. and Rogers, C. (2016) <i>Aspirational City Futures</i> . University of Birmingham.
CASA city-regional travel-to-work analysis	Camilo, V., Ferguson, P. and Wilson, A. <i>Forthcoming</i> . City-regional Scenario Planning Demonstration Tool: Summary Report. Centre for Advanced Spatial Analysis, UCL.
Greater Manchester 2040+	New Economy and the University of Manchester Institute of Innovation & Research (2015) <i>Greater Manchester 2040+ Pathways Report: Summary</i> . Manchester: University of Manchester.
Milton Keynes 2050	Foresight (2016) <i>MK Future: 2050 Commission on city foresight journey and work plan</i> . London: Government Office for Science.
Newcastle 2065 City Futures	Tewdwr-Jones, M., Goddard, J. and Cowie, P. (2015) <i>Newcastle City Futures 2065: Anchoring universities in urban regions through city foresight</i> , Newcastle: Newcastle Institute for Social Renewal, Newcastle University
Public Policy in Future Cities	Harding, A. and Nevin, B. 2015. "Cities and public policy: a review paper", <i>Foresight Future of Cities</i> , London: Government Office for Science
Rochdale 2065 workshop	Foresight (2016) <i>Rochdale 2065</i> . London: Government Office for Science.
UK Water and Future Cities showcase	Swain, C. Steenmans, I. (2016) <i>The future of UK cities: 3 contrasting scenarios</i> . London: Government Office for Science.
Welsh Cities 2065	Swain, C. Steenmans, I. (2016) <i>The future of UK cities: 3 contrasting scenarios</i> . London: Government Office for Science.

# References

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1. Glasgow City Council (2011) *Glasgow 2061 consultation summary* [online]. Available at: [https://www.glasgowconsult.co.uk/UploadedFiles/GCC\\_2061\\_A4%20Full%20Version%20Online.pdf](https://www.glasgowconsult.co.uk/UploadedFiles/GCC_2061_A4%20Full%20Version%20Online.pdf)
2. Cardiff Council (2013) *One Planet Cardiff 2050* [online]. Available at: [http://formerly.cardiff.gov.uk/content.asp?nav=2870,3148,6731&parent\\_directory\\_id=2865#/home](http://formerly.cardiff.gov.uk/content.asp?nav=2870,3148,6731&parent_directory_id=2865#/home)
3. One North (2014) *One North: A proposition for an interconnected North* [online]. Available at: [http://www.manchester.gov.uk/downloads/download/5969/one\\_north](http://www.manchester.gov.uk/downloads/download/5969/one_north)
4. 100 Resilience Cities (2015) *Bristol's Resilience Challenge* [online]. Available at: [http://www.100resilientcities.org/cities/entry/bristols-resilience-challenge#/-/\\_/](http://www.100resilientcities.org/cities/entry/bristols-resilience-challenge#/-/_/)
5. Unknown (1959) *Unitary Urbanism at the End of the 1950s. International Situationist* (3), December 1959, pp. 11-16. Trans. Paul Hammond.
6. HM Treasury (2013) *Green Book* [online]. Available at: <https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government>.
7. Foresight (2016) *MK Future: 2050 Commission on city foresight journey and work plan*. London: Government Office for Science.
8. Cowie, P., Goddard, J. and Tewdwr-Jones, M. (2016) *The Role of Universities in City Foresight. Final report of the Future of Cities Research Network*, Newcastle Institute of Social Renewal, Newcastle University: Newcastle. Available online at <http://www.ncl.ac.uk/socialrenewal/research/civicuniversity/#foresight>
9. New Economy and the University of Manchester Institute of Innovation & Research (2015) *Report on Future of Cities – Greater Manchester 2040+ Project*. Manchester: New Economy.
10. Lancaster Chamber of Commerce (2015) *Lancaster City Visions Project Report* [online]. Available at: Available from [www.lancaster-chamber.org.uk/page/186/Future-of-Cities-Report.htm](http://www.lancaster-chamber.org.uk/page/186/Future-of-Cities-Report.htm)
11. Swain, C. and Steenmans, I. (2016) *The future of UK cities: 3 contrasting scenarios*. London: Government Office for Science.
12. Wack, P. (1985) *Scenarios: Shooting the Rapids: How Medium-Term Analysis Illuminated the Power of Scenarios for Shell Management. Harvard Business Review*, 63(3) pp.139-150.
13. Hunt, D. and Rogers, C. (2016) *Aspirational City Futures: a short review of foresight approaches*. Birmingham: University of Birmingham.

14. Ritchey, T. (1998) *General Morphological Analysis: A general method for non-quantified modelling*. Available at: <http://www.swemorph.com/ma.html>
15. UNDP (2014) *Foresight as a Strategic Long-Term Planning Tool for Developing Countries*. Available at: [http://www.undp.org/content/dam/undp/library/capacity-development/English/Singapore%20Centre/GPCSE\\_Foresight.pdf](http://www.undp.org/content/dam/undp/library/capacity-development/English/Singapore%20Centre/GPCSE_Foresight.pdf)
16. Foresight (2016) *Rochdale 2065*. London: Government Office for Science.
17. Durham County Council (2015) *County Durham Plan Examination – Examination News*. Available at: <http://durhamcc-consult.limehouse.co.uk/portal/planning/cdpexam/>
18. Swain, C. (2016) *Understanding current city foresight practice*. London: ARUP and Foresight.



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