Opening the Innovation Economy:

The case for inclusive innovation in the UK

UK Innovation Districts Group

CATAPULT Connected Places

About the project

Metro Dynamics and Professor Neil Lee were commissioned by UK Innovation Districts Group (UK IDG) and Connected Places Catapult (CPC) to conduct this research on inclusive innovation. UK IDG is a peer network of innovation districts and knowledge quarters from across the UK, which aims to ensure place-based innovation drives inclusive urban growth. CPC is the innovation accelerator for cities, transport, and places across the UK. The coalition of partners delivering this research is unique, bringing together academia, practitioners from across sectors, and thought leaders in inclusion and place.

The research has explored the case for inclusive innovation, taking an analytical approach to best practice programmes and projects already supporting this agenda. The commission is intended to support a national conversation about the role for inclusive innovation in sustainable and equitable economic development. The paper concludes with recommendations for Government, places, innovation districts, and private sector organisations to take inclusive innovation forward in practice.

About the authors

Metro Dynamics is a leading economic consultancy dedicated to helping places by advising those who lead, invest, and do business in local economies. Founded in 2015, Metro Dynamics has established itself as a trusted advisor working with public, private, and third sector clients. Based in London and Manchester, Metro Dynamics combines a deep knowledge of policy, economics, communication, and strategy to support places.

Professor Neil Lee (London School of Economics, Department of Geography and Environment) specialises in research on economic development, innovation, public policy, and inequality. Current projects include a major ESRC-funded project constructing new measures of regional inequality and a book, due 2023, on innovation and inclusive growth.

Acknowledgements

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- Emma Frost, Steering Group Chair, Chair of UK Innovation Districts Group and Director of Innovation, Sustainability and Community for Queen Elizabeth Olympic Park
- Philip Dyer, Founder of Civikas, and Programme Director for Sheffield Advanced Manufacturing Innovation District
- Claire Eagle, UK Innovation Districts Manager at Connected Places Catapult
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Foreword

Innovation can and does deliver great things. From vaccines, to ventilators, to volunteer platforms – the last twp years alone have shown what innovation potential can be unlocked when mission and purpose align. But how can innovation create and return more shared value within a place? And what different types of value do we need to be prioritising?

Innovation outcomes are strongest where people collaborate and where diverse ideas and perspectives are interconnected and mutually supported. These are the ingredients that enable places to thrive.

The UK Innovation Districts Group is applying this open and collaborative approach at a national scale. Up and down the country, innovation districts are widening the funnel of who participates in, who shapes and benefits from our innovation economies. We face a backdrop of rising societal inequality and environmental crisis, along with the acute pinch of post-COVID uncertainty. It is critical that we now build and invest in thriving, inclusive, and sustainable local innovation economies.

This research, jointly commissioned by the UK Innovation Districts Group and Connected Places Catapult, starts to explore the complex nature of inclusive innovation, drawing learnings and examples from across the UK. It does not – and cannot, given the early nature of the field, define all the answers. But, it does identify the building blocks and provides a practical framework for practitioners. I am hopeful that this will be the beginning of a much broader conversation and more intentional action that ultimately helps us build inclusive innovation into local economies across the country.

Emma Frost
Chair,
UK Innovation Districts Group

The Connected Places Catapult is the UK's innovation accelerator for cities, transport and place leadership. Growing innovation economies in our country's towns, cities and regions is at our core. We do this by helping places to build on their strengths and assets, delivering returns for the whole economy.

In working with leaders and SMEs, we have seen first-hand the deep pools of talent across the UK's varied places. Now, our national Levelling Up agenda is pushing us all to consider: how can we work together, to unlock the existing potential in places and enable innovation-led prosperity?

This Commission has identified the ingredients for robust, inclusive and thriving innovation economies. It could not come at a better time. More and more, place leaders understand that it is critical to build on the talent, skills, and ideas already present in places. I am confident that with inclusivity at the heart of innovation, we will enable the new ideas, enterprises, and prosperity that our places are capable of.

Nicola Yates OBE
Chief Executive Officer,
Connected Places Catapult

Executive Summary

Innovation will define the next decade in the UK. As the country begins its recovery from the COVID-19 pandemic, the government is set on establishing one of the world's most advanced and dynamic economies here. To meet this ambition and unlock the creativity of businesses and research organisations across the UK, we need inclusive innovation; open to the varied talents and ideas of people of all backgrounds, responsive to our social and economic challenges, and part of an inclusive economy.

The government has set out the aim to make the UK a centre of global R&D activity, while correcting some of our deep regional disparities. In 2017 it targeted to spend 2.4% of GDP on R&D investment within 10 years, bringing the UK in line with OECD average. Since then, the Innovation Strategy of 2021, the post-pandemic economic recovery plan Build Back Better, and most recently the Levelling Up White Paper, have targeted the creation of productive and thriving high-tech industries across the country.

This is an important moment. Investment in innovation assets is increasing across the country, with new labs, research institutes, and innovation districts all set to build on the UK's existing science and technology strengths. But this is not the whole innovation economy and access to it is uneven. For too many people working in innovation is inaccessible, and for too many the benefits of new discoveries are remote from their own lives. We need a more inclusive innovation economy to activate the UK's latent potential.

Inclusive innovation represents an alternative, open model of innovation, and a major opportunity to realising this potential. But it is still an emerging concept. The UK Innovation Districts Group and Connected Places Catapult commissioned research to develop a case for how the innovation economy can be made more inclusive. Through conversations with the people and organisations leading and directing innovation around the UK, a research team led by Metro Dynamics and Professor Neil Lee has explored how this could happen in practice, and what the UK stands to gain. This has focused on knowledge intensive sectors. While innovation occurs across the economy, these fast-growing sectors have a major impact on many others and are subject to significant public and private investment plans over the next 10 years. Because of this, they can magnify the effect of new policies, making them more inclusive.

Inclusive innovation enables as many people as possible to contribute to and participate in innovation and its spillovers. This is an ongoing process, covering each stage of the innovation cycle:

- The **design** of strategies, priorities and mechanisms that empower innovation activity;
- The **delivery** of innovative processes and activities; and
- The **diffusion** of the benefits and proceeds from innovation throughout the economy.

Through our research we engaged representatives of businesses, research organisations, education providers, local community groups and the public sector, organised around 12 places in the UK and beyond. This explored how innovation works in places and to how to make inclusive innovation a reality. Engagement focused on innovation districts as concentrations of expertise and economic activity, and magnets for investment and talent. As they grow over the next decade, they represent an opportunity to involve more people from more diverse backgrounds.

Over time, many places have attempted to make their activities more inclusive, breaking down barriers and experimenting with new projects and programmes. Each place also has unique circumstances, opportunities, and barriers that can be leveraged or addressed. We identified barriers to accessing the innovation economy and the levers available to places in overcoming them, both the successful and unsuccessful programmes providing useful lessons in how to make innovation more inclusive.

Our findings demonstrate 10 mutually reinforcing themes for achieving inclusive innovation. The most developed ideas from the engagement have focused on the design and delivery of innovation activity; in the years ahead, achieving inclusive innovation will require action to diffuse the benefits and proceeds of innovation more widely.

No single innovation district or place has yet managed to perfect the practice of inclusive innovation. It is a cooperative commitment, not a fixed agenda: ever more firms and research institutions expect their activity to be inclusive, and as more attempts are made to apply inclusion to innovation, more options and ideas for the practice will be developed. Most places and actors will find that there are some quick wins that they can put into place immediately to promote inclusion.

But quick wins are not enough on their own, and alongside long-term commitment from places, there are structural changes needed across the economy to facilitate inclusive innovation. Our early investigation confirms the need for committed and coordinated action, and tailored financial models that incentivise and reward inclusion.

The effective practice of inclusive innovation requires effort on the part of a range of organisations—government, businesses, research institutions, education institutions and more—to proactively involve more people, particularly from underrepresented groups, in the design, delivery, and diffusion of innovation activity. An inclusive approach will demonstrate:

- The **intention** to embed inclusion beyond current market requirements;
- Engagement with and **tailoring** to local circumstances; and
- **Additional** opportunities by going beyond business as usual.

For over a decade, the inclusive growth agenda has targeted the economic disparities of a growing economy. Opening the innovation economy to people of all backgrounds is a prerequisite for achieving more inclusive growth. Innovation is just a small portion of economic activity but has a profound influence on prosperity. Inclusive innovation offers a partial solution, but not the whole answer, to a more open and productive national economy.

Inclusive innovation should also reduce disparities between places, helping to achieve the UK's levelling up goals. Opening up innovation in places will improve their productivity, fuel regional performance, and help to meet the levelling up challenge, but it is just one of a suite of tools and objectives needed to rebalance regional disparities.

Our recommendations lay out a route through which to embed and accelerate inclusive innovation throughout the economy. They are designed to kickstart experimentation in inclusive innovation, the first in a series of actions and changes that will be needed.

Summary recommendations table

National Government, Devolved Nations, and Local Government	Embed inclusive innovation as a core objective for the newly announced Innovation Accelerators
	Activate specific government bodies to achieve inclusive innovation
	Use new levelling up monitoring data and innovation workforce participation data to identify localised underrepresented groups and cohorts for targeted support
Innovation Districts	Become Living Wage zones and adopt local good employment charters
	Create procurement processes that weigh social and environmental value alongside financial ones
	Set district-wide innovation challenges to address local barriers to inclusion and wellbeing
	Connect to local education providers to foster an inclusive talent pipeline and to local production and manufacturing firms to maintain benefits locally
Innovators and Investors	Model inclusion in all business operations, through hiring and promotion practices, Living Wage accreditation or local employment charters
	Commit to the development of innovative funding models that value social and environmental returns
	Reinvest and share the commercial and financial returns from successful innovation investments
UK Innovation Districts Group and Connected Places Catapult	Build on the momentum for inclusive innovation established through this commission via further research, exploration, and sharing best practice, for example by: • Establishing metrics and a framework for monitoring and evaluating inclusive innovation. • Overseeing pilot programmes that experiment with inclusive innovation in practice.
	Act as a clear and influential voice for inclusive innovation with government and through a network of innovation districts

Contents

1. Introduction

Inclusive innovation is the best way to make traditionally exclusive innovation activity more beneficial to people, to places, and to our economy. **Building on academic research and policy development in the Global South, it is a young concept in the UK, and there is not yet a body of evidence to guide practice. As we continue our recovery from Covid-19, it is the right time to explore inclusive innovation, a means to meet the levelling up challenge, establish our global position post-EU exit, and achieve inclusive growth.**

The UK Innovation Districts Group (UKIDG) and Connected Places Catapult (CPC) commissioned this work from Metro Dynamics and Professor Neil Lee of the London School of Economics to establish the context for inclusive innovation, defining key concepts and assessing how innovation can create equitable growth. This report presents the strategic case for inclusive innovation, demonstrates its importance to the national and local economy, and provides guidance for how to achieve it.

The case for inclusive innovation

Innovation is the foundation of sustainable economic and productivity growth, set to play a crucial role in the UK government's strategy to rebuild and future-proof the economy after the coronavirus pandemic. The post-pandemic economic plan, Build Back Better, highlighted the role of innovation in the recovery, and the recent Levelling Up white paper set out a mission to "boost productivity, pay, jobs and living standards" through innovation, spending more money on R&D outside of the South East. The government is committed to spending significant sums to make this happen, pushing towards its target for R&D spending to reach 2.4% of GDP, its highest ever level, by 2027.[1]

But innovation has tended to be exclusive, its benefits isolated from large parts of the population. Too many people are locked out of the innovation economy: large sections of the population face systemic barriers to starting innovative firms, working in innovation intensive sectors, or benefiting from the use and diffusion of new technologies.

Build Back Better outlined the barriers to finance for women and ethnic minorities, and the Royal Society has delineated the pervasive barriers to success in STEM for certain groups. To individuals this exclusivity is unjust; on a broader scale it is a significant limitation to the UK economy, leading to lower levels of innovation than should be the case. An exclusive model of innovation is a waste of individual potential, but the cost is borne by the whole country.

The past two decades have seen high levels of inequality and a concern that the benefits of growth are not widely shared. Inclusive growth is an attempt to correct this, maintaining and supporting the drivers of growth whilst spreading its benefits equitably. Yet while there has been broad consensus about the need for inclusive growth, confirmed by the 2016 RSA Inclusive Growth Commission,[2] it has been hard to find concrete policies that can help achieve it.[3]

Inclusive innovation will help to achieve the promise of inclusive growth and levelling up. By focusing policies for the knowledge-intensive innovation economy on inclusion, growth can be made equitable whilst enhancing innovative potential and excellence. Inclusive innovation offers the prospect of creating broad based economic prosperity within places, drawing wider sections of society into productive and valuable work and ensuring they benefit, both directly and by helping to direct innovation activity to our shared challenges. Inclusive growth and innovation should also operate in a virtuous cycle: our social systems influence the shape of innovation,[4] and more inclusive systems should create more, and more effective, innovation.

This should reform, not rewrite the innovation lifecycle, making it more accessible and beneficial to people and places. Over the long term, this will lead to the diffusion of innovation and opportunity to other areas of the economy, connecting to areas of mass employment and increasing access to decent, well-paid work.

About this report

Building on evidence from academic and institutional literature and from engagement with experts and practitioners, we have developed a new way to conceptualise inclusive innovation, set out in Chapter 2. We have used this definition to guide our thinking, exploring the different approaches places have taken, and uncovering shared challenges and novel solutions. In applying the concept of inclusive innovation, we have focused on knowledge-intensive R&D, which characterises the innovation economy in the UK.

We suggest that places can be anchors for inclusive innovation and that innovation districts – hotbeds of innovation activity in places – can be a helpful vehicle to deliver this. This has allowed us to focus on the dynamics of how innovation works in places, talking to individuals and organisations leading the UK's most advanced economic activity. Through engagement with people working in and around innovation districts, we have uncovered activities and approaches that demonstrate how inclusive innovation is being activated in practice, as well as barriers and gaps that need to be addressed.

Over time, many places have attempted to make their activities more inclusive, breaking down barriers and experimenting with new projects and programmes. Every place we spoke to was able to point to examples of projects that have a role to play in facilitating inclusive innovation. The places and people with whom we engaged were remarkably open about their experiences, honest about gaps and barriers in front of them, but most of all optimistic and curious about the role for inclusive innovation going forward. Chapter 3 sets out our findings from the study areas in more detail.

This engagement allowed us to explore the dynamics of innovation in local economies, how districts develop, strategies are set, and employment and training opportunities created. Each place has different dynamics and the nature of deprivation and exclusion varies. In some, innovation has contributed to the experience of 'two economies': a successful but isolated and exclusive innovation economy for high-skilled workers in knowledge-intensive industries; and a wider economy disconnected from this work. We conclude in Chapter 4 by exploring the building blocks needed to embed inclusive innovation in all places. Finally, Chapter 5 presents recommendations for embedding inclusive innovation with specific actions targeted at the different levels of governance and organisation with influence over the innovation economy.

From our research it is clear there is much further to go with this body of work. This report should be seen as a first step towards outlining, understanding and then developing the practice of inclusive innovation.

2. Defining inclusive innovation

Chapter Summary

Innovation presents a challenge for policy: it is a foundation of economic growth, but rarely inclusive. Inclusive innovation is a new agenda aiming to promote inclusion in the design, delivery, and diffusion of innovation activity. Making innovation more inclusive is important for reasons of equity, correcting the injustice that many people from poor or marginalised backgrounds do not participate in the innovation economy, but also for its effect. More inclusive innovation can lead to more productive innovation, raising productivity and driving economic growth.

This chapter sets out the context for our current discussions, using academic and practitioner literature to uncover:

- The economic and spatial dynamics of innovation: the nature of innovation activity clustering around relatively few sites, firms, and places, creating barriers to entry that diminish participation in innovation activity, as well as its potential.
- The new agenda for inclusive innovation: setting out the global and national context from which this new concept has emerged, different ways of conceptualising it, and the definition used in this project.

Economic dynamics of innovation

Innovation – the practical or commercial application of new ideas – is vital for economic success. Whether incremental or revolutionary, it is the only means of driving increases in productivity. Increasing productivity – achieving greater outputs through more efficient use of resources – is, in turn, the only means of economic growth that does not involve taking opportunities or resources from other places.[5]

At a national level, there is a strong link between innovation and living standards.[6] Workers in the most R&D intensive firms earn 20% more than those in firms that conduct no R&D, a premium higher for those with fewer formal qualifications.[7] Other firms benefit from 'knowledge spillovers' incorporating new technologies into their production processes from their more innovative neighbours, and so increasing their productivity. Innovative firms are also likely to create new jobs, both in their own organisations and in other related parts of the economy.

These 'job multipliers' can be substantial. For every 10 new jobs created in a high-tech sector, such as digital technology, 7 new jobs are created in other parts of the local economy, such as restaurants, security, cleaning, or business services.[8] The wider return for increases in private R&D is four times greater for the overall economy than it is for individual firms.[9]

Despite the importance of innovation for economic success, the innovation process is rarely inclusive. There are large and persistent disparities in race, gender, and class in STEM education and roles, in access to innovative finance, and at senior levels in innovative companies.[10] These occur at each stage of the innovation process:

1. In the early **design** or development stages of innovation. Decision-making is restricted to a few leading organisations: of the world's 2,000 largest corporate investors, the top 5% account for 55% of R&D expenditure.[11] Decisions on what investment can be made are overwhelmingly concentrated to a select group, whose biases influence priorities.
2. The groups involved in the **delivery** phases of innovation – such as the STEM workforce – are often restricted to a narrow set of socio-economic backgrounds. Innovation is often dominated by the already wealthy: in the US, children from families with incomes in the top 1% are ten times as likely to become inventors as those whose family incomes were below the median.[12] The result is a large number of so-called 'Lost Einsteins' – people who would be inventors if their demographic or economic group were better integrated into the innovation economy. If the lost Einsteins became inventors, innovation would increase significantly: if all groups invented at the same rate as white men from high-income families, the rate of innovation in the US would quadruple.[13]
3. The **diffusion** of benefits from innovation through the wider economy is also unequal. The rise of the high-tech economy has favoured the highly educated, exposing large portions of the workforce in many countries to prolonged unemployment or job displacement.[14] The most successful cities of the high-tech economy, such as San Francisco or even London, are often marked by high levels of poverty and inequality. While there should be benefits from innovation for those in the same local economy, this is not always the case. Typically, UK policy has focused on research, discovery and scaling up new ideas and innovations. But the higher accessibility of many jobs in production means that there is a wider network of people and places that could benefit if 'downstream' inclusion were considered alongside design and delivery.[15] Diffusion of new innovations requires access to specialist networks, yet these are often exclusive.

These problems of exclusion come at a cost. Innovation is unpredictable, and ideas can come from anywhere, and the failure to support ideas to develop and find practical applications is a restriction that limits the potential of our economies. Despite these shortcomings, innovation is at the heart of efforts to rebuild the economy after the COVID-19 pandemic and to level up opportunity across regions.

The UK government already invests a large amount in innovation: by 2026-7, the aim is to more than double this to £22 billion, alongside unlocking significant additional private sector investment.[16] Such investments are made with the aim of increasing living standards in the wider national economy, generating new sources of growth in places that lag behind.

Spatial dynamics of innovation

Innovation tends to be highly localised. The top 20% of regions in the OECD for R&D spending and patents account for 65% of all activity: the gap in labour productivity between the most productive 10% of regions in the OECD and the bottom 75% has widened by 60% over the last two decades.[17]

Creating successful innovations is difficult, for example, the specialist knowledge, equipment, and testing involved in R&D means that it costs $2.6 billion on average to develop a drug from concept to market.[18] This specialist knowledge comes from local concentrations of innovative activity – agglomerations that create connections between different specialisms. Productive ideas are generated in systems made up of firms, universities, research institutes, and communities of practice. Innovative firms benefit from three factors: the sharing of specialist resources, matching of specialist workers and suppliers, and learning from other nearby actors.[19]

The UK economy, and many like it, has transformed over the last few decades, with new advanced specialisms emerging as industrial sectors have declined. The characteristics, legacy, and history of a place influence its potential to specialise. Some have become hubs of innovation often in major, complex cities, but also smaller university towns or creative centres whose environments are suited to the generation of ideas and their application.

The UK Innovation Strategy of 2021 focused on place, including funding local innovation strengths through the Strength in Places Fund, and on making innovation "open to everyone". Building on this, the Levelling Up white paper set a mission to "boost productivity, pay, jobs, and living standards by growing the private sector". It sets out a mission to spend at least 40% more on public R&D outside the Greater South East by 2030, and a plan for new Innovation Accelerators in Glasgow, the West Midlands, and Greater Manchester. These will be designed to fund R&D, crowd in private sector investment, improve diffusion, and have a local economic impact.

The characteristics of place are an important influence on where innovation occurs. Places where organisations, public and private, large and small, collaborate tend to be the most innovative. A reputation for innovation encourages investment, attracts innovative people, and inspires the creation of new firms and organisations.[20]

Innovative places operate as complex ecosystems, with their performance influenced by local features as well as the make-up of the networks that operate within them.[21] Each place has a different combination of the forms of capital described in the Levelling Up White Paper– physical, human, intangible, financial, social, institutional. Subtle fluctuations between these influence economic performance and innovation potential.

Places that do well tend to continue to thrive, while places with less capital struggle to catch up. Over time, this has led to a gradual widening of geographic inequalities between high and low-performing areas.[22]

Innovation districts

This spatial concentration of innovation occurs within places as much as between them. In the late 20th century, science parks, often outposts of leading universities, emerged as the research labs for modern industry. More recently, a different kind of development has evolved: innovation districts, denser developments located within urban environments, locations with a more diverse mix of uses and a recognisable sense of place.

Though varied, innovation districts tend to grow around existing knowledge or business assets – higher education institutions, public sector anchor institutions, and labs and workspaces for businesses. As they grow in number they act as crucibles of innovation and magnets for talent.[23] This has a major impact on the places where they are based, with the benefits of innovation spilling over into the wider economy creating wider job opportunities, dynamism, and a more productive business environment.

To increase the likelihood of the knowledge spillovers that improve productivity and fuel R&D, innovation districts bring together space for businesses, research, and learning alongside softer secondary features like quality leisure uses and cultural amenities, housing, and appealing public realm. Their development can have a gentrifying effect: redeveloping an area with investment in facilities and amenities that increase the attractiveness and appeal of a place can raise property prices. In time, these costs have often been shown to displace the small firms and entrepreneurs that innovation districts were established to support,[24] as well as neighbourhoods, communities, and residents.

Innovation districts represent some of the world's leading concentrations of expertise and economic activity. Their location, often next to acute areas of deprivation, is an opportunity to benefit and include more people from more diverse backgrounds. This is not straightforward: while innovation has tended to be exclusive, the nature of the local challenges tends to be highly particular. Understanding how innovation districts interact with and effect these local dynamics, and what role they could play in inclusive innovation, requires a clear understanding of both. This is built on analysis over time, iterative and responsive policymaking and development, and effective monitoring and evaluation of new initiatives.

A new agenda for inclusive innovation

There have been demands from inside and outside the innovation economy to tackle this exclusivity. Google workers staged a series of protests from 2018 onwards in an attempt to make their workplace more inclusive to women; responsible investors have become increasingly concerned about the wider social and environmental impact of high-tech growth; and leading firms around the world have focused on increasing the diversity of their workforce. There is now a large body of evidence that shows that ethnic, gender, or country of birth diversity improves firm innovation.[25] Becoming more inclusive is both a way to create benefits in the places where innovation occurs, but also to improve the performance of innovation.

The concept of inclusive innovation has developed from academic research and policy development in the Global South. Many low-income countries are innovative places, but this innovation is not reflected in formal R&D spending, instead taking place in a low-cost and informal way.

It builds on and brings together a number of concepts that demonstrate how innovation might be made inclusive. The term grassroots innovation has been used to describe how disadvantaged or marginalised groups innovate in decentralised ways,[26] and frugal innovation describes how low-income groups innovate in low-cost ways. Inclusive innovation offers the opportunity to build on these recognised practices, applying lessons and best practice to contemporary settings.

Concept	Definition
Grassroots innovation	The activities of marginalised groups in developing countries, who, operating on the margins of the economy, use their local knowledge and ingenuity to innovate from the ground up. Directed at knowledge creation and the improvement of their lives, this is a mode of innovation harnessed for local development.
Frugal innovation	A mode of practice that seeks to minimise resource usage, cost and complexity in the production, constitution, and operation of new goods and services. This focuses on new and more sustainable ways to produce typically manufactured products, and the inclusive nature of this is more often a secondary benefit, rather than the aim of the process.

Defining inclusive innovation

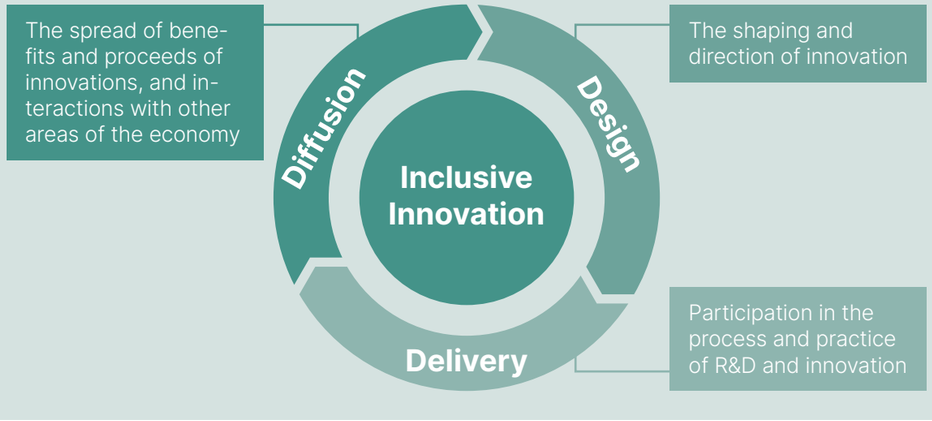
Early definitions described inclusive innovation as innovation that benefits the disenfranchised,[27] or projects that serve the welfare of lower-income or excluded groups.[28] Later examples define it as an attempt to share the benefits and risks of innovation more equally.[29] Business management literature refers to the opportunity to expand market reach by tapping into underserved markets with better targeted and tailored products.[30]

Attempts to bring the concept to North American and UK contexts have explored the different aspects of innovation, bringing together how the direction of innovation is set with who participates in developing research and how its benefits are shared. For instance:

- Nesta proposes that innovation policies are inclusive when they are concerned with who benefits from innovation, who participates in the creation of those innovations, and who decides on the priorities and manages the outcomes of innovation.[31]
- The Brookfield Institute, a Canadian research organisation focusing on innovation and technology, uses a similar framework for inclusive innovation, which is divided into opportunities, activities and outcomes.[32]
- Following a review of policy, Professor Neil Lee (London School of Economics) categorises inclusive innovation policies into three broad groups: strategy; participation; and outcomes.[33]

Each of these formulations uses a similar three-part structure to inclusive innovation; ours uses a similar device. It recognises the work that has been done to develop this agenda and reflects extensive engagement with the literature and with innovation experts and practitioners. Our definition should be used to encourage engagement as well as to organise new activity, approaches, and solutions.

Inclusive innovation is the best way to make traditionally exclusive innovation activities more beneficial to people, places, and our economy. Inclusion has intrinsic benefits; it can also increase growth and productivity. It does so by enabling as many people as possible to contribute to and benefit from the design, delivery, and diffusion of innovation activity:



Inclusive innovation is just one mechanism for achieving inclusive growth and levelling up. The innovation economy drives significant economic value, making it more inclusive will increase its impact. There is a role for being creative and innovative in its implementation: our definition is deliberately broad, reflecting that inclusive innovation will look different in different places, different sectors, and over time.

3. Practising inclusive innovation

Chapter Summary

We explored dynamics of innovation in local economies via interviews with people leading and working in 12 innovation districts. These conversations covered how innovation districts develop, how their strategies are set, and employment and training opportunities created.

We identified barriers to accessing the innovation economy and levers available to places in overcoming these. We reviewed individual programmes, both successful and unsuccessful, which provide lessons that could be applied more broadly.

This chapter organises findings around the three stages for inclusive innovation:

- Design: how to embed and facilitate inclusion via governance structures and strategy setting, through community involvement and physical development, and with fit-for-purpose funding and incentives.
- Delivery: how inclusive innovation could take root by widening participation in research and discovery, through district-level employment and procurement practices, and by focusing innovation itself to create social and economic impact.
- Diffusion: how innovation creates value via adoption of discoveries, skills development, through value chains and downstream opportunities, and in its financial dividends.

Innovation does not happen in a vacuum; it happens in places and is shaped by people. To understand how innovation can be made more inclusive in practice, we have engaged with innovative places across the country. We sought a representative view of how innovation works in different contexts, which parties are involved in the generation and application of useful ideas, and how these connect to other areas of the economy.

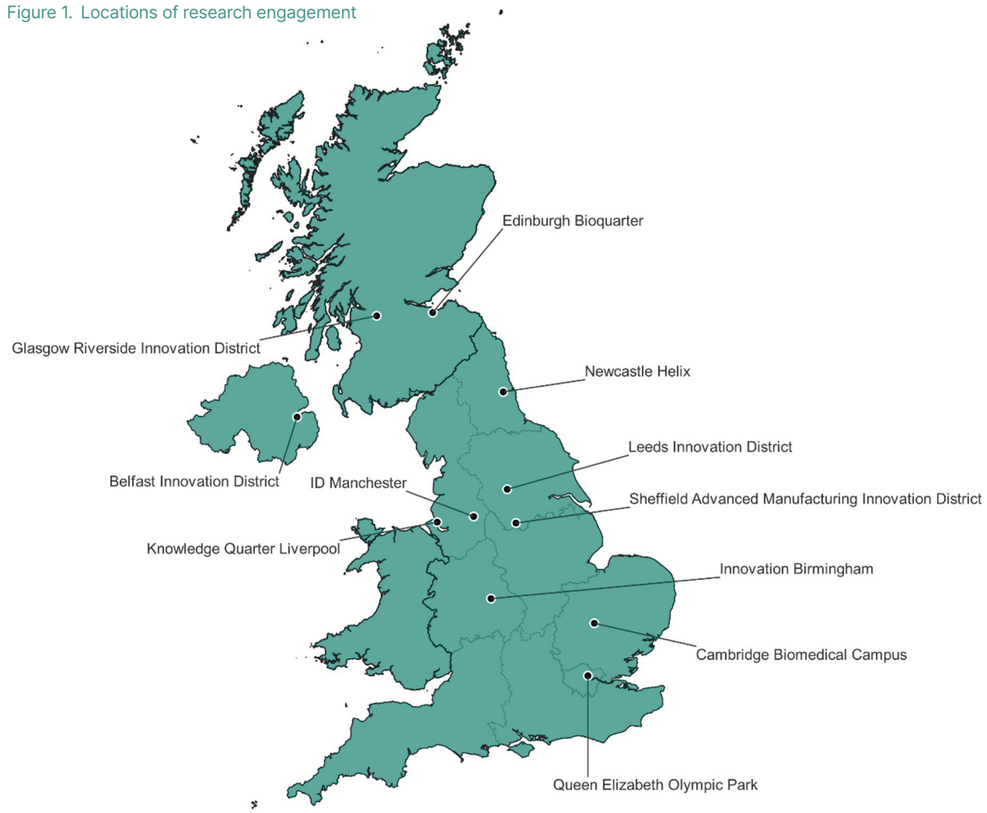
Our study focused on existing and nascent innovation districts as sites of innovation activity in the UK that are also well placed to pioneer new inclusive approaches. To select innovation districts and stakeholders, we shortlisted a range of places around the UK, using a set of criteria that would allow us to access varied perspectives:

- the stage of development of the innovation district
- their locations within cities or conurbations
- levels of local deprivation and economic complexity
- governance structures and physical typologies

We also wanted to see how places outside the UK are engaging with inclusive innovation, and take examples that could be applied to our national and regional contexts. We engaged with MaRS Discovery District, Toronto's innovation district, which has focused on the creation of an inclusive innovation ecosystem. MaRS helps us understand a more mature example of an inclusive innovation district in practice.

In each place (Figure 1), we held discussions with a variety of stakeholders using a mix of workshops and interviews. We engaged with leadership as well as community organisations and public sector representatives.

Figure 1. Locations of research engagement



We explored the dynamics of innovation in local economies, how districts develop, how their strategies are set, and employment and training opportunities created. Over time, many organisations have attempted to make their activities more inclusive, breaking down barriers and experimenting with new projects and programmes. In every place we studied, people were able to point to examples of projects that have a role to play in inclusive innovation, however these were frequently small scale and sometimes reliant on time limited funding.

Figure 2 highlights the themes of activity we uncovered across the three stages for inclusive innovation. We found that most current inclusive innovation activity focuses on the design and delivery stages of the innovation cycle. There are fewer active examples related to the diffusion of benefits and proceeds. This is a significant gap, as all three stages are important to create an enduring and successful approach to inclusive innovation.

Figure 2. Themes of inclusive innovation activity from engagement with innovation districts

Designing inclusive innovation

Although innovation is hard to predict or plan for – the ideas that find successful and useful applications can come from anywhere – local leaders distribute the resources and create the environments that make it more likely. The stakeholders involved in directing the resources and activities that create these environments are varied, from politicians, civil servants, to businesses and entrepreneurs, and landowners.

While many decision-makers consult communities on their strategies, priorities are often set upfront in relatively closed rooms. Addressing this exclusivity can increase social and economic value along with public buy-in to innovation activities.

Where they exist, innovation districts are often at the centre of local strategies. The development of environments that support the creation and application of new ideas is a means to accelerate the growth of the innovation economy.

The 12 places we spoke to are organised to varying degrees of formality in terms of their innovation strategies, spatial plans, and even governance structures. In our engagement we tested what it would mean to design inclusion into innovation and innovation district strategy. The following areas came up repeatedly:

Design

Governance and strategy setting: with clear inclusion and social impact priorities core to guiding innovation district development and operations.

Community engagement: involving a broad range of people in setting strategies, beyond standard consultation requirements.

Physical development and partner procurement: designing spaces to be shared, attractive and sustainable, permeable, accessible and productive.

Funding and incentives: the role for public sector and private sector finance to establish a sustainable funding ecosystem that supports inclusion.

Governance and strategy setting

Innovation in local areas works in different ways. In some, the direction of activity has been set for decades through a series of incremental decisions or the gradual development of a local specialism or identity. Innovation districts have emerged as elements of these innovation ecosystems: they operate in different ways, with varying degrees of formality and embedded capacity.

There is no 'one size fits all' approach to inclusive decision-making and strategy setting. Generally, lead partners set a strategy, aligning their interests to the realisation of a shared vision. Engagement with the local communities that neighbour the districts tends to occur once priorities are agreed, and a direction set.

To embed inclusion into governance and strategy, more organisations and places are experimenting with their decision-making structures, finding ways to encourage participation from a wider range of stakeholders. The North of Tyne Combined Authority was established with the core aim of embedding inclusion across its economy. Its Inclusive Economy board advises on the implementation of their approach, operating with an independent chair to provide a check that the Combined Authority's activity continues to embed inclusive growth.

For most innovation districts a good partnership brings a range of perspectives and agency. This allows each to align their individual interests and bring their own expertise to bear – it can also increase the reach and inclusivity of their activity. KQ Liverpool's board includes not only major anchor institutions like the city council, Liverpool John Moores University, and the University of Liverpool, but also developer Bruntwood SciTech. Also a co-owner of development vehicle Scion-tec Liverpool, SciTech has an embedded interest in the success of the development.

There are opportunities for organisations in innovation districts to embed inclusive innovation in their priorities, aligning their individual strategies to be greater than the sum of their parts. In some places, like the Edinburgh BioQuarter, this might mean setting explicit strategies for innovation, inclusion, community involvement and relationships, and spatial strategy; in others there will be a strategy or vision that incorporates all aspects.

Many of the places we engaged with curate projects that will help them achieve their priorities. In Belfast, Sheffield's Advanced Wellbeing Research Centre, and Queen Elizabeth Olympic Park (QEOP), the development of 'real world test beds' invites residents and local organisations to engage with new technologies and shape their application in partnership with experts. This approach, reimagining the 'city as lab' encourages residents and organisations to direct research to mutually beneficial ends.

Effective strategy-setting requires the monitoring, evaluating, and focusing of priorities and interventions over time. Measuring the impact of interventions justifies spend, demonstrates impact, and finesses and retargets priorities, ensuring that organisations on the district are focused on current challenges. Here East at QEOP produces an annual impact report that monitors community connections and the performance of the district in bringing in and benefitting people from diverse backgrounds. Leeds City Council will adopt a Social Progress Index as a framework to measure inclusive growth performance against their city-wide ambition for inclusive growth; the new Leeds Innovation District Framework will connect place, inclusive growth and innovation.

Example 1.

HUB-IN Belfast: Co-Design with local communities

Belfast is developing an innovation project to enhance and preserve the rich maritime heritage of its Waterfront. Belfast is one of eight European cities participating in HUB-IN, an EU funded project that aims to foster innovation and entrepreneurship in historic urban areas. In Belfast, activity will centre on the Maritime Mile, which stretches along the harbour and encompasses the city's innovation district, major tourist attractions and some of the city's most deprived neighbourhoods.

Belfast City Council's City Innovation team, and the Maritime Belfast Trust are working with Connected Places Catapult, SME support organisations, the creative industries, voluntary and community organisations, as well as innovation and university leads, to shape all aspects of the project. Citizens are at the heart of the HUB-IN co-design and co-creation process. An initial community survey provided insights on what the Maritime Mile means to residents and local citizens and what they see as challenges for the area.

A series of recent workshops brought together key organisations, community representatives and local volunteers to directly shape the project roadmap. Further engagement was undertaken during the Maritime Mile Weekender festival with residents, local citizens, and visitors to the area. Citizens will now be involved in the design and implementation of open innovation 'challenge calls' to address identified issues. The project will encourage pitches from local SMEs and creative industries to work with residents and local citizens to promote holistic approaches to citizen participation.

Community engagement

Engagement exercises run by innovation districts are often designed to invite community comment on specific project proposals, especially on matters of physical development. Enhanced community participation could be facilitated through a more embedded arrangement. At Cambridge Biomedical Campus (CBC), a standing community group meets three times each year with dedicated members of the CBC board to share issues and concerns as well as recent wins and success stories.

Building community trust and participation is an exercise in patience. Innovation strategies are long-term projects, and inclusive innovation invites constant engagement, rather than comment at points in time. Glasgow Riverside Innovation District has purposefully built an allowance into its strategy-creation timeline to allow the opportunity for input from and iteration with community ambassadors. This takes more time than if only a few voices were heard but increases the reach of activity and the opportunity for residents to engage.

Working groups and community forums are structures that encourage regular and active engagement with innovation activity from residents. Remuneration can be important to encouraging and enabling participation from excluded individuals and groups. Resources like the Imperial College London engagement toolkit bring together advice and materials in one place to support organisations and leaders in better practicing inclusive engagement and facilitating participation.

Example 2.

Queen Elizabeth Olympic Park: A Citizen Science approach to community

In Queen Elizabeth Olympic Park, academic partners have pioneered a participatory approach to understanding the impact of the district. Alexis Charles, a local resident, researcher, advocate of social capital, and business network lead, was employed as a citizen scientist for the UCL Institute of Global Prosperity to study the impact of QEOP in communities in East London. Working with local community organisation Hackney Quest, Alexis set up discussions with local people from a variety of marginalised backgrounds to understand the way residents interact with the park and whether they access its opportunities. This citizen science approach was designed to explore applications for inclusive innovation and identify gaps. This will, in turn, feed into future strategy setting on the park.

Charles' local engagement revealed that there is a gap between QEOP and some of the neighbouring communities – a proportion of local residents does not fully connect with the park, use its spaces, or access its opportunities. This is a missed opportunity: there are diverse ideas that can feed into innovation on the park to improve its value and reach as well as support social and economic impact locally.

Physical development and partner procurement

Well-designed innovation districts offer cohesive and shared spaces where businesses, students, and the public interact, and where culture and accessible leisure space is embedded. Unlike many science parks, the focus of many innovation districts is on human interaction, creating spaces for collaboration between organisations and access to the public.

Inclusive innovation districts could offer designated buildings or spaces for communities and local businesses as well as clear wayfinding and ground floor permeability. Physical development should not just consider primary users, tenants, and occupiers, but also impact on neighbouring communities, the environment and others who interact with the space. A more holistic approach to place-making and development leads to the creation of accessible spaces and increases the likelihood of awareness and collaboration.

At MaRS Discovery District, the open foyer on the ground floor invites local communities to treat the development as their own asset; in Manchester, the permeability of the Bright Building on Manchester Science Park offers local communities a public space to dwell in; at KQ Liverpool, the aspiration is for a neighbourhood woven into the urban grain of the city centre and central business district.

Innovation districts have large physical footprints and often border deprived and underdeveloped areas, either as a result of institutions' legacy landholdings or of seeking low land costs. This presents unique challenges in terms of facilitating connectivity and mitigating gentrification, but also novel opportunities to build in inclusion from the ground up. Work starts from the selection of the development partners, with partners ideally selected on the basis of their alignment to the district's core values and mission.

In some places, the process of designing inclusive spaces has taken time and iteration. At Kings Cross Knowledge Quarter district developers are working with Camden Council to ensure that the planning process requires all new developments to clearly articulate their contribution to the quarter. The Hackney Wick and Fish Island Community Development Trust (CDT), an organisation representing local community groups, artists, and cultural and creative businesses adjacent to London's Queen Elizabeth Olympic Park, engages with local landowners and developers to reserve space in new developments. Recognising the importance of the cultural economy to local vibrancy, proactive work by the CDT and intentional planning policy measures ensures affordable space for creatives as land values in the area increase.

Ideas can also come from unexpected places – inclusion and creativity in upfront design can lead to novel solutions and approaches. Sheffield Advanced Manufacturing Innovation District (AMID) commissioned students from the University of Sheffield School of Architecture to reimagine the role and purpose of the Mobility Hubs across the site, considering how they could better bring purpose and benefits by connecting local people to jobs and training across AMID and the wider region.

Example 3.

Edinburgh BioQuarter partner procurement

The BioQuarter is a 160-acre healthcare site three miles south of Edinburgh city centre, home today to significant NHS and University facilities. Over the past 20 years, it has played a pivotal role in medical research and life sciences innovation, and has generated an estimated £2.72bn gross value added (GVA) from its research, clinical, and commercial activities. It is currently out to tender for a development partner to expand the campus into a thriving, mixed-use neighbourhood of Edinburgh, centred around healthcare innovation. Before opening up the process to identify that developer, BioQuarter's strategic partners went through a rigorous process of visioning to set clear goals and objectives around not only innovation, but also place, inclusion and community. The partners' vision is to create Edinburgh's health innovation district; a new vibrant mixed-use neighbourhood centred on a world-leading community of healthcare innovators.

In the multi-year process of appointing a developer, BioQuarter partners have set a clear agenda to consider not only their ability to deliver new buildings on the remaining 64 acres of development land, but also strategic alignment of values, the public realm commitments, and community and social impact of development proposals. Success for the BioQuarter is not only about accelerating and commercialising health innovation, but also achieving impact via inclusive growth and regeneration. As procurement progresses, BioQuarter and its potential partners will need to balance commercial viability of development proposals alongside those core strategic objectives that have been embedded into the process. In doing so, partner appointment will put inclusive innovation in practice, supporting their innovation goals whilst promoting inclusion and impact.

Funding and incentives

Innovation is high risk, and often takes place in specialist and valuable areas of the economy. Because of this, new ideas or ventures can require investment from knowledgeable and experienced specialists. The existing funding environment, including UK government funding programmes, can perpetuate systems of inequality and exclusion unless there is an emphasis on fostering inclusion at every level. Inclusive innovation requires explicit consideration of the incentives and priorities that shape funding structures.

There are clear disparities in the availability of funding across the UK, and in the capacity of local investment markets to support innovators to develop, test, and scale their ideas. The availability of capital, in turn, holds a major influence on the ability of a company to build a new idea or discovery into commercial success. Across the country there are pockets of robust investor coverage, but many more places with a dearth of investors. Without them, innovators look to more developed investor markets to scaleup their ideas, reinforcing regional disparities in innovation success.

Creating environments suitable for investment requires active curation, at the same time increasing opportunities for investors to access and engage with local opportunities. In Newcastle, pension fund Legal & General has partnered with the city, using regular events for business leaders to showcase investment opportunities.

Example 4.
Venture North 'Society Tech' fund for early stage startups and spinouts

A new £75m early stage 'Society Tech' fund has been proposed by a collaboration between venture capital (VC) firm Northstar Ventures and the Universities of Durham, Newcastle, Northumbria, Sunderland, and Teesside. The purpose of the fund is to address a gap in venture capital available for investment in social goals, providing early stage (seed, late seed, and series A) funding to university spinouts and startups focused on solving societal challenges in seven markets:

Healthy Ageing	The Care Economy	Lifelong Learning	Climate Tech	Future Work	Future Homes	Future Cities

The Venture North mission is to identify combinations of founder teams, technologies, verticals, and business models developing ideas in the above markets and which can be oriented towards impact at scale. It is set apart by its explicit aim to address a gap in the local finance market, recognising that venture capital has failed to prioritise social investments, and in so doing has both missed out on new markets and limited its positive effect on society. Its establishment recognises that the availability of growth finance varies between different places and sectors.

The fund will harness the combined potential of the member Universities as well as regional institutes and the local entrepreneurial ecosystem, using the North East as a 'living lab' to scale proven startups into the UK and the US. The place focus is central to the fund's strategy, recognising the social challenges impacting the North East already, as well as its building blocks for developing innovative products and services needed to tackle those challenges. Local knowledge of the area will reduce risk in the fund's investment portfolio, whilst building on regional advantages to drive closer collaboration and co-ordination, higher productivity, and accelerate local innovation for broader social gain.

At the same time, the lack of diversity within investor networks themselves limits their perspective, reducing opportunities for those outside of established networks to access finance. Just 13% of angel investors in the UK are female, and while this is increasing, over half are based in London and the South East.[34] Addressing this will require ongoing action to build a more diverse and inclusive investment community, amongst private investors and also the decision-makers involved in design of public sector funding programmes.

Example 5.
Fund Her North initiative to support women entrepreneurs

NorthInvest leads the Fund Her North volunteer initiative to bring together over 30 women angel investors, venture capitalists and funding professionals to address the challenges that many women entrepreneurs have in accessing finance to build and grow their innovative businesses. It was launched in October 2020 and has enabled women in finance to support women founders on their growth journeys. The collective has a combined investment power of over £650m, with a combined track record of over £160m invested in female-led startup businesses.

The Leeds-based collective focuses on creating a supportive environment for women entrepreneurs to access advice and mentoring as well as connect to investment. Fund Her North connects to the Women Angels of the North Investment Forum and is aligned with the strategic growth ambition of the Northern Powerhouse. It is the only organisation of its kind in the UK bringing together women in investment to support female founders.

Delivering inclusive innovation

Innovation occurs everywhere, wherever ideas are generated and wherever processes can be improved. R&D work tends to be well rewarded and fulfilling, offering intellectual challenge, meaningful effort, and good pay. The delivery of innovation is often complex, involving direct research as well as its application and refinement.

Inclusive innovation opens up access to this work, increasing diversity of thought. This diversity, in turn, sparks the creation of new ideas. Many of those we engaged are looking to increase the number of innovation jobs in their places. These require experience and expertise, which sets a high entry requirement to participation in the innovation economy. Targeted activity can reduce this barrier, and open access to decent, rewarding work for more people from diverse and marginalised backgrounds.

Engagement revealed a variety of strategies for making the delivery of innovation activity more inclusive. These focused on the current and future workforce, preparing future generations for opportunities to be part of knowledge-intensive industries, and explored how skills pathways and employment practices can be made more inclusive. Our engagement revealed the following approaches:

Delivery

Widening participation in research and discovery, developing skills & talent:
cultivating a talent pipeline and reducing barriers to employment.

Employment and procurement practices:
decent work for all direct and indirect employees of innovation districts and firms.

Innovating for impact:
focusing research efforts on local and global social and environmental challenges.

Widening participation, skills, & talent

Around the UK innovative organisations are focused on increasing the inclusivity of their workplaces. Often workers in labs and innovation spaces do not yet reflect local demographics. For many R&D intensive institutions, this has been a limitation to idea generation, preventing the productive exchange of perspectives.

Example 6.

NHS Innovation Accelerator (NIA): a role for all staff and stakeholders in product and service innovation

The NIA opens a path for all NHS staff to contribute to innovation in product, service, and healthcare delivery. It curates and guides promising healthcare innovations through the health system to encourage widespread adoption. It takes ideas from staff for everything from workflow tweaks to treatment breakthroughs to transform care and improve efficiencies. Hospitals around the country are benefitting from valuable ideas developed in local NHS trusts and facilities, for instance:

- A group of domestic hospital staff devising a better way of using cleaning fluids to improve hygiene and save money
- An artificial intelligence system that speeds up diagnoses
- An app that minimises maintenance issues that can hamper surgery

The NIA relies on on-the-ground staff to understand the challenges and opportunities at a local level, apply their experience to new ways of working through problems, then expanding that through the entire system. The NHS Innovation Challenge Prize encourages and rewards innovation driven by frontline NHS staff. Programmes like this, which incentivise locally-led efforts to improve products and services through innovation, demonstrate the importance of including a wide range of local stakeholders, employees and participants in creating new ideas.

Individual places like Edinburgh BioQuarter have set up local equivalencies to this challenge system to encourage local staff to share their ideas for improving health and social value.

Our engagement demonstrated that many institutions and businesses are now taking more radical and innovative approaches to increasing workforce diversity and inclusion. This includes reviewing employment practices in depth and removing artificial barriers, for instance degree requirements for jobs when unnecessary, and connecting directly to excluded groups with new access pathways.

Example 7.
Digital Innovators: connecting students to innovation careers via the Serendip Ideator Programme

In Birmingham, a new model of training provider is connecting neurodivergent young people to opportunities in technology businesses. Neuro-diversity is used to describe people whose brains function differently in one or more ways than what is considered standard or typical. Digital Innovators is a West Midlands-based alternative education provider specialising in providing digital skills training to young people (aged 16 – 24) who are neurodiverse, at risk of leaving education, or not currently in employ-ment, education, or training. The programme's objective is to give their cohorts the chance to access development and career opportunities via alternative pathways.

Digital Innovators offer a skills programme in which young people are given the opportunity to undertake skills training and work experi-ence with local business leaders, access the IBM SkillsBuild programme and Huawei ICT Academy programme, and receive mentoring and support with employment opportunities.

The Serendip Ideator programme, based at Innovation Birmingham, was developed in collaboration with Bruntwood to increase and scale-up Digital Innovators' offer to young people, presenting them with the opportu-nity to devise and develop ideas to solve a real-world challenge based on the needs of local businesses. The Ideator creates a learn-ing-by-doing environment and establishes the need for an incubation and development capability for both new and established businesses to develop their ideas further whilst at the same time employing young people who have undergone the ideation process.

Example 8.
BUILD accelerator, enhancing diversity and inclusion in Leeds' talent pool

The BUILD business accelerator pilot in Leeds was developed in an effort to diversify the city's talent pool, actively targeting support towards startups and entrepreneurs from under-represented groups. Managed by Nexus, the University of Leeds's innovation hub, BUILD targeted early-stage start-ups and business ideas that combine purpose with profit.

The 12-week programme helped participants turn their ideas into innovation-driven businesses that are investible. Evaluation of the BUILD programme was overwhelmingly positive, particularly on grounds of diversity and inclusion, with recommendations for improvements for future cohorts. Detailed case studies were provided from participating businesses, with one business noting that BUILD supported them to speed up the development of an electric vehicle charger prototype by a year or more.

BUILD demonstrated that focused intervention to improve diversity and inclusion in the Leeds enterprise ecosystem created positive benefits both for the participating entrepreneurs and for the quality of innovation and business development.

In most innovation districts there are successful and ongoing collaborations with local education providers. Some institutions and businesses on site partner with local schools that offer work experience and vocational training or establish structures that support residents into work. The AMRC in Sheffield has been running a successful Apprenticeship programme since 2013. 1,700 apprentices from the city region have found opportunities in 450 businesses, and over 80% of participants are from the most deprived local postcodes.

Participation in the innovation economy is not strictly limited to diversity and inclusion in research and employment. It can also mean opening routes for community members or the end users of new products and processes to input on their development. The NHS Health Research Authority recommends patients and other people with relevant experience contribute to how research is designed, conducted, and disseminated in order to run better studies.[35]

Widening participation is labour-intensive. Some places referenced programmes that, whilst successful, have ceased running due to lack of funding. Collaboration at the innovation district level, sharing resources and creating opportunities of scale, encourages individual organisations to participate and creates a single-front-door for access. MaRS has a longer track record as an operational innovation district and facilitator of inclusive innovation than any place in the UK and has developed a number of programmes and approaches from which UK districts could learn.

Example 9.

MaRS Discovery District inclusive challenge funds

Through the creation of challenge funds, MaRS Toronto, an inclusive innovation district, is connecting marginalised entrepreneurs and researchers to opportunities.

MaRS runs a Women in Cleantech challenge, inviting ten existing entrepreneurs and companies led by women working in sustainable technologies and supporting them to develop marketable innovations. A prize of $1m from the federal government was awarded to the winning business, supporting the growth of a woman-led cleantech business beyond the challenge.

There were benefits for all participants. Of the ten companies only four were incorporated at the start. Through connecting the firms to financial and academic networks, mentoring the founders through the process of the challenge, MaRS supported them to connect to structures otherwise outside of their influence. Over three years, these companies collectively raised over $60m. The challenge-based approach is an attempt to democratise innovation, casting a wide net, they pull in cohorts from groups from marginalised backgrounds and often achieve unexpected results.

Photo courtesy of Christie Spicoluk

Decent work

Beyond scientists and innovators, professional services and manufacturing roles are integral to the growth of innovation economies. Innovation districts themselves are major employment sites, requiring support services that range from security to administration, groundskeeping, cleaning, and construction services. They also require an ecosystem of professional services, which also support significant opportunities for decent work.*

These support services are critical for the institutions and businesses, and the innovation districts they are part of, to function. But across the UK, some of the sectors are characterised by low paid and precarious work.[36] Innovation district leaders are attempting to ensure this work is provided on decent terms, working with organisations to create well-paid and fulfilling roles. Some are exploring a mandate for B-Corp or Living Wage accredited status for all businesses in the innovation district.

Mandating the Real Living Wage in an innovation district and across its supply chain is complex. Nevertheless, persistence and collaboration can lead to success. For Queen Elizabeth Olympic Park, this has taken years of negotiation to achieve, and the creation of new structures to support smaller organisations to engage.

Example 10.

Queen Elizabeth Olympic Park: adopting Real Living Wage across the whole supply chain

Queen Elizabeth Olympic Park has developed programmes to break down traditional barriers into employment on the Park for traditionally under-represented groups. This has focused on a reciprocal relationship between the employers in varied sectors making the Park their home and the diverse talent in the local area.

The model was originally designed and tested with the construction and built environment sector through QEOP's early construction phase. Upon beginning the development of the park, the London Legacy Development Corporation (LLDC) reviewed the construction sector's challenges - skills gaps, an ageing workforce, and low take up of apprenticeships. This became an opportunity for QEOP to craft an innovative response including a vehicle to share apprentices throughout the supply chain leading to a significant increase in the number of young people from diverse backgrounds in the workforce. Through this, QEOP designed and commissioned a range of demand-led careers, employment, skills, and business support projects focussed on key growth sectors.

As confidence grew so did the delivery model, which expanded to respond to the increased digitisation of the sector with projects like DEC (Design Engineer Construct) and the Hobs Academy @ Here East providing practical and accessible opportunities for young people at the innovative end of the sector. As QEOP continues to evolve and new sectors make the Park their home, the model continues to evolve using the tried and tested approach of working with employers to understand their productivity challenges and to design a bespoke training offer in response. This offer has expanded to include London Living Wage paid 12-month internships (STEP) designed in the cultural sector, and two new flagship facilities, Build East and the Good Growth Hub, which create new routes for local talent to access opportunities on the Park.

* Decent work is defined by the International Labour Organisation as work that is 'productive and [that] delivers a fair income, security in the workplace and social protection for families, better prospects for personal development and social integration, freedom for people to express their concerns, organize and participate in the decisions that affect their lives and equality of opportunity and treatment for all women and men.'

In many places, employment charters are being developed at city level, providing a consistent and evidence-based standard of what qualifies as decent work. These can encourage and accelerate the move to paying a living wage throughout supply chains and in procurement, not just to direct employees. The Greater Manchester Good Employment Charter is an exemplar in employment charters, with 34 members and 262 supporters it covers a combined 230,000 employees.

Innovation districts can adopt employment charters, rather than developing their own, to provide an evidenced framework for their tenant organisations. KQ Liverpool's partners will likely each independently look to adopt the city's charter once it is established, creating the opportunity for the district as a whole to do so.

Innovating for impact

Genuinely inclusive innovation means innovating with purpose. Not only is innovation equitable and effective when it is inclusive, it can also create greater social and environmental value. Inclusion and representation in the design and delivery of innovation activity makes it more likely that a social or environmental benefit will be set as its goal, and that the R&D process itself will be more successful and creative in meeting it. Diverse perspectives and experiences are needed to define what problems need solving and to create novel solutions through unique combinations of experience and expertise.

Social innovation and inclusive innovation are not one and the same. But an innovation ecosystem is unlikely to be inclusive if it does not create broader social benefit, and social innovation is unlikely to improve community welfare without diverse perspectives.

Impactful innovation means mobilising science, technology and innovation to solve the challenges of our time: how we respond to Covid-19 and future pandemics, how we mitigate and fight climate change, how we improve wellbeing and working conditions for all. KQ Liverpool and its major institutions are partners in the new Pandemic Institute, which is committed to helping the world prevent, prepare and respond more effectively to pandemics. In Belfast, the Smart District acts as a living lab to take innovations developed elsewhere in the city and using them to address local challenges, for instance addressing the 8-year divide in life expectancy across Belfast's neighbourhoods.

The Living Lab at the Advanced Wellbeing Research Centre in Sheffield is setting up an innovation fund to enable community-led innovations to achieve better health and personal wellbeing, tackling issues such as obesity, type 2 diabetes and increasing life expectancy. These initiatives will be complimented by real-time population health research, to test what works elsewhere and then tailor findings to the Sheffield region.

Innovation can create impact not just through commercial returns and a financial valuation of its proceeds, but by creating products and processes that improve everyday life and solve challenges that affect our communities and society. Impactful innovation is made more likely when inclusive, and in turn demonstrates the value of this approach.

Example 11.

Impact Hub Bradford: promoting social entrepreneurship and investment

Impact Hub Bradford, part of a global network of such hubs, exists to create prosperity and bring together innovators who wish to tackle local challenges. It offers co-working space, development programmes, mentoring, business support and funding as well as networking opportunities for social innovators and enterprise, promoting innovation that itself promotes social impact. The purpose of the shared space, embedded in a city with a legacy of social innovation, is to promote collaborations across sectors and encourage local entrepreneurs to think big about the impact they can make.

Looking beyond the Hub's immediate remit, founder and chief executive Kamran Rashid has supported creation of a £6.5m social investment fund for the district, to be operated based on values of diversity and inclusion. Creating that broader network of opportunities and relationships is vital to the local function of the Hub, galvanising support from across complementary programmes and public sector actors. Reaching a broad and diverse audience, partly the result of having representation at every level of the organisation and its events, is essential to Impact Hub Bradford's social mission.

Diffusing benefits and proceeds of inclusive innovation

Innovation is a small part of the economy but has a large influence. Innovation creates value, unlocking new useful and desirable products and services. The connection of innovation to other areas of the economy has the potential to unlock further economic growth and value.

Innovation districts are well placed to diffuse the effects of innovation. The complex value chains that make up the modern economy can be difficult for local firms to access. Individual firms, innovation districts, and their tenants alongside financial institutions can all influence and direct the downstream opportunities created by R&D and innovative new processes or systems.

Leaders, particularly in local government, are exploring ways to maximise connectivity between innovation and the wider economy. But the innovative firms that fund large scale R&D are often large, multi-national and well-resourced; engagement with the 12 places revealed that the process of connecting activity on site to their wider economies is neither straightforward nor instant.

Building on conversations with finance experts and innovation districts, we have identified three initial levers to influence the diffusion of innovation:

Diffusion

Application and adoption:
how innovation is taken up more broadly, including local retention and benefit.

Value chains: focusing the downstream opportunities created by innovation through manufacturing, supply chains and other indirect routes.

Financial returns and reinvestment: maintaining individuals' and local stakes, and creating funds or investment networks which recycle financial dividends.

Application and adoption

Lab-tested discoveries and new technologies are not always commercially viable or immediately useful; it is in their application that they affect the most people. Applied research institutions translate 'blue sky' research and discovery into practical applications. Involving a diverse group of users in the development of products or services can greatly increase their utility. In its new strategy, the University of Leeds will purposefully re-focus its capabilities on applied research that can generate improvements to people's lives and livelihoods, particularly where collaboration between disciplines can unlock new opportunities.

Adoption is particularly important for mission-driven or social value-generating innovations, those with immense potential to create social, economic, and environmental benefits when adopted effectively. Health and green technologies are only able to generate benefits when they are adopted and used at scale. Sheffield's Advanced Wellbeing Research Centre has partnered with Darnall Well Being, a local community health organisation, to utilise the centre's healthcare expertise directly in local population healthcare.

Example 12.

Cambridgeshire & Peterborough 'Adopting Innovation' Hub

The Cambridgeshire & Peterborough Innovation Hub has been established to improve adaptation and adoption skills through targeted peer support, training, and collaborations with experts. Bringing together citizens, innovation experts, health and care, academic and industry stakeholders, it will upskill the workforce to implement and implementing proven and tested innovations that can level out health inequalities.

It is one of four Innovation Hubs funded by the Health Foundation for 2 years in a pilot to explore better connection between local innovation and health improvements. If it is successful, the investment will be sustained locally and the approach rolled out more widely.

It will test enablers like:

- The adopters' network – peer-to-peer support between existing early adopters to frontline teams implementing the chosen innovations.
- Innovation Culture Club – peers working together to ignite culture shift, open to all sectors, and creating 'sandpits' to learn, co-create and articulate insights.
- Evaluation panel – drawing on partners' evaluation expertise to distil what works.

Value chains

The production and distribution of discoveries creates a 'ripple effect', complex value chains that feed into innovative industries. The innovation economy is a concentration of activity and investment that can sustain other areas of the economy.

Globalised financial and production systems enable greater access to products, services and markets than an insular economy could provide. Innovation districts or firms can never control how all of the value created on site is used. But through targeted activity, they can focus and enhance its effect: connecting to local business networks; providing training to access, support, and use new processes and technologies; and making finance available for new business opportunities arising from on-site activity.

Across the UK, this work is in its early stages, but examples from elsewhere tell us that targeted efforts can unlock latent economic potential in the diffusion of innovation. In Switzerland and other European countries, a stronger focus on diffusion through applied research and educational institutions creates a virtuous cycle in which new technologies are tailored to specific local context and workers are provided with the skills to absorb them.[37]

Diffusion often happens through networks as firms can connect with one another to create new opportunities and learn from each other's experiences. Innovation districts can make these networks more open and inclusive – MaRS has pioneered approaches to connecting marginalised groups to influential networks. With reverse mentoring, leaders of major companies are given a partner from an underrepresented background, allowing them to understand the nature of barriers to engagement.

Example 13.

Advanced Manufacturing Research Centre: Building supply chain capacity

Sheffield's AMRC has developed into a major concentration of manufacturing innovation in South Yorkshire. Applying the research strengths of Sheffield University, it has attracted innovative firms to the region, creating and manufacturing new products in the heart of a former mining area.

Leveraging the specialisms of these institutional tenants, the AMRC runs a supply chain coaching programme, working with local small-scale manufacturers and training them on site so that they can feed into these larger supply chains. Currently the AMRC is engaged with supporting local firms to enter the nuclear industry, helping 120 companies to get the necessary accreditation to provide products and services to the small and medium reactor industry.

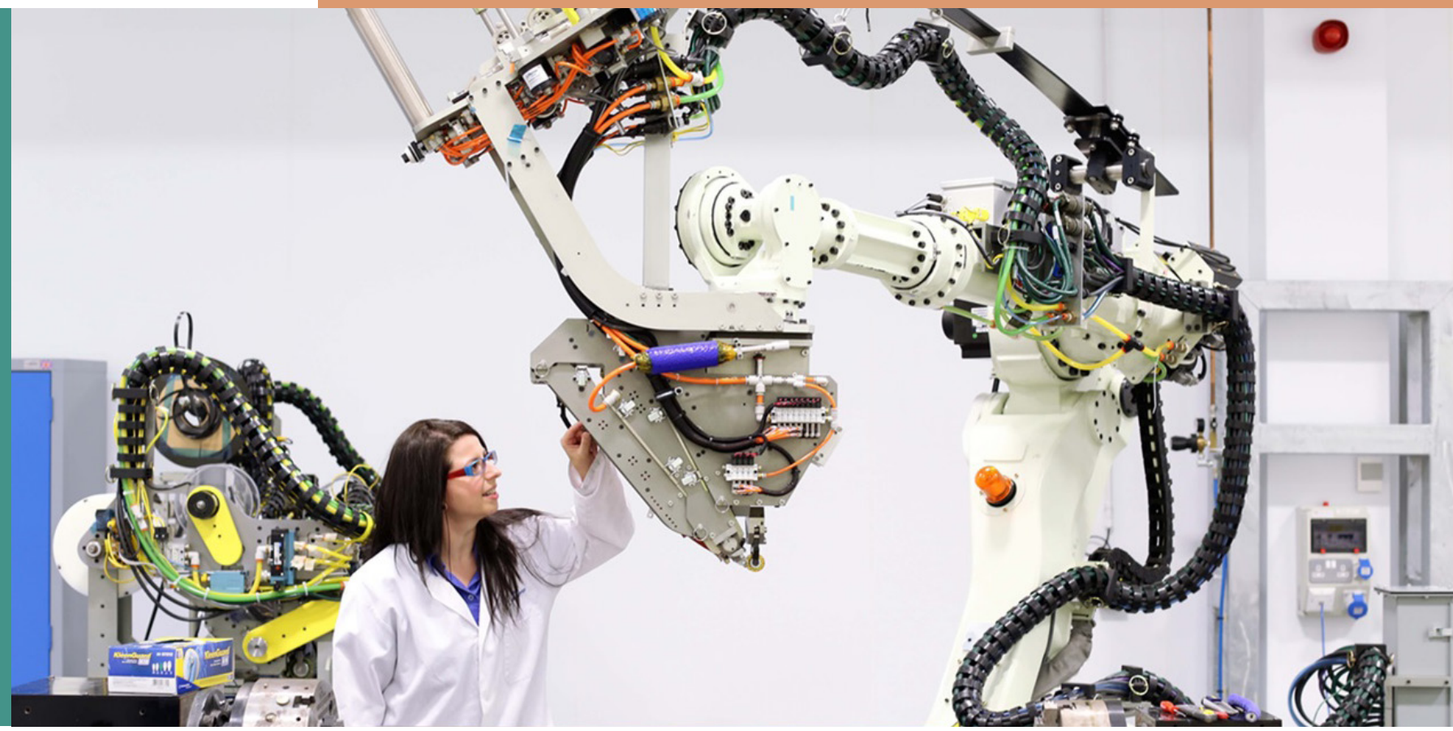
This diffuses the economic benefit of the park into the wider economy, incorporating firms into productive and innovative industries. The innovation district is well placed to make these connections and the AMRC aims to build on this by attracting more funding from public and private finance and aligning it to SME support. The AMRC, as an expert body with deep local knowledge and connections, can de-risk investments for institutional investors, finding new opportunities for firms to grow while providing stable financial returns.

Example 14.

ARM ltd expansion from Cambridge to Manchester

ARM ltd's expansion in Manchester has maximised the benefits of a leading British firm in other areas of the economy, creating valuable jobs and innovation capacity in the city. A British semiconductor and software design company founded and headquartered in Cambridge, ARM is at the centre of global electronics. In 2005, around 98% of all mobile phones used at least one ARM processor, and in 2013 10bn were produced and still found in nearly 60% of mobile devices worldwide.

In 2016, when ARM ltd was purchased by SoftBank, they committed to doubling the size of ARM's workforce in the UK whilst maintaining headquarters in Cambridge. While much of the company's core R&D and leadership have remained in Cambridge, its expansion to Manchester has unlocked valuable opportunities in other areas of the UK economy. Chosen for its international connectivity, the availability and affordability of skilled workers, and even the local language skills that would support ARM in doing business, this has diffused the value of the firm to a wider group.



Financial returns and reinvestment

Understanding who profits from innovation activity and success is a prerequisite for an inclusive distribution of benefits. Relatively few institutions and individuals control investment in innovation activity. That same few reap the majority of financial dividends from successful innovation, as a result keeping power and wealth concentrated within a relatively limited group.

Much innovation investment is high risk, and specialist finance supports early exploration of new ideas, products, and services. For many commercial ventures, it is individual angel investors or venture capital (VC) firms that play that role, taking early risk in return for a significant stake in business growth. VC firms generally have a shareholder obligation that takes precedence over social value, impact, or inclusion. But investors are increasingly cognisant that there are viable financial returns to be made from impact investment.[38]

Impact X is a London-based VC firm with a double-bottom line objective, founded to support underrepresented entrepreneurs across Europe. Create Equity is focused on making investment in the arts, social enterprise, and commercial industries more racially equitable – with a pilot £25m investment fund and an online network of resources and experts to support its mission.

For public sector investors, financial returns are less clear. Investment is made on the basis of market failure, and benefits are more often realised in social and economic measures. Finance was not a topic that arose organically from our engagement, perhaps because while firms and places understand its significance, they lack agency or autonomy in its deployment. But some places in the UK are moving towards investment fund models, recognising that new innovation projects require different mechanisms for value capture.

Example 15.

Northern Gritstone Investment Fund: enhancing finance availability across the North of England

Northern Gritstone is a new investment company based in the North of England, co-founded by the Universities of Leeds, Manchester, and Sheffield. The founding universities want to play a stronger role contributing to levelling up through productivity, jobs, and growth.

The purpose of the fund is to pioneer a new approach to invest in the commercialisation of academic spinouts in a region that has lacked funding. Focusing on financing companies in some of the UK's fastest growth sectors, like advanced materials, energy, health technology, and cognitive computation, this should help to level the "utterly uneven playing field of funding." It will cater to the significant volume of unfunded investment opportunities that exist across the three universities.

The fund will increase funding availability for innovative firms in the North of England, activating innovation investment outside of the Golden Triangle of Cambridge, London, and Oxford. Combining investment expertise and capital from the Northern Gritstone team with the founding universities' scientists, researchers, engineers, and innovators, the fund aims to catalyse further investment across the North, driving economic growth.

Funds recycle investment over time, with the returns made from investments later re-invested into other ventures and opportunities. Recycling funds, or evergreen funds with no termination date, can provide long-term stability to a local financial market. The North West Evergreen Fund has been operating for over 10 years to provide development debt for a range of commercial, sustainability, regeneration, and infrastructure projects.

Example 16.

East Wick Growth Fund: small-scale social investment in a recycling fund

The East Wick Growth Fund, operated by Impact Alchemy, offers finance to charities, social enterprises, and small companies working in East London operating on and around Queen Elizabeth Olympic Park. It provides tailored finance with flexible repayment terms in packages between £1,000-25,000 in value. Its purpose is to bridge the gap for many diverse small businesses and social enterprises that struggle to access seed finance and that need funding to grow or to sustain their operations.

The fund is notable for its recycling model – favoured by funds that will operate over the medium to long term and that emphasise social value generation. All loans repaid will be recycled to make further loans possible in a virtuous cycle across its 10-year lifespan.

4. Embedding inclusive innovation

Chapter Summary

No single firm, innovation district or place has fully achieved inclusive innovation. While there are examples of promising programmes and activities, truly inclusive innovation will require more holistic, systemic, and coordinated practice. In this chapter, we set out three core features of inclusive innovation activity:

- Intention to embed inclusion beyond market requirements,
- Local engagement and tailoring, and
- Going above and beyond to unlock additional opportunities.

This chapter also draws out the necessary balance between short-term actions and the longer-term structural change needed to foster inclusive innovation at scale. Achieving inclusive innovation requires the engagement of much larger systems and models that can incentivise inclusive innovation practice by firms, innovation districts, places, and investors.

There is no consistent interpretation of inclusive innovation in the UK today. By engaging with the individuals and organisations working in some of the most dynamic areas of the UK economy, we have aimed to provide more clarity around what can make innovation inclusive, how it relates to other policy agendas, and how it can be embedded in practice.

Inclusive innovation is an effort to go beyond demonstrations of social value demanded by shareholders and investors. It requires a coordinated and wide-ranging approach to opening innovative activity to excluded groups. Rather than a destination, inclusive innovation is a continual process, widening access to, engagement with, and benefits of, the innovation economy. There is no perfect inclusive innovation model, but there are immediate opportunities to increase inclusion across design, delivery and diffusion of innovation. An experimental approach at the local level, using the culture of the activity that occurs within innovative industries themselves to trial ambitious programmes, fail fast, and refine these, will gradually increase the inclusivity of our innovation ecosystems.

Table 1 describes the features of an inclusive innovation approach. Neither a prescriptive nor exhaustive list, it instead shows that while activity will look different in different places, and while there are different tools and methods to embed the approach, there are traits common to those who will do it well. They are relevant regardless of geographic level, institution-type, or stage within the innovation cycle.

Table 1. Likely features of a successful inclusive innovation approach

Intention **to embed inclusion beyond market requirements**	**Local engagement and *tailoring***	**Going above and beyond to unlock *additional* opportunities**
Promoting inclusion as an equal goal and essential component of innovation	Clearly defined place and objective (or set of objectives) based on characteristics and need	Beyond 'business as usual' in programmes and value capture, more than statutory or market requirements
Recognising and linking mutually reinforcing priorities, with sustained resource for embedding inclusive innovation through activities and programmes	Leadership and buy-in from the place, including local representation	Opening opportunities for parallel projects, investments and interventions, including complementary Government programmes or funds
Measurement and information sharing linked to dual goals	Bringing together the right institutional and local partners	

Over the last decade, innovation districts have grown more prominent. Magnets for talent and investment, they are also test-beds for inclusive innovation in places. There are some quick wins that innovation districts can put into place immediately to promote more inclusion:

- Involve the public in the shaping of innovation strategies and projects
- Embed community spaces to prevent separation of innovation districts from their neighbouring areas
- Review hiring and employment practices to promote decent work

But those quick wins are already beginning to be demanded by the market and by regulatory authorities. Investment from financial institutions, grant funding, and public boards will all increasingly require environmental, social, and corporate governance (ESG) value alongside financial value for money. The proposed Better Business Act could even create a legal responsibility for all companies in the UK to embed social and environmental requirements.

Going beyond market requirements, there is a need for investment models that incentivise and reward inclusive innovation. Activating local VC and angel investment networks, leveraging place-based impact investment, and developing new funding models that deploy the patient capital and specialised support can provide investment to those who typically miss out. In innovation districts, development requires financial models that weight social, economic, and environmental returns alongside commercial. This won't happen in every place or all at once.

From our research there are also some bolder, long-term actions that have proved successful in some areas. We suggest these could be replicated or adapted to fit local circumstances in other innovation directs:

- Work towards adopting the Real Living Wage throughout the innovation district
- Embed the community voice through a working group or forum as part of the governance model, with renumeration for members, and regular reporting by the innovation district on community priorities
- Build the talent pipeline through multiyear investment in major skills programmes for local young people and underrepresented groups

Embedding inclusive innovation is a long-term project, one that needs commitment from agents at every level. Government, innovation districts, and individual firms, alongside financial institutions and the third sector, must work in tandem to advance the relationship between innovation, social value, and inclusion

5. Recommendations

Chapter Summary

Innovation districts are uniquely placed to act as catalysts of inclusive innovation, but they are just one component of a system that conditions who engages in innovation activity. This chapter concludes the report with practical recommendations designed to ensure that the innovation activity and investment of the next decade has a transformative effect for people of every background throughout the country.

Inclusive innovation is at an early stage of development in UK innovation districts. By engaging with organisations across the UK we have explored the approaches innovators are taking to become more open and inclusive. From this, we have discovered mutually reinforcing themes and insights, successful approaches, and challenges for the years ahead.

Connecting the innovation economy to the communities and individuals around the UK is an immense opportunity. In Summer 2021 the UK government launched the UK Innovation Strategy, setting out ambitions for an innovation-led economy and more inclusive innovation. There is an opportunity for government to embed inclusive innovation at the heart of economic growth and levelling up. Bringing people from all walks of life into contact with the most dynamic areas of our economy sustains the creation of new ideas – it will lay the foundations for the innovations of decades to come.

Inclusive innovation is a process, not a fixed target. Achieving it will take time. As organisations experiment with approaches and programmes, they will learn what works and help to create more effective measures. This report has set a definition for inclusive innovation and a framework across the three stages of the innovation cycle for how to achieve it. We have set out central principles for how to make innovation inclusive – the intention to embed inclusion beyond market requirements, the rigour to tailor activity to local circumstances, and the persistence to unlock additional opportunities from current activity.

Innovation districts are concentrations of leading institutions and talent. Environments tailor-made for the creation and exploitation of ideas, they can sustain innovation in places across the UK. More than this – they have the potential to act as anchors for a more inclusive innovation system. Visible and open workshops for new ideas, embedded in their places, connecting and opening out to different groups, can help to make the innovation economy more tangible to groups with no previous engagement with this part of the economy.

We have provided practical recommendations to advance inclusive innovation over the next few years. Targeted at the different levels of governance and organisation with influence over the innovation economy, they will lead the creation of not only a more inclusive but also a more effective innovation economy in the UK.

National Government, Devolved Nations, and Local Government	• Embed inclusive innovation as core objective for the newly announced Innovation Accelerators, with the three pilots sharing findings from their place-based partnerships.
	• Activate specific government bodies to achieve inclusive innovation, including:
	  • The British Business Bank should cornerstone new investment funds that back growth-focused innovators from underrepresented groups.
	  • The National Health Service should review and adapt employment and procurement frameworks to ensure decent work for all employees.
	  • The Advanced Research and Invention Agency should capture social value of its investments and establish a requirement for fund recipients to pay forward their success through further local social value generation.
	• Use new levelling up monitoring data and innovation workforce participation data to identify underrepresented groups and cohorts for targeted support into participation in innovation and the innovation economy, nationally, and locally.

Innovation Districts	• Become Living Wage zones and adopt local good employment charters, setting the standard of decent work and providing guidance for occupiers to do the same. • Create procurement processes that favour long-term partnerships based on shared principles and that weigh social and environmental value alongside financial value. • Set district-wide innovation challenges to address local barriers to inclusion and wellbeing. • Engage in the full cycle of inclusive innovation by connecting to local education providers to foster an inclusive talent pipeline, and to local production and manufacturing firms to maintain downstream benefits of innovation activity locally.
Innovators and Investors	• Model inclusion in all business operations through hiring and promotion practices as well as adopting external certifications like Living Wage accreditation or adopting a local employment charter. • Commit financial and human resource to the development of innovative funding models that value and internalise social and environmental returns alongside financial. • Reinvest and share the commercial and financial returns from successful innovation—at both fund-level and firm level—to create further inclusive and socially beneficial opportunities.

UK Innovation Districts Group and Connected Places Catapult	• Build on the momentum for inclusive innovation established through this commission by:
	  • Continuing research to build and share emerging findings and best practice.
	  • Investigating the role for financial institutions in inclusive innovation.
	  • Establishing metrics and a framework for monitoring and evaluating inclusive innovation.
	  • Overseeing pilot programmes that experiment with inclusive innovation in practice.
	• Act as a clear and influential voice for inclusive innovation:
	  • With Government and institutional partners, by connecting the agenda to levelling up and innovation policy.
	  • Between innovation districts, by convening a network of practitioners that shares best practice, lessons learned and shared service models, including at an annual inclusive innovation event.

Summary

Inclusive innovation is a significant opportunity to accelerate growth in the UK whilst tackling some of its starkest inequalities, **enabling as many people as possible to contribute to and participate in the design, delivery, and diffusion of innovation and its spillovers.**

This report represents a first step to creating a more open and inclusive innovation economy in the UK. The work has been made possible by the participation and engagement of stakeholders from 12 innovation districts from the UK and beyond, as well as the input of the UKIDG steering group and our independently convened advisory group. The UK Innovation Districts Group and Connected Places Catapult will continue to play a convening role in advancing inclusive innovation, particularly in innovation districts.

This research has found that people and places across the UK are thinking more about embedding inclusive innovation, and laying the groundwork for further development of the agenda. Inclusive innovation will be a key lever in facilitating inclusive growth, achieving levelling up, and delivering social value throughout the economy. Taking forward our recommendations will embed inclusive innovation throughout the UK.

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