



Annual report on engaging with pilot and twin cities

Deliverable 13.3

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Abbreviations and acronyms

Acronym	Description
CA(s)	City Advisor(s) (formerly City Guides)
CCC	Climate City Contract
CSO(s)	City Support Officer(s)
MaaS	Mobility as a service
NZC	NetZeroCities
PCP	Pilot Cities Programme
SECAP	Sustainable Energy and Climate Action Plan
TLP	Twinning Learning Programme
WP	Work Package

Keywords

NetZeroCities; Cities Mission; Climate Neutrality; City Advisors; City Support; Pilot city(ies); Twin city(ies); Twins; Pilots



Executive Summary

NetZeroCities' main objective is to aid cities in achieving climate neutrality by 2030 through custom tools and support services. The Pilot Cities Programme has been instrumental in this regard. Pilot Cities, working individually or as clusters, are implementing systemic and locally designed innovative actions that span multiple areas. Pilots have been paired with Twin Cities to exchange on these actions and learn from each other through the implementation of the Twinning Learning Programme.

Early on, it became clear that facilitating the interactions between Pilot and Twin cities was key for a successful delivery of a learning roadmap which included the learning goals of the cities involved and a replicability assessment to better understand whether some of the actions being developed by Pilot Cities could be potentially replicated in a different context.

This annual report covers the experiences of the Twinning Learning Programme' facilitators through the implementation of the learning programme between pilot and twin cities from September 2023 to September 2024. The first section of the deliverable explains the nature of both programmes and includes some insights of the learning pathways of Twin cities per each of the six clusters of the first cohort of the Pilot Cities Programme. The report also captures lessons learned from the interactions between city representatives of both Pilot and Twin cities and the importance of facilitation for a successful learning journey. To conclude, it includes a set of recommendations for future Cohorts of the Twinning Learning Programme.



1 Introduction

NetZeroCities is always evolving and launching new ways to support cities in their journeys to climate neutrality. In the summer of 2023, the first Twin city call was launched, and the kick-off of the Pilot Cities Programme took place. The figure of facilitator was essential to kick off the Twinning Learning Programme and support Pilot and Twin Cities (Cohort 1) for an impactful learning journey over the course of 20-months.

Section 1.1 describes the nature of the Pilot Cities Programme and some insights from the interactions between Pilot and Twin cities in sensemaking sessions where pilots were clustered under six themes. These spaces of reflection and learning were moderated by specialists from the consortium. Section 1.2 describes the nature of the Twinning Learning Programme, how Twin Cities were paired with Pilot Cities and compiles different learning pathways across the thematic clusters.

Due to the increasing number of Mission Cities (from 30 to 112), it became clear that City Advisors (CA) did no longer have the capacity to act as day-to-day liaison between Pilots and Twins, as described in Task 13.2, due to an increase in the amount of Mission cities assigned per CA. Therefore, consortium partners had to convene a contingency scenario where task partners from NZC WP5.2 (namely: Energy Cities, Eurocities, ICLEI, TalTech and Climate Alliance) together with the four City Support Officers would act as facilitators with the cities, within the framework of the Twinning Learning Programme. This deliverable thus focuses on the experiences and lessons learned of the facilitators of the Twinning Learning Programme which moderated the interactions between Pilot and Twin cities. The document concludes with recommendations for future Twinning Cohorts.

The core support provided to pilot cities will be described in **D2.2 Report of Mission City Support**. Additionally, the implementation of other tasks related to the PCP and TLP will be reported under **D4.5: Draft Report on implementation and impact of pilots - Year 1 of Pilots**, **D5.5 Mid-term progress report on Twinning** and **D5.6 One climate action plan roadmap per Twin City** respectively.

1.1 The Pilot Cities Programme

The Pilot Cities Programme supports European cities to test and implement innovative approaches to rapid decarbonisation, working across thematic areas and functional silos in support of systemic transformation. The Programme seeks to address all urban systems contributing to climate-neutrality, including mobility, energy systems and the built environment, material and resource flows, natural areas, cultural/social/financial/institutional systems, and accessible public spaces.

Through a Call and application process that sought to support cities in identifying significant barriers to change and perceived systemic challenges to decarbonisation, Pilot Cities take multi-stakeholder and multi-lever/solution approaches to overcome these barriers to change, with a core component of the programme focussing on learning-by-doing, building relationships, capability, and capacity, rather than merely assessing the success of any one solution. As such, at the heart of the Pilot Cities Programme is a reflective learning practice and journey – a significant component of which is peer-to-peer support and Sensemaking and knowledge/experience-exchange.

All three Cohorts of Pilot Cities have already embarked on their two-year journey towards climate neutrality within the Pilot Cities Programme, implementing innovative approaches, solutions, and services, to reduce carbon emissions and initiate transformational change. This brings to the total number of cities in the Pilot Cities Programme to 103 (99 Mission Cities, 4 Non-Mission Cities). For the



purposes of this Deliverable, we focus on the Twinning Learning Programme aligned to Cohort 1 (2022) of the Pilot Cities Programme (52 cities; 48 Mission and 4 Non-Mission cities), as Cohorts 2 and 3 are covered under SGA-NZC. More details about the implementation of the first year of the Pilot Cities Programme will be found in D4.5.

1.1.1 Learning & Sensemaking

During the first year of the Pilot Cities Programme, Pilot Cities were grouped in six different thematic clusters (see Figure 2) which guided the sensemaking sessions. These sessions consisted of a structured, facilitated, and periodic processes of observation, reflection, stock-taking, and synthesis to generate real-time insights, which can be used by cities to iterate and improve their activities, and/or change direction where required to accelerate change and enhance outcomes/impact.

The Pilot Cities Programme has completed its first and second Learning & Sensemaking Rounds with Cohort 1. The EIT Climate-KIC PCP Sensemaking & Learning team, along with five NZC Work Package 4 partners, conducted six online cluster-based Sensemaking sessions from 25 October to 2 November 2023, with the second round between 21 and 27 May 2024. These sessions concluded with an "All-Cluster" Sensemaking session on 16 November 2023 and 14 June 2024, attended by over 100 representatives from Pilot and Twin Cities, providing an opportunity for sharing insights and fostering connections. For detailed key findings and lessons learned from this round of sessions, please refer to the **D4.7 Sensemaking workshop reports**.

At the beginning, Twin cities were not invited to join these parallel Cluster sensemaking sessions, but only the 'All-Cluster' ones – involving all clusters at once. In the All-Cluster sensemaking sessions, a summary of the thematic discussions was presented to all participants. Following the demands from both Pilot and Twin cities to have more opportunities to exchange, Twin cities were invited to the second round of Cluster sensemaking sessions, which took place in May 2024, together with their facilitators.

The structure and learning opportunities within the following Clusters are derived from the Pilot Cities Programme team's analysis and synthesis of the aforementioned information sources (D4.7). This initial structure is not fixed for the duration of the Programme; instead, it serves as the beginning of a collective learning journey. It has the flexibility to evolve based on the insights and reflections generated as cities engage in their learning activities.



<p>Cluster 1. Citizen action for climate neutrality Number of cities: 8 Number of projects: 6</p>	<p>Cluster 2. Multi-sectorial and city-wide ambition for climate neutrality Number of cities: 5 Number of projects: 5</p>	<p>Cluster 3. Removing barriers of innovative financing models Number of cities: 9 Number of projects: 3</p>
<p>Learning opportunities To co-create strategies and increase the capacity of organisations for behavioural change towards energy, mobility, circular economy, waste, and land use planning.</p> <p>Most evident commonalities Behavioural change</p> <ul style="list-style-type: none"> • Co-creation of solutions • Sustainable lifestyles <p>Project, city (or country)</p> <ul style="list-style-type: none"> • CoLAB, Germany* • District C: a Zero-Carbon Commitment, Guimaraes. • The North Star, Umeå. • Together Toward Climate Neutrality, Nantes. • LC² - Limassol City Cooling Challenge, Limassol. • 1.5-Degree-City, Turku. 	<p>Learning opportunities To redefine the city's climate governance, boost multi-sectorial solutions, and empower local stakeholders, with a focus on the mobility transition.</p> <p>Most evident commonalities</p> <ul style="list-style-type: none"> • Circularity • Citizen engagement • New governance structures <p>Project, city (or country)</p> <ul style="list-style-type: none"> • SCALE UP - Systematic Climate Action to Lower Emissions, Uppsala. • NetZeroCity, Drammen. • NetZeroCity, Malmö. • FAASST NZ – Facilitate trAnsition Actions maSSification Towards Net Zero, Dijon Metropolitan Area. • Systemic change towards sustainable commuting, Lahti. 	<p>Learning opportunities To identify innovative finance, funding, and governance mechanisms as a systemic requirement for the decarbonisation in cities.</p> <p>Most evident commonalities</p> <ul style="list-style-type: none"> • Financial or funding models and/or platforms • New governance structures <p>Project, city (or country)</p> <ul style="list-style-type: none"> • 100CNSC District Investment Platform, Netherlands* • Net Zero Investment Co-innovation Lab, Bristol. • CARES - Climate Agency for Renovation of homes, Budapest.
<p>Cluster 4. Decarbonising the built environment Number of cities: 8 Number of projects: 4</p>	<p>Cluster 5. Built environment and heating systems Number of cities: 10 Number of projects: 4</p>	<p>Cluster 6. Better data, knowledge and capacities Number of cities: 13 Number of projects: 3</p>
<p>Learning opportunities To develop capacities for a green and carbon neutral building transition by facilitating toolkits, open access platforms, etc.</p> <p>Most evident commonalities</p> <ul style="list-style-type: none"> • Built environment • Citizen engagement <p>Project, city (or country)</p> <ul style="list-style-type: none"> • NEEST – NetZero Emission and Environmentally Sustainable Territories, Poland* • Build4GreenIST - Green and Carbon Neutral Building Transition Guide, Istanbul. • Net-Zero Apartment-block Neighborhoods, Cluj-Napoca. • Net Zero Pilot, Galway. 	<p>Learning opportunities To encourage new capacities to improve the energy efficiency of the housing stock; decarbonise heating systems.</p> <p>Most evident commonalities</p> <ul style="list-style-type: none"> • Built environment • Heat districts • Energy Communities <p>Project, city (or country)</p> <ul style="list-style-type: none"> • Urbanew - Multi-stakeholder innovative and systemic solutions for urban regeneration, Spain* • The Initiation of Sustainable Energy Community for the City of Liberec, Liberec. • Leuven • NEUTRON, Kozani. 	<p>Learning opportunities To create increased data, knowledge, and capacity for energy efficiency by setting up digital platforms and monitoring systems.</p> <p>Most evident commonalities</p> <ul style="list-style-type: none"> • Energy Governance • Data governance • Capacity development <p>Project, city (or country)</p> <ul style="list-style-type: none"> • Let'sGOv - Governing the transition through Pilot Actions, Italy* • UP-SCALE-Urban Pioneers - Systemic Change Amid Livable Environments, Slovenia* • Net Zero, Rivne.

Figure 1 - Clustering of Pilot Cities for Collective Sensemaking Session (* Asterix indicated multi-city projects) - extracted from D4.7

1.2 The Twinning Learning Programme

The Twinning Learning Programme is a 20-month initiative designed to share knowledge and build capacities among the Pilot Cities and Twin Cities involved. The first cohort of the programme commenced at the end of September 2023 and will conclude in May 2025, the programme matches Twin Cities and Pilot Cities based on common challenges and opportunities in achieving climate neutrality. These cities are actively influencing each other's capacity through knowledge exchange and collaborative problem-solving. Central to this exchange are relationship-building and mutual learning experiences. By the end of the programme, Twin Cities will likely integrate insights gained from Pilot Cities into their own practices. The programme features a variety of activities to promote learning between the cities, including customized online meetings, workshops, and inspiring site visits. These activities are structured into three modules with ongoing facilitation, allowing flexibility to enhance their effectiveness (see Figure 2).

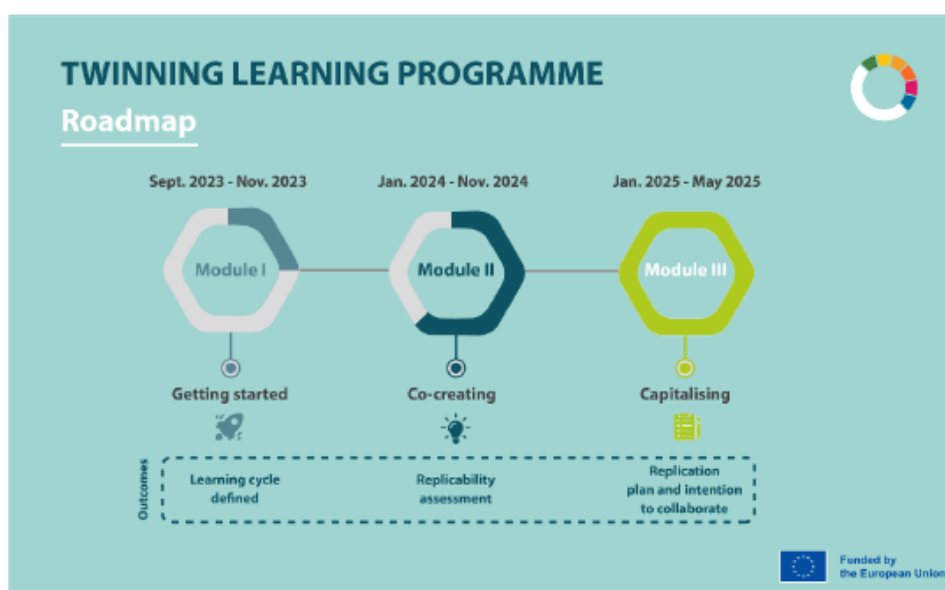


Figure 2 - Roadmap of the Twinning Learning Programme

So far, Twin cities have participated in:

- A *kick-off* event on 28 October 2023 aimed at presenting the NZC programme as well as its portal and useful tools it offers.
- Two online workshops:
 - o *Define the learning cycle* between October-November 2023 which introduced the twinned cities, matched during the application and evaluation stage, to the pilot cities and defined their learning interests.
 - o *Stakeholder mapping* between January - February 2024 which identified the relevant stakeholders to be engaged in the Twin City through the specific mechanisms.
- Online collective sensemaking sessions in November 2023 and June 2024 (for more information, see section 1.1.1 Learning & Sensemaking). These sessions, organised by the Pilot City Programme, consisted of structured, facilitated, and periodic processes of observation, reflection, stock-taking for Pilot Cities while implementing their pilot activities, to generate



real-time insights, which will be used to write strategies and constant improvements but also learning opportunities. The sensemaking sessions were clustered in six thematic areas across the different topics addressed by the pilot activities. These were: citizens engagement, decarbonising the built environment, built environment and heating systems transition, better data knowledge and governance capacities, multi-sectoral city-wide climate neutrality through mobility/circularity and addressing barriers for innovative financing models. Twin Cities were invited to join as active listeners to gain insights and understanding from the experiences of their paired Pilot Cities but also from other Pilot Cities in the virtual room.

- NZC Portal discovery tour (optional) in autumn 2023: It was an opportunity to present the portal and its functionalities to all twin cities.
- *First site visit* to pilot city in March-June 2024: One and half day physical meeting where the Twin City(ies) visited the pilot city. This was the first occasion where the city representatives from both sides met in person, offering a practical, first-hand experience of the pilot activity solutions that they have been exchanging online at the beginning of the learning programme.
- *Second site visits* to twin cities are beginning as this report is being drafted (August-November 2024): One and half day physical meeting where the pilot city visited (one of) the Twin City (ies).

The interactions between the Pilot Cities of the first cohort and Twin Cities have been facilitated by twelve consortium members (referred as “facilitators”). Their main role is to provide support to Pilots and Twin cities throughout the implementation of the Twinning Learning Programme by:

- Being the primary contact points for Pilot and Twin cities regarding the Twinning Learning Programme
- Enabling the knowledge transfer between Pilot and Twin cities
- Organising online meetings and workshops (excluding the kick-off of the TLP and collective sensemaking exercises)
- Supporting the host city in the organisation of in-person site visits and collect testimonials/images to share across NZC communication channels.
- Sharing programme templates for replicability and replication plans and supporting cities to fill in three deliverables (D1. Defined the learning cycles, D2. Replicability assessment, D3. Replication plan)
- Following up with pairs after sensemaking sessions
- Creating online spaces in the NZC Portal to share information
- Organising additional meetings for them to further exchange, if needed or requested
- Sharing useful information about funding opportunities and/or events

Facilitators were also invited to participate in collective sensemaking exercises and train-the-trainer meetings.

In certain instances, current geopolitical and internal governance challenges have impeded the physical participation of Twin Cities in the proposed activities. For example, Twin Cities and facilitators planning to travel to the first site visit to Eilat (Israel) and Rivne (Ukraine) encountered security concerns due to the ongoing conflict in the regions, which rendered it unsafe for participants to visit in person. As a result, facilitators had to adapt the learning programme and offer an alternative online exchange to deep dive in the pilot activity. On another hand, Penteli (Greece) faced delays due to local



elections, which prevented the local government from adequately preparing for the first site visit due to budgetary constraints.

During the first Module I of the programme, three Twin Cities have dropped out: Dublin, Kharkiv and Or Yehuda, the former due to lack of internal capacity to continue participating in the programme and the latter two because of their geopolitical contexts which resulted in Liberec's Pilot losing its Twin Cities. In order to avoid Liberec to drop out the Twinning Learning Programme, Liberec was paired to Wiesbaden (Twin City) and Malmo (Pilot City) based on the similar focus of their climate activities.

For more information on the evaluation of the Twinning Learning Programme so far, please refer to D5.5 Mid-term progress report on Twinning, which will be available in January 2025.

1.2.1 Learning pairs

The first NZC call for Twin cities closed on 30 June 2023 and resulted in the selection of 40 Twins and 25 learning pairs (one per pilot activity). There were two main types of pilot activities:

- Multi-city pilots are those pilots involving more than one pilot city. In the first cohort, six groups of cities were selected as pilots in Germany, Italy, the Netherlands, Poland, Slovenia and Spain – see pilot descriptions in Annex 1. These pilots offered a unique opportunity for these cities to collaborate. However, it required additional coordination for both the implementation of the pilot and twinning programmes. Facilitators of these pairs worked hand in hand with the pilot leads (Manheim, Bologna, The Hague, Krakow, Kranj and Vitoria-Gasteiz).
- Individual pilot cities were selected in the first cohort of the Pilot Cities Programme and only involve one city. In the first cohort, nineteen individual pilots were selected from all over Europe – see pilot descriptions in Annex 1.

Based on the number of successful applications (53/85) NZC consortium members agreed to select 40 Twin Cities for Cohort 1 and match them with 25 pilot activities. Thus, resulting into the different formats of matching, from individual (one to one Pilot and Twin City matching) to a group format (multi-city pilot matched with two Twin Cities) – (see Figure 3, below), which led to:

- 1) 15 Pilot activities matched with 2 Twin Cities
- 2) 10 Pilot activities matched with 1 Twin City



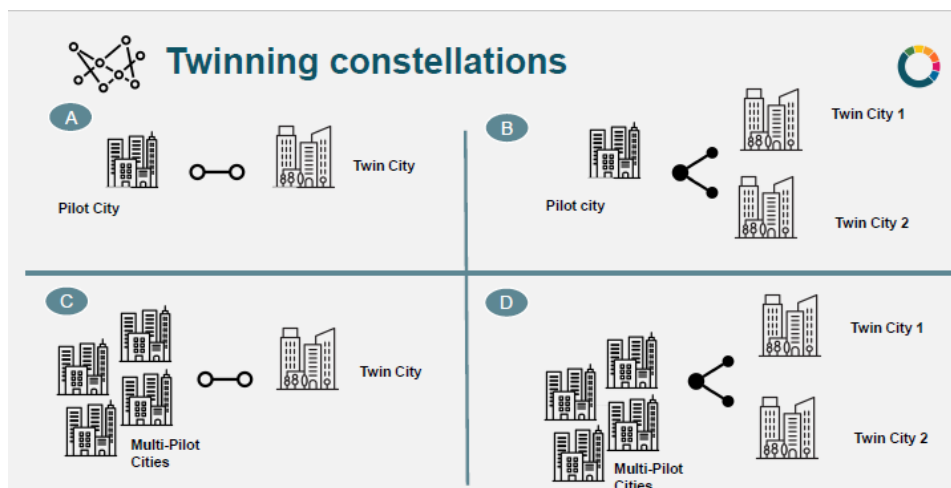


Figure 3 - Twinning constellations

Annex 1 collects basic information about each of these pairings including the 1) Name of the pilot, 2) cities involved in the multi-city or individual pilot. If the pilot involves more than one city, one was designed as the Pilot Lead, 3) Name of the cluster of pilots they belong to, 4) Summary of the description of the pilot, 5) Summary of the “Learning & Insights” report’ section on the interactions with Twin Cities. This report is part of the first-year reporting of the first Cohort of Pilot Cities, and 6) replication plans of Twin Cities. Based on the information included in Annex 1, an analysis on the learning pathways of Twin Cities for each cluster has been conducted. The insights are included in the following sub-sections.

1.2.2 Insights from the learning pathways of Twin cities per Cluster of Pilots

1.2.2.1 Cluster 1: Citizen Action for Climate Neutrality

The cities in Cohort 1, though unified by their goal of achieving climate neutrality, approach this challenge from diverse angles, reflecting local priorities and stages of development. Several common themes emerge, though each city applies its own nuance to their pathway.

In this cluster, several pilots focused on citizen behaviour change, from local experiments, to forging local green deals with citizens, to the enablement of citizen engagement via tech tools. While CoLAB (Mannheim, Aachen, Muenster) focus on the former, others focus more on the latter. Twin Cities are keen to learn not just how to instigate, but also how to measure behavioural change, around which CoLAB’s learning exchange with their Twin cities of Jyväskylä and Vilnius revolves. One prominent focus of replication activities is on carbon footprint and handprint measurement tools, where cities like Fundão, Taurage, and Krizevci converge. Fundão emphasizes advanced technology by incorporating blockchain into carbon tracking for businesses and citizens, aiming to enhance product traceability and support carbon offsetting. In contrast, Taurage seeks simpler, more user-friendly tools to help citizens and businesses take practical steps toward reducing CO2 emissions. Krizevci takes a more community-oriented approach, looking to adopt Nantes Métropole’s “DECLICS” platform, which uses workshops and challenges to help residents engage in carbon reduction activities. While all three cities focus on measuring and managing carbon emissions, the nuances reflect different scales and methods of engagement—from advanced tech solutions to grassroots community learning.

Business engagement in climate action also surfaces as a key theme. Fundão is focused on fostering collaboration among companies through carbon-neutral clusters, knowledge-sharing platforms, and



the Climate City Contract. Taurage similarly emphasizes educating and motivating businesses through advisory services. Würzburg, on the other hand, faces challenges in getting smaller businesses involved and is particularly interested in Umeå's Green Deal model, which uses economic incentives to secure broader corporate commitment. This reveals a common concern with business participation, though Fundão and Taurage focus more on capacity-building, while Würzburg explores the role of economic motivation.

When it comes to citizen engagement and education, cities like Fundão, Palaio Faliro, Krizevci, and Vilnius each express strong interest in strengthening public involvement in climate action. Fundão is developing a digital platform and an ambassador network to promote environmental awareness, while Taurage is considering a city-wide climate campaign with simplified tools for citizens and businesses to act. Krizevci's emphasis on education is clear in its adoption of Nantes' "DECLICS" platform to deepen residents' involvement. Palaio Faliro seeks to replicate Nantes' strategies for citizen engagement by establishing a dedicated Climate Neutrality Office, which would manage public outreach and climate communication. Vilnius, meanwhile, focuses on shifting consumer behavior and engaging businesses, particularly through non-technical measures such as influencing social and cultural norms. While these cities share a desire to enhance public engagement, their methods range from digital platforms to comprehensive municipal infrastructure, highlighting their differing strategies for involving citizens in the transition to climate neutrality.

Several cities also look to integrate climate goals with broader sustainability and social equity objectives. Luleå, Würzburg, and Taurage are interested in combining climate strategies with circular economy models and regional development. Luleå, for instance, is just beginning its work on a circular economy with a focus on sustainable building materials, while also revising its climate goals to address the impact of consumption. Würzburg adds a social dimension by exploring how gender equality can be incorporated into climate action planning, inspired by Umeå's approach to gender-equal urban planning. Taurage seeks to learn from Fundão's regional revitalization efforts, particularly in addressing demographic challenges like an aging population and youth relocation. This integration of climate neutrality with social and economic priorities highlights the complexity of sustainability efforts across these cities.

Finally, some cities are focused on the governance and organization of climate neutrality initiatives. Both Luleå and Palaio Faliro are exploring ways to structure their internal operations to better manage climate goals. Luleå is interested in how to lead and organize the transition to a circular economy within the municipality, while Palaio Faliro plans to establish a Climate Neutrality Office to oversee and coordinate their efforts, possibly appointing a Vice-Mayor for Climate Neutrality to ensure accountability. These cities are grappling with how to embed climate governance within their existing municipal structures, reflecting a broader trend of institutionalizing climate action.

In a nutshell, while cities in Cohort 1 share common goals around climate neutrality, their approaches vary considerably. Whether focusing on carbon measurement, business engagement, public outreach, or governance, each city tailors its learning pathway to reflect its unique challenges and opportunities.

1.2.2.2 Cluster 2: Multisectoral and City-Wide Ambition for Climate Neutrality

Cities in Cluster 2 are adopting a multifaceted approach to achieve climate neutrality, focusing on economic incentives, circular economy practices, and sustainable mobility.



In particular, Braga is emphasizing the importance of economic incentives to promote sustainable practices among businesses and residents. The city aims to establish a framework that includes tax benefits, subsidies, and grants to encourage the adoption of green technologies and energy-efficient measures. This approach seeks to align economic growth with environmental responsibility, fostering a sense of shared commitment to climate goals. Additionally, Braga is interested in the Construction Circular Economy, aiming to reshape its construction industry by minimizing waste, reusing materials, and implementing sustainable building practices. By adopting circular economy principles, Braga envisions reducing its carbon footprint and creating a more resilient urban environment.

On the other hand, cities like Riga and Oulu focus on circularity from two different point of view. Indeed, Riga is focused on promoting circular flows in construction, including material reuse and the establishment of digital product passports to trace materials and their carbon footprints. The city seeks to support systemic transitions to a circular economy in the construction sector, emphasizing practical solutions and financial incentives for the private sector. Riga aims to create a Climate Protocol, a local network of stakeholders collaborating to scale up climate action. Similarly, Oulu is pursuing the development of circular business models through innovation and collaboration. Key initiatives include optimizing construction and demolition waste value chains, producing high-quality substrates from garden waste, and industrial-scale biochar production. Oulu is also keen on fostering city-business cooperation to support sustainable practices through pilot projects.

Jerusalem – similarly to Eilat, which is in another cluster –, Reykjavik and L’Aquila aim to reduce private car but from two different perspectives. Jerusalem, indeed, would like to reach this goal by collaborating with large employers and enhancing sustainable commuting options. The city plans to gather data on transportation habits and improve infrastructure for walking and cycling, promoting behavioural changes that support lower emissions and better air quality. While Reykjavik and L’Aquila focus on communication strategies for behavioural change, seeking to engage the public in sustainable commuting practices. Both cities plan to work with various stakeholders to implement cost-effective solutions that enhance public transport use and reduce dependency on private cars. The Italian city is also exploring nature-based solutions through initiatives like river parks, drawing insights from Drammen’s experiences, and it would like to increase solar energy capacity for energy communities and develop circular business models to aid recovery and sustainability as well.

In summary, the cities in Cluster 2 are collectively working towards climate neutrality by leveraging economic incentives (Braga), promoting circular economy practices (Riga, Oulu), enhancing sustainable mobility (Jerusalem, Reykjavik), and incorporating nature-based solutions (L’Aquila). Each city’s pathway reflects its unique local context while contributing to the broader goal of sustainable urban development.

1.2.2.3 Cluster 3: Removing Barriers to Innovative Financing Models

Cities in Cluster 3 are focused on addressing the financial and governance challenges that hinder progress toward climate neutrality, with each taking a unique approach based on local needs.

Gabrovo and Matosinhos are, indeed, prioritizing stakeholder engagement. Gabrovo is in the early stages of setting its climate agenda by organizing workshops with key players, while Matosinhos, having already mapped stakeholders and ongoing projects, aims to add a digital strategy layer. Both cities recognize the importance of local collaboration in driving innovative financing.



Eskisehir and Tallinn are tackling the building sector as a major emissions source but face different financial barriers. Eskisehir plans to segment its real estate stock and create a financing model combining grants and loans to help residents fund energy-efficient upgrades. Tallinn, on the other hand, must find financing to retrofit 5,000 apartment buildings, while also encouraging a shift from gas-based heating to district heating. Both cities are working to overcome financial and behavioural challenges related to building emissions.

Finally, Penteli and Waterford focus on governance structures to unlock funding. Penteli seeks to build capacity in local governance by learning from Bristol's risk-reduction strategies, while Waterford looks to adopt a One City Climate Strategy, where different stakeholders take ownership of decarbonization actions. Both cities aim to develop long-term investment mechanisms to support renewable energy and energy efficiency projects.

In brief, while all cities in Cluster 3 aim to remove financial barriers, their pathways differ: Gabrovo and Matosinhos focus on stakeholder collaboration, Eskisehir and Tallinn on financing energy-efficient building upgrades, and Penteli and Waterford on strengthening governance to unlock long-term funding.

1.2.2.4 Cluster 4: Decarbonizing the Built Environment

Cities in Cluster 4 are focused on reducing emissions in the built environment, each adopting unique strategies tailored to local challenges while learning from one another's successes.

Vari-Voula-Vouliagmeni looks to Cluj-Napoca for inspiration in creating neighbourhood climate managers. By involving local champions to take ownership of climate neutrality within their communities, the city hopes to foster localized climate action. This approach encourages citizen participation at the neighbourhood level, building on Cluj's competitive tools for selecting and empowering neighbourhood climate champions. Learning from NEEST, the Polish pilot, Slavonski Brod is also aiming to engage citizens in furnace replacement programs to prevent in particular energy poverty as well as seeking to address financial and social aspects of decarbonization. The city plans to develop financial models to secure funding beyond the municipal budget. With a similar "city quarter" approach, Cologne is developing tailored measures that foster participation in climate protection projects within specific neighbourhoods. The city aims to create scalable actions, such as building modernization consultancy and heat planning, that can be replicated in other quarters. Cologne is also interested in learning about process innovation to accelerate the energy transition in its building sector and maximize the impact with minimal effort, which include one-stop energy shops following the model developed by the city of Valencia.

Soria recognizes the importance of mobilizing the private sector to help decarbonize its built environment. With over 22% of the city's GHG emissions coming from this sector, Soria aims to create a comprehensive incentive package to encourage private enterprises to invest in sustainable building practices. The city plans to improve energy efficiency and source low-carbon, local materials, while working to engage homeowners and neighbourhood communities in the effort.

More on the data side, Mytilene plans to replicate Istanbul's urban energy management approach, focusing on data collection and real-time energy monitoring. By gathering detailed information on buildings and energy consumption, Mytilene will be able to assess its current CO₂ emissions more accurately. The city also seeks to adopt Istanbul's Digital Twin technology to simulate and optimize energy use and develop a comprehensive Climate Neutral Transition manual for stakeholders.



In conclusion, Cluster 4 cities are tackling decarbonization in the built environment by leveraging community engagement and taking a quarter-specific approach, developing financial models, mobilizing private sector investment, and utilizing advanced data and monitoring techniques. Each city's pathway reflects its unique local challenges but converges on the goal of achieving climate neutrality in the building sector.

1.2.2.5 Cluster 5: Built Environment and Heating Systems

In Cluster 5, cities are focusing on innovative strategies for retrofitting and sustainable heating systems to advance their climate neutrality goals.

Belfast and Westminster seem to be focused on building retrofitting from two similar perspectives. In fact, Belfast is looking to replicate a retrofit program successfully implemented in Galway, which engages homeowners through community outreach and collaboration with the construction sector. This initiative aims to incentivize homeowners to participate in retrofitting, and Belfast is exploring how to adapt Galway's methodologies to identify pilot zones for its own program. While Westminster is focused on lowering emissions from the built environment by balancing retrofitting efforts with heritage conservation and addressing planning barriers.

Torres Vedras is positioning itself as a sustainability leader with its Sustainable Energy and Climate Action Plan, targeting a 56% reduction in CO₂ emissions and a 41% decrease in energy consumption by 2030. The city is committed to decarbonization and transitioning to renewable energy, including hydrogen technology and community initiatives. Learning from Guimarães, which successfully integrates multiple stakeholders in sustainability efforts, Torres Vedras aims to enhance collaboration and public engagement through educational campaigns. On the same topic, Mytilene and Malmö are using data-driven solutions in order to engage with stakeholders. Indeed, Mytilene plans to adopt Istanbul's urban energy management practices, focusing on data collection and analysis of existing buildings. This includes real-time energy consumption monitoring and the creation of a Digital Twin for scenario simulation. By following Istanbul's lead, Mytilene seeks to establish effective energy management strategies and a clear framework for stakeholders involved in climate neutrality. While Malmö seeks insights into effective citizen engagement frameworks and data-driven inclusion in municipal processes, emphasizing the importance of real-world interactions with residents.

Lund is exploring collective heating solutions and innovative financing models, inspired by successful examples like Leuven 2030. The city is committed to stakeholder engagement and ensuring equitable living conditions while structuring its municipal innovation team to align with its climate goals. Similarly, Wiesbaden aims to adapt its roadmap based on community feedback to enhance project outcomes. In particular, the city is interested in using geographic analysis for strategic planning and improving citizen engagement in sustainable projects. Alba Iulia is also seeking for financing models to support the implementation of renewable energy and energy storage solutions – following the example of Kozani.

Finally, Lorquí and Viladecans face the challenge of urban heat islands and aim to learn innovative solutions to mitigate heat through identified building projects, including cost analysis and financing strategies.

Overall, the cities in Cluster 5 are leveraging collaborative efforts, innovative technologies, and community engagement to advance their built environment and heating systems, ultimately working towards their climate neutrality targets.



1.2.2.6 Cohort 6: Better Data Knowledge and Capacities

Cities in Cohort 6 share a commitment to enhancing their climate neutrality efforts through better data management, governance, and energy efficiency. However, their pathways reflect unique challenges and priorities based on local contexts and existing infrastructures.

Konya and Issy-les-Moulineaux are focused on data management and governance as essential tools for their climate strategies. Konya looks to replicate Rivne's "Municipal Energy Passport," which automates data transfer from heat energy meters in public buildings. This would provide Konya with more accurate energy data, crucial for informed decision-making in energy efficiency initiatives. Similarly, Issy-les-Moulineaux is interested in establishing a common data management system that connects multiple cities, including the eight municipalities within Grand Paris Seine Ouest. By collaborating on data collection and analysis, Issy-les-Moulineaux aims to strengthen its climate budget, which tracks the effectiveness of political measures in combating climate change. Through shared data governance, the city hopes to better prioritize actions across this larger regional area, reflecting its ambition to play a leadership role in climate innovation across the inter-municipal region. While Konya focuses on operationalizing energy data collection, Issy-les-Moulineaux is more concerned with the strategic integration of data governance at a regional level, reflecting their different scales of ambition—Konya at the municipal level and Issy-les-Moulineaux on a broader inter-city level.

Genoa, on the other hand, is committed to energy efficiency and sustainable development through its SECAP (Sustainable Energy and Climate Action Plan) and the Genoa 2050 Action Plan. The city has faced difficulties in establishing public-private energy communities due to a lack of governance models and regulatory frameworks. Genoa's learning pathway focuses on tapping into the knowledge and experience of the Italian pilot Cluster to fully exploit renewable energy resources. As said before, for Genoa, the challenge is not just in the technical solutions but also in creating effective governance models that can support long-term sustainable energy transitions. This highlights the city's focus on both innovation in energy systems and the policy frameworks needed to support them.

Eilat, with its focus on transportation, presents a different learning pathway, centered around encouraging the use of public and electric transportation to reduce reliance on private cars. The city recognizes a lack of synergy among transportation solutions, which prevents citizens and tourists from choosing more sustainable transport options. Eilat is interested in replicating Kranj's MaaS (Mobility as a Service) application to address this, but also seeks to explore additional models to motivate the public to shift from private cars to more sustainable options. Eilat's focus on transforming urban mobility aligns with its goal of reducing car usage, but it faces unique challenges due to its large tourist population and the ingrained preference for cars.

In summary, while all cities in this cohort are committed to improving climate action through data and governance, their specific learning needs vary. Konya and Issy-les-Moulineaux are focused on developing more robust data management systems, though on different scales. Genoa prioritizes creating governance models to support renewable energy communities, while Eilat seeks solutions to integrate and enhance sustainable transportation systems. Each city's pathway reflects its local challenges and the broader context in which it operates, whether it is energy data, governance, or transportation innovation.



2 Lessons learned

The following ten lessons learned consider the reflections of facilitators about the interactions between Pilot and Twin cities during the first year of implementation of the programme (September 2023 to September 2024). These were extracted through conversations in internal bi-weekly meetings throughout the past year, PCP reports, and the facilitator's inputs in different feedback documents.

- **Supporting cities with facilitators is essential for a successful engagement of both Pilot and Twin cities.** The Learning programme spans through 20 months and involves participating in at least three in-person visits and multiple online interactions. The role of the facilitator, as the person in charge of day-to-day interactions amongst cities (implementing the Twinning Learning Programme) is to make sure that the programme is tailored to their needs, help identify replicable learning opportunities and drive the advancement of the collaboration over a substantive period of time. As we reach the halfway point of the Twinning Learning Programme with Cohort 1 cities, Twinning Coordinators realised that human facilitation is essential in this peer learning program between participants that have not met before and come from different European countries and cultures. Facilitators are helping to building trust and rapport, for an effective collaboration and exchange, they are bridging cultural and communication gaps, guiding the learning process, encouraging equal participation, clarifying goals and expectations from cities, managing conflicts and challenges, and enhancing engagement between participants. In the first-year pilot reporting, some Pilot Cities such as Lathi have reflected about this in their reports: "A crucial element of our successful collaboration has been the exceptional guidance of our Twinning Programme Facilitator, Nupur Prothi. Nupur's extensive knowledge of climate issues, combined with her ability to see the big picture, has been instrumental in keeping our discussions focused and productive. Her skill in steering the team back on track when discussions wandered, and her knack for asking the right questions, have continuously challenged us to critically evaluate our beliefs and approaches. The entire team feels incredibly fortunate to have Nupur as our facilitator, whose wisdom and leadership have greatly enhanced the effectiveness of our programme. "
- **The Twinning Learning Programme is not a one-size-fits-all and requires some tailoring.** Pilot cities have different capabilities, while some are more advance in their climate neutrality journey, others are using the PCP as an exploratory space. The existing learning programme was more suitable for interactions between 2 cities (one pilot and one twin) with teams with similar abilities (English language level, learning pace, digital skills...) and mutual interests. Facilitators had to adapt existing materials, timelines and methodological approach to different realities:

 - Multi-city or individual pilots: Facilitators of multi-city pilots worked closely with pilot leads in identifying the right participants and hosts of the site visits. The limited budget of travel for pilot cities required them to use their own budget if they wanted more than one pilot city to participate in the site visits.
 - Being paired to one or two Twin cities: The methodology was designed for smaller groupings, and thus had to be adapted whenever the pairings included more than one Twin City. For example, the facilitator of the exchanges between URBANEW, Soria and Cologne organised two separate workshops (one in Spanish and one in English) so Twin cities had more time to explore the Spanish pilot and define their learning interests.



- Cultural differences: Some pairings included cities with completely different political, technological, legal and cultural frameworks, i.e., type of house ownership, energy mix, urban density, level of decentralisation, political or religious sensitivities etc.
 - Different capabilities: In some pairings, city representatives were not used to work with tools such as Miro, in others they did feel comfortable working in English.
 - Extraordinary circumstances (cities near war zones), we worked with cities in Ukraine, Israel and neighbouring countries.
 - Cities with divergent learning interests, in some cases, Pilots were not really interested in the practices in the Twin city or vice versa.
- **Making sense of all learning interests across Pilot and Twin cities can require a lot of time.** In many cases, facilitators had to organise additional online interactions to facilitate further exchanges. Cities often asked for more time to get to know what other cities were doing, and in several cases Pilot cities were willing to oblige this via presentations and discussions on specific areas of their work.
 - **The right matching and replication scale are key success factors.** While the Twinning Learning Programme does not intend to materialise the learning interests initially included in the roadmap, it seeks to identify replicable pilot practices or activities in the context of Twin Cities. For that, matching cities with mutual interests and selecting activities in the roadmap at the right scale are important. Nevertheless, the opportunity to participate in these exchanges was always appreciated.
 - **For the facilitator some expertise in the learning interests of the twinning is highly desirable, but not essential.** The facilitator is not expected to provide technical expertise. Nevertheless, some understanding about the topics related to the pilot activities and the Twins learning interests is essential to find common ground and translate different needs, scales, contexts and perspectives into something that both parties can understand.
 - **In-person site visits build momentum, and ongoing online exchanges smooth the process.** In most cases, it was not until the in-person site visits that some learning interests were defined as trust and mutual understanding started to grow. Cities have expressed their appreciation for the personal connection fostered through the Twinning Learning Program, as it allows them to meet and engage with counterparts from other cities. This has led to meaningful collaborations, such as the ongoing discussions between Dijon and Bristol both of which are implementing similar pilots on new governance models, or Belfast and Galway planning to apply for joint call for projects. Under the framework of NetZeroCities, they are identifying shared synergies and challenges, with the goal of presenting their findings in February. This emphasizes the importance of continuing and deepening these in-person or direct interactions, as they lay the groundwork for productive city-to-city collaborations.
- City Advisors joined some of these visits which was highly beneficial for the exchange as the main contact points of Mission Cities. However, consistent and clear communications are also important throughout the implementation of the learning process.
- **Consistent interaction, guidance and training during the programme ease the implementation.** From the start facilitators were supported to deliver their work by the Twinning Programme Coordinators: workshops were pre-designed and explained, guidance provided in the form of suggested agendas and set-ups, reimbursement guidelines developed/coordinated and over the



duration of the programme train-the-trainers were organised in which important parts of the programme were explained, discussed and improved. Also, facilitators could participate in a (bi)-weekly meeting to share challenges that came up during their interactions with cities. This collective guidance kept up the team spirit and tried to soften the workload facilitators had to invest in their exchanges.

- **Desire for greater participation in the mission:** Twin Cities have expressed a strong desire to play a more active role in the Mission. They are particularly keen to explore opportunities for both funding and connection to learning networks. This indicates an opportunity to deepen their involvement, not only as participants but as co-creators within the Twinning program. The sensemaking sessions were designed and targeted for interactions amongst Pilot Cities meeting their peer Pilot Cities, with Twin Cities in a more secondary role (acting as Active Listeners). Given the number of workshops/activities planned already in the Twinning Learning Programme, consortium partners agreed to invite Twin Cities only to the all-clustered sensemaking sessions. However, after the first round of sensemaking sessions (in November 2023), Twinning Coordinators realised the added value of involving Twin Cities not only in all-clustered sensemaking sessions, but also during each clustered sessions, where Pilot Cities were sharing lessons learned and more detailed reflections among peer Pilot Cities, following the common challenges and opportunities in their pilot activities.
- **Challenges in storytelling and communicating their activities:** A recurring theme during visits is the difficulty many cities face in managing and communicating their climate transition efforts effectively. Many cities lack the necessary expertise within their teams to develop and implement strategic communication plans that resonate with citizens and stakeholders.
- **Municipal perspective to drive national-level change:** Cities like Guimarães and Torres Vedras, which have collaborated in the past, are now engaging in new projects through the Twinning Learning Program. Despite their different starting points, both cities share a municipal perspective and aim to use these projects as leverage to advocate for change at the state level, in this case, Portugal. Their goal is to inspire more cities to join the challenge of climate neutrality by setting an example through local actions.

3 Recommendations

The Twinning Learning Programme and Pilot Cities team have been paying attention to the feedback from facilitators of the first cohort of Twin cities and have already introduced some improvements for the upcoming cohorts 2 and 3 of the Twinning Learning Programme by:

- inviting Twin Cities to both Cluster and All-Cluster sensemaking sessions to allow for more time for interaction
- increasing the budget to allow facilitators to also join the third site-visit
- not accepting applications from Mission Cities
- reducing the number of multi-city pilots and the pairings with more than one Twin City, as well as some adjustments to the timeline and the methodology.

Beyond these improvements, we would recommend to:

- **Assess and include the feedback** of Twin and Pilot Cities given in their evaluation of the TLP so far (part of D5.5 Mid-term progress report on Twinning, January 2025)



- **Better align** the Twinning Learning Programme with existing support structures such as City Support Groups. As it was quite difficult for facilitators to reach out to City Advisors working with Pilot Cities and vice versa, excluding the pairings in which a City Support Officer was the facilitator.
- **Identify** a pool of specialists within the NZC consortium to facilitate peer-to-peer exchanges amongst Mission cities.
- **Re-evaluate** the amount of time to facilitate a learning pair.
- **Provide** a clear plan to define how Twin Cities can access services and support for Non-Mission Cities.
- **Incorporate successful elements** of the TLP methodology into the design of other peer-to-peer offers on the NZC platform, for example, the notion of a learning roadmap, replicability assessment and clear plan with outcomes per learning phase.

Conclusions

City Support and peer to peer learning activities are at the core of NetZeroCities. The Twinning Learning Programme is an example on how important it is to have specific roles to support cities within the program through their journey towards climate neutrality. No matter if it is during the design of the CCC, the implementation of pilot activities or accompanying cities during the Twinning Learning Program, the city support articulated with City Advisors, City Support Officers and facilitators is the backbone of the impact and success of NetZeroCities. In the particular case of the Twinning Learning Program, the human factor is essential, to guide city participants through the roadmap Twin cities designed at the beginning of their learning journey following a flexible and tailored methodology. It is worth mentioning that some learnings included in this report can be applied in the design of other peer-to-peer exchanges amongst Mission or Non-Mission cities.



Annex 1

The tables below include some information about the ongoing engagements:

<i>Name of the pilot</i>	CoLAB-Committed to Local Climate Action Building
<i>Cities involved</i>	Mannheim (Lead), Aachen and Muenster (Germany)
<i>Cluster</i>	Cluster 1. Citizen action for climate neutrality
<i>Description of Pilot</i>	<p>CoLAB aims to build a coalition for a sustainable, climate-neutral city by 2030 through local action and community ownership. It focuses on innovative, non-technical ways to reduce emissions from citizen/consumer behaviour that the city cannot directly control. By engaging all stakeholders, CoLAB seeks to overcome barriers to adopting a 1.5-degree lifestyle in energy, buildings, mobility, food, and consumption.</p> <p>The initiative tests the impact of social behaviours and norms on decision-making and participation, aiming to bridge the gap between knowledge and real action. In German cities, consumer actions account for 30% of energy-related emissions. CoLAB's "House of Change" model connects the city with urban society, fostering sustainable action and bridging theory and practice. Mannheim, Aachen, and Münster participate in pilot activities to explore breakthroughs and tipping points for collective action, focusing on reducing consumption-related emissions in electricity, heat, mobility, land use, and waste.</p>
<i>Learnings & Insights</i>	CoLAB focuses on mutual learning through exchange between different cities (WP5). The three cities of Mannheim, Aachen and Münster met regularly once a week online and a total of four times live on site in the first year. In addition to several Mission conferences, summer school and other city network meetings, the sensemaking workshops organised by NZC offered the opportunity to take a look at the other pilot cities in the same "Citizen action for climate neutrality" cluster. Collecting different



	<p>opinions from various cities in a Miro board helped to look at the own ideas and processes from another angle. Afterwards, CoLAB held an extra online meeting with Nantes and Valencia.</p> <p>With the TLP partner cities Jyväskylä and Vilnius, the CoLAB cities defined their learning needs at the beginning of the exchange in order to discuss specific challenges online over the course of the programme and met in Mannheim in May 2024.</p> <p>All these exchanges were helpful to address the challenge on how to design strategies and instruments to encourage behavioural/lifestyle changes (How can we effectively engage citizens in climate action to foster participatory design and implementation and collaborative decision-making?).</p>
<i>Twin cities and their replication plans (from TLP roadmap)</i>	<p>Vilnius (Lithuania) identified learning needs include methodologies for engaging citizens and stakeholders, changing consumer behaviour, and involving businesses and institutions. Furthermore, Vilnius is keenly interested in CoLAB's approach of focusing on non-technical measures for reducing emissions.</p>
	<p>Jyväskylä (Finland)'s learning interests are in:</p> <ul style="list-style-type: none"> - Non-technical GHG Reduction: Developing methods for reducing emissions through citizen engagement and behavioural change, focusing on goal-setting and effective measures; - Behavioural Measurement: Finding efficient tools and methods to continuously measure environmental awareness, values, and behaviour changes, considering AI and research partnerships; - Climate Action Narrative: Creating and sustaining a compelling narrative to engage citizens and stakeholders in climate action, ensuring ongoing commitment and co-designed activities.

Name of the pilot	Let'sGOv – GOverning the Transition through Pilot Actions
<i>Cities involved</i>	Bologna (coordinator of the multi-pilot), Bergamo, Florence, Milan, Padua, Parma, Prato, Rome, Turin (Italy)
<i>Description of the pilot</i>	<p>Reducing energy-related emissions through the exploration of enhanced governance models to agree on new forms of energy alliances, unlock financial resources and define the conditions for enhanced multi-level governance. This will be done at three levels:</p> <ol style="list-style-type: none"> 1. Network level where all the 9 Italian cities will work together; 2. At thematic cluster level on engagement, data accessibility and finance; 3. At city level where pilot activities from thematic clusters will be tested.
<i>Cluster</i>	Cluster 6. Better data knowledge and capacities
<i>Learnings & Insights</i>	The establishment of the Observatory of Follower Cities provides an opportunity to expand the project's impact by involving more Italian cities. This network can facilitate the replication of successful strategies and contribute to the national goal of climate neutrality. The ongoing experimentations and test beds focused on multi-level and multi-stakeholder governance provide a chance to develop innovative models



	<p>for data sharing and stakeholder engagement, which can be scaled to other cities or regions. Moreover, the partnership with twin cities (Genova and Issy les Moulineaux) has brought additional insights and best practices, enriching the project's outputs. This collaboration can also foster cross-border cooperation on energy transition goals. The focus on innovative finance tools within the clusters presents an opportunity to explore new funding mechanisms that can support the cities' transition to renewable energy and sustainable practices.</p>
<i>Twin cities and their replication plans</i>	<p>Issy-les-Moulineaux - The city is highly interested in the development of a common data management between different cities to achieve the definition of new governance rules for the benefit of the fight for neutrality. The common data management could help Issy-les-Moulineaux to achieve its climate neutrality as there is a need for cooperation on a greater scale than just the city of Issy-les-Moulineaux, as the city is surrounded by bigger cities like Paris. Issy-les-Moulineaux is also part of the inter-municipality of Grand Paris Seine Ouest that contains 8 municipalities and so 8 challenges to face climate neutrality in the next years.</p> <p>The development of new governance methods through common data management could help to better target the priority actions on a greater scale.</p> <p>It could also be the possibility for Issy-les-Moulineaux to develop further its climate budget that is based on the use of data to measure the effectiveness of the political measures. Moreover, extend it to the 7 other municipalities of Grand Paris Seine Ouest enforcing the role of leader of Issy-les-Moulineaux towards innovation and the fight against climate change.</p> <p>Genova - The Municipality of Genoa is committed to energy efficiency, sustainable development, and transition to smart communities with SECAP (Sustainable Energy and Climate Action Plan), which promotes the transition to an urban regenerated territory, enhancing energy savings and innovative policy. Moreover, Genoa 2050 Action Plan has been developed to improve local awareness and enhance a sustainable perspective. Early attempts to develop public-private energy communities have been jeopardized by lack of governance models and final set of norms. The possibility to benefit from the Italian Cluster's knowledge and experience will allow a full exploitation of the renewable energy resources in the city.</p>

<i>Name of the pilot</i>	Dutch 100CNSC Cities Pilot
<i>Cities involved</i>	Amsterdam, The Hague (coordinator), Groningen, Eindhoven & Helmond, Utrecht and Rotterdam (Netherlands)
<i>Cluster</i>	Cluster 3. Removing barriers of innovative financing models
<i>Description of the pilot</i>	The pilot is testing how local public climate finance could maximise leverage from alternative/innovative financial sources to achieve natural gas-free districts in seven cities.



	<p>Amsterdam has developed an approach to incorporate the energy transition in local districts through an (internationally acclaimed) integral design method of public space (IOOR).</p> <p>Eindhoven and Helmond have developed a checklist (with points of consideration) for every underground and transition topic to be able to work more integrally on climate actions.</p> <p>Groningen started using an integral approach, in which issues from the physical and the social domain are matched, for the task of making the district Vinkhuizen more sustainable.</p> <p>In Rotterdam, they are exploring what is needed for making 85.000 houses natural gas free by 2030.</p> <p>The Hague has experience with revolving funds and innovative financing.</p> <p>Utrecht's study on investment scenario for the financing of the energy transition in 2022, targeting private investment barriers and public instruments to tackle these barriers.</p>
<p><i>Learnings & Insights from the facilitator and the pilot reporting</i></p>	<p>Successful twinning with a multi-city pilot requires additional resources. On the one hand, the engagement of Dutch cities has not been consistent, except for the Pilot Lead city: The Hague. Pilot cities that joined the first online workshop "Define the learning roadmap" varied from those who joined the "Stakeholder mapping" and the site visits. Several additional online meetings were organised to clarify questions and for coordination purposes.</p> <p>Moreover, the challenges of the Dutch cities are very different from the challenges of Tallinn. In the Dutch cities there is a standardized approach to the insulation and renovation task, with public housing companies playing a big role. In Tallinn the support has complete dependency on EU funds, and they have a total private housing market. While they both are facing new regulations from their national governments on gas, their approaches and level of influence widely differ.</p> <p>Nevertheless, the interactions have been fluent and convivial. And they have allowed for a better exchange amongst Dutch pilot cities. Representatives from Utrecht, Groningen and The Hague will travel to Tallin in November 2024 where Tallin will present their replicability assessment, and Dutch cities will explore good practices from the Twin city.</p>
<p><i>Twin cities and their replication plans</i></p>	<p>Tallinn (Estonia) needs to renovate approximately 5000 big apartment buildings, to become climate neutral. EU and state funds are not sufficient, the amount of municipal money allocated for this purpose is small and bank loans for people living in these apartment buildings have become expensive. Also, the city of Tallinn is developing its district heating networks to areas that are currently dependent on gas. People are not eager to switch to district heating, because gas heating is not too expensive.</p> <p>In Tallinn, the areas that are not connected to the district heating system are often reliant on gas-based heating. There are some areas where it is not economically viable to build a district heating network. Therefore, other types of heating options must be considered. They have similar</p>

	issues as the Dutch cities – gas-based heating emits greenhouse gases but is also a problem from the energy security point of view.
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<i>Name of the pilot</i>	NEEST – NetZero Emission and Environmentally Sustainable Territories, Poland
<i>Cities involved</i>	Krakow (Lead), Lodz, Rzeszow, Warsaw, and Wroclaw
<i>Cluster</i>	Cluster 4. Decarbonising the built environment
<i>Description of the pilot</i>	62% of Poland's population lives in cities, and 70% of single-family houses lack energy efficiency, requiring urgent intervention. Cities face challenges like aging populations, energy poverty, and migration. Krakow, Lodz, Rzeszow, Warsaw, and Wroclaw recognize that modernizing buildings is essential to meet EU climate targets, needing financial and technical support for climate neutrality. The pilot will develop innovative, scalable solutions for diverse building types, including pre-1918 tenements and 1970s multi-family homes, using various heat sources. An area-based approach will improve adjacent areas and involve the community, enhancing resilience, energy security, accessibility, and social inclusion. A guidebook will assist other cities in implementing and refining these solutions. The pilot aims for emission reduction through comprehensive technological revitalization and creating replicable models for similar contexts.
<i>Learnings & Insights</i>	<p>The situation across these cities is different, but there are also many similarities related to barriers to achieving climate neutrality. These include, for example, obstacles at the level of national legislation related to the energy mix used.</p> <p>In the TLP site visit to Warsaw, Slavonski Brod drew attention to the transboundary movement of pollution and the need for international solutions in the absence of diplomatic relations between countries in such a situation. In Warsaw, they exchanged experiences related to removing so-called "fossil" stoves, and Slavonski Brod benefitted from Polish cities' expertise in providing subsidies to residents. Also discussed were similar problems in reaching residents and the language to speak to them to get them interested in pro-climate measures.</p> <p>The cities were aligned on the idea of analysing and planning the modernisation of entire urban quarters instead of individual buildings and small urban spaces.</p>
<i>Twin cities and their replication plans</i>	<p>Slavonski Brod (Croatia)'s learning roadmap:</p> <ul style="list-style-type: none"> - Development of Financial Models: How to find and approach investors to secure funding beyond the city budget, balancing the interests of the city, citizens, and investors. - Residential Buildings Focus: Establish procedures for applying for furnace replacement subsidies, collaborating with citizens to prevent energy poverty. - Analysis and Study of Selected Locations: Utilise appropriate techniques to analyse selected locations, identify weak points, and guide future actions and project applications.



<i>Name of the pilot</i>	UP-SCALE-Urban Pioneers - Systemic Change Amid Livable Environments
<i>Cities involved</i>	Kranj (coordinator), Ljubljana and Velenje (Slovenia)
<i>Description of the pilot</i>	The pilot is pioneering changes in governance structures and management at multiple levels in three cities, with the main goal of climate neutrality journey becoming more effective, transparent and responsive. The concept of a smart city will serve as an enabler for achieving the set goals. Kranj will upgrade the existing digital platform with public transport and traffic related data, Ljubljana will focus on the utilisation of industrial and non-industrial (excess) waste heat and Velenje will focus on the consumption of thermal energy used in buildings.
<i>Cluster</i>	Cluster 6. Better data, knowledge and capacities
<i>Learnings & Insights from the facilitator and the pilot reporting</i>	<p>Eilat is a Mission city that was selected as a Twin in the first call of the Twinning Learning Programme (2023) and paired with the Slovenian Multi-city Pilot (UPSCALE). Later on, it was selected as a Pilot in the second cohort (2023) and paired with Chios (Greece) after the second call of the TLP. As Eilat's team working on NZC is a group of just five people, we are exploring how to adapt both programmes. Due to the situation in Israel, Eilat will not host any site visits which will be moved online.</p> <p>Successful twinning with a multi-city pilot requires additional resources. Nevertheless, the engagement of the three Slovenian pilot cities has been consistent. They all participated in the online workshops and site visit, where the City Advisors of both Eilat (Twin city) and the Slovenian cohort joined. Additional coordination meetings were organised upon request.</p> <p>The pilot particularly valued the exchange of information with the Israeli city of Eilat. The exchange of information and experiences was facilitated by online workshops organised by the facilitator, and live meetings/sessions organized by the city of Kranj in early June of this year. During this event, the pilot project UP-SCALE was presented with the focus on the Innovation Hub, while representatives from Eilat introduced their pilot project in sustainable tourism development. Given Ljubljana's own challenges in this area and Kranj's commitment to sustainable tourism development (with an established strategy in place), this information was highly beneficial and encouraged them to seek new ways to innovate in this field as well.</p>
<i>Twin cities and their replication plans</i>	Eilat (Israel) still relies on private cars and taxis. The distance for driving in the city is very short and people prefer to use their car instead of waiting for public transportation. Today, the city is working on an electric transport plan, and a part of it is new models to create new ways for transport in the city. The city is eager to push our citizens and our 3 M tourist/year to use more public transport instead of the current situation. Bottom line, there is no synergy among the transportation solution that can motivate the user to use public or any other kind of



	transport instead of their private car. While the focus of the replications was put on Kranj's pilot activities, which includes developing a MaaS application, Eilat showed interest in other activities during the site visit to Slovenia in June 2024.
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<i>Name of the pilot</i>	URBANEW: Multi-stakeholder Innovative & Systemic Solutions for Urban Regeneration Spain
<i>Cities involved</i>	Madrid, Barcelona, Valencia, Zaragoza, Vitoria-Gasteiz (coordinator), Sevilla (Spain)
<i>Cluster</i>	Cluster 4. Decarbonising the built environment
<i>Description of the pilot</i>	<p>Seven Spanish cities will develop a pilot programme to promote a systemic transformation and ensure that the residential, commercial, public and private building sectors reduce their carbon footprint and become energy efficient. To this end, the cities will mobilise their stakeholders and jointly promote actions to encourage energy rehabilitation and the substitution of construction materials, encouraging the use of local raw materials with a low carbon footprint and promoting the deployment of renewable energies under self-consumption models and energy communities. The planned activities will be tested in seven cities simultaneously, in several climatic and socio-economical contexts. Lessons learned will allow to obtain a complete vision of this pilot, with a deep diagnosis to better understand the barriers and levers to decarbonise the built environment and integrate renewable energies.</p> <p>Valencia, Valladolid & Vitoria-Gasteiz plan to promote systemic transformation so that the residential, commercial, public and private buildings are energy efficient, through rehabilitation and replacement of materials, using local raw materials with low carbon footprint and favouring the incorporation of renewable energies in self-consumption models and/or energy communities.</p> <p>Barcelona will develop a public-private partnership model for the purchase and industrialised rehabilitation with carbon neutrality criteria of private buildings for the conversion into affordable rental housing.</p> <p>Madrid will focus on the adaptation to climate change of public facilities through energy rehabilitation as a fundamental part to generate nodes for climate neutrality distributed in the city. Study new energy models and define mechanisms to guarantee equal opportunities and access to these models and renewable sources for the entire population.</p> <p>Seville has a real vision on the difficulties faced by citizens and other involved actors (administrators, energy rehabilitation professionals, energy managers...) to be able to implement the energy rehabilitation of dwellings in a significant way, in order to obtain greater comfort, a reduction in consumption and a reduction in GHG emissions.</p> <p>Zaragoza will promote the deployment of renewable energy communities through the development of governance mechanisms and collaboration schemes necessary for their optimal implementation and acceptance.</p>



<p><i>Learnings & Insights from the facilitator and the pilot reporting</i></p>	<p>Successful twinning with a multi-city pilot requires additional resources. On the one hand, the engagement of Spanish cities has not been consistent, except for the Pilot Lead city: Vitoria-Gasteiz. Pilot cities that joined the first online workshop “Define the learning roadmap” varied from those who joined the “Stakeholder mapping” and the site visits. This pair included two Twin cities: Soria and Cologne. Two “Define the learning roadmap” workshops were thus organised to allow both cities to explore the different pilot activities. Several online meetings were organised to clarify questions and for coordination purposes. There have been other bilateral meetings of some of the pilot cities with the twin cities.</p> <p>From Cologne, the pilot learned that a transversal department (on energy, or climate, or sustainability) might be key to overcoming the working in silos, as well as a strong political support, reflected in that department being part of the Mayoral Department. From Soria, the pilot confirmed that smaller cities have less power in terms of resources, but, it is also easier to manoeuvre, so that general projects can, and, in fact, are taking place. In this sense, this city scale can be used as an innovation laboratory to test solutions that can then be taken to a larger scale.</p>
<p><i>Twin cities and their replication plans</i></p>	<p>Soria (Spain)- Recognizing the crucial role of the private sector in the decarbonization of the built environment, the motivation is to design and implement a comprehensive package of measures that generates incentives for private enterprises. This approach not only leverages external expertise but also stimulates economic growth by activating private investment in sustainable development projects. Furthermore, it would enable Soria to overcome the scalability and affordability challenges associated with transitioning to a carbon-neutral future. By unlocking private capital, the city can implement scalable and affordable solutions uniquely adapted to its size, addressing both technological and infrastructure constraints. 22.6% of GHG emissions of the city of Soria correspond to the built environment, according to the 2019 GHG inventory, published in 2021. Thus, it is necessary to improve the energy efficiency of buildings and replace materials with raw materials of local origin, with a low carbon footprint.</p> <p>They need to reach homeowners, especially neighborhood communities. The scope of local management in the built environment is very limited. It is a private area, they need to transcend it to mobilize people to act against the decarbonization of the city.</p> <p>Cologne (Germany) - They will take a specific city quarter-perspective and aim to develop tailor-made measures to foster participation in climate protection projects. They would like to strategically develop actions that are transferable to other city quarters. This could range from consultancy measures regarding the modernisation of buildings to information regarding the cities heat planning. They would like to learn about successful process innovation. In a rapidly changing world, the energy transition remains an important challenge. The need of accelerating measures in the building sector is key if the climate neutrality goals want to be reached. Which measures will maximise</p>



	impact and acceptance with minimum effort in order to make our energy supply more sustainable and environmentally friendly.
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<i>Name of the pilot</i>	Net Zero Investment Co-Innovation Lab
<i>Cities involved</i>	Bristol (United Kingdom)
<i>Cluster</i>	Cluster 3. Removing barriers of innovative financing models
<i>Description of the pilot</i>	Bristol's Net Zero Investment Co-innovation Lab aims to create a series of financial mechanisms to accelerate decarbonisation of the city, facilitating investment and supporting zero carbon business growth. It will develop financial mechanisms that can become self-sustaining and mutually supportive, enabling a fast and fair transition to net zero. The Net Zero Investment Co-Innovation Lab will be established to co-create the governance structure, the mission and vision and to make sense of these complex challenges by researching, testing, piloting, delivering and evaluating 3-6 financial mechanisms of which 3 are foreseen and up to 3 more will be identified during the project implementation (A Citizen Community Climate Investment Scheme, a Net Zero Venture Fund and a Carbon Multiplier Fund).
<i>Learnings & Insights</i>	The project has made significant progress in building Bristol's skills, capacity, and governance for delivering on its Net Zero goals through blended finance. The reclassification of the Southwest Net Zero Accelerator Fund to the Net Zero Regional Impact Fund, driven by market analysis, reflects a flexible and adaptive approach that focuses on scaling up and aggregating small-scale infrastructure projects.
<i>Twin cities and their replication plans</i>	Penteli (Greece) - In Bristol, the City Council has recognized the importance of building capacity to mitigate risk on local authority projects. This is a challenge that is also present in Greece, particularly in Penteli. The selected solution will not only drive Penteli to building new policies for local governance risk reduction but also pave the way for robust and effective measures to achieve climate neutrality. By following the footsteps of a pilot city that has already taken several steps ahead in building capacity within the local authority for climate neutrality, Penteli can glean valuable insights and lessons. Their experiences, successes and lessons learnt will provide Penteli with a roadmap for success and help them avoid potential pitfalls. By organizing some specific meetings between the policy makers in every city to discuss which measures exactly have been taken.
	Waterford (Ireland) - The city intends to be Ireland's first Carbon Neutral City will require investment of time and resources from all city stakeholders. Waterford City and County Council will spearhead this effort but as they are only directly responsible for 4.2% (33% if emissions from road that Council can influence are counted as well) of the emissions arising in the city, they need full involvement from business, households and other public sector bodies. A strategy for Waterford, like Bristol's One City Climate Strategy is where Waterford City wants to go. The aim is to have different stakeholders which take ownership of the



	<p>Actions in City Decarbonisation Plan that relate to where they have influence. Moreover, Waterford can learn from the funding mechanisms being locked by Bristol. Like this city, Waterford is reliant on National funding schemes that may change depending on Governments. Creating investment mechanisms that support the work of reducing emissions will help the city to plan and deliver projects in the long term. Allowing Waterford to deliver on renewable energy, energy efficiency and active travel projects at a much greater scale than what they are currently doing.</p>
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Name of the pilot	Green and Carbon Neutral Building Transition Guide – Istanbul Model
<i>Cities involved</i>	Istanbul (Turkey)
<i>Cluster</i>	Cluster 4. Decarbonising the built environment
<i>Description of the pilot</i>	<p>Following the earthquake in 1999, Turkey renewed the legal, financial, and urban planning aspects of the Urban Transformation Plan, targeting significantly the country's building stock. The Istanbul Metropolitan Municipality (IMM) will develop a green, carbon-neutral building transition guide for low-emission districts to support urban transformation and demonstrate energy transition solutions at the local level. Pilot activities will address the need for collaborative governance, social and environmental drivers, community engagement, integrated planning, market design, energy balance, and consideration of regional differences.</p>
<i>Learnings & Insights</i>	<p>Although the Pilot Project is initially focused on one district, the aim is to expand the Guide's application to all 39 district municipalities in Istanbul and other Turkish cities. A memorandum may be prepared to support this broader implementation.</p>
<i>Twin cities and their replication plans</i>	<p>Mytilene plans to replicate several key aspects from Istanbul's approach to urban energy management and carbon neutrality. Firstly, Mytilene will adopt Istanbul's method for data collection and analysis, which includes gathering detailed information on existing buildings such as construction areas, number of flats, heating and cooling systems, and population data. This information is essential for understanding current CO2 emissions and energy consumption levels. Istanbul's innovative approach to data collection and analysis, including detailed HVAC analysis and simulation calibration, will be valuable for Mytilene. Technical assistance in these areas will support the accurate assessment and simulation of energy use. Additionally, Mytilene will implement practices for energy consumption analysis and real-time monitoring, inspired by Istanbul's pilot. This includes setting up sensors in public buildings to monitor energy use and provide recommendations for energy savings based on consumption patterns. Guidance on selecting appropriate monitoring equipment and establishing effective behavioral change strategies for energy management will be sought. The creation of a Digital Twin to simulate and calibrate electricity consumption scenarios, using data and scenarios from Istanbul, will also be a key component. Finally, Mytilene aims to develop a transition manual similar to Istanbul's guide, outlining the six</p>



	modules of Climate Neutral Transition, to provide a clear framework and actions for stakeholders involved in the process.
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Name of the pilot	CARES - Climate Agency for Renovation of homES
Cities involved	Budapest
Description of the pilot	Budapest plans to tackle the low energy performance of private buildings and energy poverty. The pilot activities will address the following challenges related to energy-efficient housing stock: (1) the lack of incentives for private owners to renovate their houses due to the absence of national financing schemes and cap on household energy prices at national level; (2) partial access to EU funds limiting municipality's ability to intervene in the housing market without external support. The objective is to establish a Climate Agency in the form of ESCO (one-stop-shop model) to develop financial models in cooperation with commercial banks and international financial actors. The Agency will be responsible for ensuring that the financial products reach the end users and smart technical solutions are deployed in the refurbishments. Intervention areas will be chosen based on scientific results and technical and socio-economic building parameters. The Climate Agency will also pay particular attention to involving communities and shaping public attitudes while reducing energy poverty.
Cluster	Cluster 3. Removing barriers of innovative financing models
Learnings & Insights	The Twinning Learning Programme meeting between Budapest and Eskişehir municipalities provided valuable insights into urban sustainability and climate action. Key takeaways include the importance of international cooperation, as both cities benefited from learning each other's strategies through a collaborative framework. Energy efficiency in residential buildings emerged as a top priority to address low performance and energy poverty. Budapest's Climate Agency serves as an innovative model for institutionalizing climate action. The exchange of knowledge on agency operations, energy efficiency, and financial mechanisms enriched both cities' strategies. Practical learning from Budapest's retrofitting projects emphasized the need to adapt best practices to local contexts. Community engagement and awareness were highlighted as crucial for the success of sustainability initiatives, alongside addressing shared challenges like financial constraints and regulatory barriers. Lastly, both cities underscored the continuous process of learning and adapting climate strategies based on new insights and international partnerships.
Twin cities and their replication plans	Eskisehir The first solution involves the segmentation of Eskişehir's real estate stock based on technical parameters, social aspects, and local intervention opportunities. Excluding the industrial zone, the highest emission rate in the city, similar to Budapest, comes from buildings at



	<p>approximately 40%. By determining building stocks through various parameters, Eskişehir will be better positioned to identify necessary adaptation actions and make more realistic climate neutrality plans. The second solution focuses on the development of financial products to support this transition. This includes identifying potential funding sources, calculating an optimal mix of grants and refundable financing, and creating a financing model with a resource plan and contractual system. Given the limited financial capacity of many citizens, access to financial resources is essential to achieving the city's goal of energy transition in buildings and reaching climate neutrality.</p>
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Name of the pilot	Blueprint for Net-Zero Apartment-block neighborhoods
<i>Cities involved</i>	Cluj-Napoca (Romania)
<i>Cluster</i>	Cluster 4. Decarbonising the built environment
<i>Description of the pilot</i>	The project aims to create ready-to-use tools for transforming large-scale housing neighbourhoods into climate neutral districts. Ensuring the transition of large-scale housing neighbourhoods to climate neutrality requires multi-level interventions, including behavioural change and ecosystem instruments for climate neutrality, urban planning toolkits, new local public policy tools to support the transition from high-density multi-apartment neighbourhoods to climate neutral districts; and finally, a Climate Neutrality Digital Twin.
<i>Learnings & Insights</i>	The project's twinning activities with the city of Vari-Voula-Vouliagmeni, and the exchange of ideas during the site visit, highlight the potential for further peer learning. By strengthening these international collaborations, Cluj-Napoca can gain new insights and adopt best practices from other cities, which could enhance the effectiveness of its own climate neutrality initiatives.
<i>Twin cities and their replication plans</i>	Vari-Voula-Vouliagmeni (Greece) - The city relates to Cluj Napoca's activity for creating Neighborhood managers for climate neutrality. It seems a great idea to involve citizens in taking care of their own neighborhood over the general idea of climate neutrality. Several ideas could evolve that are personalized for each neighborhood. The NZChamp Campaign for climate neutrality managers/champions in Mănăştur, Cluj-Napoca, is a champion competition that takes place online and aims to select, based on competitive tools, the entities (private companies, NGOs, institutions) that undertake the implementation of climate neutrality measures at neighbourhood level and that has measurable and potentially replicable results. It would be essential to use Cluj Napoca's already developed competitive tools and way of engaging local people on Neighborhoods for taking part at the climate neutrality journey. Vari-Voula-Vouliagmeni wants to identify local neighbourhood climate neutrality managers / champions, trusted partners that could act as



	liaison between municipality, ecosystem representatives and residents. Persons willing to encourage, promote and monitor carbon neutrality achievement within the neighbourhood.
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Name of the pilot	FAAST-NZ – Facilitate transition Actions massification Towards Net Zero
Cities involved	Dijon (France)
Cluster	Cluster 3. Removing barriers of innovative financing models
Description of the pilot	<p>The pilot activities aim to design a “Massification Operator (MO)” – an innovative multi-stakeholder governance approach to coordinate the operational planning and implementation of the city’s transition projects. The Operator’s objective is to scale up the city’s transition projects, private and public, while designing and developing a pathway to transform the territory’s capacity to reach its climate-neutrality objectives.</p> <p>With the MO, Dijon Metropole aims to implement a multi-level and coordinated approach (organisational, financial, governance-wise) targeting systemic barriers related to 3 key emission domains, urban mobility and residential and tertiary buildings, accounting for 76% of Dijon’s CO2 emissions.</p> <p>xxx</p>
Learnings & Insights	One of the key insights gained from working with the twin cities at the start of this program is that, often, what they need are simple yet crucial tools. For instance, cities seek guidance on how to effectively contact stakeholders, understand the professional profiles involved in other pilot cities, and explore complementary funding mechanisms. Additionally, there is a strong desire to learn how to negotiate with companies, understanding not just what to say, but how to position themselves as catalytic agents and coordinators, rather than just facilitators, to drive meaningful and sustained progress.
Twin cities and their replication plans	<p>Gabrovo (Bulgaria) - Initial agenda setting phase. The aim is to start conversations with stakeholders, especially in the private sector. How? Organizing and facilitating a series of workshops to engage with key players in the city.</p> <p>Matosinhos (Portugal) - Stakeholders identified and mapped, and projects on going. The purpose is to replicate the stakeholder sessions to identify the projects and add the digital strategy layer.</p>

Name of the pilot	Drammen City - Zero emission 2030
Cities involved	Drammen
Cluster	Cluster 2. Multi-sectoral and city-wide ambition for climate neutrality
Description of the pilot	<p>The City of Drammen aims to accelerate progress toward its 2030 climate neutrality goal and generate insights for replication across EU cities. The pilot activities include:</p> <ol style="list-style-type: none"> 1. Boosting Solar Energy: Drammen will work with regional businesses to enhance solar energy capacity, supporting a new



	<p>green business model and increasing green energy use for existing businesses.</p> <ol style="list-style-type: none"> 2. Circular Business Models: In collaboration with businesses and a university, Drammen seeks to establish circularity for resources from construction, renovation, and deposits. 3. Sharing, Reuse, and Repair: The municipality will promote these practices through partnerships with local businesses, innovators, and volunteers, and will also address household food waste. 4. Reducing Traffic Emissions: Drammen will explore and address challenges in car-sharing while expanding bike-sharing and micro-mobility solutions. 5. Nature-Based Health Benefits: The city will investigate the health and welfare benefits of regenerating the Drammen River and its banks, using innovative technologies to enhance citizen engagement and well-being.
<p><i>Learnings & Insights</i></p>	<p>The field visit from the Twin Cities, Oulu and L'Aquila, offered Drammen valuable insights into sustainable construction and nature-based climate adaptation. Oulu's focus on reusable building components and L'Aquila's nature-based solutions highlighted effective strategies that Drammen can adopt to enhance urban resilience and reduce carbon emissions. The networking program facilitated knowledge exchange, joint research opportunities, and policy development support, fostering innovation and collaboration. By integrating these best practices and leveraging synergies, Drammen can accelerate its progress toward carbon neutrality, building a more sustainable and resilient city while benefiting from continuous learning and community engagement.</p> <p>A new field visit is planned, which will take place in Oulu in September, which will be in turn followed by a field visit in L'Aquila in March.</p> <p>"All in all, the contact with twin cities has shown that we face the same challenges in breaking down silos to work together in reducing greenhouse gas emissions."</p>
<p><i>Twin cities and their replication plans</i></p>	<p>Oulu:</p> <ul style="list-style-type: none"> - Circular Business Models: Focus on developing and scaling circular business models through innovation, collaboration, and adaptation. Key actions include exploring different models, analyzing current practices, and testing and validating new approaches. - Construction Material Flow: Improve profitability from construction and demolition waste by optimizing value chains for materials like insulation wool, concrete, and drywall. - Substrate Production: Efficiently produce high-quality substrates from garden waste, minimizing time and space requirements. - Biochar: Produce biochar at an industrial scale and evaluate its potential uses. - City-Business Cooperation: Develop models to support sustainable business practices through city-led pilots and experiments.



	<p>L'Aquila:</p> <ul style="list-style-type: none"> - River Parks - Explore the impact of nature-based regeneration in Drammen's river parks. This project aligns with L'Aquila's interest in river redevelopment, offering insights for similar initiatives. - Green Energy Boost - Increase solar energy capacity to support Energy Communities. This practice is valuable for advancing Drammen's green energy goals. - Circular Business Models - Develop and scale circular business models, aiding Drammen's recovery and sustainability post-earthquake. - Stakeholder Interviews - Conduct in-depth interviews to refine information dissemination strategies to citizens. - Effective Communication - Implement new communication practices to enhance citizen engagement with climate initiatives. - Consumer Habits - Promote better resource use and sharing economy practices to improve consumer behaviour. - Shared Mobility - Develop shared mobility solutions, complementing Drammen's efforts in sustainable transportation.
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Name of the pilot	NetZeroPilot
<i>Cities involved</i>	Galway (Ireland)
<i>Cluster</i>	Cluster 5. Built environment and heating systems
<i>Description of the pilot</i>	NetZeroPilot aims at improving energy efficiency in buildings by raising awareness and providing centralised and optimal support to private homeowners. Specifically, the goal of the Pilot activities is to address systemic barriers across the entire retrofitting value chain in Galway, tackling demand and supply challenges. The Pilot activities will do so by engaging citizens, energy cooperatives, local education and training bodies, city, regional and national government officials, and research institutes in novel ways to accelerate the retrofitting process and increase the energy efficiency of homes in Galway.
<i>Learnings & Insights</i>	<p>With initial success in raising awareness, there is an opportunity to scale up marketing efforts, particularly through digital platforms and local events, to engage more homeowners and stakeholders.</p> <p>The project can capitalize on the support from national initiatives like the Sustainable Energy Community Scheme and EU funding opportunities to enhance and sustain retrofit activities.</p> <p>The Warm Home Hub can be further developed as a flagship model, potentially serving as a template for other cities. Expanding its services and outreach can significantly boost the project's impact. With the involvement of high-level stakeholders and alignment with national climate goals, Galway's project can influence broader policy changes, particularly in areas like building energy efficiency and sustainable urban development.</p>



<i>Twin cities and their replication plans</i>	Belfast (United Kingdom) - The city of Galway is implementing a retrofit programme aimed at supporting homeowners in a target neighbourhood to advance on their retrofit journey. The programme includes community outreach, dialogue with the construction sector and academia, and a clear engagement methodology to incentivize homeowners. Belfast is seeking to pilot this approach in a series of neighbourhood and has presented the findings from Galway to its Steering Group leading the approach. Belfast is also using the methodology adopted by Galway to identify pilot zones of the city, and exploring how to integrate the engagement methodology into a retrofit programme.
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<i>Name of the pilot</i>	District C - A zero-carbon commitment
<i>Cities involved</i>	Guimarães (Portugal) and Torres Vedras (Portugal)
<i>Cluster</i>	Cluster 5. Built environment and heating systems
<i>Sensemaking insights</i>	Round 1 and 2
<i>Learnings & Insights</i>	<p>The high level of engagement and maturity demonstrated by the younger generation, particularly in schools, provides an opportunity to harness their innovative ideas and energy in driving the city's transition to climate neutrality. This is connected to the development of a renewable energy community, starting with the implementation of photovoltaic panels at the weekly traditional market, presents opportunities to educate the public, reduce carbon emissions, and inspire further adoption of sustainable practices.</p> <p>Guimaraes' efforts in climate action and systemic transformation methodologies can be replicated and shared with other cities through programs like the Twin Cities programme, enhancing its influence and impact on a broader scale.</p>
<i>Twin cities and their replication plans</i>	<p>Torres Vedras has established itself as a leader in sustainability, with numerous innovative initiatives aimed at achieving carbon neutrality by 2050. The city has adopted the "Sustainable Energy and Climate Action Plan" (PAESC), which includes key targets such as reducing CO2 emissions by 56% and energy consumption by 41% by 2030, compared to 2009 levels. This is part of a larger strategy to align with the European Green Deal. The plan emphasizes decarbonization, energy efficiency, and the transition to renewable energy sources, including exploring hydrogen technology and renewable energy communities.</p> <p>Guimarães has successfully integrated multiple stakeholders, including local businesses, academic institutions, and citizens, into its sustainability initiatives. Torres Vedras could benefit from fostering a collaborative environment that brings together diverse actors to share responsibilities in sustainability efforts. Lastly, Guimarães' focus on public awareness campaigns and educational programs in schools has proven effective in changing behaviors around waste management and</p>



	sustainability. Torres Vedras could replicate these approaches to engage its citizens more actively in environmental efforts
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<i>Name of the pilot</i>	Green and Carbon Neutral Building Transition Guide – Istanbul Model
<i>Cities involved</i>	Istanbul (Turkey)
<i>Cluster</i>	Cluster 5. Decarbonising the built environment
<i>Description of the pilot</i>	Following the earthquake in 1999, Turkey renewed the legal, financial, and urban planning aspects of the Urban Transformation Plan, targeting significantly the country's building stock. The Istanbul Metropolitan Municipality (IMM) will develop a green, carbon-neutral building transition guide for low-emission districts to support urban transformation and demonstrate energy transition solutions at the local level. Pilot activities will address the need for collaborative governance, social and environmental drivers, community engagement, integrated planning, market design, energy balance, and consideration of regional differences.
<i>Learnings & Insights</i>	Although the Pilot Project is initially focused on one district, the aim is to expand the Guide's application to all 39 district municipalities in Istanbul and other Turkish cities. A memorandum may be prepared to support this broader implementation.
<i>Twin cities and their replication plans</i>	<p>Mytilene plans to replicate several key aspects from Istanbul's approach to urban energy management and carbon neutrality. Firstly, Mytilene will adopt Istanbul's method for data collection and analysis, which includes gathering detailed information on existing buildings such as construction areas, number of flats, heating and cooling systems, and population data. This information is essential for understanding current CO2 emissions and energy consumption levels. Istanbul's innovative approach to data collection and analysis, including detailed HVAC analysis and simulation calibration, will be valuable for Mytilene. Technical assistance in these areas will support the accurate assessment and simulation of energy use.</p> <p>Additionally, Mytilene will implement practices for energy consumption analysis and real-time monitoring, inspired by Istanbul's pilot. This includes setting up sensors in public buildings to monitor energy use and provide recommendations for energy savings based on consumption patterns. Guidance on selecting appropriate monitoring equipment and establishing effective behavioral change strategies for energy management will be sought. The creation of a Digital Twin to simulate and calibrate electricity consumption scenarios, using data and scenarios from Istanbul, will also be a key component. Finally, Mytilene aims to develop a transition manual similar to Istanbul's guide, outlining the six modules of Climate Neutral Transition, to provide a clear framework and actions for stakeholders involved in the process</p>



Name of the pilot	NEUTRON
<i>Cities involved</i>	Kozani
<i>Description of the pilot</i>	The NEUTRON pilot will develop and showcase the methodology to support the transition via the definition of existing innovative technologies, such as the Green Heat Module (GHM). It will implement this methodology in sectoral pilots, including energy production from renewable energy and energy-from-waste (EfW), Digital Twins, and Building Information Modelling, to accelerate a just transition. There is a consensus on the potential to exploit flexibility from District Heating, although the quantification of this potential is challenging due to the diversity of DHs and energy markets across countries.
<i>Cluster</i>	Cluster 5. Built environment and heating systems
<i>Learnings & Insights</i>	<p>The Learning Roadmap took longer to complete. There were technical communication issues between the facilitator and the Twin that are now resolved. The first workshop showed good alignment of learning interests based both on their similarities and differences. The cities share challenges related to renewable energy sources, energy saving, building renovation. Alba Iulia is also particularly interested in learning how Kozani has managed to engage different stakeholders and secure funding for various projects. This Twinning is particularly interesting as both cities are almost the same in size and are located geographically in comparatively similar regions.</p> <p>However, there was a disbalance between the number of representatives from Kozani (4-5) and Alba Iulia (1) participating in the activities. It might be useful to consider designing some workshop activities in a way that Twins and Pilots are given platform for exchanges and discussions, but the activities intended for the Twin only are done within their local team before and after the workshop (giving floor for discussions of their outputs during the workshops).</p>
<i>Twin cities and their replication plans</i>	Alba Iulia is particularly interested in learning about RES solutions being implemented in Kozani. Kozani is a city of reference in Europe in terms of planning and implementing solutions for reaching neutrality in 2030 as part of the EC mission, and we will be more than glad to replicate some of their actions. In Romania was launched a Mirror cities hub for other Romanian Cities to learn from Mission Cities to become climate neutral. In addition, they would like to learn about the technical solutions for the storage of Energy. Alba Iulia never implemented storage of energy solution so it would be relevant for us to learn about this and also to find out which kind of grants could be accessed in order to implement such solutions in Alba Iulia.

Name of the pilot	Systemic change towards sustainable commuting in Lahti
<i>Cities involved</i>	Lahti
<i>Description of the pilot</i>	The city of Lahti aims to become carbon neutral by 2025, focusing on reducing emissions from mobility and transport. Since alternative fuels alone won't suffice, a major shift to public transport, walking, and cycling is essential. To facilitate this, Lahti plans a co-creation process with local



	<p>organizations to promote sustainable commuting. The approach includes: 1) mapping the current commuting landscape, 2) studying pilot companies and employees, 3) testing interventions in case study organizations, and 4) drafting and testing new policies in a developing business district.</p> <p>The pilot will tackle barriers such as cultural habits favouring private vehicles, inadequate public transport, insufficient bike and pedestrian infrastructure, lack of workplace facilities for cycling, limited market options for employer-provided bikes, and a fragmented understanding of mobility preferences.</p>
<i>Cluster</i>	Cluster 2: Multi-sectoral and city-wide ambition for climate neutrality
<i>Learnings & Insights</i>	<p>The Twinning Programme has strengthened collaboration between Lahti, Reykjavik, and Jerusalem on sustainable urban mobility. The partnership focused on data collection, behavioral change, and inclusive planning through online meetings, workshops, and a site visit.</p> <p>Nupur Prothi, the Twinning Programme Facilitator, played a crucial role with her expertise, ensuring productive discussions and critical evaluation.</p> <p>Lahti gained insights from Reykjavik's mobility surveys, multimodal hubs, and awareness campaigns. In return, Lahti shared LUT University's research on commuting patterns and sustainable transport barriers, using Life Cycle Assessment (LCA) for environmental and economic analysis.</p> <p>This collaboration has enriched Lahti's approach to climate neutrality, showcasing the importance of international partnerships and shared knowledge.</p>
<i>Twin cities and their replication plans</i>	<p>Jerusalem (Israel)'s learning interests are:</p> <p>Reducing private car use in commuting: Collaborating with large employers and new developments to shift towards sustainable commuting options, thereby lowering emissions, improving air quality, and reducing city center traffic.</p> <p>Behaviour change through promoting sustainable transportation options: Gathering data on transportation habits and enhancing infrastructure for walking and cycling, which supports reduced traffic, lower emissions, and increased public transit use.</p> <p>Reykjavik (Iceland)'s learning interests are:</p> <p>Communication Strategies for Behavioural Change: Developing and piloting communication plans to shift public and organizational habits towards sustainable commuting, addressing current barriers in public engagement and habitual car dependency.</p> <p>Stakeholder Engagement: Working with various stakeholders, including neighbourhood organizations, transport providers, and educational institutions, to implement scalable and cost-effective sustainable mobility solutions, enhancing public transport use and reducing reliance on private cars.</p>



Name of the pilot	Leuven
<i>Cities involved</i>	Leuven
<i>Cluster</i>	Cluster 5. Built environment and heating systems
<i>Description of the pilot</i>	Leuven aims to develop tools and capabilities in governance, policy, and finance to support the city's energy strategy and enhance its net-zero efforts. This strategy focuses on reducing emissions from building energy use, particularly through decarbonizing heating, retrofitting, and renewable electricity. Key elements include developing collective heating systems at the district level, potentially expanding to a city-wide network. Pilot activities will drive change through cross-departmental climate planning, distributed leadership via Civic Contracting, blended finance through a municipal investment vehicle, and active participation of apartment owners and residents, ensuring tangible impact and better decision-making.
<i>Learnings & Insights</i>	In their first cluster sensemaking session, they found that their challenges—such as legislative barriers, securing long-term financing, and engaging citizens—are shared by other pilot cities. This commonality allowed them to exchange strategies in their climate efforts, which they found reassuring. In the Twinning Learning Programme's first year, the Leuven visit focused on sharing experiences, with deeper insights from Lund and Westminster expected to come in the second year. While there are commonalities among pilot cities, significant differences due to local contexts mean lessons learned remain broad and high-level. More detailed insights for Leuven came from exchanges with other central cities in Flanders, where local contexts and legal frameworks are similar. Their project's focus on supplying green heat to heritage buildings is unprecedented in Europe, limiting their ability to learn from others.
<i>Twin cities and their replication plans</i>	<p>Lund (Sweden)'s learning interests:</p> <ul style="list-style-type: none"> - Collective Heating Solutions: Develop and compare financial and technical models for collective heating across different cities. - Cooperation and PPP: Enhance cooperation with stakeholders and explore innovative finance models, inspired by Leuven 2030, to achieve climate neutrality by 2030. - Stakeholder Engagement: Implement a place-based neighborhood approach considering climate and environmental justice to ensure equal living conditions and a just transition. - Transition/Innovation Team: How to structure and incorporate innovation within the municipal transition team to align with Lund's vision of creating the future through knowledge, innovation, and openness. <p>Westminster (UK)'s learning interests:</p> <ul style="list-style-type: none"> - Lowering Emissions from the Built Environment: Balance retrofitting for energy efficiency and climate resilience with the protection of heritage, addressing planning barriers and energy poverty.



	<ul style="list-style-type: none"> - District Heat Networks: Overcome challenges and secure financing for upgrading existing and developing new district heat networks, engaging residents and stakeholders. - Stakeholder Engagement: Navigate central government legislation, ensure climate and environmental justice for residents, and influence businesses' net-zero journeys using a place-based neighborhood approach. Focus on collaborative efforts as only 2% of the city's emissions are from the council.
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Name of the pilot	The initiation of Sustainable Energy Community for the City of Liberec
<i>Cities involved</i>	Liberec
<i>Cluster</i>	Cluster 5. Built environment and heating systems
<i>Description of the pilot</i>	<p>The project aims to activate local stakeholders in achieving the city's climate neutrality through energy and transport initiatives. The pilot activities focus on:</p> <p>Energy Domain: Developing the energy community by addressing technical, commercial, and legal aspects, including stakeholder mapping, technology evaluation, and overcoming implementation barriers.</p> <p>Transport Domain: Creating a strategy for expanding the city's charging infrastructure for various transport modes.</p> <p>Additionally, the project will enhance awareness of carbon neutrality through online platforms, workshops, and tailored communication strategies. It addresses issues such as limited renewable energy expansion, slow transport electrification, inadequate stakeholder communication, the need for social innovation, and new legislation implementation.</p>
<i>Learnings & Insights</i>	<p>The city of Liberec has faced challenges with the Twinning program. Initially partnered with Kharkiv, the collaboration ended due to the war, as did the subsequent partnership with Or Yehuda in Israel. Liberec's current engagement is with Malmo (Sweden) and Wiesbaden (Germany), where the city has drawn inspiration and shared experiences. A June 2024 meeting with Malmo provided valuable insights into their activities. In June, representatives from Liberec and Teplárna Liberec visited Malmö and Wiesbaden, gaining inspiration from their approaches to citizen engagement, waste management, and public space.</p>
<i>Twin cities and their replication plans</i>	<ul style="list-style-type: none"> • Based on their roadmap for a different pairing, Wiesbaden have the following learning interests from Twinning: Understanding how to effectively use geographic analysis and Roadmaps for strategic planning and data-driven decision-making. • Improving citizen engagement in smart and sustainable projects, recognizing that successful implementation relies on strong public buy-in. • Learning how to adapt its roadmap based on feedback and involve residents early in the process to enhance project outcomes and community support.



	<p>Malmo is interested in:</p> <ul style="list-style-type: none"> - Frameworks for Citizen Engagement: Learning about effective mechanisms for involving citizens in municipal processes, including how interfaces between citizens and the municipality are designed. - Data-Driven Inclusion: Exploring "smart city" approaches for including citizens through data-driven methods, including understanding prerequisites and implications. - Practical Applications: Gaining insights into real-world interactions with citizens, focusing on how these interactions work, evolve, and can be improved.
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Name of the pilot	Limassol's Lc3 "Lemesos City Cooling Challenge"
<i>Cities involved</i>	Limassol (Cyprus), Lorquí (Spain) & Viladecans (Spain)
<i>Cluster</i>	Cluster 5. Built environment and heating systems
<i>Learnings & Insights</i>	In the case of Limassol, one significant learning is how national political contexts can shape urban sustainability efforts. The city, currently experiencing demographic growth, faces two opposing visions for its future development. This year, due to upcoming national elections, progress on vital projects—such as those designed to cool down selected buildings to mitigate rising temperatures—has been stalled. Political tensions have overshadowed the pilot initiatives, preventing the timely implementation of solutions that are crucial for the city's adaptation to climate challenges. This highlights how local actions can be deeply influenced, and sometimes blocked, by broader political forces.
<i>Twin cities and their replication plans</i>	Lorquí and Viladecans face one of the great challenges of Mediterranean cities: urban heat islands. That is why, with the buildings and projects already identified, they want to learn innovative solutions to lower the temperature of their cities. Analysis of costs, financing, aligning interests.

Name of the pilot	Together Towards Climate Neutrality
<i>Cities involved</i>	Nantes (France),
<i>Description of the pilot</i>	Nantes Métropole's pilot project involves a "carbon neutrality" citizen challenge aimed at helping households, students, and employees reduce their carbon footprints. Participants will join workshops, access training, and use an online platform to track and improve their carbon habits, with the goal of achieving climate neutrality. The challenge seeks to engage citizens in lifestyle changes while encouraging public policies and stakeholders to focus on carbon neutrality across sectors like mobility, housing, consumption, and industry. The pilot addresses barriers such as psychosocial resistance to sustainable behavior, lack of environmental awareness, fragmented responsibilities, and the need for faster, more effective public action.
<i>Cluster</i>	Missing info



<i>Learnings & Insights</i>	<p>Elise Lindner, Pilot City Project Manager of Nantes, highlighted during the first in-site visit the benefits of collaboration by stating that sharing the pilot activity learnings with twin cities provides the opportunity to re-assess the rationale and added value of the 'climate challenges' programme, through the questions and suggestions raised by key partners. Such exchange is also the opportunity to learn from cities which are complementary to Nantes, having a different territory, governance, and capacities, but facing similar challenges.</p> <p>In this sense, learnings from the twin cities suggest that the pilot initiative offers a model for engaging a larger number of citizens more quickly and efficiently, focusing on educating them about climate change and encouraging changes in daily habits.</p>
<i>Twin cities and their replication plans</i>	<p>Križevci is interested in adopting Nantes Métropole's "DECLICS" platform, which helps citizens understand and reduce their CO2 footprint through workshops, challenges, and home energy-saving activities. This platform aligns with Križevci's SECAP and Development Plan by engaging more residents and deepening their involvement in the city's carbon neutrality objectives. Educating citizens about their CO2 footprint and their crucial role in the energy transition is essential for achieving the city's 2030 targets.</p> <p>Palaio Faliro is looking to replicate two key pilot activities to advance its climate neutrality efforts. First, inspired by Nantes Métropole, Palaio aims to establish a dedicated Climate Neutrality Office within the municipality. This office would manage and oversee the city's climate neutrality plan, aligning with the Mayor's vision. Palaio seeks guidance on setting up this office, including its structure, the specific projects it should handle, and whether to appoint a Vice-Mayor for Climate Neutrality to enhance commitment and effectiveness.</p> <p>Second, Palaio wants to improve citizen engagement and communication regarding climate neutrality. As the city's climate neutrality project is a recent initiative spearheaded by the Mayor, there is a need for more comprehensive public involvement. Nantes' successful strategies in citizen engagement and communication serve as a model for Palaio. The city is eager to learn from Nantes' approaches to creating effective engagement programs and increasing citizen participation in climate initiatives.</p>

Name of the pilot	Creating a NetZero vision for Rivne
<i>Cities involved</i>	Rivne
<i>Description of the pilot</i>	<p>Currently the city climate plan is to reduce 30% emissions by 2030. To that end, pilot activities will focus on data collection and storage:</p> <ul style="list-style-type: none"> • Through the pilot activity the aim is to organise all the data into one, regularly updated, maintained online system so it could support development of all future plans and strategies



	<ul style="list-style-type: none"> • Once data is consolidated, the intention is to store it for modelling energy development scenarios for Rivne and decide on the path which will lead to climate neutrality • Given the lack of skills/workforce to enable the energy transition, the aim is to develop trainings/workshops on RES deployment and EE measures addressed to students and other stakeholders (building managers of public facilities, etc.)
<i>Cluster</i>	Cluster 6. Better data, knowledge and capacities
<i>Learnings & Insights</i>	<p>Both cities seem to have interest in learning from each other, despite the challenging circumstances of Rivne (Pilot), the city is keen on learning and contributing to the program. Konya has been slightly less engaged, but the interest is there and we should make sure that the cooperation is strengthened from Konya's side.</p> <p>Rivne's political representative recently met with Konya in Turkey, and this has helped the TLP implementation.</p> <p>Potential site-visit to be organized jointly in Poland (multi-pilot city) with their Twin + Konya + Rivne. NZC coordination ongoing.</p>
<i>Twin cities and their replication plans</i>	<p>Konya is aiming to replicate the core of the pilot activity of Rivne:</p> <ul style="list-style-type: none"> - Municipal Energy Passport - Supported by previous project from Rivne on: Automate data transfer from heat energy meters in public facilities

<i>Name of the pilot</i>	1.5 - Degree City
<i>Cities involved</i>	Turku
<i>Cluster</i>	Cluster 1. Citizen action for climate neutrality
<i>Description of the pilot</i>	<p>Turku aims to achieve carbon neutrality by 2029 through the 1.5 Degree City project, which fosters collaboration between the City Group, businesses, and citizens. The project focuses on three key activities: 1) Developing an online platform to track and encourage climate work by stakeholders, along with carbon footprint and handprint tools; 2) Strengthening climate actions of companies via the Climate Team network, targeting major businesses and their supply chains with support for carbon-neutral clusters; 3) Promoting sustainable lifestyles through a climate ambassador network, citizen participation, and pilots on sustainable mobility, using research on climate nudging and behavioral science.</p>
<i>Learnings & Insights</i>	<p>The twinning program has given us insights on how to think in new and creative ways when leading change.</p> <p>Twin cities: Fundao, Taurage</p> <p>Working with twin cities has inspired us to make changes boldly and innovatively. Fundao's innovation plan and branding of the city gave us insights and inspiration on how to focus on people and their competences. This has made us think about what the specific competences of our area are and how to utilize this more.</p> <p>At the end of the first visit of the twin cities, we discussed what inspired us the most in the practices of the twins, and how we could make use of these ideas. Our idea is that we could take advantage of similar thinking as Fundao and consider how we can use our strength as a pioneer in</p>



	<p>climate work and as a university city to attract companies and residents and to build the city's sustainable growth. We intend to use this idea in the future when we develop the city.</p> <p>Taurage joined the twinning program a little later than Fundao for practical challenges. We have not yet been in such close contact with them that we would have been able to utilize their expertise. We were impressed by their model of urban democracy.</p> <p>In general, we may have gained information about the practices of other cities from the sensemaking session, and thanks to them, we have been able to contact the cities that interest us and arrange meetings where we can hear about their work. These learnings from the other cities need more development, but we hope that by gathering knowledge of different models we can create concrete activities that help us to make Turku a city where it is possible for the citizens and companies to live 1.5 degree lifestyle.</p>
<p><i>Twin cities and their replication plans</i></p>	<p>Fundao:</p> <ul style="list-style-type: none"> - Carbon Handprint/Footprint: Learning how to calculate carbon handprints for companies and footprints for citizens, leveraging blockchain technology for carbon offsetting and product traceability (completion target: Autumn 2024). - Climate Change Communication: Developing a digital platform for climate information and a climate ambassador network to engage citizens and promote environmental education and sustainable practices. - Company Climate Actions: Strengthening companies' climate capabilities by creating carbon-neutral clusters, knowledge-sharing, and collaboration through the Climate City Contract. - Skanssi Biodiversity Park: Exploring the Skanssi Biodiversity Park initiative learned from Turku, seeking more details. <p>Taurage:</p> <ul style="list-style-type: none"> - Carbon Handprint/Footprint Tools: Need user-friendly tools for carbon handprint/footprint calculations, with actionable steps for CO2 reduction. - Climate Education for Companies: Seeking to educate and motivate businesses on climate neutrality through advisory services and a support platform. - City-wide 1.5-degree Life Campaign: Interested in learning more about this campaign and developing a simplified tool to guide citizens and businesses in climate actions under the Climate City Contract. - Regional Revitalization: Looking to learn from Fundão's strategies for addressing aging population and youth relocation to help revive the Taurage region.

<p>Name of the pilot</p>	<p>The north star</p>
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<i>Cities involved</i>	Umea
<i>Description of the pilot</i>	<p>The City of Umeå is launching a pilot project to rethink and enhance its approach to achieving climate neutrality by 2030. This initiative will involve a comprehensive, systemic innovation approach, focusing on improving collaboration among city departments and stakeholders. The project emphasizes engagement and inclusion to build social capital and trust, crucial for fostering climate-friendly behaviour's.</p> <p>The pilot will address key areas identified in Umeå's climate roadmap: Mobility and transport, Energy and the built environment, and Consumption and circular economy. It aims to overcome barriers such as:</p> <ol style="list-style-type: none"> 1. Organisational lock-in and suboptimization: The city needs to develop new organizational practices to avoid fragmented, counterproductive solutions. 2. Behavioural change: Enhancing the innovation capacity of key stakeholders through improved knowledge, skills, and attitudes is essential for effective climate action.
<i>Cluster</i>	Cluster 1. Citizen action for climate neutrality
<i>Learnings & Insights</i>	<p>The project is well-aligned with Umeå's broader climate goals, particularly in enhancing the city's capacity for systemic innovation. The methodologies and prototypes developed could serve as models for other cities within NZC, contributing to broader climate neutrality missions.</p> <p>The project's iterative approach, particularly in refining its training programs and engaging stakeholders, shows Umeå's ability to learn and adapt. The ongoing development of a transition portfolio and new governance models indicates a proactive stance in addressing challenges. Also, the plan to engage underrepresented groups through art is an example of innovative adaptation to challenges.</p> <p>The twinning program with Luleå and Würzburg offers a valuable platform for exchanging ideas and best practices. Umeå could also benefit from engaging with other cities that have successfully implemented similar systemic changes, particularly in citizen engagement and transformation sensemaking.</p>
<i>Twin cities and their replication plans</i>	<p>Luleå is eager to understand Umeå's approach and insights as they are just in the beginning of developing a strategy for circular economy with focus on buildings and buildings materials. Furthermore, the municipality is in the process of revise the climate goal for Lulea and what to include in the impact of consumption. The reason behind is to have a strategy for circular economy and implement it within the organization, which is crucial as they aim to reach climate neutrality by 2040. But also, they would like to discuss the management and organization of the transition, along with the associated challenges – as Umea and Würzburg are doing it as well. The aim is to find a way to lead and organize the transition within their own organisation, trying to integrate climate neutrality in a broader perspective a highlight the positive side effects on other areas.</p>
	<p>Würzburg's first learning would be on how can economically interests, stakeholder engagement and climatic topics be combined. As</p>



	<p>representatives of the climate department they lack in networks, cooperation or exchange with local companies and businesses. They would like to improve this and therefore get to know about the experiences in Umeå and best-practice-examples. "The 'Green Deal' in Umea is a comprehensive approach that they would like to learn more about. Currently, in Würzburg, there are only individual voluntary commitments regarding climate goals, mostly observed in larger companies. Smaller businesses often lack these commitments. Therefore, it is of utmost interest to us how the Green Deal was developed, what the advantages are for the participating companies, and how these advantages convinced companies to participate."</p> <p>Another topic is the gender equal planning, which Umeå has managed to integrate comprehensively in the climate topics. In Würzburg, climate and gender are not being combined during planning processes. In the future, the station square will be renovated they would like to get some ideas and inspiration on how they can integrate the two topics together in this project (climate adaptation and gender equality). As Würzburg faces challenges regarding heat extremes, green infrastructure is a main possibility to reduce heat. They would like to get some inspiration on how safety issues, greening and gender aspects can be thought together.</p>
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<i>Name of the pilot</i>	SCALE UP (Systematic Climate Action to Lower Emissions in Uppsala)
<i>Cities involved</i>	Uppsala
<i>Description of the pilot</i>	<p>Uppsala, though considered one of Europe's most sustainable mid-sized cities, is falling short of its climate goals and needs to accelerate its climate transition significantly to achieve net neutrality by 2030 and align with a 1.5-degree pathway. To address this, the NetZeroCities pilot aims to:</p> <ol style="list-style-type: none"> 1. Introduce a municipal carbon budget that will be integral to Uppsala's annual budget, setting emission caps for municipal departments and fostering new collaborations. 2. Enhance Uppsala's circular economy by improving material flows and recycling schemes, which are essential due to the city's projected population growth. 3. Involve local stakeholders more actively in the climate transition, using the carbon budget as a tool for collaboration with businesses, academia, civil society, and residents to support a more inclusive move towards net zero.
<i>Cluster</i>	Cluster 2. Multi-sectorial and city-wide ambition for climate neutrality
<i>Learnings & Insights</i>	<p>Uppsala's approach to integrating waste management and circular economy initiatives into broader municipal projects, like the Technical Supply project, presents opportunities for creating multifunctional, sustainable urban spaces. These multi-hubs that will integrate waste prevention activities with parcel lockers, bike workshops, rooftop gardening, and other activities appear to be a nice solution to the challenge of not being able to move the recycling center. The involvement of local universities and programs like STUNS provides</p>



	<p>a platform for innovation and knowledge-sharing, potentially accelerating the development and adoption of new sustainability practices.</p> <p>Strong interest from market actors in reusable building materials suggests significant opportunities for scaling up circular economy initiatives, despite current challenges.</p> <p>The digital visualization tool has the potential to set climate requirements in future land allocations, influencing broader regional development towards sustainability.</p> <p>Dialogues with citizens, particularly around the development of waste prevention hubs, offer opportunities to align municipal projects with public needs and preferences, enhancing the effectiveness and acceptance of initiatives.</p>
<p><i>Twin cities and their replication plans</i></p>	<p>Braga's would like to focus on "Economic Incentives", which reflects city's strategic commitment to fostering sustainable practices within the community. By focusing on it, Braga aims to create a framework that encourages businesses, industries, and residents to adopt environmentally friendly practices. This includes exploring incentives such as tax benefits, subsidies, and grants to promote the adoption of green technologies, energy efficiency measures, and sustainable business practices. The objective is to align economic growth with environmental responsibility, creating a win-win situation for both the local economy and the planet. Braga's motivation for selecting "Economic Incentives" is deeply rooted in its climate neutrality plans. By introducing economic incentives, the city seeks to accelerate the transition towards a low-carbon economy. Financial motivations, such as tax benefits and subsidies, will act as powerful catalysts for businesses and residents to adopt sustainable practices. The intention is to align individual and corporate interests with climate goals, fostering a sense of shared responsibility. Economic incentives are viewed as a strategic tool to drive innovation, attract sustainable investments, and ultimately contribute to Braga's climate neutrality objectives by ensuring that economic growth goes hand in hand with environmental sustainability.</p> <p>Moreover, Braga is interested in the "Construction Circular Economy" as well, which emphasizes the city's dedication to sustainable urban development. In this context, the city seeks to reshape its construction industry by implementing circular economy principles. This involves minimizing waste, reusing materials, and recycling resources within the construction sector. Braga aims to promote sustainable building practices, encouraging the use of recycled materials, efficient construction techniques, and a holistic approach to the life cycle of structures. By embracing a circular economy in construction, Braga envisions reducing environmental impact, conserving resources, and creating a more resilient and sustainable urban environment for current and future generations. Braga's motivation for embracing the "Construction Circular Economy" stems from its commitment to revolutionizing the city's urban development in a sustainable manner. The construction sector is a significant contributor to resource depletion</p>



	<p>and environmental degradation. By opting for a circular economy approach in construction, Braga aims to drastically reduce waste, promote resource efficiency, and minimize the carbon footprint associated with building activities. The motivation is to create a construction industry that prioritizes the use of recycled materials, implements sustainable building techniques, and considers the entire life cycle of structures. Through this approach, Braga envisions not only meeting climate neutrality targets but also fostering a resilient, eco-friendly urban environment that stands as a testament to responsible and sustainable city development.</p>
	<p>Riga would like to learn how to promote circular flows in construction, which includes promoting material reuse, speed-up circular material flows and experimentation in circular economy. In particular, they would like to focus on material brokers circular renovation (practical solutions applied), and financial incentives by the municipality for the private sector to build in a circular manner, In order to do so, it is also important to support systemic transition to the circular economy in the construction sector. The goal is to accelerate the shift towards more sustainable practices and tackle pressing challenges such as climate change, resource depletion, waste and pollution; but also tracing materials across supply chains to create a reliable record of building composition and carbon footprint with digital product passports. Finally, the city would like to create a Climate Protocol: a local network composed of companies, NGOs, universities and organisations that collaborate and inspire each other to scale up their climate action.</p>

