



DEEP DEMONSTRATION

Healthy, Clean Cities

EIT Climate-KIC is working with 15 of Europe's most ambitious cities to demonstrate that rapid systems transformations are possible.

MOBILE-FRIENDLY LAYOUT

ABOUT THESE FACTSHEETS:

This series of factsheets will introduce you to the purpose, partners, projects and processes of EIT Climate-KIC's Deep Demonstrations programme.





Deep Demonstrations of systemic change

EIT Climate-KIC offers 'systems innovation as a service' to help Europe deliver a transformative green recovery

EIT Climate-KIC's response to climate emergency has been to focus our efforts on systems innovation, to generate options and pathways for radical transformations in whole countries, cities, regions, industries and value chains.

Deep Demonstrations are the large-scale projects through which we offer systems innovation as a service to Europe's most ambitious 'challenge owners' – i.e. the mayors, government ministries, industry leaders and funders who have the means and mandate to tackle Europe's biggest climate change challenges.

We designed the initiative to meet the increasing demand for our role as an orchestrator of systems innovation. Our systems innovation model uses a balanced portfolio of interventions – across education, technological innovation, citizen engagement, policy, finance and other relevant levers of change – to catalyse fast decarbonisation; to drive climate adaptation and resilience through circular economy approaches; and, in the case of industries, to generate new markets, business models and value chains coherent with a 1.5 degree world.

The world needs inspiration, and proof that inclusive, fast and large-scale change is possible

In 2019 EIT Climate-KIC launched eight Deep Demonstration projects to act as:

- a test bed environment for tackling climate change through systems innovation to build a net-zero-emissions economy
- sources of innovation and learning that can accelerate change and provide policy inputs.

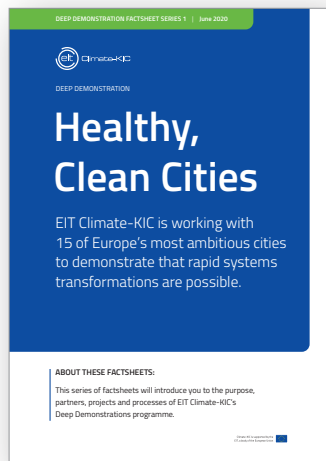
Our aim with these projects is to achieve rapid systemic change, working with whole countries, regions, cities, landscapes and sectors.

We invite new partners and funders to work with us to expand and progress this initiative, for a rapid and inclusive green recovery across Europe.

First series of Deep Demonstration Factsheets

1. Deep Demonstration of Circular, Regenerative Economies
2. Deep Demonstration of Climate-friendly Food Systems and Diets

> 3.



Deep Demonstration of *Healthy, Clean Cities*

Currently, the project has **15 participating cities**, and we are opening it up to additional city governments, innovation designers, innovation suppliers, funders, and other partners.

4. Deep Demonstration of Just Transformations
5. Deep Demonstration of Landscapes as Carbon Sinks
6. Deep Demonstration of Long-termism
7. Deep Demonstration of Resilient Regions
8. Deep Demonstration of Resilient, Net-Zero-Emissions Maritime Hubs



Creating better places to live

Europe's cities face the enormous challenge of becoming resilient, healthy places to live, while reaching net-zero emissions in just 10 years. EIT Climate-KIC is working with fifteen of the most ambitious mayors, municipalities and city communities in Europe to accelerate these shifts for a green recovery, using whole systems innovation as a key tool.

Cities cover less than 2 per cent of the earth's surfaceⁱ, but they consume 78 per cent of the world's energy, produce more than 70 per cent of all carbon emissionsⁱⁱ, and 50 per cent of the world's wasteⁱⁱⁱ. In Europe, cities are home to around three-quarters of the population^{iv}. Although this density offers many advantages, it also introduces risks. Urban populations are highly vulnerable to systemic risks, such as a sudden loss of energy, water, or food supply; contagion from diseases; and catastrophic events such as earthquakes and flooding. Future systems and infrastructure must respond both to the 'standard' pressures of urban density, growth and 'livability', and to ongoing climate, health and ecological emergencies.

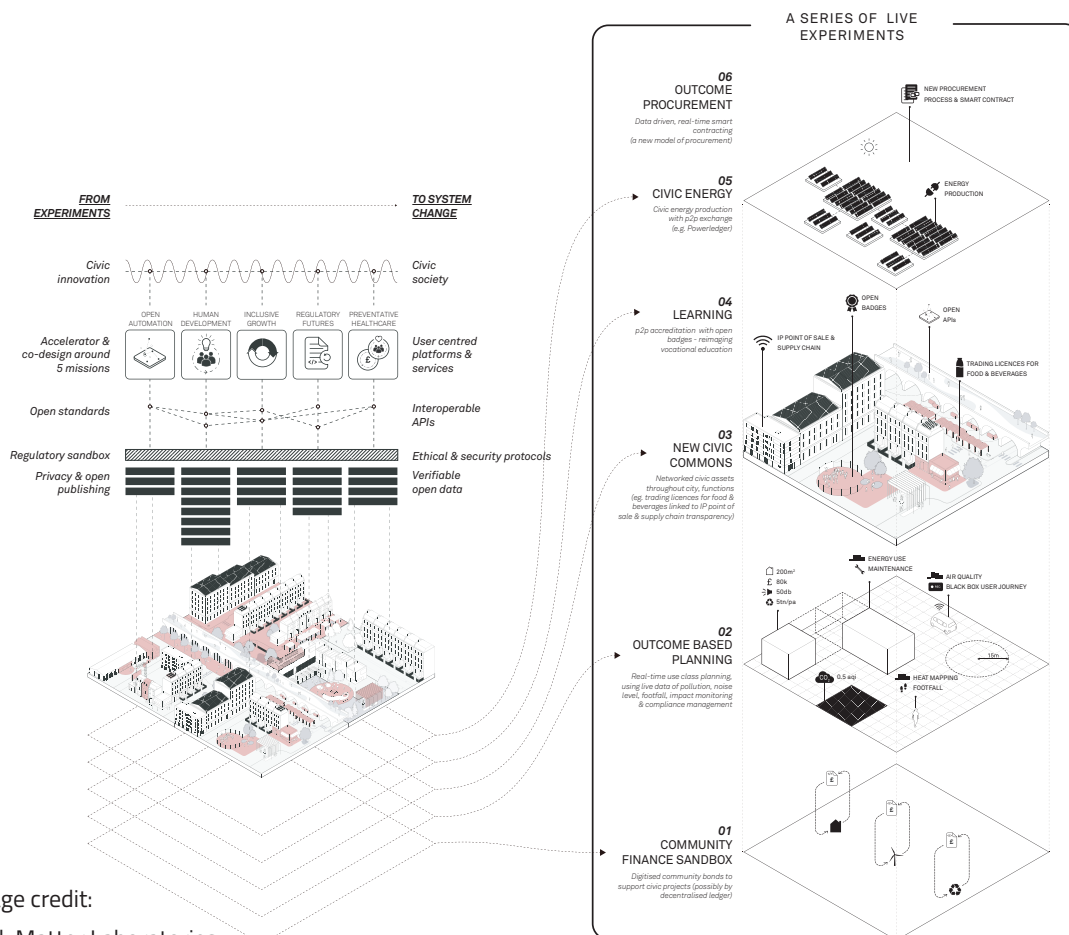


Image credit:

Dark Matter Laboratories

Cities are intensely creative, capable of embracing rapid rates of change and mobilising extraordinary amounts of ingenuity and resources – and many are already rising to this challenge. Leaders are declaring climate emergency and pledging to create prosperous, inclusive and climate-resilient city communities. Politicians, planners, citizens, and businesses are coming together to re-imagine systems such as water, waste, energy, food and transport, and to address issues around trust, social cohesion, equality, health, and wellbeing. Ambitious city projects are tackling community retrofits, the circular economy, pollution and nature-based solutions. While nation-states were grappling with how to address climate change in Paris, city mayors and subnational leaders pledged to “deliver up to 3.7 gigatons of urban greenhouse gas emissions reductions annually by 2030”^v.

But as long as these efforts offer ‘siloed’ and disconnected solutions to urban challenges, we will not achieve the pace

and scale of change needed. The net-zero, climate-resilient cities we urgently need can only be achieved through collaboration across sectors and levers, coupled with the adoption of an orchestrated, 'portfolio approach' to systems innovation. For example, we need to leverage the links and interdependencies across food, health, mobility, resilience and green spaces; and across water, waste, energy, buildings, jobs and behaviour, to name a few. This systemic approach will require new models of governance, a willingness to experiment with different solutions, and an inclusive politics that works with communities and novel solution providers.

EIT Climate-KIC's *Deep Demonstration of Healthy, Clean Cities* supports municipalities and their stakeholders to shape a systemic approach to addressing climate change, focusing on the benefits this can bring to local people. The approach enables cities to experiment with portfolios of transformative solutions, for a more rapid path to carbon neutrality. We see this as a rolling programme, with the mission of making 100 cities carbon neutral by 2030.

HEALTHY, CLEAN CITIES

Impact indicators for first cohort of 15 cities

15

CITIES

€350m

ESTIMATED FUNDS *

UP TO

40m

TREES PLANTED

UP TO

11m

ENGAGED CITIZENS

UP TO

2m

JOBS CREATED

UP TO

400km²

GREEN AREAS CREATED

UP TO

50ktonCO₂e

AVOIDED GHG EMISSIONS

* for initial cohort – the aim is to channel €5bn through the programme

Policy context

Our mission is to enable cities to reach carbon neutrality by 2030, far ahead of the 2050 target set out in the European Commission's draft regulation and the **European Green Deal**, using orchestrated systems innovation as a key tool. As part of this, we build the necessary enabling framework for cities to move to a circular economy, in line with measures outlined in the **EU Circular Economy Action Plan**, and we help cities to deliver on their share of national energy and climate plans (**NECPs**) for 2021 to 2030. By facilitating 'transition governance' away from fossil fuels towards cleaner energy to deliver on the EU's **Paris Agreement** commitments for reducing greenhouse gas emissions, while at the same time ensuring a fair and just transformation for all citizens, the ambitions of our *Deep Demonstration of Healthy, Clean Cities* go well beyond the targets outlined in the **Clean Energy for All Europeans** package. *Deep Demonstrations of Healthy, Clean Cities* contribute to almost all of the 17 Sustainable Development Goals.

SUSTAINABLE DEVELOPMENT GOALS



Partners

Catalyst, orchestrator and lead designer



EIT Climate-KIC is Europe's largest public-private partnership addressing climate change through innovation to build a net zero-carbon economy. We are supported by the European Institute of Innovation and Technology (EIT), a body of the European Union.

Our response to climate emergency has been to focus our efforts on systems innovation to generate options and pathways for radical transformation. Our Deep Demonstrations are part of a much larger portfolio of climate innovations covering finance, urban transitions, land-use and production systems.

In this demonstration EIT Climate-KIC is responsible for stakeholder orchestration, and for programme and financing model design.

You can read more about our Deep Demonstrations initiative [here](#).

Design partners

To support the cities in the initial phase of the programme, we have identified five 'design' partners that bring an array of innovative capability, bridging citizen engagement and democratic decision-making, social innovation and activation, policies and programmes to enable transformation, new governance models, and new business models and capital structures. This will serve to raise ambition as well as to identify trajectories for transformation through behaviour change, smart sustainable investments, and activating levers of change through new ways of working.



Bankers Without Boundaries (BwB) is a social enterprise registered with the Charities Aid Foundation in the United Kingdom. BwB is an innovator in finance and the application of investment banking talent to benefit the environment and social good.



Dark Matter Laboratories, a strategic design practice focused on institutional innovation, is working with city officials on the development of new urban transformation strategies, offering capacity building across multiple-sector senior decision-makers, orchestrating visioning exercises.



The Global Covenant of Mayors is creating a Policy Innovation group, aiming to shift conventional thinking on city climate action into innovative, ground-breaking, and evidence-based policy recommendations.



The Democratic Society is Europe's leading international democracy organization, supporting our cities and citizens to ensure that radical climate transformation is a democratic not just a technocratic process. Through democratic design, organizational development and practical participation exercises, we are building long-term citizen participation in all city decisions, plans and projects that affect citizens' lives.



Material Economics, a top management consultancy firm specialised in sustainability topics, is providing the economic context to the Deep Demonstration of Healthy, Clean Cities. Material Economics collect actual and reference data and build a robust top-down methodology for creating a city-wide economic case for carbon neutrality. This helps cities prioritise their investments and support the dialogue on climate-related initiatives.



Challenge owners

Fifteen mayors, municipalities and city communities in Europe have committed to co-design portfolios of strategic experiments and innovations capable of transforming key city systems, with the aim of accelerating their path to carbon neutrality, while bringing multiple co-benefits for local people.

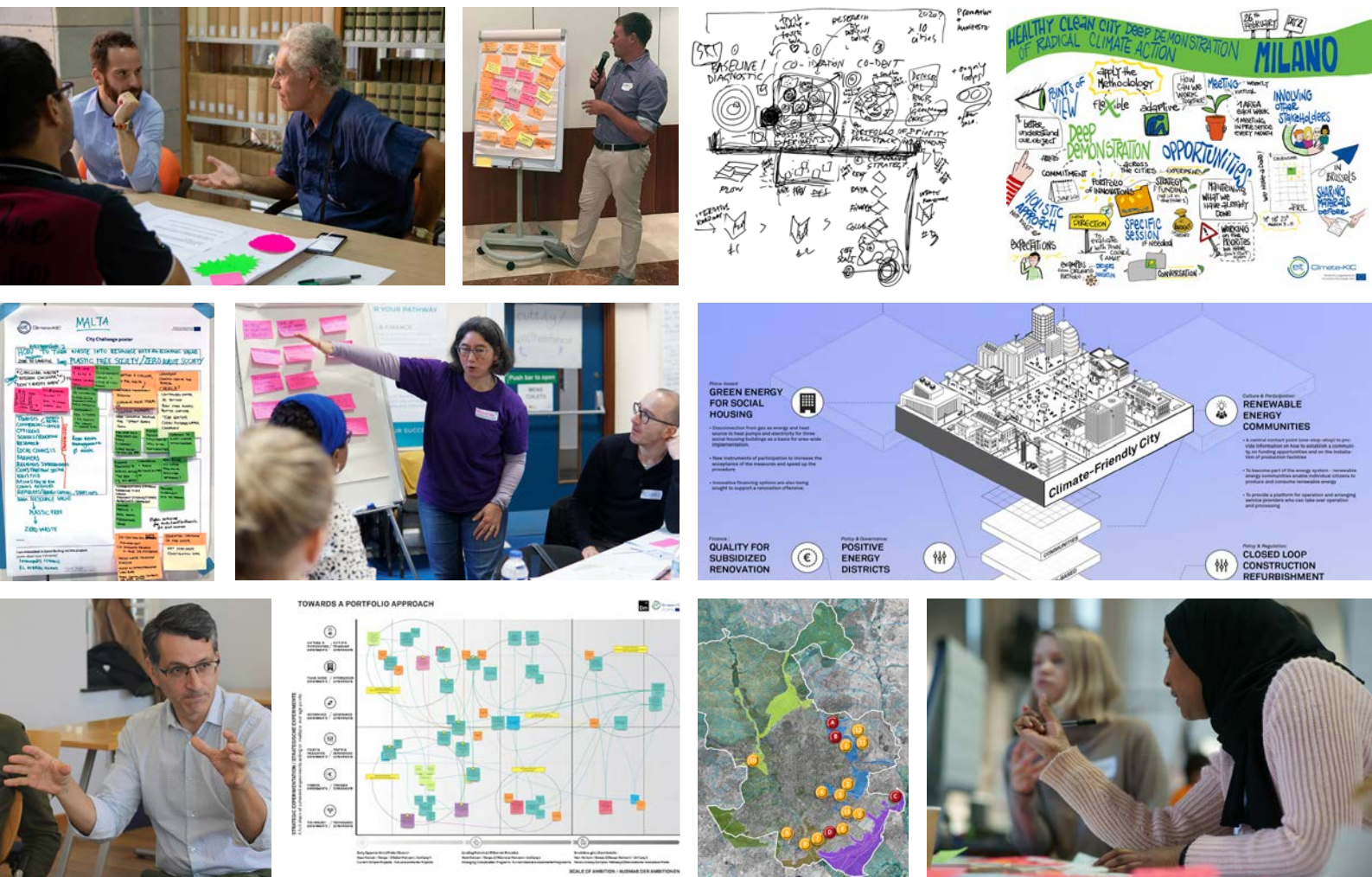
We aim to expand the programme to other cohorts.

City activities update

Deep Demonstrations are orchestrated innovation projects which follow EIT Climate-KIC's systems innovation methodology. (See the [Appendix](#) for an explanation of the four non-linear, iterative components of our 'portfolio approach' to changing whole systems: INTENT > FRAME > PORTFOLIO > LEARNING.)

The first wave of our *Healthy, Clean Cities* project identified 15 of Europe's most ambitious city challenge owners. We worked with them to secure 'intent' to adopt a systemic approach to their cities' place-based challenges, consistent with the 1.5C temperature target. Amsterdam, for example, is aiming to go faster and further than outlined in the Dutch national climate policies, as a result of the intent phase. The city will use the Deep Demonstration process in tandem with existing policies and strategies, to create an ambitious portfolio of large-scale, real world experiments across the whole city system.

Image credits: EIT Climate-KIC, Dark Matter Laboratories, The Democratic Society

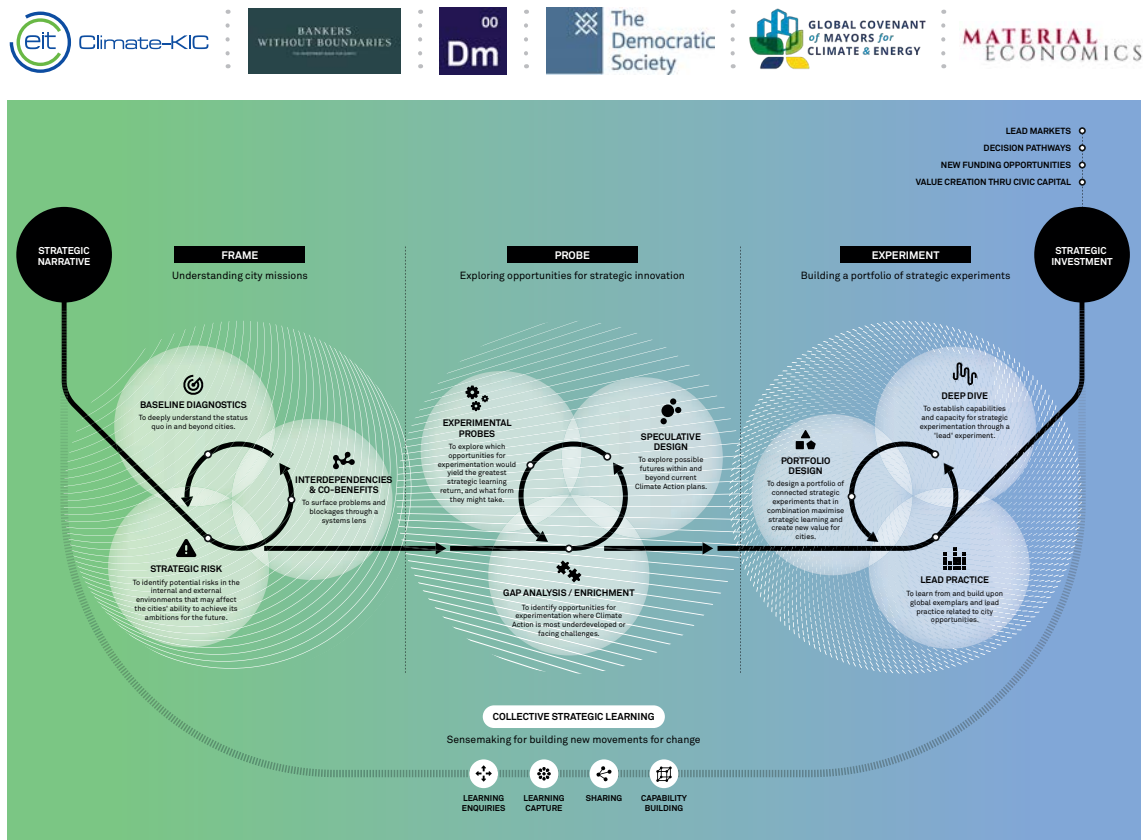


As part of the 'framing' work, each city has identified key levers of systemic change across multiple city systems, to help shape a portfolio of interventions at the next stage. We plan to identify the first 'portfolios' of interventions in the second half of 2020, through Calls for Proposals as well as new innovation partnerships, based on this framing.

To map each city's missions and opportunities for strategic innovation, design partner Dark Matter Labs has created a City Flow process with embedded opportunities and techniques for 'Collective Strategic Learning', i.e. continuous sensemaking, learning and knowledge sharing amongst participants and beyond.

Healthy, Clean Cities – City Flow

Deep Demonstrations of Radical Climate Action



Critical questions and areas of innovation are beginning to emerge in participating cities, and these will continue to develop throughout the year into strategic experiments for the portfolio phase. The following pages summarise each city's innovation priorities.



AMSTERDAM

Co-creating a portfolio of co-ordinated innovation experiments

Building on the *Roadmap Amsterdam Carbon Neutral*, the city has identified three central areas for the *Healthy, Clean Cities* process:

- How to initiate a large-scale retrofit programme for residential buildings
- How to future-proof the city's assets in the built environment (e.g. parks roads, etc.)
- How to develop (and reduce) mobility in a way that is smarter and fairer.

During the kick-off meeting in November, participants identified additional areas, including energy infrastructure, finance, social innovation, procurement and policy.

Partners will work with EIT Climate-KIC to co-create a single portfolio of coordinated strategic experiments to achieve impacts across these areas.

A cross-KIC activity has been developed to link EIT Climate-KIC's *Deep Demonstration of Healthy, Clean Cities* with EIT Urban Mobility's work on super labs, resulting in complementarity or amplification.



EDINBURGH

New narratives for transition

Edinburgh has established a business case to deliver net-zero-carbon emissions along with economic, health, social and environmental benefits, focusing on key sectors – commercial, transport, domestic and industrial – and incorporating the measures which need to be taken to change behaviours, improve energy efficiency, and mobilise investment.

A 2030 sustainability strategy borne from the *Deep Demonstration of Healthy, Clean Cities* has identified the following areas for exploration as they begin to shape their innovation portfolio:

- City-wide, cross-sectoral business case for net zero carbon emissions through behavioural change, energy efficiency, and new investment mechanisms
- Community retrofit, smart city assets, greening utilities, and renewable energy generation transitions pulling on the levers of data systems, citizen engagement and finance
- Solving policy conflicts through new narratives on local, regional, and national levels.



KRAKÓW

Breaking down siloes in government

In Kraków, the following critical questions will shape the city's portfolio for systemic change as they explore positions on urban mobility, energy systems, built environment and community retrofit:

- Banning the use of solid fuel for residential heating
- Driving innovation in municipal government through the creation of an interdepartmental team which breaks down silos and works to join up projects, programmes and budgets
- Rethinking local governance models to build community support around climate action
- Dialogue with the wider community to illustrate connections in current system
- Shifting the institutional work culture, addressing silos that impede progress
- Exploring public-private partnership frameworks – e.g. how to adapt existing PPP approaches to enable systems innovation, learning and co-benefits for communities.



LEUVEN

Innovative collaborative governance model

Leuven 2030, an innovative partnership organisation working to deliver carbon neutrality for the city, has aligned its roadmap of 18 programmes with *Healthy, Clean Cities*, and is working with us to articulate and build portfolios around integrated urban missions.

Potential areas of collaboration were identified as: multi-modal mobility infrastructure; large-scale building retrofits; a city climate fund; citizen engagement; and adaptation.

- Regionet, a comprehensive and ambitious mobility plan for the region, has become the focus of the mobility workstream
- The workstream on building retrofits has settled on a collective district approach with strong focus on citizen engagement
- 'Leuven-as-a-Service', a new model for circular building materials, will promote innovative contracting and city government services
- ESCOs will be linked to a city climate fund
- Governance models will explore opportunities for inclusivity, co-design, agility and cross-sectoral alignment
- Data systems and participatory processes will be used to transform last-mile logistics.



VIENNA

The World's Most Liveable City^{vi}

In Vienna, city authorities, innovators, EIT Climate-KIC and civil society organisations have come together to demonstrate that the 6th largest city in the EU28 can further improve its status as a healthy place to live while reaching net-zero emissions in just a few years.

Brainbows, a consultancy, together with EIT Climate-KIC, forged relationships with the city's mayor and municipalities to design an innovation portfolio for this purpose, using systems innovation as a key tool. Priorities, emerging from cross-departmental workshops and early economic models, include:

- Staying the most liveable city through an ambitious, participatory path to net-zero emissions
- Accelerating energy systems transitions and urban renewal, including through green infrastructure development and retrofit
- Implementing a participatory Viennese climate budget
- Carbon-free city logistics and mobility to bridge the urban-rural divide, including innovative approaches to last-mile logistics
- Place-based transformation capitalising on the 'Smarter Together' framework.



MADRID

From eco-fictions to eco-futures

Madrid is the largest city in the cohort and 3rd largest city in Europe. The city council had already established innovative interdisciplinary working groups in the city, and they are now working with us through the *Deep Demonstration of Healthy, Clean Cities* to shape strategic innovation portfolios for whole city transformation. Highlights include:

- City government working closely with trusted partner Technical University of Madrid and local artists on an 'eco-installation' that engages citizens in reimaging city neighbourhoods as vibrant, resilient, low-carbon spaces and systems
- The design and creation of a zero-carbon university campus with over 100,000 users (with centres of excellence on built environment, energy, and food)
- Creating a regulatory sandbox to address barriers to innovation in a new large-scale urban development
- Re-thinking green infrastructure to provide a wider range of environmental, health and social benefits
- Harnessing systems mapping to integrate existing nature-based solutions for maximum impact.



ORLÉANS MÉTROPOLE, FRANCE

Socio-economic co-benefits across the metropole's departments

EIT Climate-KIC and design partners have actively engaged with the metropole to build on its current climate change strategy and plan, evaluating the current carbon abatement potential and raising the ambition of the plan to achieve a 2030 target. This resulted in a set of strategic narratives, promoting co-benefits and cross-departmental thinking, for each of the metropole's departments through the lenses of the climate transition. These visions provide a frame for future experimentation, expanding beyond climate neutrality narratives to address areas of wellbeing and equitability, amongst others.

Highlights include:

- New citizen engagement strategies, collaborative governance models and innovative funding schemes (e.g. city funds to play a role in the increase of electric vehicle infrastructure)
- Local energy and climate observatory which aims to develop a data collection model for providing a series of indicators to monitor the metropole's performance in terms of greenhouse gas emissions, energy consumption, renewable energy production, fuel poverty, etc. in a precise and detailed manner. This tool was presented to local partners from the energy sector and to elected representatives.



SOUTH EAST CITIES: NIŠ, SARAJEVO, SKOPJE, MARIBOR AND KRIŽE

‘Yes Teams’ of changemakers

These five cities share many pressing challenges, including air pollution; need for retrofit; inefficient public transport; brownfield regeneration; waste management and stronger citizen engagement. We are supporting these cities as they map out these challenges and start to create value propositions and build portfolios of strategic experiments. Highlights to date include:

- Establishing the intent to become the best places to live, work, and visit in Eastern Europe, by 2025
- ‘Yes Teams’ of changemakers, allies and advisors accelerating systems transformation
- Setting up cooperatives and citizens’ innovation labs
- Using digital citizen participation tools to expand the range of voices heard
- Using blockchain technology to leverage experiments
- Alignment of *Healthy, Clean Cities* with *Future Cities of South East Europe*, leading to new commitments in city development strategies to address air and water pollution, land ownership, renovation of old building stock, new funding schemes and public participation.



Call for action

During 2020, the *Deep Demonstration of Healthy, Clean Cities* is set to launch its first portfolio of strategic experiments – real-world tests of innovative approaches to radical climate action set to address whole city systems. These strategic experiments are designed to deepen the cities' understanding of new pathways for transformative change, and to make them legitimate. Several participating cities are scoping to attract additional funding to their Deep Demonstration as part of the workplan for 2020. Cities are working to ground their work in the European Green Deal and being frontrunners on the mission towards climate neutral cities of the future.

✉ Contact us at cities@climate-kic.org to discuss opportunities for engagement.

Endnotes

- i. <https://www.un.org/en/climatechange/cities-pollution.shtml>
- ii. <https://www.c40.org/ending-climate-change-begins-in-the-city>
- iii. <https://wedocs.unep.org/rest/bitstreams/14579/retrieve>
- iv. <https://population.un.org/wup/Publications/Files/WUP2018-KeyFacts.pdf>
- v. https://www.uclg.org/sites/default/files/climate_summit_final_declaration.pdf
- vi. <https://www.wien.info/en/lifestyle-scene/most-livable-city>

Our systems innovation methodology

EIT Climate-KIC is a delivery partner for systems transformation

Deep Demonstrations are the large-scale projects through which we offer our 'systems innovation as a service' model to Europe's most ambitious 'challenge owners' – i.e. the mayors, government ministries, industry leaders, and funders who have the means and mandate to tackle Europe's biggest climate change challenges.

Our systems innovation methodology is comprised of four, non-linear and iterative components:



INTENT

FRAME

PORTFOLIO

INTELLIGENCE

1. We establish a clear **INTENT for the project:**

We engage Europe's most ambitious **challenge owners** – i.e. city mayors, regional leaders, government ministers, community leaders and CEOs of major companies – to secure a clear intent and demand-side pull for transformational change.

In this intent phase we listen to key stakeholders to understand local or sectoral challenges, as well as current commitments with regard to decarbonisation and resilience. We start to identify the multiple systems at play in the 'problem space' and may also discuss the role of culture, identity, habits, needs and top-of-mind concerns.

We establish a clear commitment to (1) work together on an innovation portfolio to catalyse radical transformation of the systems identified, and (2) willingness to bring existing programmes within a systems innovation portfolio logic.

INTENT

FRAME

PORTFOLIO

INTELLIGENCE

2. We create the **FRAME for action:**

Together, we formally map out the relevant systems to identify where and how innovation can play a role in catalysing change dynamics, and we start to design a hypothetical portfolio – i.e. innovation 'positions' or leverage points that can address barriers and opportunities.

INTENT

FRAME

PORTFOLIO

INTELLIGENCE

3. We build and manage a **PORTFOLIO** of 30–100 connected innovations designed to address leverage points identified in earlier stages:

These may combine interacting innovations in behaviour, technology, citizen engagement, policy, education and other levers of change. To activate this live portfolio, we search for multiple innovation solutions and possibilities, and we launch calls for new and unexpected ideas, shaped by what we learn on the ground.

INTENT

FRAME

PORTFOLIO

INTELLIGENCE

4. We use sense-making and learning to generate actionable **INTELLIGENCE**:

It is our desire that decision-makers have actionable intelligence and knowledge at their fingertips, to accelerate learning about how to achieve transformation at scale. Beyond EIT Climate-KIC and our Deep Demonstration partners, we also want others to follow our journey and benefit from our learnings. To that end, we are committed to reporting transparently on our Deep Demonstration programme as it unfolds. Feedback loops inform policymaking and dynamic management of the innovation portfolio.