Innovate UK

WRITTEN BY

Urban Foresight

FUTURE PLACES

A HORIZON SCAN OF FUTURE TRENDS FOR THE UK'S TOWNS AND CITIES

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EXECUTIVE SUMMARY

The UK's urban places are facing a diverse and complex set of challenges into the future.

From achieving net zero to effectively using powerful artificial intelligence (AI) tools, those living in, working in, and managing towns and cities need to be prepared to create good outcomes for people, the environment, and the economy.

Innovate UK supports businesses to grow and aims to create the environments they need to effectively innovate. It has commissioned a foresight activity to learn more about the trends affecting UK places and what actions they can take to support innovation that resolves current and future challenges in towns and cities.

Strategic foresight is an operational process for exploring and acting on potential future scenarios. It is used around the world by policy makers to make robust decisions that will be relevant to different possible futures.

Foresight tools are a set of exploratory and analysis frameworks that are participatory, creative and action-orientated. Horizon scanning, scenario planning and backcasting will be used to provide Innovate UK with an actionable set of recommendations to enable innovation for towns and cities.

To start with, a horizon scan activity has been completed to create an initial list of future trends. A literature review, interview series and media scan were used to create this list of trends – defined as anything driving change – across a defined domain of urban systems.

These trends were categorised against a VESTEG framework that defines whether they influence values, economic conditions, sociodemographic make up, technologies, the environment, or governance. They were also defined against their time horizon of:

1. **Current drivers and trends** - Now to 5 years
2. **Emerging drivers of change** - 10+ years
3. **Weak signals of change** - 30+ years

The final database of nearly 300 trends has produced seven overarching themes that will affect the future of towns and cities in the UK. These are:

Investing in healthy futures
Investment decisions will account for their impact on health outcomes.

Regulations and innovation
Standards and regulations will influence the growth rate of innovative markets.

Computing power
The accelerating speed of computers will allow for more powerful programmes.

Network patterns
Established relationships between citizens, the state, markets, infrastructure, and the built environment will change form.

Sharing spaces
Digital and physical spaces will be accessible to everyone in an ageing population.

Safety and security
An appetite for safety will drive investments in secure systems.

Resilient systems
Environmental and civic systems will support a growing population day-to-day and under extreme events.

All the future trends are listed in this report. They are also available to explore in an interactive online tool at www.placekits.com/futureplaces.

A HORIZON SCAN OF FUTURE TRENDS

Innovative businesses can help meet the needs of the UK's future towns and cities. Innovate UK aims to create the conditions for them to grow.

The UK is a highly urbanised country, with the majority of people living and working in towns and cities. Urban areas play a vital economic role in attracting everything from tourists to international investment to the UK.

These places need to work for everyone: providing clean, safe environments, economic opportunities, effective public services, and inspiration to those who live there. But they face a range of challenges including resource pressures, economic uncertainties, a growing and ageing population, and a shifting global stage.

They also need to decarbonise in the face of the climate crisis and the net zero targets of government and local authorities.

Innovate UK's Urban Systems team are focussed on creating the business environment needed for innovators to provide the products and services that places need to decarbonise and become equitable, inclusive, and accessible.

Understanding the trajectory of future developments enables Innovate UK to prepare for and understand the forms of technology and innovations that are likely to be most influential in the future. The agency can then make informed decisions on effective actions to create innovation opportunities for the future of the UK's urban places.

Research has been conducted to gather intelligence on urban futures through a horizon scanning exercise. This report introduces this initiative and presents a database of trends to illustrate the wider range of potential futures facing UK towns and cities. This database can also be found as an interactive online tool at www.placekits.com/futureplaces.

This horizon scan is a strategic foresight activity that will go on to inform recommendations on actions to create robust, future-ready innovation opportunities.

This database can also be found as an interactive online tool at www.placekits.com/futureplaces

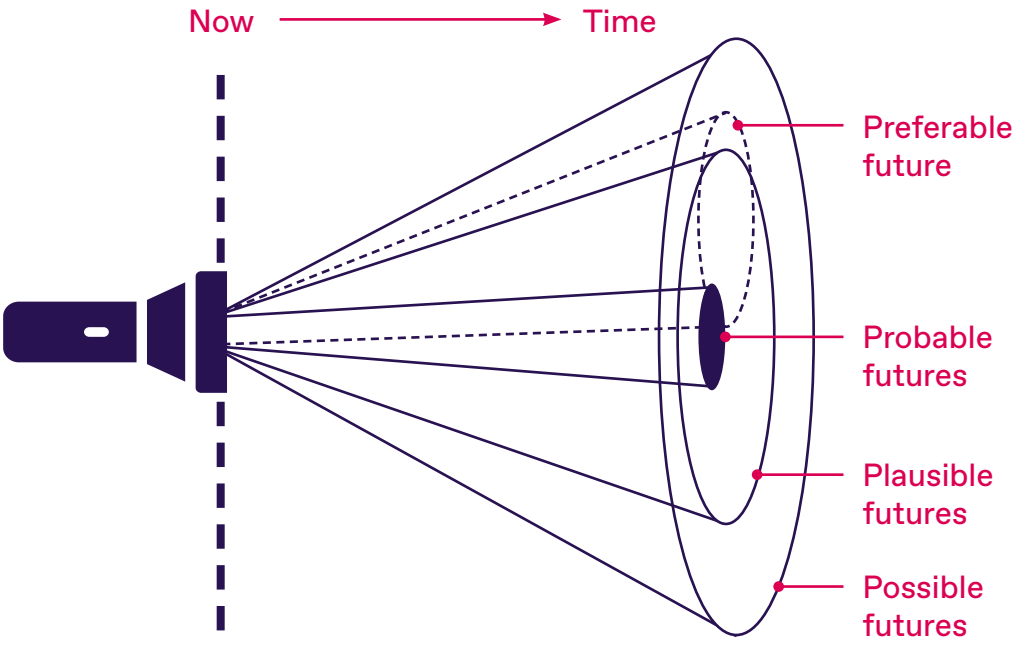
EXPLORING THE FUTURE

Foresight is the process of exploring possible futures to inform decisions that are resilient to them. Governments around the world use foresight to prepare for the future.

Exploring alternative futures

The future is an infinite array of potential scenarios. Individually, we perceive these scenarios to be more or less likely based on our experiences and our worldview. This perception informs every decision we make in the present and underpins our understanding of the world.

The future can be conceptualised as an ever-expanding cone of alternative possibilities.[1]



- **Probable futures** are those that we imagine are the most likely outcome, based on our understanding of current events and probability-based forecasts.
- **Preferable futures** are the desirable outcomes that everyone would like to see based on their emotional drivers and individual logic.
- **Plausible futures** encompass any future that is theoretically realistic within our physical laws, processes, and existing systems.
- **Possible futures** include futures that are shaped by scientific knowledge that does not yet exist.

1 Henchey (1978) Making Sense of Future Studies

Thinking about the future, expanding your perception of probable futures, and making decisions based on them is an intrinsic, personal function that each individual undertakes.

These processes have also been operationalised in organisations, governments and academic institutions to enable strategic conversations and facilitate decision-making to prepare for possible futures and remain competitive. This is the practice of foresight.

Foresight as a strategic process

Foresight – often referred to as futures studies, futures research or futures thinking – is the analytical process of exploring what may happen in the future in order to prepare for it.[2]

Strategic foresight is slightly more prescriptive and action-orientated. It's a participatory process that provides a framework for identifying and evaluating potential futures and determining the best course of action.

It is used for solving complex problems that include a high degree of uncertainty and require multi-sectoral and participatory methods to making informed decisions.

There are established tools for conducting strategic foresight. These often take a systems approach to process inputs, handle complexity and interface with each other.

In a foresight programme, participants complete interconnected activities that use these tools to help them to:

1. Gather intelligence about the future
2. Explore the dynamics of change
3. Describe what the future might be like
4. Develop and test strategic responses[3]

These programmes are used to make insightful decisions that account for the potential impact of a range of different scenarios, rather than attempting to predict or forecast the future – a task of limited benefit in a world of high uncertainty.

In the public sector, these approaches can in turn be used to support development of policy and interventions that are resilient to a range of possible outcomes.[4]

2 Shultz, W. (2015) A Brief History of Futures

3 The Government Office for Science (2017) The Futures Toolkit

4 OECD (2019) Strategic Foresight for Better Policies

Foresight in policy

Strategic foresight has been gaining importance in various countries as a tool to anticipate and prepare for future challenges and opportunities.

In the UK, dedicated departments, initiatives, policies, and programmes utilise foresight methodologies and promote the use of futures research across sectors.

These include the Government Office for Science and the former Department for Business, Energy, and Industrial Strategy (BEIS), which provide strategic foresight and advice to the UK Government and use foresight methodologies to shape policies related to innovation, technology, and industrial strategies.

Other organisations include: Connected Places Catapult who utilise foresight methodologies for innovating cities, transport, and places; and the Innovation Observatory who provide national horizon scanning services to the National Institute for Health and Care Research (NIHR).

However, the implementation of strategic foresight varies across countries depending on their political system, culture, economic resource, challenges and priorities.

A high-level review of political and research structures identified several common ways of utilising strategic foresight in practice:

- **In national strategic foresight plans:** Some countries develop formal national strategic foresight plans that outline long-term visions, goals, and strategies for the future. These plans typically involve input from various stakeholders and are updated periodically to reflect changing circumstances.

- **In public policy development:** Strategic foresight is integrated into the process of public policy development, helping policymakers assess the potential impact of different policies and select the most suitable ones based on future scenarios.

- **In scenario planning:** Scenario planning is a common method used in strategic foresight. Countries employ scenario planning to identify a range of possible futures, assess their implications, and devise strategies to address potential barriers and opportunities.

- **In exploring emerging markets:** Countries often invest in technology foresight to anticipate technological advancements and identify emerging technologies that could have significant socio-economic impacts. This allows them to prioritise research and development efforts accordingly.

- **In developing collaborative networks and partnerships:** Countries may collaborate with national or international organisations, research institutions, and other countries to share knowledge and expertise in strategic foresight. Networks and partnerships may take the form of funded programmes or initiatives. This fosters a global perspective and the exchange of best practices.

- **In conducting trends analysis:** Countries conduct long-term trend analysis to understand the underlying patterns and drivers of change, which helps in making informed decisions and preparing for potential disruptions.

- **In futures research and studies:** Governments fund and support research on future-oriented topics, such as demographic changes, environmental sustainability, technological advancements, and geopolitical shifts.

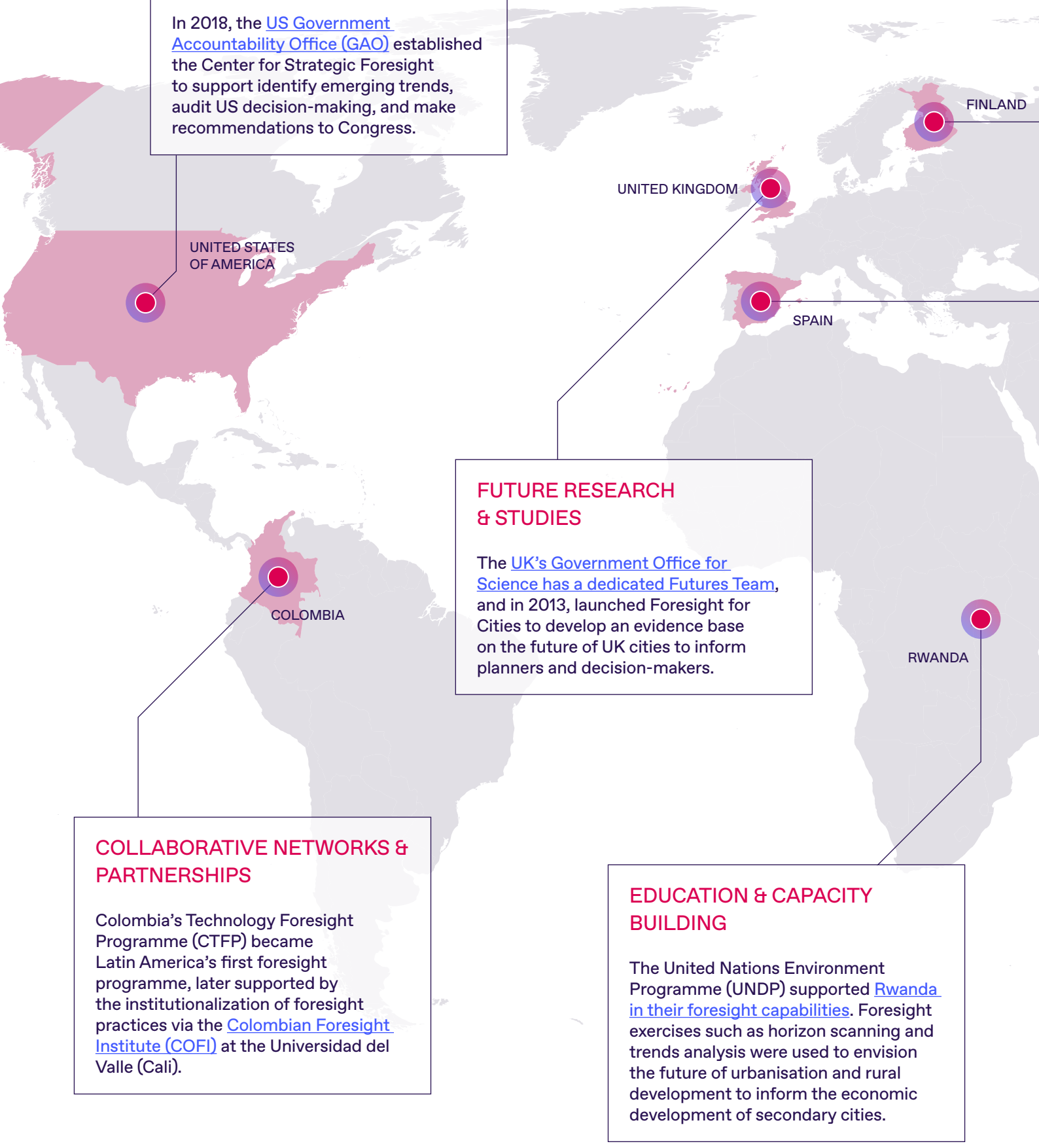
- **In education and capacity building:** Countries invest in building the capacity of policymakers, researchers, and public servants in strategic foresight methodologies and techniques to foster a culture of future-oriented thinking.

A handful of examples are highlighted here, representing the diverse global landscape of what strategic foresight looks like in practice.

FORESIGHT IN PRACTICE: A DIVERSE GLOBAL LANDSCAPE

TRENDS ANALYSIS

In 2018, the US Government Accountability Office (GAO) established the Center for Strategic Foresight to support identify emerging trends, audit US decision-making, and make recommendations to Congress.



FUTURE RESEARCH & STUDIES

The UK's Government Office for Science has a dedicated Futures Team, and in 2013, launched Foresight for Cities to develop an evidence base on the future of UK cities to inform planners and decision-makers.

COLLABORATIVE NETWORKS & PARTNERSHIPS

Colombia's Technology Foresight Programme (CTFP) became Latin America's first foresight programme, later supported by the institutionalization of foresight practices via the Colombian Foresight Institute (COFI) at the Universidad del Valle (Cali).

EDUCATION & CAPACITY BUILDING

The United Nations Environment Programme (UNDP) supported Rwanda in their foresight capabilities. Foresight exercises such as horizon scanning and trends analysis were used to envision the future of urbanisation and rural development to inform the economic development of secondary cities.

FUTURES RESEARCH & STUDIES

Finland's Prime Minister's Office leads on foresight activities and work on the future with aims to support decision-making by creating a shared understanding of the changes that lie ahead. It is supported by Sitra, a future organisation and fund responsible for promoting the wellbeing of Finland.

NATIONAL STRATEGIC FORESIGHT PLAN

In 2020, the Government of Spain incorporated a strategic foresight office at the centre of their government. The office primarily focusses on preparing Spain's long-term national strategy, España 2050. It details Spain's targets to become a net zero, circular economy by 2050.

SCENARIO PLANNING

FIJI

Fiji's National Climate Change Policy 2018-2020 includes a description of a preferred future scenario for the nation in 2050. The policy calls for 'integrated national risk scenarios' and the prioritization of strategic foresight to support in responding to climate change.

OUR PROCESS

Horizon scanning is an established process of searching for evidence or intelligence on what is going to change in the future.

A horizon scan was undertaken to identify any trends that will change towns and cities in the UK and therefore have an impact on the innovation environment that Innovate UK is aiming to grow.

Defining a trend

For the purpose of this research, 'trends' were defined as emerging, current or mature issues that are shaping the macro-environment of towns and cities. Or more succinctly, anything that drives change.

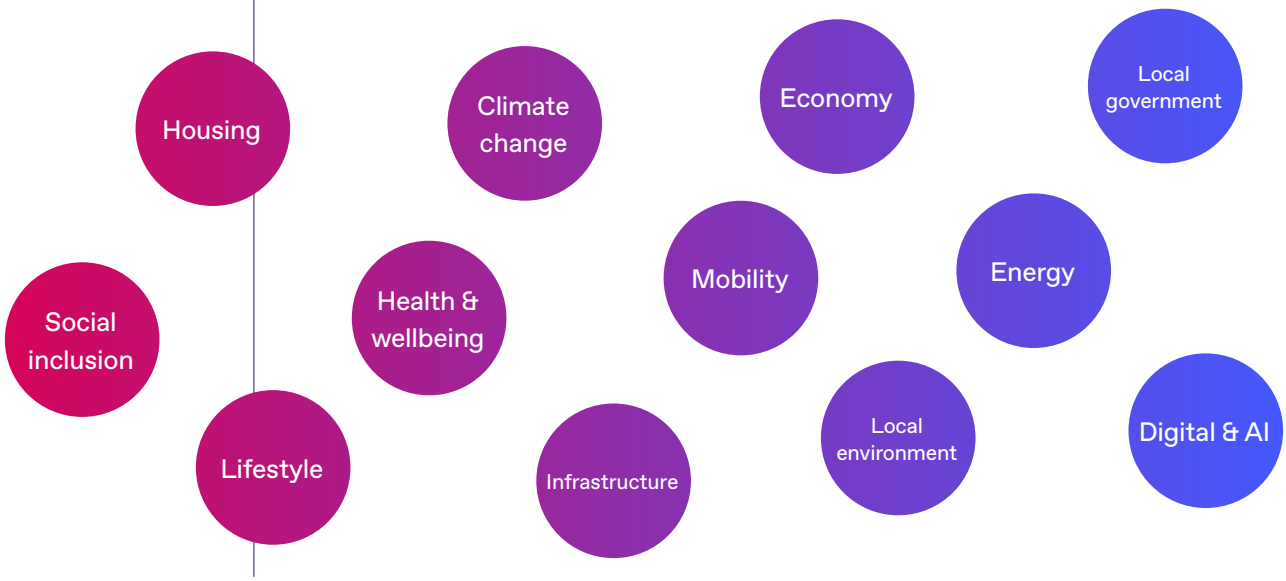
The horizon scan aimed to gather any evidence or intelligence on trends that were currently effecting change, emerging as potential drivers of change, or weak signals of shifts in the macro-environment.

All trends were considered objectively, regardless of whether they are likely or unlikely, positive or negative.

Domain mapping

To ensure that the trends unearthed by this research covered all relevant drivers of change, a domain mapping exercise was undertaken.

This provided a framework for balancing the horizon scan. By reflecting on each space in the domain, the scan accounted for the different systems that make an urban place.



Horizon scan

The scan itself comprised of two core activities:

1. **A literature review**
   Academic papers and grey literature were reviewed to identify future trends that researchers and theorists have identified as affecting towns and cities. Almost thirty different sources were processed, with a focus on global macro trends that will influence the UK.

2. **7 questions interview series**
   An interview series was conducted to narrow the focus of future trends on those affecting UK urban areas. The interview series used the 7 questions format from Shell's pioneering foresight processes[5], which asks questions that create opportunities for open, creative thinking about the future.

   The series included interviews with local authority digital officers, infrastructure suppliers, urban development researchers, and industry bodies. Ten experts contributed to the scan. By the nature of their work being embedded in working to improve urban futures, these stakeholders proved to be mostly optimistic about the future. This resulted in a bias towards positive future trends in the scan results.

Any possible trends from these two activities were captured in a database. These were supplemented by insight from past research activities and any trends found in news and media over the course of the scan.

At the end of the scan, over 450 trends had been collected for processing.

All of these trends were categorised against a VESTEG framework – an expansion on the PESTEL framework[6] – which defined whether the signals, trends or drivers related to changes in values, economic conditions, sociodemographic make up, technologies, the environment, or governance.

5 The Government Office for Science (2017) The Futures Toolkit

6 Government Office for Science (2023) VESTEG x Pace: A Hybrid Framework for Scanning Depths and Horizons

Values ↘
Examples:
Sociocultural norms
Attitudes
Behaviours

Economic ↘
Examples:
Economic growth
Employment rates
Inflation

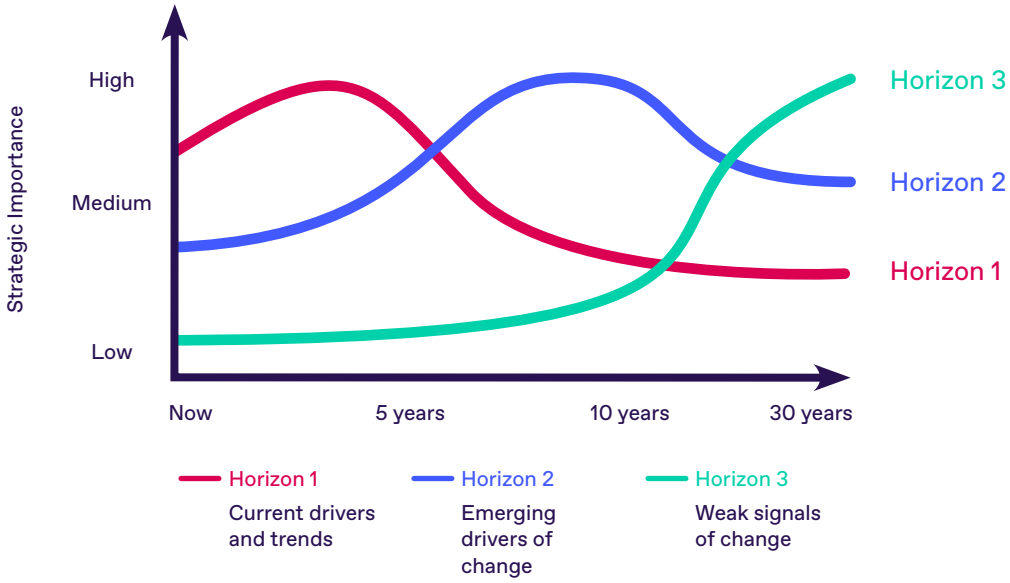
Sociodemographic ↘
Examples:
Population age
Working patterns
Living patterns

Technological ↘
Examples:
New and emerging tech
Capabilities
Uses

Environmental ↘
Examples:
Weather events
Carbon emissions
Natural resources

Governance ↘
Examples:
Laws and regulations
Taxes and trade
Political systems

The relevant horizon for each trend was recorded. These describe the timescale at which the trend will have the most driving force on the urban innovation market.



Clustering trends

The longlist of trends was filtered to collate or remove repeats, and overarching themes identified.

Seven distinct themes of recurrent, fundamental changes that the UK's towns and cities will see in the future were defined, and trends clustered within them.

These themes group the trends — a complex set of potential changes — together through their common underlying nature. They are not entirely interdependent as each cluster influences the others to varying degrees. But, as concepts, each theme will shape the market for innovative solutions that address the challenges and opportunities of the UK's towns and cities in the future.

As a result, the horizon scan produced a database of nearly 300 trends each recorded with: a name, description, VESTEG category, horizon, and theme.

FUTURE TRENDS

The horizon scan produced nearly 300 individual trends across seven themes that will affect innovation for UK towns and cities.

Seven themes affecting innovation for UK towns and cities. →

Regulations and innovation

Standards and regulations will influence the growth rate of innovative markets. Technology developments are held back or technology threats are accelerated by restrictions or gaps in regulations that affect innovators, local governments, and end users.

Network patterns

Established relationships between citizens, the state, markets, infrastructure, and the built environment will change form. Networks change shape as expectations, power dynamics, competition, and social contracts all shift.

Safety and security

An appetite for safety will drive investments in secure systems. Physical infrastructure and digital technologies can't present a risk to individuals and must be able to withstand bad actors.

Investing in healthy futures

Investment decisions will account for their impact on health outcomes. An ageing population draws focus to preventative healthcare, longevity and co-benefits.

Computing power

The accelerating speed of computers will allow for more powerful programmes. Quantum computing and generative AI provide opportunities for automation of smart, data-driven infrastructure and systems that create their own value.

Sharing spaces

Digital and physical spaces will be accessible to everyone in an ageing population. From the built environment to online services, everything needs to cater to a multigenerational, multicultural population with diverse needs.

Resilient systems

Environmental and civic systems will support a growing population day-to-day and under extreme events. Water, food, mobility and energy infrastructure must provide for everyone, withstanding extreme weather events or other "black swan" unforeseen events.

Investing in healthy futures

Health is an underpinning factor in investment decisions that have previous been limited to their economic case.

Building on a trend seen post-pandemic, the benefits of investment decisions to population health levels are now held in higher prominence. This includes investment in services, the built environment, and in individual consumer spending.

Currently, policy and procurement practices are driving this theme – as seen in the growing prominence of social value frameworks and initiatives exploring health and wellbeing co-benefits. Consumer behaviour reflects an increased awareness of health and willingness to invest or make behaviour changes to improve their own individual health.

Into the future, the UK's health and care systems will be forced to adapt to remain sustainable whilst serving a larger, ageing population. Their accounting lines will blur and new fiscal systems for investing in public health or population-level health improvements will develop.

HORIZON 1 → Current drivers & trends

★ Values ↘

Empowered, wellbeing focused healthcare	Wellbeing is seen as preventive healthcare, empowering individuals to control their health and reduce the need for extensive medical services.
Social value policy landscape	The policy landscape is rapidly transforming in recent years, accelerated by the pandemic, bringing significant changes. Social value benefits from initiatives like the Green Book and Construction Playbook, paving the path for transformative change.
Transformative travel	Travelers make a positive impact on others and themselves. Volunteering trips and wellness holidays are popular, as travellers seek personal growth and contribute to communities.
Experience tourism	Travelers prioritise unique and authentic connections with cultures and nature. They seek immersive experiences, mingling with locals and embracing the destination's culture.
Wellness travel	Travelers seek experiences that improve their health and wellbeing. It is not limited to resorts and spas, presenting opportunities for diverse businesses.
Social prescribing	Changing attitudes towards the scope of health services with social prescribing of non-medical interventions (e.g. exercise) increasing.

Investing in healthy futures
HORIZON 1 → Current drivers & trends

Attitudes to new technologies	Changing attitudes towards using technology from "technology-focussed only outcomes" to social, environmental and economic outcomes.
Demand for safe active travel routes	Demand for walking and cycling routes is increasing as people want to travel actively for the health benefits.
Changing views on exercise	Trends towards viewing muscles as an endocrine system and hormonal benefits rather than health and exercise agendas focusing solely on caloric expenditure.
Trust in health	The role of trust is increasingly important in healthcare - trust in systems, delivery of services, and what this means for individuals and their ability to engage in services.
Public participation	Citizen-led design and participation are more valued in decisions relating to their quality of life, including health service delivery and the built environment.
New ULEZ messaging	Urban centre emission control zones messaging is changing to focus more on the environmental factors which are positively influenced rather than on the cost.

Sociodemographic ↘

Providing the right environment for people to make good choices.	Places influence health outcomes (social determinants of health) and provide people with the agency to live healthy and thriving lives. It is important to deliver that for people - not setting them up to fail, for example, by using policy to create local, sustainable food systems that provide healthy food.

Environmental ↘

Green planning	Cities prioritise people-centric planning and design, featuring green streets, new corridors, and vibrant public spaces as social hubs.

Investing in healthy futures
HORIZON 2 → Emerging drivers of change

HORIZON 2 → Emerging drivers of change

★ Values ↘

Holistic, preventative health	Cities develop healthcare ecosystems that prioritize holistic wellbeing, encompassing early intervention, prevention, and digital technologies, alongside diagnosis and treatment.
Economic and prosperity indicators account for more than GDP	Policy and economic indicators are changing to promote inclusive and sustainable health and wellbeing, including adjusting GDP to account for more factors than economic production, using Sustainable Development Goals, the donut economics concept, or other multidimensional indices that reflect health, wellbeing, and the quality of life.
Food systems adapt to changing diets	Diets and standard ingredients are changing and are more health-orientated.
Changing perceptions on the value of physical movement	Reducing focus on weight and obesity control measures, which mirrors a growing acceptance of the values of movement outside of quantifying caloric intake and the importance of the muscle as an endocrine system for maintaining health and wellbeing.
Valuing urban design	Growing appreciation for the need for good urban design for health, safety, and wellbeing.
Urban planning for health	Planning places an emphasis on developing sustainable localities, reducing driving and reliance on the private car for improved health outcomes.
A overall focus on health	Health is progressively becoming more of a focus of all converging elements of society. Wellbeing is increasingly becoming part of every agenda.

Economic ↘

A work-life balance that supports health	As the nature of work changes, with more automation, people can have more free time to spend in the interest of their health and wellbeing.
Carbon accounting drives green infrastructure investments	Carbon accounting is used as a decision making tool in urban infrastructure. Green infrastructure (e.g. drainage systems) are no longer value engineered out as the economics of infrastructure is no longer the priority.

Investing in healthy futures

HORIZON 2 → Emerging drivers of change

Preventative healthcare	Preventative healthcare business models in health care delivery and other markets are growing in prominence.
Health impacts of car transport	The health impacts of car transport - inactivity, pollution, and hostile built environments - affect investment decisions in infrastructure.

Sociodemographic ↘

Declining birth rates	Birth rates decreasing globally as economic conditions change and the population ages.
Increasing loneliness	Rates of loneliness are high across all generations, perpetuated by the ageing population and a lack of human interaction due to digital technology.
Personalised interactions with health services	Health care is focusing on finding more personalised ways to interact with people e.g. through religious communities.
Service design to influence health care	Fundamentals of service delivery (e.g. administration in GP practices) will need to be improved before the system is improved. Research will promote this.

Environmental ↘

Designing urban spaces for healthy activities	Smart urban design is used to cool buildings in urban areas and create spaces for children to play and people to exercise and socialise, such as the giraffe pattern designed to provide shading at The Spine in Liverpool.
Indoor air quality	Indoor air quality is important and is intrinsically linked to outdoor air quality, which despite improvements remains an area of concern
Active travel and extreme weather	The changing climate - unpredictable and extreme weather - sets back active travel uptake.

Investing in healthy futures

HORIZON 2 → Emerging drivers of change

Governance ↘

High quality housing for high quality of life	It is accepted by councils and developers that high quality accommodation improves residents' quality of life, performance in school and work, and health.
Privatisation of the planning sector and their focus	The private sector is becoming increasingly involved in planning processes. The focus continues to shift away from addressing inequality, and towards a focus on economic delivery and addressing health and wellbeing to meet their business missions.
Changes in health policy	The commercial drivers of health are being taken seriously and embedded in government and corporate policy.
Home ownership models	New housing ownership models, which views housing as a human right rather than a commodity.
Government investments in renaturing for co-benefits	Urban renaturing undertaken for the co-benefits of climate change resilience and health (including mental health) outcomes. City and national governments make investments for these reasons.
Alternative healthcare structures and budgets	Health is being managed through structures and fiscal systems other than the NHS or social care - this may create more data on how people's wellbeing is influenced by the built environment and, consequently, further investment in the built environment to deal with health issues.

Investing in healthy futures
HORIZON 3 → Weak signals of change

HORIZON 3 → Weak signals of change

Values ↘

Wellbeing centres for the ageing population	Wellbeing centres offer a comprehensive framework for communal and supported housing while offering a wide array of different health- and wellness-related services.

Economic ↘

Universal Basic Income	Changes in how people earn their incomes in the changed industrial and service environments drive a UBI model, which creates an economic model for a healthy and engaged population.

Sociodemographic ↘

Personalised healthcare	Personalised healthcare offers patients tailored treatments based on factors like age, genetics, and risk factors, moving away from a one-size-fits-all approach. Personalised healthcare also involves patients having more control and input in their treatment plans based on their individual circumstances and preferences.

Environmental ↘

Access to green space as a right	Access to green spaces is accepted as a right - supporting happy, healthy and equitable populations.

Regulations and innovation

The interplay between regulations and new markets continues to significantly influence the growth rate of innovative solutions.

In some markets, regulatory frameworks can stimulate growth and open up opportunities for innovative applications of technologies, new products, and privately delivered services. In others, a lack of regulations and standards create gaps that are exploited by bad actors using new technologies.

Currently, tightly controlled markets – particularly mobility and transport – are lagging behind the capability of technology. Connected, autonomous road vehicles are feasible with our current technological capabilities, for example, but regulations and insurance requirements are holding back their introduction in the UK.

Similarly, technology threats to safety and security are accelerated by gaps in regulations. Some gaps have been created by standards that were implicit or thought to be redundant being ignored or withdrawn.

Into the future, standards and regulations will need to be rolled back, refreshed, or created from scratch to pre-empt technology innovations and create markets for exploitation that benefit all players, including local government and the public.

HORIZON 1 → Current drivers & trends

★ Values ↘

Open digital social platforms face a backlash led by the public	Users are moving away from public broadcasting and favouring smaller, private, community-oriented online interactions. Social media platforms are increasingly criticised, for sharing harmful content. Younger people are more conscious of the negative impact social media has on their mental health and identity. The UK's Online Safety Bill is introduced.
Data attitudes	Consumers are increasingly conscious of the value of their data and expect it to be kept secure and private, exceeding regulatory standards.
Local transport schemes are a national political matter	The public are pushing back on ultra-low emission zones and local low traffic schemes - especially where public transport isn't in place to replace cars - and impacting political policies. Local council control over schemes is influenced by national policy.

Regulations and innovation

HORIZON 1 → Current drivers & trends

Economic ↘

Lobbying for more flexible property regulations	There is lots of disruption in commercial real estate market - the built environment taking on net zero investment and there is a post-pandemic shift in demand from office space to housing - this is leading to a trend of more flexible, multi-purpose property portfolios and lobbying for more flexible regulations.
Accessibility of new technologies	Affordability and accessibility of new technologies are holding back policies that roll them out. For example, more rural towns see people struggle to afford electric cars, whilst penalties are placed on using older cars and vans.
Relatively slow UK innovation rates	Despite the UK's high global ranking for innovation, there is a risk that the UK could lag behind the rest of Europe. Soon UK towns and cities could stand out for the wrong reasons.

Technological ↘

Insuring transport and mobility innovations	Risk adversity in the insurance industry is holding back infrastructure and transport innovations.
Regulations for satellite applications	Regulations are holding back the growth of the UK space sector and its applications.
Economic case for investment in digital infrastructure	It is a challenge to justify the economic case of cutting-edge, smart services, particularly in a changing regulatory landscape.

Regulations and innovation

HORIZON 1 → Current drivers & trends

Governance ↘

Automated vehicle regulations	Updates are needed to the regulatory environment for AVs - all of the technology is ready, including sensors and V2V/V2I communications, but innovators are unable to deploy it.
Fines for clean air standards	Fines for local authorities that do not meet emissions targets or clean air standards, creating a market for clean air solutions.
Piloting digital mobility services to inform policy	Testing and piloting of integrated mobility apps creates data and informs policy, progressing intermodality in urban areas.
Changes to regulatory processes	Regulatory practices and the process of producing them need to be reformed to speed them up and allow for the rapid progression of new technologies.
Local powers are not in place to harness connected technologies	Regulations are holding back smart city initiatives that can improve the visitor experience. For example, Paris' mayor can take an instantaneous decision to close the city to cars when pollution is high enough to cause harm. Whereas the UK does not have the regulatory framework to do anything with that data.

Regulations and innovation
HORIZON 2 → Emerging drivers of change

HORIZON 2 → Emerging drivers of change

Values ↘

High street heritage policies	A trend for reusing buildings to promote the heritage of local areas informs policy and planning decisions on the built environment. For example, the recent blocking of the demolition of M&S on Oxford Street by the Secretary of State.
Technological equity	Increasing noise from the public about who new technologies benefit - smart meters are cited as only really benefitting the energy companies, for example - and there is a need for government intervention to ensure that inequitable markets don't form.
Citizen engagement in decisions regarding their local environment	Citizen participation in decisions regarding the local environment influences the speed of technology adoption.
Human behaviour slowing technology progression	Behavioural evidence suggests people prefer face to face contact which may curb the predicted progression of technology.

Technological ↘

Self-regulation of AI	Self-developed regulations and practices for artificial intelligence (AI) and other emerging technologies are being introduced, signalling an end to the "wild west eras" of new technologies that we've seen so far.
Connected corridors	Automated mobility is being introduced on controlled, connected corridors.
Maturity of connected systems and disenfranchised people	As the world wide web matures, communication standards change, and even more connected technologies emerge, people feel disenfranchised.
Fundamental technologies	People revert to fundamental technologies – people will become frustrated with being constantly connected and navigating digital services that don't serve them or comply with privacy and design standards.

Regulations and innovation

HORIZON 2 → Emerging drivers of change

Technology regression	Our ability to absorb and engage with a diverse range of technologies may reach a point of saturation. People can become fatigued by digitisation and regress back to face-to-face services and fundamental technologies in an effort to connect more.
Role of universities in the innovation landscape	Universities continue to develop innovations in healthcare, cyber security and advanced manufacturing.

Environmental ↘

Net zero investment	Limited financial investment from local authorities holds back net zero progress, as they navigate a tumultuous economic environment and increasing cost pressures on service delivery.
Climate crisis drives regulation	Climate pressures challenge regulatory barriers and speed up the introduction of regulations for innovation and net zero.

Governance ↘

Urban logistics rationalisation controls	Rationalisation of logistics seen as controls on smaller vans, similar to HGV controls, are introduced to reduce their lifespan and how much they travel around urban spaces.
Superseded infrastructure investments	The lengthy timelines of large-scale infrastructure investments hold them back, due to concerns over them being superseded, as with HS2.

Regulations and innovation
HORIZON 3 → Weak signals of change

HORIZON 3 → Weak signals of change

Economic ↘

Deregulation for small business growth	Deregulation in business licensing encourages the growth of small businesses, changing the urban retail landscape - mirroring successful policies in Tokyo.

Governance ↘

Resource risks and material control	Risks to the supply of critical materials (e.g. Lithium) drives the political agenda, leading to more centralised and direct interventions on material control to manage supply chains and prevent global conflicts.
No more car ownership	Personal car ownership is no longer possible due to political, regulatory, insurance, and financial measures.

Computing power

The speed of computers is increasing, allowing for more powerful programmes to automate a wider range of processes.

Quantum computing increases the processing speed of hardware and generative AI improves the capabilities of software for automation. The combination of these two technologies will create new opportunities for complex digital applications.

Whereas creating smart, data-driven systems is currently limited by the costs of the computing architecture and the capabilities of programmers, these barriers are being dissolved by technology developments. Generative AI – for example – will be used to automate the creation of complex computing programmes for digital systems, and interfaces will be created that enable any user to easily create them.

Processes will become increasingly digitised, predictive, and personalised to the location, application, or end user. Establishing the infrastructure needed to support this highly digitalised world will create new markets in itself.

HORIZON 1 → Current drivers & trends

★ Values ↘

Digital technology as a tool for positive change	The pandemic highlighted the value of technology in difficult times, offering sophisticated tools (digital twins, AI, virtual reality) to unlock our potential and drive change. In terms of social value, organisations now recognise that digital technology serves as a crucial tool to achieve their goals effectively.
Personalisation of visitor recommendations	Personalisation of targeted messaging and customised travel suggestions based on customer preferences, using customer insights and data processing.
Cloud computing concerns	Cloud computing reduces reliance on on-premises data centres, growing capacity to process large quantities of data. Concerns regarding the security of highly sensitive data in cloud systems and the energy consumption and environmental impact of these centres is impacting their adoption.
Shifting permanence of cutting-edge technologies	Rapid automation and capabilities growth can damage the return on investment of current and developing technologies.

Computing power
HORIZON 1 → Current drivers & trends

Technological ↘

Surveillance and predictive analytics for crime and safety	Cities are able to couple their existing surveillance infrastructure with machine learning algorithms like facial recognition and gait analysis. This optimises processes that impact public safety.
Wearable tech for the visitor experience	Smart watches can connect with local areas to provide visitors with useful information, like wayfinding or heritage insights. They can feed data back to authorities, like how busy an attraction is - helping authorities and visitors to make informed decisions and increasing the confidence of visitors.
AI and modelling in healthcare	AI is used in healthcare for tasks such as drug discovery, medical imaging analysis, and neurological disorder detection. AI has been employed to integrate data sources and create highly personal healthcare plans, and to predict conditions like opioid dependency, severe sepsis, and hospital readmissions, enabling proactive interventions and better patient outcomes.
Internet of Medical Things	Wearable devices are used for personal health tracking and remote patient monitoring by clinicians. The expansion of the Internet of Medical Things leads to advanced wearables capable of gathering data and monitoring vital signs, predicting heart risks, and even detecting mental illnesses. Healthcare can be delivered without hospital admission or clinical interactions.
Immersive technologies in healthcare	Augmented, virtual and mixed reality (AR, VR, and MR) are used in healthcare for rehabilitation, exposure therapy, medical education, and surgical procedures. These immersive technologies provide patient information, holographic images, and scans for improved healthcare outcomes.
Telemedicine	COVID-19 measures sped up the adoption of telemedicine and remote diagnosis, improving healthcare access for connected communities.
Blockchain in healthcare	Blockchain technology provides security and traceability for various healthcare applications, including medical records, remote patient monitoring, pharmaceutical supply chain, and health insurance claims.
Machine learning and smart infrastructure	Machine learning (ML) allows computers to process and analyse vast amounts of data quickly. By training algorithms to recognise patterns, computers can make predictions based on their own experiences. Smart buildings, energy networks, and transport networks can manage their own processes using powerful algorithms.

Computing power
HORIZON 1 → Current drivers & trends

Analytics for efficient financial services	Predictive analytics, leveraging the power of big data, is gaining traction for the purposes of detecting fraud to predicting customer loan defaults. These systems are being applied across various industries to make informed decisions based on data analysis.
Investments in data tools and skills slows adoption	To effectively handle big data, organisations must invest in advanced tools, such as AI and ML, for better data management and insights, and the skilled staff to manage them. Poor understanding of the value of data tools and skills is impacting investment levels and slowing adoption rates.
Local authorities move to data lakes	Data lakes are a flexible architecture that can store and analyse diverse data types. Unlike traditional relational databases, data lakes provide a unified repository for storing structured and unstructured data, including images, audio files, and video files, enabling organizations to consolidate all types of data in one location. Local authorities own and manage large, complex and diverse data sets, and are moving to data lakes to unify their data management processes and unlock the value of their data
From big data to small and wide data for more accessible analytics	Small and wide data moves away from the trend of large and fast data (i.e. big data) and towards using analytics and AI to produce meaningful information from smaller data sets and disparate data sources. It is a move toward personalised, structured insights in real-time and from more manageable sources. This can open up data analytics to local authorities and local service providers with fewer resources who have so far been unable to adopt big data.
All services and experiences are data-driven	Data-driven customer experiences are not just for large corporates, as data analytics tools are available for all. This results in enhanced user experiences, personalised services, improved processes, and innovative online services.
Data visualisation for public engagement	Data visualisation is an increasing focus in data science, offering a way to display information in a graphical format. It helps identify patterns, trends, and outliers, making data easier to understand for non-technical audiences and improving data literacy. Governance and public engagement are improved.
Remote control of urban infrastructure	Further ability to control physical infrastructure digitally (fountains and lighting in Hull City Centre can be changed on an app by the council)
Digital planning	Digital planning can improve the efficiency and effectiveness of planning and management of places.
Digital inclusion initiatives	Activities that encourage people to think about access to digital inclusion and emerging technology, and to trust in the value of digital technologies to their future.

Computing power

HORIZON 1 → Current drivers & trends

IoT and AI for connected, smart places	The integration of Internet of Things (IoT), 5G, AI and cloud computing enables the monitoring and control of infrastructure and places. Increasing data transfer speeds and automation create opportunities for more powerful smart city solutions.
Digital marketing	Increase in use of interactive and audiovisual marketing and communication mediums in line with general decreases in attention span – examples could include interactive marketing construction boards.

Governance ↘

Cities as a platform	Cities position themselves as a platform for innovators to build off and optimise their services.
Wireless connectivity and governance	5G roll out is patchy, and some areas – particularly rural areas – lag behind.

Computing power
HORIZON 2 → Emerging drivers of change

HORIZON 2 → Emerging drivers of change

Economic ↘

Generative AI for creating smart applications	Generative AI makes it easier to write code and produce much more powerful programmes. Businesses are built off these codes, and the potential and range of smart applications increases rapidly.
Private digital services supplement public services	Public services are supplemented by digital media - levelling access to them and improving their quality, particularly education.
Increasing automation in the workplace	AI transforms the work landscape by automating a large proportion of processes, including both creative and business processes. Resourcing issues can be resolved and people may have more time for exploring new ways of working. People may have more free time, contributing to their health and wellbeing.

Technological ↘

Cybersecurity awareness of local authorities	Governments strives to promote awareness of the importance of data privacy and preparedness for the impact of cyberattacks as data is an important commodity.
Predictive policing	Cities leverage AI to monitor and predict criminal activity - including digital activity - and ensure safety and security for their citizens while safeguarding their privacy and fundamental human rights.
Open data to facilitate smart cities	Place-based data is now standardised and centralised, sparking a renaissance in open data practices. This creates a new smart city solution market where data from different places can be integrated.
Digital twins and remote maintenance	Workers are no longer needed on site to monitor, diagnose and maintain broken infrastructure or equipment.
3D printing for distributed industry	3D-printing technology may prove to be a disrupting innovation in many fields because it can radically change the location of production from factories to homes and work sites. The 3D prints currently made in labs and tests showcase what is going on. Moreover, everyday objects and spare parts, whole houses, food, and even organs are being printed.

Computing power

HORIZON 2 → Emerging drivers of change

Smart healthcare replace face-to-face services	Digital technologies offer free or low-cost solutions to replace face-to-face services. Apps, chatbots, and wearable devices - like connected blood glucose monitors - enable individuals to monitor their health and access medical advice without any human interaction.
Shared vehicles	Technology enables car, scooter, or other vehicle sharing as a business or between families and friends.
Energy consumption of data centres	Growing energy demands from the increasing use of data centres cause grid pressures and public push-back.
The AI hype cycle	The initial hype cycle of AI peaks and collapses, then real value begins to be generated from applications, particularly in automation.
AI and deindustrialisation of creative industries	AI creates a wave of automation that changes jobs that are more creative, which are already insecure. Deindustrialisation occurs in the creative industries.
Robotics powered by AI	Robotics, powered by AI, can take over the last remaining manual jobs including warehousing and hazardous environment work, like waste processing.
AI and modelling mobility behaviours	AI can provide a larger evidence base by modelling mobility behaviours more easily, accelerating the introduction of intermodal solutions.
Quantum computing for transport and energy systems	Intermodal mobility systems use a lot of data and are interconnected with energy systems. Quantum computing supports the robust operation of this infrastructure by processing and planning energy and mobility demands.
Reduced travel demand due to virtual comms	Digital technology reduces individuals' need to travel - AR tech reduces travel for work meetings, leisure activities, and accessing services, like mobile banking and telemedicine.
Automation and planning for an inclusive built environment	Digital planning becomes more effective with automated AI tools completing planning processes. This solves current resource constraints in planning, and allows for more creative, heritage- and wellbeing-focussed planning policies to form.

Computing power

HORIZON 2 → Emerging drivers of change

Automated transport	There is a fundamental transformation of the entire automotive sector towards data-driven and automated road vehicles, including taxis and public transit.
Digital and automated tools cannot be applied to older UK cities	Older cities are not designed to facilitate the sort of automation and machine learning programmes being built internationally that thrive in urban grid environments. These challenges will slow their adoption.
Web3 creates a more robust and trustworthy digital landscape	Web3 technologies including blockchain and token-based exchanges create an internet dynamic based on traceability and accountability. Systems are robust, and authorities and end users are more inclined to adopt new tools.

Computing power

HORIZON 3 → Weak signals of change

HORIZON 3 → Weak signals of change

Economic ↘

AI as standard in the workplace	AI, robots and machine learning are pervasive, positively influencing productivity across all industries and creating new industries.
Automation and employment in logistics and services industries	The logistics and service industries in particular are changing significantly under automation. Autonomous cars can replace taxi companies, starship robots can replace delivery drivers. Chatbots, AI and tele services are being adopted across all services.

Technological ↘

Metaphysical experiences	Physical bodies may be able to be connected to multiple different sources and experience different realities in different physical places - including different towns and cities.

Network patterns

Interactions between people and networks of infrastructure, services and economic opportunities are changing shape.

Various factors converge to change the shape of networks that are long established. The mobility networks of conurbations shift away from having one economic centre, to having many, interconnected centres. Markets that have been public or monopolised and traditionally one-to-many are opened to become many-to-many.

Significant societal shifts, like the COVID-19 pandemic, accelerating digitalisation and the climate crisis, have stimulated fundamental changes to the pattern of behaviours and expectations in people.

Currently, the growing trend of privatising the public sector is altering relationships between people and the state, and growing, creating, or reshaping networked markets. This includes large markets like health and infrastructure. The social contract between citizens and the state is beginning to show signs of straining.

Into the future, changes to patterns of mobility and economic agglomeration will have a significant effect on the shape and profile of UK towns and cities.

HORIZON 1 → Current drivers & trends

★ Values ↘

Planning for neighbourhoods	Planning favours a neighbourhood-centric approach, such as 15/20 minute neighbourhoods, ensuring amenities and services are conveniently accessible within a 15 or 20 -minute walk or bike ride.
Moving to towns	People continue to move from urban to rural areas post-pandemic in light of home or hybrid working, and this strengthens the vitality of rural town centres.

Economic ↘

Rise of single-adult households	Single living is rising as adults wait longer to start a family. Housing demand, taxes, and economic pressures are changing as demand for smaller households increases, particularly in city centres with cultural attractions.

Network patterns
HORIZON 1 → Current drivers & trends

Network dynamics in markets	Changing network dynamics in energy provision can be seen in other markets too. They move from many-to-one to many-to-many relationships that effect freedom of choice and market forces.
University influence of local markets	The role of universities as centres for excellence and innovation hubs is increasing. They work closely with economic bodies and local authorities to influence local markets.
Globalisation, tourism and local identities	Globalisation and mobility is encouraging movement between areas. Cities need to find unique aspects of their identities to encourage tourists and visitors to visit there. Belfast, for example, is looking outwards and attracting tourists through investing in its existing tourism infrastructure such its museums, filming locations, peace murals, and nighttime economy.
Economic corridors	Economic corridors are created to link together neighbouring cities for economic benefits.
Hub and spoke logistics	The price of city-centre land helps the economic case for hub-and-spoke logistics models, as it is a more efficient use of land, with large sorting hubs in lower cost areas that serve different urban areas.
Private sector and planning	The private sector has a growing influence on planning, disrupting processes, timescales, and priorities.
Diversification of investment from commercial real estate	There are large amounts of disruption across the commercial real estate market - a shift in demand from office space to housing is changing values. Potential planning reforms, and retrofitting for net zero are all contributing - real estate managers will have to develop more diverse portfolios, particularly in large urban areas.
Redundant retail space	City and town centres have a lot of redundant retail space - including large department stores - which need to be transformed in the near-future and can form the character of the centre into the future.
Economic viability of smaller cities and commuting cities	Smaller cities and commuting cities are thriving, because of the increasing prevalence of working from home. People are spending more in their local urban core.
Growing preference for small independent traders	Consumers prefer small independent ″festival shopping″ experiences and shopping is seen as a leisure or social event. Old-fashioned markets are favoured as retail destinations. Container villages and other popup style shopping locations are providing short term opportunities for this, and often work around the policy challenges of creating spaces for small businesses.

Network patterns
HORIZON 1 → Current drivers & trends

Sociodemographic ↘

Changing purpose of city centres	The purpose of city centres is changing, with regards to what attracts people to them. As economic opportunities, retail and services spread out across conurbations or are delivered remotely, what are the reasons people have for living and visiting city centres?
More home ownership	National policies are being introduced to increase home ownership
Changing commuter patterns	Commuter trends continue to reflect the post-pandemic patterns of quiet Mondays and Fridays, with midweek office days.

Technological ↘

Longer trip lengths	With more remote and hybrid work opportunities and support from increased digital access to products and services, people are now more likely to live further from the office, which increases the average trip length of commuting.
Multimodal transport	Transport systems are becoming increasingly integrated and multimodal hubs will characterise the transport landscape.
Apps for town centres	Town centre business groups, communities or local authorities introduce reward apps or other digital tools to encourage consumer behaviour locally - like the circular economy, public transport use, and in-person shopping.

Environmental ↘

Household waste reforms for a more integrated system	Household waste disposal will involve more collections of more waste streams (including food waste), and more nighttime collections in urban areas with smaller vehicles. In line with the current policy agenda about recycling.

Network patterns
HORIZON 1 → Current drivers & trends

Governance ↘

Hyper-local interventions	Smaller-scale, local initiatives to tackle social challenges are easier to deploy and demonstrate value. Active travel schemes, public health messaging, and smart service pilots are delivered at local levels.
Council tax reforms	Local authorities are exploring methods for more efficient and accurate tax collection.
Consistency in devolution, city deals and local governance	Governance of services is at different levels in different areas (e.g. Manchester manages its health services, Northern Ireland do not manage housing at a local level for historic reasons). This will probably have to change to create consistent market conditions across the UK.
City twinning	International city twinning influences the policies and character of cities.
Policy for town centres as multi-centres	Town centres need to adapt to become multi-centres - with lots of different things attracting people into them, like experiences and services, not just retail. Policy frameworks need to be in place to help planning to support towns' transitions,for example the Wales Town Centre first policy.
Private partnerships in public service delivery	Public sector cost pressures open opportunities for inventive private partnerships to emerge - disruption to services and changing delivery dynamics may be seen as the role of the private sector becomes increasingly important.

Network patterns

HORIZON 2 → Emerging drivers of change

HORIZON 2 → Emerging drivers of change

Values ↘

Co-living as a service	Transient populations, like students and mobile young professionals, are a large population in urban centres. They drive a demand for high-quality co-living spaces that provide shared and private spaces, and facilities and amenities like cleaning services, co-working spaces, gyms, restaurants and bars. Services like security and health may be provided privately in these packages.
Pushback to changing transport networks	Large investments in transport infrastructure (like HS2) experience some pushback, as people are adverse to the traditional network models of urban areas changing. This happens to different degrees for different sizes of towns and cities.
Changes to asset ownership models	Subscription models (like with phones and cars) are growing in popularity in other markets and disrupt their structure.
Multicentre towns deliver more services	Public services are increasingly becoming accepted in town centres as towns become more multi centre places. To enable this policy frameworks must change to allow development of the appropriate services in town centres.

Economic ↘

International investment and overseas ownership	Urban real estate in the UK is a premium investment leveraged by international speculators. The proportion of cities and towns owned overseas is growing.
Contract workforce	More workers are in part-time, contracted, freelance, remote, or gig economy work. This affects stability of taxes and housing.
Less commuting to economic centres	AI and digital tools change the kind of jobs people do, and enable more jobs to be done remotely. People no longer commute into economic centres for work and demand for satellite offices grows.
Tall, hybrid buildings	Demand for urban centre mixed-use buildings results in planning allowing for tall buildings that fulfil multiple roles, containing residential, retail and commercial spaces.

Network patterns

HORIZON 2 → Emerging drivers of change

Gentle density of urban housing	Authorities recognise agglomeration benefits and aim to attract families and prosperous households to urban areas by developing high quality and medium density (3 to 7 storey buildings) housing in urban areas.
Private ownership of public space	There is a rise in the number of privately owned and governed public spaces. Developers retain control over the security and use of open spaces.
Agglomeration effect encourages growth	The co-location of economic opportunities - creating a churn of companies and jobs to help economic growth - gives people lots of opportunities. Planning and policy encourages companies to locate in the same place to make the most of this effect and create denser town and city centres.
Multicentres for working and living	The patchy introduction of a hyperlocalisation, neighbourhood-first, or 15/20 minute neighbourhoods planning policy is complete. There are multiple different urban centres, rather than one large centre, all with different services and employment opportunities in them. People live more interconnected and community-focussed lives with their workplaces, housing and accessible transport options all available in their local area.
New models for funding new developments	A planning model where the government makes investments in schools and other services for new housing developments, which are then paid off by the developer once houses start to be sold.
Planning for communities and services	Planning priorities must change to facilitate new community priorities. Housing sites must reduce their burden on the public sector - similar to the Section 106 requirements - and have transport provision and facilities such as schools and green spaces ready to go before houses are sold.
Options for using empty retail spaces	Small-scale experiments in reusing large empty retail real estate accelerate. They could be used for popup shops, markets, restaurants and pub spaces. Or they could be pulled down to facilitate smaller businesses and experiential shopping.
Co-location of services in accessible hubs	Reusing existing spaces to become multi-functional private sector spaces that sell to the public sector as a service delivery hub.

Network patterns

HORIZON 2 → Emerging drivers of change

Sociodemographic ↘

Greenbelt development	Further building on greenbelt land as population pressures and homelessness force new development.
Rented households rise	Rental rates continue to rise compared to home ownership in towns as well as in cities.
Travel to work areas grow	Remote and hybrid working increases the travel to work catchment of economic centres. Some towns and cities are now satellites to larger centres. Authorities focus on improving transit times and building housing to encourage people to spend time in cities and spend money there, rather than leaving to the commuter belt as soon as possible.
Urbanisation slows	Urbanisation slows in the UK as conurbations with unique qualities of place and local heritage grow in size more than density.

Technological ↘

Monopolies are dismantled	Policy and market authorities continue to make regulations that move markets - particularly telecommunications - from monopolies.
Networking effects of technology introduced across public spaces	Innovators benefit from purchasing groups and networked conurbations for introducing complex new technologies. For example, technology that mitigates the effect of extreme heat can be introduced across the public realm.
Drone logistics	Proliferation of drones may remove the need for vans and taxi drivers, reducing last-mile logistics demand on road networks, but creating a new network of drone transport.

Environmental ↘

Interconnected, intermodal mobility hubs	UK transport is typified by interconnected, intermodal hubs for different mobility services, they are green and interconnected.
Urban extensions	Authorities are planning urban extensions - mixed use developments in proximity to existing urban areas that expand their size.

Network patterns

HORIZON 2 → Emerging drivers of change

Governance ↘

The city centre as an experience	The move from transactional to experiential value of city centres is near completion across the UK after patchy uptake. Infrastructure supports the visitor economy, but must be balanced against the needs of the environment, local economy and residents.
Centralised infrastructure	Return to a centralised model of heating and energy, enabled by planning policies, citizen engagement, and market demand.
Service localisation	Services for healthcare are becoming more localised. Localised hubs and personalised experiences are important. This may be complemented by localised food systems and wider trends away from globalisation. Local can become the new global.
New investment models	There is increasing ownership of assets at a local level rather than traditional ownership models and parachute investment models which gives greater power to communities.
Devolved administrations	Power over public services continues to be devolved.
Community ownership	Community ownership of local spaces, assets, or services.
Bottom-up development of economic conditions	Traders are taking the initiative rather than local authorities and Business Improvement Districts. Innovative leaders who realise the potential of small businesses leverage a gap in the market to support small businesses.
Policies to support markets and independent traders	Economic and planning policies change from favouring large department stores/magnet properties/large commercial real estate to encouraging old style markets with independent traders, which shoppers prefer.

Network patterns
HORIZON 3 → Weak signals of change

HORIZON 3 → Weak signals of change

Values ↘

Capability to own a single home is eroded	The challenges of delivering services and costs of urban land combine to develop an environment where people do not have the right or ability to own a single house in open space. Planning restricts the creation and maintenance of inefficient housing.

Economic ↘

Tax reform that threatens historic urban centres	Decentralised tax systems emerge, much like the forms of federal taxation in the US. This poses risks to the development of edge cities when new outer areas come into conflict with historic urban centres over taxation, wealth and spending.

Governance ↘

City states	The UK's largest cities develop the infrastructure to become self-governing city states that act as private corporations and trade with the rest of the UK.
Distribution of health services	Health services are specialised and centralised, rather than general and distributed, with patients travelling to see specialists or accessing healthcare remotely, rather than accessing all services locally.
Centralised global systems	Networking and the creation of more centralised, interconnected systems happens on a national and global scale, bar some rogue states. It may be done by private organisations (e.g. how Amazon has created a national logistics network).
Centralisation of public service standards	The UK operates a centralised system for public services that overcomes local political barriers. It provides a clear direction on standards and distribution, with the market coming up with how to deliver it locally. The roll out of new services is coherent and equitable.
Planning as a platform	Planning matures to be a framework for entrepreneurs to build off. Public intervention in development is minimal, as the system has been optimised to prevent adverse outcomes.
Localisation overtakes globalisation	Localisation can complement all positive progress, so there is a decrease in globalisation. Ownership (e.g. of energy infrastructure or housing developments) at a local level is the norm, as it is less extractive and allows greater agency and power in communities.
Cities trade services with each other	Frameworks for paying for different services between cities are in place. Cities barter with each other over trading the services and facilities that they have strengths in.

Sharing spaces

Spaces must be accessible to all of the UK's population as it becomes more multicultural and multigenerational.

The ageing population is currently being mitigated by immigration, but this will slow as birth rates around the world and across all cultures fall. The UK's future population will be made up of many cultures and be older. It's likely that measures will be enacted to increase the birth rate and encourage young people to start families.

For these reasons, towns and cities will have to become spaces that cater to and work for all ages of people, from all backgrounds, and with all accessibility requirements. This includes services – in-person and digital.

A growing interest in people's local environment has been seen since the Covid-19 lockdowns, and local authorities' powers to pedestrianise space were increased. A recent change to the Highway Code instilled new responsibilities over vulnerable road users in drivers.

Creating urban areas and providing services that account for the needs of all is a growing priority in a future where equitable access continues to be valued.

HORIZON 1 → Current drivers & trends

★ Values ↘

Equal access to services	Policies are in place to make all service equal-access and inclusive.
Growing interest in local areas	The pandemic accelerated people's interest and understanding in their local areas and the accessibility and environmental issues that affect them.
Political divides to changes to urban spaces	Public resistance to changes designed to make urban spaces more inclusive - including transport changes like the LTN protests in Oxford.

Sharing spaces
HORIZON 1 → Current drivers & trends

Economic ↘

Competing with other European cities to create welcoming spaces	The relative lack of pedestrianisation initiatives in towns and cities in the UK compared to Europe, as well as limited adaption to visitor demands for experiential spaces, leads to reductions in tourism, especially as cities grow hotter.

Sociodemographic ↘

Lifelong learning	The ageing population and the increasing retirement age mean that lifelong learning provision is needed for socio-economic stability.
Attracting the apartment living population	Cities want to attract the "apartment living" population, who are affluent, active 24 hours, and spend locally on cultural attractions and businesses. They are building infrastructure to attract this group and grow a thriving city centre population, but need to balance their needs against the transitory (e.g. student) population needs.

Technological ↘

Digital exclusion in different generations	Digital exclusion is increasingly important, we will have to consider how to keep people digitally-engaged for longer and provide services to older people without becoming too digitised.

Environmental ↘

Cities for wheels	Cities are designed for those on wheels - bikes, cargo bikes, buggies and wheelchairs. The government has stricter standards for designing cycle lanes.
Mixed use urban spaces	Urban spaces are being designed for functional flexibility (school playgrounds becoming markets on weekends, for example). Places are being designed to integrate activity, wellbeing and social connectivity, which can be facilitated by a growing movement away from cars in urban areas.

Sharing spaces
HORIZON 2 → Emerging drivers of change

HORIZON 2 → Emerging drivers of change

Values ↘

Cities for a new type of traveller	Climate change may redefine what is considered aspirational when traveling. Staycations and alternative forms of relaxation are becoming more popular, while travel may transform into a luxury rather than a status symbol. Urban areas provide for all visitors.
Designing for heritage	The built environment is designed for the heritage of places, providing visual clues as to what makes them unique.
Increase in importance of social cohesion	The value of social cohesion grows as a recognised climate change mitigation method.
New kerbside uses	With lower private car ownership rates, kerbsides are spaces available for business use, leisure, and community building.
Shared spaces in zero emission zones	Zero emission neighbourhoods are characterised by less cars and more shared space.

Sociodemographic ↘

An ageing population	People are living for longer and birth rates - currently buoyed by immigration - are declining. The population ages and urban areas must adapt.
Intergenerational relationships	Intergenerational relationships in learning and working improve as the ageing population mean that people of all different ages work together. Attitudes towards ageism and collaborating with people of different generations may change.
Social contract changes	The UK's "social contract" between citizens and the state changes with demographic changes, expectations and trust post-pandemic.
Cities for longevity and different demographics	With the ageing population, the focus of cities as places to live and work changes. They now focus on supporting health and longevity so that older generations live and spend there - like the Mayor of London's free transport for over 60s.

Sharing spaces

HORIZON 2 → Emerging drivers of change

Migration influencing urban development	There is growing stress on countries in the Global North to bear the economic burden of increased migration - internationalisation will alter the profile of towns and cities.

Technological ↘

Modular buildings	Construction is modular, allowing for materials to be recycled and buildings to be renovated. Homes can be expanded or made smaller more easily as household sizes and needs change.

Environmental ↘

Ownership of private gardens	Ownership of private gardens decrease with rising rental rates and land prices - developments must cater to all generations in providing gardens and communal outdoor spaces, or authorities must provide public outdoor spaces and services that help people to access them.
Design for play in the built environment	Planning supports embedding play into built environments - allowing social connectivity that is intergenerational and developing a shared, accessible public realm.

Sharing spaces
HORIZON 3 → Weak signals of change

HORIZON 3 → Weak signals of change

Economic ↘

Ageing population and taxes	The tax system struggles to adapt to the ageing population but must change.

Sociodemographic ↘

Birth rate mitigating measures	Measures to encourage birth rates are introduced to make a child-friendly society like in Japan.
Ethnic diversity of cities grows unexpectedly	Outside influences affect places in an unexpected way, with international migration from the climate change impacted global south. Asylum seekers move to where existing communities are, creating new communities in urban areas, and markets react to these growing communities.
Older people are integrated or separated	Health, transport, built environment, and housing all have implications for the ageing population. They adapt to suit the whole life course of people by focussing on keeping people in their homes for longer, or by providing new spaces that meet their needs in a different place.

Governance ↘

Systems change	Increasing global life expectancy places pressures on all systems and requires new innovations and overhauls of existing processes.

Safety and security

The safety of systems is seen as a priority that both hinders and stimulates innovation.

Individuals place increasing value on their physical safety and wellbeing, in part due to the increasing life expectancy driving an interest in longevity and also in response to the technological solutions for safe practices being available.

Supply matches demand – infrastructure and services must be safe to use and secure from bad actors or other threats. This applies to both physical space and digital ones. All markets react, either by embracing new technologies to build safety, or dampening technology that poses a threat.

In the near term, national security is a political priority that will influence how towns and cities and their supporting infrastructure develop. Into the future, threats to the UK's population must continue to be proactively managed, reflecting on lessons learned from the COVID-19 pandemic. These threats range from global events to local-level civil disquiet.

HORIZON 1 → Current drivers & trends

Values ↘

Importance of foresight practices	Risk analysts and foresight work is taken more seriously - spurred by the pandemic and war.
Security and safety on public transport	To increase the use of public transport, it must be perceived as safe shared public space that all members of the public can use.
Strengthening democracy	Democracy is strengthened with generational fairness and socioeconomic equity at the heart of policymaking to build support.

Economic ↘

Food deserts	UK cities take on the challenge of mapping and addressing their food deserts.
Nighttime economy	The nighttime economy attracts people to urban centres and is encouraged by local authorities, but they need to manage the associated risks.

Safety and security
HORIZON 1 → Current drivers & trends

Sociodemographic ↘

Safety in urban areas	The urban landscape becomes continually more dangerous for everyone, but especially children.
Danger of infectious diseases	Danger posed by infectious diseases increases with more densely populated areas and an ageing population.

Technological ↘

Data-driven business models grow	Data is becoming more organised and more available, and business models that use data are trying to become more sustainable. Expectations for interoperability and open access to data grows, with privacy and cybersecurity demand also increasing.
Importance of cybersecurity	As data collection continues at scale, cybersecurity grows as a market.

Environmental ↘

Planning policy to prepare for climate change	Authorities make local decisions on building climate resilience, such as managed retreat by coastal communities.

Governance ↘

Regulation of systems	Digitalisation is resulting in the loss of regulatory safety nets in our systems, as we forget why they are there and take them away.

Safety and security

HORIZON 2 → Emerging drivers of change

HORIZON 2 → Emerging drivers of change

Values ↘

Importance of safety in health	Safety becomes a social determinant, as it is recognised as being related to health. It links to who accesses space, how they access it and what this means for their mental state.

Technological ↘

New weapons systems	The development of weapons systems make wars more lethal and pose greater risk, such as the development of DNA guided weapons, bullets that can go around corners, and biological weapons.
Importance of cybersecurity	Cybersecurity is becoming even more important - the resilience of new systems is crucial and businesses models will emerge which are tied to these things.
Automated transport creates safer roads	Connected and automated vehicles are able to limit speeds and react to conditions to reduce collisions and protect vulnerable road users.

Environmental ↘

Flooding defences and mitigation	Security of urban areas is threatened by significant flooding events. New approaches to flood defences and mitigation (e.g. upstream rewilding) are being introduced.
Public realm and community safety	Increase in 15-20 minute neighbourhoods and more green spaces has a positive impact on community safety.

Safety and security

HORIZON 2 → Emerging drivers of change

⚖ Governance ↘

Statism	There is political pressure to ensure more robust national security in terms of energy and food. Systems will become more centralised at a national level.
Climate change, systems security and behaviour changes	Climate-change-related food and water insecurity means that behaviour changes are forced upon us, not on our terms.
Dissolution of national power	Private companies are increasingly subverting national structures of governance (such as Amazon internationalising logistics, and pressure on Nestle to prevent conscription of Russian workers etc.) This can either build equity geographically or increase divisions across society.
Risk management of new technologies	Multiple new and radical technologies, like nanotechnology, 3D-printing, unmanned aerial vehicles, and new applications of AI provide bad actors with new tools that threaten national security. This risk must be managed.
Political polarisation	Emerging polarisation across the political landscape at a global level and in the UK changes engagement levels and economic models.

Safety and security
HORIZON 3 → Weak signals of change

HORIZON 3 → Weak signals of change

Values ↘

Civil uprising	Wealth and health inequalities may fuel civil uprisings. Our current model of governance is not sustainable for a larger population. A significant shift at a political level is needed.
Design of urban areas for children	Design of urban areas for children is the norm as they are seen as an "indicator species" for safety and wellbeing.

Environmental ↘

Man-made disaster	A nuclear or biological attack fundamentally disrupts the UK.
Climate change-made disaster	A climate change-induced fungi attack threatens the population.

Governance ↘

Security and scaling of food systems	The current food distribution system is unlikely to scale. It needs to be more robust. There may be a big political push on food security at some point.
Populism and damage to democracy	A shift towards populism and division damages democratic systems.

Resilient systems

Urban areas are reliant on interconnected systems to function and these must be able to withstand growing pressures.

Water, food, mobility, and energy infrastructure must provide for an urban population that is growing in size and density. These systems are going to be required to function under increasingly unpredictable and extreme weather.

Small strains to these systems have been seen recently, with disruption to some food supply chains and energy networks due to international events impacting on UK households. The future will hold more of these small shocks and large waves of change. The UK's urban systems must be able to withstand them.

People are demanding more action to mitigate climate change and authorities are investing in net zero initiatives. A market for investment or innovation in urban resilience is growing and will be increasingly valuable into the future.

HORIZON 1 → Current drivers & trends

Values ↘

Hyperlocal production	People make lifestyle changes to foster a locally-produced food and materials and support national resilience.
Biodegradable materials	Knowing that things biodegrade increases littering - people leave things if they think that they will decompose.
Behaviour change and travel habits	The language used around green transport investments poses short term barriers to changing travel habits as attitudes to people's right to travel remain focussed on private car ownership.

Economic ↘

Climate change is motivating planning, but costs are holding it back	Climate change mitigation is pushing planning policy forward and vice versa. But, the expense is causing pushback for climate change policies in planning.

Resilient systems

HORIZON 1 → Current drivers & trends

Sociodemographic ↘

Rising temperatures and the ageing population	High temperatures cause health problems in the older population, which is becoming a larger proportion of the UK over time.

Technological ↘

Wireless connectivity and governance	Network operators for wireless connectivity not investing in areas with governance and infrastructure barriers.

Environmental ↘

Electric mobility energy demand	Demand on grid energy from electric vehicles is growing, potentially destabilising the network.
Energy poverty	The cost of living crisis is driving public demand for energy system reform for a more sustainable and equitable market.
Net zero	Authorities and governments are making investments to reach their net zero carbon emission targets.
Infectious diseases	Growing importance of disease and virus mitigation/control measures and public health in urban areas.
Planting in urban spaces	Authorities are introducing drought-resistant and less water-intensive planting in public areas.
Planning for climate crises	Flooding and drought will be more prevalent issues as climate change worsens. Authorities continue to resist policies on no new building at all in floodplain areas as this can hold back regeneration (previously policy had allowed the expansion of existing buildings).
Flood defence infrastructure	Flood defences and crumbling infrastructure need investment across the UK.

Resilient systems

HORIZON 1 → Current drivers & trends

Deposit return schemes for recyclable materials	Emergence of a deposit return system for recyclable waste.
Green urban landscape	Green roofs are becoming of increased importance in cities for both health and climate resilience purposes

Governance ↘

Collaboration is needed	International and cross-sectoral collaboration on urgent matters (climate, security) is needed, similar to the pandemic response.
Northern Ireland government	The absence of a functional devolved executive in Northern Ireland is holding back the delivery of policy reforms.
Intermodal transport	A mix of transport modes - not just micromobility - support urban intermediate distances, replacing private car journeys. Cities are looking to introduce integrated transport systems that encourage people to make more sustainable travel choice and reduce the pressure on the road network.
Demand for improved water systems	There is growing demand for an overhaul of the management of UK's water systems. Sewage disposal in rivers and seas is driving demands for action, with calls to even replace existing systems completely.

Resilient systems
HORIZON 2 → Emerging drivers of change

HORIZON 2 → Emerging drivers of change

Values ↘

Generational mobility shifts	Younger generations are more interested in new forms of mobility and urban design. Their behaviours and preferences may shape a new transport landscape where, e.g., not every household needs a car parking space.
Circular economy and ownership models	New ownership models where items are leased not owned are more common, creating new markets for materials reuse and maintenance.

Economic ↘

Tourism in city centres	Making tourism sustainable and reducing its impact by taking measures to manage tourist numbers or raise taxes from visitors.
Materials and waste policy agenda changes	Policy agenda moves away from recycling and towards reduce, reuse and repair in all consumer sectors, and in construction and the built environment.
Canal usage	People may make more use of canals in the future and river taxis will alleviate pressure on the road network, for example in Somerset, there is already functional canal infrastructure that is used significantly in conjunction with their road network. This relies on overcoming issues related to privatisation. In Oxfordshire, canals are used to sell houses but this limits public access.

Technological ↘

Geothermal heat	Coal mine heat stores as sources of district energy.
Restrictions of grid capacity	The electricity grid struggles to maintain pace with the increasing electrification. Retrofitting and complete redesign is required to facilitate this.
Marine alternative fuels	Sustainable marine transport - alternative fuels and electric ferries - are introduced. Onshore infrastructure is needed but it allows for sustainable marine transportation that opens up transport between the UK's islands.

Resilient systems

HORIZON 2 → Emerging drivers of change

Alternative aviation fuels	Using alternative fuels for aviation, including hydrogen, would maintain connectivity.
Alternative rail fuels	The UK's rail network is not fully electrified, so it could transition straight to an alternative green fuel like hydrogen.
Future transport scenario modelling	Transport interventions are explored and planned through modelling, accounting for different future scenarios.
Hydrogen storage	The safe storage of hydrogen enables breakthroughs in sustainable passenger transport and mobility.
AI models for transport design	AI models can provide much more accurate information on the impacts of planned transport infrastructure and allow real time monitoring. This can eliminate guess work in transport planning. Future mobility may be much more entangled with sensors and communications - everything can become interconnected and interdependent.

Environmental ↘

Regenerative infrastructure	Cities aim to have regenerated buildings; they leverage data to optimise energy consumption and the use and management of resources in buildings and utilities including waste, water and energy.
Decarbonisation	The work of net zero initiatives is not complete and decarbonisation of buildings and transport systems continues.
Urban renewable energy sources	Reliable, local sources of clean energy from solar and wind are built into urban environments.
District heating for heat pumps	District heating - a centralised model for distributing hot water - make heat pumps a more economical choice.
Building retrofitting	"Retrofit first" planning policies are introduced, like those currently being considered by the City of London.
Urban development for climate mitigation	The co-benefits of climate mitigation are realised, with moves to urban renaturing and hyper local urban systems that also support health, wellbeing and community.

Resilient systems

HORIZON 2 → Emerging drivers of change

Housing design	Homes are being purpose built to manage extreme temperatures.
A changing urban landscape	Street furniture may look different: it can be designed to reduce the temperature of urban areas, support new logistics models including waste management, and intermodal travel.
Blue-green infrastructure planning	Blue-green infrastructure planning is an increasingly popular form of planning that involves the use of rivers, canals, ponds, wetlands, floodplains, water treatment facilities, and green elements, such as trees, forests, fields and parks.
Renovation of existing buildings	Readaptation and reuse of existing buildings for climate change resilience is a large market.

Governance ↘

Security and scaling of energy systems	Energy systems are unable to scale to the demand of a larger population using electric vehicles. There is a big political push to restructure the system and improve its resilience.
Changing justice system	Overhauls in the structure of the justice system as prison systems become overpopulated.
Behaviour change campaigns	National campaigning and messaging to encourage behaviour change for mitigating climate change in individuals.
Integration of household and commercial waste	There may be mass commercial engagement in waste management, similar to what has been seen in the residential sector. Government can target larger scale waste from offices to meet its targets, and remove legal differentiation between commercial and non-commercial waste.
Devolved decision making	Decision making powers will need to permeate planning and local government - devolution of power to facilitate more resilient urban systems.
Water scarcity	Rising temperatures and the growing population place pressure on the water system. Urban areas must adapt and instil measures to conserve water.
Demand for improved water systems	There is growing demand for an overhaul of the management of UK's water networks and water systems. Sewage disposal in rivers and seas is a topic of increasing relevance in mainstream discourse, with calls to replace existing systems completely.

Resilient systems

HORIZON 3 → Weak signals of change

HORIZON 3 → Weak signals of change

Technological ↘

No longer limited by land use	Technology and policy enable innovative developments in flying or floating infrastructure and transport, and urban areas are no longer constrained by their use of land.
A net zero breakthrough	There is one big net zero breakthrough that enables markets to continue in much the same way and consumer energy as much as they need to.
New food systems	New food systems must emerge to manage issues of food security. Systems need to diversify to adjust to new distribution and production processes (synthetic foods, smart buildings and smart infrastructure, vertical farming, and rewilding).
New, decarbonised transport technology	Advanced transport technologies become more popular and affordable for the general public, which rely on an understanding of how alternative fuels can help to decarbonise the transport system.

Environmental ↘

Security of natural systems	Natural systems' ability to support the larger population at a higher global temperature may pose a serious risk to UK urban areas. Management of water, waste, and the nature environment must be a priority.
Controls on consumer materials to increase recycling rates	Standardisation of materials provided in supermarkets to enable easier recycling (same sized jars etc)

NEXT STEPS

These potential future influences will shape the market for innovative urban solutions. Innovate UK needs to prepare to grow this market.

The trends and themes identified in this horizon scan are now going to be synthesised into:

- → Best case scenarios for the future of different classifications of towns and cities in the UK.
- → Narratives of the courses taken to create these optimal scenarios and the potential areas for innovation within them.
- → Recommendations on actions that Innovate UK can take to support these innovation areas.

This synthesis will continue to use strategic foresight best practice, including scenario planning and backcasting. It will maintain a focus on participatory practices for diversity of insight through a stakeholder workshop.

It is intended to result in a selection of clear actions to ensure that the different future trends faced by towns and cities in the UK are harnessed for the good of the people, environment and economy, thanks to the influence of Innovate UK.

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