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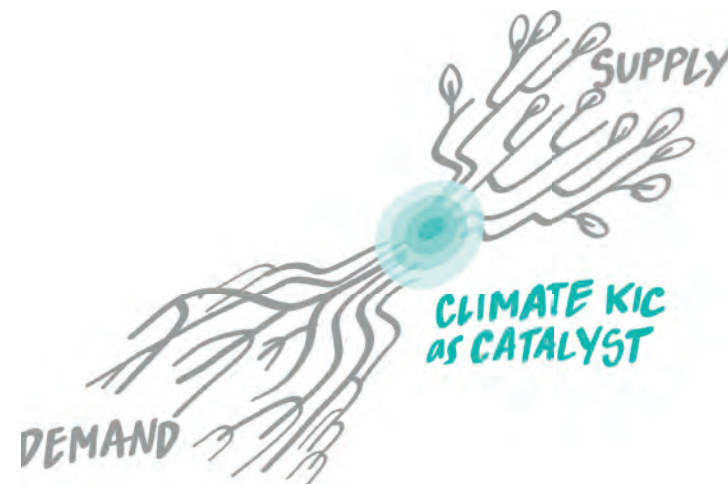
RENOVATION INNOVATION SHOWCASE

Meeting Europe's building renovation challenge

climate-kic.org

Climate-KIC is supported by the
EIT, a body of the European Union





Welcome

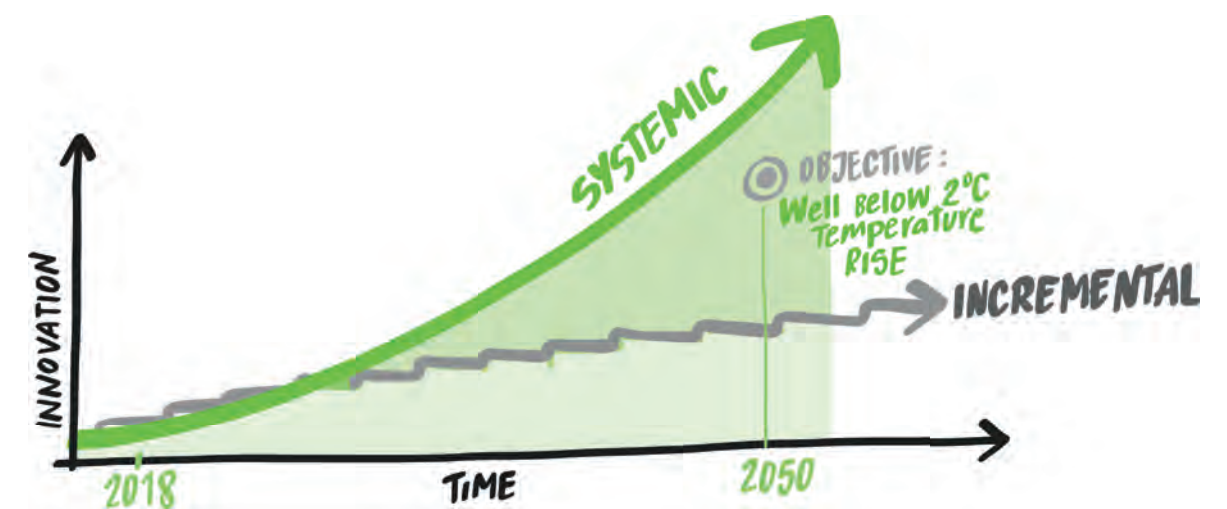
Dear participants,

On behalf of EIT Climate-KIC, we are delighted to be hosting you at this inaugural 'renovation innovation showcase' event with panel discussions and a networking opportunity. But who are we?

EIT Climate-KIC is a knowledge and innovation community established and funded by the European Institute of Innovation and Technology (EIT) in 2010. Our purpose is to tackle climate change through systems innovation. We are Europe's largest public-private partnership with this purpose – a growing pan-European community of diverse organisations united by a commitment to direct the power of creativity and human ingenuity at the climate change challenge. We bring together large and small companies, scientific institutions and universities, city authorities and other public bodies, start-ups, and students. With over 350 formal organisational partners from across 25 countries, we work on innovation to mitigate climate change and to adapt to its unavoidable impacts.

As a strategic entrepreneur for systemic innovation in whole value chains, EIT Climate-KIC is applying leverage through finance, skills, and technology to influence behaviour, policy, governance, and market structures, so as to catalyse deep decarbonisation and climate resilience in European societies. It helps its community influence intermediary drivers, by offering grants to go where others won't, convening coalitions of stakeholders, educating key target groups, creating platforms for knowledge exchange and engaging with policymakers and industry representatives like you.

We believe Europe and the world needs an ecosystem like EIT Climate-KIC to bring together and catalyse large and diverse communities to innovate for systemic changes that trigger climate action at scale. Our purpose is to make that a reality. EIT Climate-KIC has therefore chosen to position itself as an orchestrated innovation ecosystem that connects 'demand' and 'supply' in catalysing transformational systemic change, one that brings together public and private actors – businesses and states, individuals and cities. One of our goals is to promote retrofit and decentralised energy by driving a significant increase in urban retrofit rates and enabling district-scale clean energy production, paving the way for deep cuts in emissions.



Within the 'Urban Transitions' theme, we focus on bringing forward climate innovation in the city, district and buildings space, with a fundamental part of our strategy being engagement with the cities and regions, the business sector, as well as policymakers to ensure that solutions are demand-driven and can deliver value – climate action and commercial – at scale.

For this showcase, we have identified a sample of innovative renovation solutions which can support the activities and aspirations of the invited audience, are at a stage where they are market ready, and represent a cross-section of solutions across the built environment. These include solutions which support major investment projects, those which benefit building performance and human well-being, through to those providing comparable building stock data to accelerate renovation rates.

This event provides an opportunity both to hear from, and engage with, the invited innovation solution providers, and to gain a broader understanding of EIT Climate-KIC initiatives and where we may be able to bring insights and added value to you. This is just the tip of the iceberg of what is included in our portfolio. Please take the opportunity to meet with the EIT Climate-KIC team during the networking session, who will be delighted to discuss further.

Sean Lockie



Director, Urban Transitions, EIT Climate-KIC



Building Market Briefs

Transparent and comparable data across countries is a crucial enabler of efficient and tailored policy for transformation in the built environment.

In the European Union, market information related to the building sector is presently incomplete and fragmented, making a reliable pan-European overview challenging. Building Market Brief (BMB) is a EIT Climate-KIC initiative within the Building Technologies Accelerator (BTA) flagship, which aims at collecting and generating insights on the building sector to foster low-carbon investment and enable more efficient and tailored policy.

The Building Market Brief (BMB) initiative will provide these insights in the form of country reports and an interactive online tool. Each market report will aim to profile a single country's building sector condensed into 50 pages. The provided content is methodologically aligned, thus enabling comparison between them.

So far reports for five countries have been published and three more will be coming soon.

Targeted recipients of the BMBs are chiefly low carbon technology and innovation suppliers (large corporates, SMEs, Spin-offs) intending on scaling-up their solutions. The reports focus on relevant market information as well as the needs, barriers and decision criteria of the demand-side in the market. This is complemented by data on the current condition of the building stock, developed via a unique methodology that allows to cover gaps in data availability by logic links and synthetic data.



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2nd Skin®

2nd Skin delivers sustainable improvement of the existing housing stock towards Zero Emission or ZE-ready homes. The improvement takes place in inhabited condition, mainly from the outside of the dwellings to limit inconvenience to residents. This is very important for both owner and resident. The ZE ready variant comprises a new shell including new windows and a new ventilation system. This creates a pleasant indoor climate and a substantial reduction in the demand for heat and therefore lower CO₂ emissions. The ZE variant goes further and also provides the houses with a heat pump and PV panels for electricity generation.

In the Demonstrator project, a 12-apartment block of porch-multistorey housing in Vlaardingen (near Rotterdam) was renovated to ZE for the Waterweg Wonen housing corporation. In the Scaler project, a set of 183 homes for the same corporation was renovated to ZE-ready. The project is currently concluding. Two further projects are in preparation, with a total of about 300 dwellings.

If we want to achieve the goal of making the existing housing stock more sustainable, thereby limiting energy demand and reducing CO₂ emissions, then government agencies need to facilitate that housing stock owners are encouraged to take this path!

More support from local, regional and national government agencies is needed to really scale up (reduce prices and accelerate sustainability). Corporations are sometimes still reluctant to cooperate with one party, they are used to holding tenders in the traditional way.



2ndskin®

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Financial instruments for deep retrofit of privately owned homes

Home owners that want to invest in a more energy efficient home basically have two options. Either they pay for the retrofit with their own money or they get a loan from a bank. In both cases the home owner needs to be really motivated to do such a big investment. We created a solution where the loan is no longer coupled to the person but to the building instead. When such loans are provided on a 30 year pay off schedule it is possible to pay off the loan with the savings in the energy bill. The concept is totally budget neutral for the home owner and this is why we believe that the scalability of this model is extremely good. We already created a financial fund for home owner associations (HOA's) on a national level and have the ambition to create instruments that are suitable for the rest of the privately homed building stock. We intend to realise

It is possible to quickly scale up a successful pilot when all stakeholders, from local to national, are involved and committed from the very beginning.

5 pilots to show that it's possible to create such a financial model. By involving municipalities, home-owners and policy makers from the start we create commitment for scaling up of the instruments when they are proven to be successful.



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Retrofit Insights

- Learning from the EIT Climate-KIC Project Portfolio

Our evidence is clear that incremental approaches to building retrofitting and associated innovation will not be enough to reach the large scale of change needed to be in line with Paris Agreement climate goals. To be on track, Europe needs a systemic approach that takes into account all levels of governance, as well as addressing the currently fragmented and lengthy supply chains encompassing many stakeholders.

Key messages

- There is no single blueprint for retrofitting a European city, given the diversity of building types, architectural styles, ownership and user profiles across Europe. Well-tailored packages of solutions which incentivize building owners and occupiers, trigger investment and support acceptance of building renovations are needed. Policy needs to be shaped by the right blend of incentives and regulation at the right level of action.
- Innovation needs to happen across a range of connected intervention areas: a mix of technological solutions, new business models, novel finance solutions, new partnerships, knowledge development, behaviour change. Capacity also needs to be built across all of these areas.
- A multi-stakeholder approach should be supported, engaging, communicating with and building consensus among end-users and communities.
- Regulatory frameworks that support longer-term payback will encourage deeper levels of renovation and drive high much greater retrofit rates. An ambitious and long-term regulatory framework can help stimulate sustained levels of investment by providing direction for business, helping them prioritise new innovative solutions and business models.
- Thinking around the impact of materials used during the renovation process is evolving and there is a long way to go. Many of these materials are carbon intensive (e.g. polystyrene), and are designed using composites that have poor potential for re-use.
- Energy services models have not put the inhabitant first, resulting in distrust between the energy user and energy service provider. New forms of contracting and performance guarantees are needed.

The context

Advances in innovation around retrofit have often failed to deliver on ambition. They have been around single-point technologies, were developed in isolation from one another, and were often best suited for newbuilds – this has not yet managed to bring the necessary increase of retrofit rates across Europe, and many of the projects have struggled to scale up. Top-down funding and advice programmes for retrofit have often seen limited ambition and resulted in fragmented uptake and action, and attention needs to be paid to scale of activities – a single-building approach misses the essential context and synergies that need to be taken into account. Legislative frameworks that have tried to support these initiatives and level the playing field across Europe have not been ambitious enough.

What about different stakeholders?

On the supply-side: although many contractors/builders provide partial innovative solutions, they often lack the demand to scale and struggle to make the mass-market. Economic incentives can help, but often do not maintain momentum. Some parts of the construction industry have been slow to adopt new innovations or to drive innovation – incentives are needed.

On the demand side: parties such as real-estate owners and housing corporations (sometimes with backing from a municipality) have undertaken subsidized pilots on deep retrofit, but the next step to upscaling is often challenging, as the solutions are often perceived as too costly. When there is finance

available, it is often only for proven solutions with short payback periods.

The finance community have large funds available for green investment, but often require a clear pipeline of opportunities, at scale with aggregated demand, and with a low risk profile and relatively short payback.

The construction industry has a low appetite for innovation in renovation. Breakthroughs are occurring in for example the use of offsite manufacturing systems for components of new-build buildings and these are bringing economy of scale benefits. The retrofit industry however lags behind new build.

Urban renewal programmes fundamentally driven by a local community and taking a comprehensive approach offer promising opportunities to address challenges of deep retrofit. This can be especially successful when the community fully participates in all phases of planning, delivery and ownership/ investment in the business models deployed.

Stakeholders working together

The current way of working within the building renovation sector where each actor is acting independently with their own priorities can lead to multiple uncoordinated activities in similar areas. One of the areas of best practice has been the coordination of expertise to offer a simplified service for the end user.

- Promising initiatives include those where manufacturers and builders team up in an effort to develop scalable retrofit solutions.
- The district level is an effective scale to support work on retrofit, providing the necessary opportunities to engage local communities, cities and solution providers around a common goal.

Ways forward:

Building acceptance and ambition

- Link innovation around technology to social engagement processes and social benefits so it is not seen only as a technical process.
- Emphasize the non-energy social, economic and other environmental benefits of energy efficiency projects, such as improved air quality or health, as they are a much more impactful driver for action.
- Better embed deep renovation of building stock in urban renewal projects at the level of neighbourhoods and districts, enabling the implementation of collective solutions, achieving efficiency and viability through a co-ordinated delivery approach at scale and a fair distribution of costs and benefits across different parties.
- Support innovation in organisational structures and culture in the building sector to accelerate the integration and procurement of innovative solutions.

Costs and incentives

- Create clear roadmaps for owners and occupants outlining options to achieve deep integrated retrofit solutions at competitive cost and taking into account the wider benefits of energy efficient retrofit.
- Improve processes and services to reduce upfront investment costs for renovation works. Reduce investment risk by developing and sharing improved understanding of actual performance of renovation

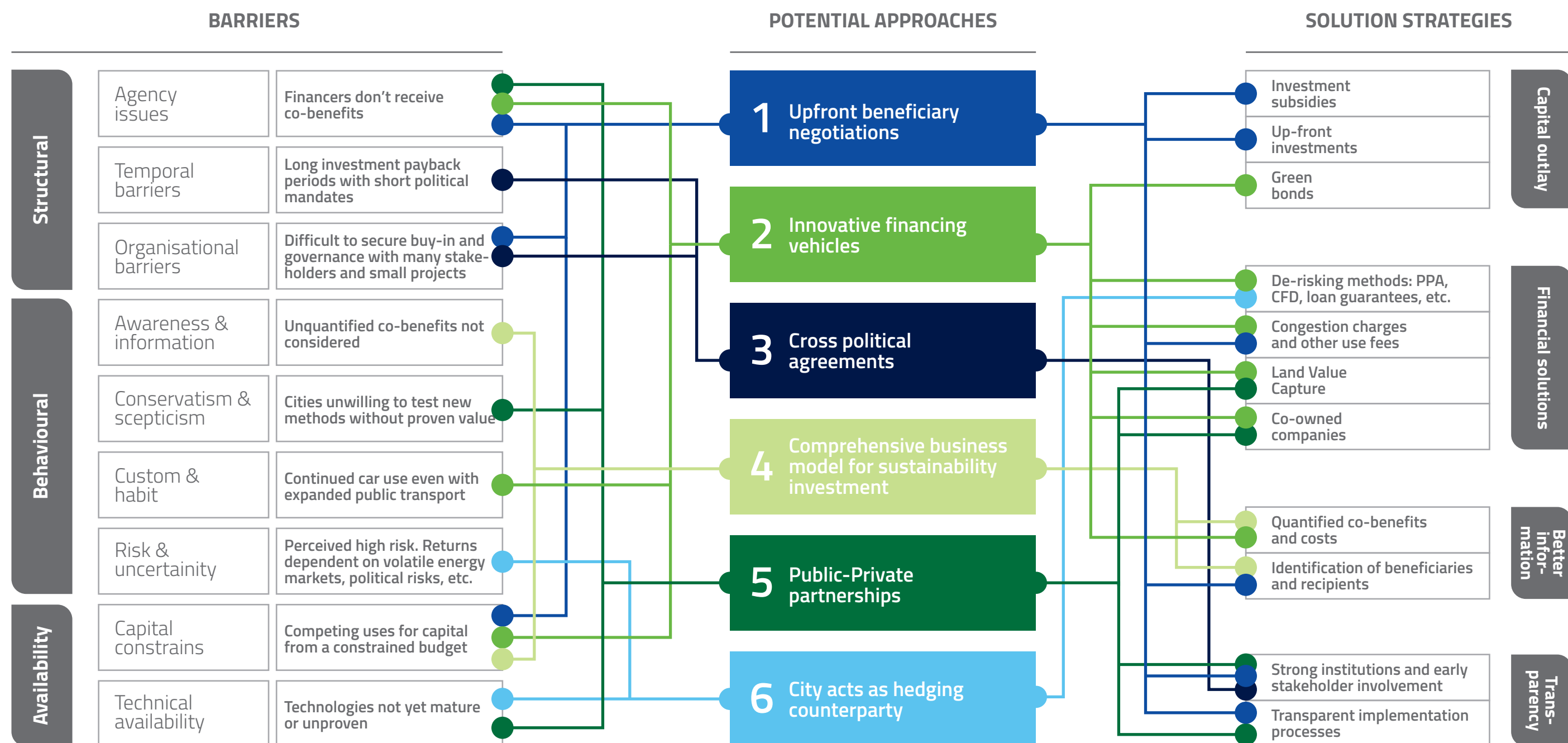
works and their energy and cost savings, as against using expected modelled impacts close the “performance gap”.

- Build models for legal and financial arrangements that take into account longer-term benefits for multiple stakeholders and enable intervention pooling. This may involve looking at macro-economic conditions and public deficit rules, to better incentivise public investment into building retrofit at scale.
- Support the implementation and uptake of schemes that look at novel financing, e.g. circular leasing models where retrofit materials are treated as a commodity with residual value, retrofit loans linked to a property rather than an individual.

Connecting the dots

- Further develop ‘one-stop-shop’ models for retrofitting that can adapt to the range of building types in the community. These could be developed to include: independent project planning advice, integrated retrofit services, economies of scale, quality assurance, and enable contributions from multiple local SMEs, or upscale of performance-based contracting.
- Improve coordination across the regulatory frameworks at European, national and local levels which are currently quite fragmented. Increase ambition within these frameworks to accelerate deep retrofit.
- Involve multiple cities or districts to foster peer-to-peer learning and cross-pollination.

Systems Innovation: a comprehensive approach



Source: **Materials Economics** (based on their analysis from New Climate Economy, McKinsey, Stanford Steyer-Taylor Center for Energy Policy and Finance, Hoover Institution, Expert interviews).

About

EIT Climate-KIC is a knowledge innovation community with a 9-year track record in catalysing innovation to address climate change, established and funded by the European Institute of Innovation and Technology (EIT).

Our purpose is to tackle climate change through systemic innovation. We are Europe's largest public-private partnership with this purpose, bringing together a pan-European community of diverse organisations committed to using human ingenuity and creativity to address the climate change challenge.

Our vision is to work towards a prosperous, inclusive, climate resilient society with a circular, zero-emission economy by 2050. Through systemic innovation, we promise to support the transformation required to achieve this vision.

Our mission is to catalyse systemic change through innovation in spheres of human activity that have a critical impact on greenhouse gas emissions – cities, land, materials and finance – and on creating climate resilient communities.

Our network of over 350 formal organisational partners span across 25 countries, comprising the private sector – both large and small companies – scientific institutions and universities, city governments, other public bodies, start-ups and students.

For more information, please visit our website: www.climate-kic.org

Contact

If you would like to engage with the companies in this brochure and gain a broader understanding of EIT Climate-KIC initiatives, please contact:

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