

This special series of EIT Climate-KIC Climate Innovation Insights captures key arguments, presentations and examples of our work that will be shared at various events during the first ever London Climate Action Week.



Responding to the climate emergency: The time is up for incremental change

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- Continuing to work through gradual, incremental changes through ‘innovation-as-usual’ is not a sufficient response to climate emergency. We need an innovation model capable of triggering a more fundamental transformation of economic, social and financial systems
- The call to act on climate change focuses too often on fear (for people) or risk (for business), despite limited evidence for its transformative effects, rather than on the social benefits and business opportunities that arise from tackling climate change.
- The UK Government and devolved administrations – though few cities – have plans that show it is technically possible to achieve ambitious climate goals. But a technology-led approach alone cannot fill the gap between present-day reality and future societal goals.
- Our current linear and technology-led approach to innovation is not fit for the purpose of tackling climate change. A “systems approach” – joined-up innovation across finance, citizen engagement, education, governance, technology and regulation – is more likely to deliver the necessary transformation.
- EIT Climate-KIC is designing ‘deep demonstrations’ of what is possible at the level of whole systems transformation when innovation is collaborative, based on rapid-learning and coordinated across multiple levers of change like policy, finance, technology, education.

Introduction

The past six months have seen a clarion call to action to deliver on climate change goals, led by the extraordinary Greta Thunberg. We are seeing a new, more visible phase of climate action, driven by activism. This has led to school strikes around the world and direct action across Europe led by UK-based climate activists Extinction Rebellion.

Their approach has been to emphasize the increasingly alarming systemic risks for citizens and business identified by the IPCC’s Special Report on 1.5°C, which was published in 2018¹. Activists aimed to raise awareness of these risks to drive demand for more ambitious politics and policy and to accelerate changes in behaviours that have critical impacts on greenhouse gas emissions.

Declarations of climate emergency have followed, by city governments – including London – and national governments, with the British parliament being the first in the world to do so.

A declaration of climate emergency acknowledges the urgency and severity of the challenge – a critical step – but, like the fear- and risk-focused approaches that create demand for action, it does not provide a practical framework or the necessary tools for large-scale impacts.

We don't know if appeals for people to act because of fear of climate catastrophe – whether based on the testimony of experts or delivered by an inspiring individual – is an effective approach to changing personal and professional behaviours and decisions at the scale needed, in an era of information overload and uncertainty.

But we do know that transformative and structural changes – changes that go well beyond the decarbonisation of energy supply – are required across society to meet climate goals. These changes include city, industry and economy redesign; exponential increases in rates of housing retrofit; completely new forms of mobility and whole new food and land value chains.

Innovation-as-usual isn't enough to drive these transformations

'Innovation' is typically assumed to unlock solutions but, to date, 'business-as-usual' innovation has not delivered the sort of breakthroughs and whole systems transitions needed to arrest the relentless rise of CO₂ in our atmosphere².

Our current notion of innovation – in which we develop and scale technologies in UK and global markets – is deeply embedded in government thinking. It has had some notable successes – offshore wind cost reductions being the most obvious. But, more widely, the experience of innovation programmes in the UK and elsewhere is that this model is failing to deliver systems-level changes.

This innovation model – drawn from US experiences – develops largely single-point technology solutions, incubating and accelerating them and seeking venture funding to scale them into the global market. Some of these ideas are game-changing in particular niches or industry sectors. Some work and then scale, and venture funders reap their reward. Indeed, in the case of companies like Uber, venture funders have reaped their reward even though the business has never turned a profit...and may never do so. It is ironic that these

successes are termed "unicorns" if they create billion-dollar businesses from scratch. But in practice the vast majority fail in their own terms and fail to address societal challenges and other systems failures.

Should communities expect more?

The common response from Government funders is to double down and fund more of the ideas being pushed from universities through business incubators and accelerators. In other words, we continue to boost the 'supply-side' of innovation into the market.

Yet if we pose the question: for all this innovation funding spent on supplying ideas, how much tangible change has it made to the communities and places we live in? The answer is: not as much as we should expect or demand or hope for. Because we are tackling the wrong problem. Solving the challenges of the places we live in – and addressing the desire to realise net-zero emissions and climate-resilient societies – requires a much wider appreciation of the possible levers of change.

These levers might be around governance and who makes decisions, e.g. should we have citizens' assemblies? Or the need to create new markets – for example by changing local building regulations or planning guidance. Levers include developing the skills and capabilities of people in the community for the jobs of the future, or new business models that expand and accelerate access to finance and investment for system-wide solutions. Working with levers can also extend into understanding the cultural context that drives uptake of specific technologies in certain places.

In other words, since our society is a complex adaptive system, we need to use an innovation framework that engages these systems dynamics, rather than continue to boost single-point (typically technology) solutions.

Urgency...to do what?

Where does this leave city and national governments and business and civic organisations who are ready and willing to act? How do we manage the mismatch between urgency and a growing willingness to act on the one hand, and the lack of an effective framework for responding to climate change on the other?

If we want to empower people to deliver the necessary changes, we'll need to start with the places they want to live in over the next 10 to 20 years. Do they want clean air? Green spaces? Affordable homes? Effective transport systems? Community? What else do they want? How do we help cities, towns and regions help their own citizens

to deliver these changes, to make better places to live?

There is no inherent trade-off between delivery of ambitious climate goals and our standard of living and quality of life. Indeed, delivering these changes – leading to clean air, warm affordable homes, green urban spaces – can make us healthier and give us a better quality of life than many of us have now.

While a minority of individuals will be triggered to make fundamental changes to their lifestyles because of the alarming reality of climate change, the majority won't respond to campaigns to *"Turn down your heating! Fly less! Walk more...!"*. So, in addition to other forms of activism, we need to engage people in positive opportunities to improve their lives, health, wellbeing and the places they inhabit.

A systems innovation response to climate emergency

EIT Climate-KIC is developing a response to the climate emergency based on whole systems innovation as a way of transforming our society and economy, in time to meet climate goals.

If we are to heed the IPCC report, we need to identify new and different assumptions, values, practices, standards and behaviours across all industrial, social and economic fields to enable the scale and pace of transformation required. In transportation, for example, this means changing demand: moving away from driving to walking, cycling or virtual mobility rather than relying purely on incremental improvements in electric vehicle battery storage.

Our approach is to focus on integrated and coordinated interventions in cities, regions and industry sectors, and along whole value chains, through a portfolio of deliberate and connected innovation experiments.

In a world of deep uncertainty about future technology development and costs, about social behaviours and cultural preferences, and about governance and markets, such an approach is designed to generate viable pathways to transforming the system. We do not pretend that we know the future choices confronting citizens, businesses and communities over the next 30 years. Or that we know which pathway will work best in a given place.

But we can create an approach to innovation – with **constant learning** of what works, and what does not – which will equip our city-regions, corporates and communities with the frameworks to both deliver net zero emissions and thrive socially and economically.

We work with cities, regions and industry in identifying options that leverage change and then help scale solutions that transform. At its heart, this approach is **place-based** – embedded in the specific social, economic and cultural context of a city or region or business. This approach is **demand-led**: in other words, we co-design and co-develop the solutions in lock-step with problem holders like city authorities or industry, rather than simply boosting the supply of ideas into the market (which is the current innovation model of incubating and scaling up new technologies).

And this approach applies a **portfolio of possible solutions**, ranging from changing governance models (who makes decisions?), to skills (who has the capabilities required?), to scaling up available finance and investment, to matching new technologies to specific problems, and working with social behaviours (e.g. using the concern about air pollution to reshape city mobility systems).

What does this look like in practice? Deep demonstrations of systemic change

At EIT Climate-KIC, we are testing these ideas in the form of coordinated interventions to support different sectors and places to deliver transformative change. The following examples are a small snapshot of these 'deep demonstrations' of systemic change, as well as other systems-level initiatives.

Healthy, Clean Cities: Cities face an enormous challenge in becoming healthy, vibrant places to live, while reaching net-zero emissions in just a few years. They are also places where multiple systems intersect, making fast change complex but possible. EIT Climate-KIC is forging relationships with the most ambitious city mayors and municipalities across Europe, who are ready to design portfolios of innovation options to unlock a wholesale transformation. The first cohort will be drawn from Amsterdam, Edinburgh, Copenhagen, Helsinki, Krakow, Madrid, Malaga, Malmo, Milan and Vienna. (See *Insight 4.4: A deep demonstration of Healthy, Clean Cities*.)

In the UK we are working with three key city-regions:

- **Edinburgh** was one of the first UK cities to set a target of net-zero emissions by 2030. As part of their delivery approach, the Council endorsed a collaboration with EIT Climate-KIC to be part of our 'deep demonstration' of Healthy, Clean Cities and gave their CEO delegated powers to engage with us on developing this programme to deliver transformative change across the city in the coming years.
- In **London**, we focus on supporting the Greater London

Authority to develop its CleanTech London model, better matching entrepreneurship and ideas to challenges laid out by the Mayor, Sadiq Khan, including developing a circular and regenerative economy, tackling material production and waste flows across key economic systems.

- In the **West Midlands**, we work with West Midlands Combined Authority through the Energy Capital partnership. We are focusing on taking the region through an industry and civic transition away from dependence on fossil fuels, for its housing and transport as well as the wider industrial base. While such economies and societies need to change rapidly, the transition must be just and inclusive. Innovation at the level of whole systems can help – through the idea of deep demonstration that such just transitions are indeed possible.

- In all these transformations, a key challenge to delivering systemic change is access to capital. We are designing a deep demonstration to explore **long-termism in finance**, since short-term thinking in investment cycles and widely used notions of economic value are acting to prevent the 1.5 °C transition we need. EIT Climate-KIC will forge experiments that help shift attention to longer-term time horizons with institutional investors, insurance companies, faith-based organisations and landowners.

We are also in different stages of designing other deep demonstrations with partners across Europe, including:

- **Just Transition for Europe's Heavy Industrial and Coal Regions**, partnering with a group of ambitious and committed regional governments in Upper Silesia, Mondragon, Emilia Romagna, Lusatia and North-Rhine Westphalia

- **Circular, Regenerative Economy**, working with the Government of Slovenia

- **Zero-Net Emissions, Resilient Maritime Hubs**, working with a small cohort of high-ambition port authorities including Valencia, Piraeus, Rotterdam, Turku and others

- **Forging Resilience in some of Europe's Most Vulnerable and Exposed Regions**, working with regional governments and city authorities in Andalusia, Nouvelle Aquitaine, and the Dolomites area among others

- **Turning Regional Landscapes from Carbon Sources to Carbon Sinks**, working with problem-owners in Scandinavia, Switzerland and Spain among others

- **Reforming Food Systems and Alternative Proteins**, working with places and value-chains, including meat-industry leaders committed to alternative proteins, food retailers and national governments.

Call to action

Interested in delivering a zero-carbon, resilient future? Get in touch to explore a systems innovation approach for your city, region or sector.

Endnotes

1. <https://www.ipcc.ch/sr15/>
 2. <https://www.esrl.noaa.gov/gmd/ccgg/trends>
- i See for example, the Committee on Climate Change report to UK Government on getting to net zero.

About

EIT Climate-KIC is Europe's largest knowledge and innovation community focused on the rapid, broad-based systems transitions we now need to build prosperous, resilient, net zero-carbon societies in time.

Across most industries in Europe, the 'easier stuff' on the path to net-zero has already been done, mostly through cleaner energy supply and efficiency. What lies ahead is unprecedented and more difficult: structural change in social, economic and financial systems; fundamental transformations of city-systems, industry and land-use. New concepts of value and relationship. EIT Climate-KIC is building portfolios of co-ordinated innovations that work together to address these 'systems level' challenges.

We invite new partners and funders to help shape and scale these portfolios for large-scale climate impacts.

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