



Cross-Fertilization Report

Deliverable D4.8

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Abbreviations and acronyms

Acronym	Description
WP	Work Package
PCP	Pilot Cities Programme
TLP	Twinning Learning Programme
MEL	Monitoring, Evaluation and Learning

Summary

Over the course of two years (from June 2023 to May 2025), cities from the NetZeroCities Pilot Cities Programme Cohort 1 have participated and engaged in structured processes of peer learning, collective reflection (*Sensemaking*), and a training session on outcome-based evaluation (*Outcome Harvesting*), that combined together offer cross-fertilization opportunities. These processes provided a safe space for cities to move beyond isolated experimentation and toward systemic collaboration, enriching their local climate action initiatives through shared knowledge and practical exchanges. In total, representatives from 53 cities participated as 25 pilots in the cross-fertilization activities organised by the NetZeroCities Consortium for Cohort 1 of the Pilot Cities Programme.

The findings suggest that cross-fertilization contributed to innovation, adaptive governance, and institutional learning. By providing spaces and opportunities for trust-building, mutual understanding, and horizontal knowledge transfer between cities—regardless of size, capacity, or context—the Pilot Cities programme has helped enable a more resilient and integrated approach to urban climate transformation. The results captured here reflect not only some processes that cities have been part of, but how they have learned, evolved, and redefined their pathways toward climate neutrality through collective intelligence and cooperation.

Keywords

Cross-fertilization, Pilot Cities Programme, Outcome Harvesting, MEL, Collective Sensemaking, Prepare, Act, Accelerate.



Introduction

1. Introduction and background

Over the past two years, in the framework of the NZC-Grant Agreement, the first cohort of the Pilot Cities Programme has been implemented. The first cohort of Pilot Cities from across 21 European Union and Horizon 2020 Associated Countries were selected to embark upon unprecedented climate action, through the NetZeroCities Pilot City Programme. Working individually or as multi-city pilots, these Pilot Cities aimed at testing systemic and locally designed innovation actions that span multiple areas, from buildings to waste, and levers of change, including governance, finance and policy. The 53 cities comprise 25 proposals that were selected from a wide array of 103 applications.

In this context, each pilot has matured in its own way. The periodic stocking-taking space facilitated by the NetZeroCities Consortium through the Collective Sensemaking sessions has not only supported the cities in improving their own learning process but also the mutual peer learning due to the experiences and perspectives of other cities. Additionally, cities were offered a specific Cross-fertilization session, where they were presented with various tools that enable them to capture impacts more efficiently. Moreover, all this was combined with the experience of the Twinning Learning Programme with its formal and informal exchanges between city officials.

The tasks described in the Grant Agreement related to the Pilot Cities Programme for the first cohort have been delivered as planned over the last two years, with cross-fertilization activities being an integral part of this process. However, the city-centric results and synergies go beyond formal reports and milestones achieved, and this is what this deliverable aims to capture.

1.1. What is cross-fertilization and why is it relevant?

Within the framework of the cities mission and the Pilot Cities Programme, cross-fertilization allows cities to learn not only from their own experiences, but also from the experiences of other cities and their processes.

Cross-fertilization refers to the interdisciplinary combinations of different knowledge and technologies, creating extensive technological opportunities in terms of product performance and functionality (Björkdahl, 2009; Bogers and Horst, 2014). When writing about cross-fertilization in knowledge, technology and innovation, the term is based more on the diversity of the combinations rather than the distinctiveness of each one of the stakeholders which compose the combination.

Cross-fertilization functions not merely as knowledge dissemination but as a driver of reconfiguration, enabling the adaptation of successful tools—such as the use of historical baselines or primary field data collection—to different institutional and infrastructural realities.

Complex challenges, such as reaching climate neutrality by 2030, need innovative approaches and diverse expertise to succeed. Fostering diverse and multidisciplinary environments can accelerate the generation of new ideas and a better use of the limited resources cities have (González-Piñero et al, 2021). In this sense, cross-fertilization is a useful method for complex issues and problem-solving.

And, of course, this was not defined in the original NetZeroCities Grant Agreement in a definitive manner, but has been refined as the project has progressed, allowing us as consortium organisations to learn during the process. In the same vein, all these lessons and experiences will be useful in continuing the European Mission.



1.2. Collective Sensemaking and Strategic Learning methodology

In the context of Cities Mission, the act of sensemaking addresses the non-linear and complex nature of systemic action essential for reaching climate-neutrality, where cities face unpredictable variables and evolving challenges. This approach helps in:

- Building inter-subjective knowledge, where shared understandings emerge from diverse perspectives through dialogue and reflection.
- Bridging objective (quantifiable) and subjective (experiential) knowledge, allowing for a holistic view of actions and their impacts.
- Facilitating adaptive learning and agile response mechanisms, enabling cities to refine actions based on real-time insights and emergent conditions.

The Collective Sensemaking process in the NetZeroCities Pilot Cities Programme (PCP) has the following primary objectives:

- Enhanced learning: a shared learning environment where cities can reflect on their experiences, share successes and shortcomings, and identify challenges for effective implementation.
- Increased collaboration: stronger working relationships and collaboration among pilot cities and between pilot and twin cities.
- Actionable insights: insights that are directly applicable to the ongoing and forthcoming implementation of pilot activities.

1.2.1. Collective sensemaking Process and Timeline

Relevant submitted deliverables that have already introduced Sensemaking methodology for the Pilot Cities Programme are:

- D4.7 “Sensemaking Insight Report”
- D4.5 “Draft Report on Implementation and Impact of Pilots – year 1”

The process is highly collaborative, involving facilitated conversations among various cities. The insights generated are then codified into strategic learning reports, which feed back into ongoing activities and inform future decisions.

During the 2-years of the Pilot Cities Programme (PCP) timeline, Pilot Cities (and their corresponding Twin Cities) representatives are invited to participate in up to four Rounds of online Sensemaking sessions (up to 3 hours each) within a thematic learning group (hereafter referred to as a ‘Cluster’).

Additionally, the NetZeroCities Consortium organises periodic ‘All-Cluster’ Collective Sensemaking sessions, following each Round of cluster-level Collective Sensemaking sessions, where Pilot Cities can connect with and learn from Pilot Cities and Twin Cities not directly part of their own cluster.

As illustrated in the above deliverables, the Collective Sensemaking programme is organised by the NetZeroCities Consortium in three distinct phases: Prepare; Act; Accelerate (see Figure below).

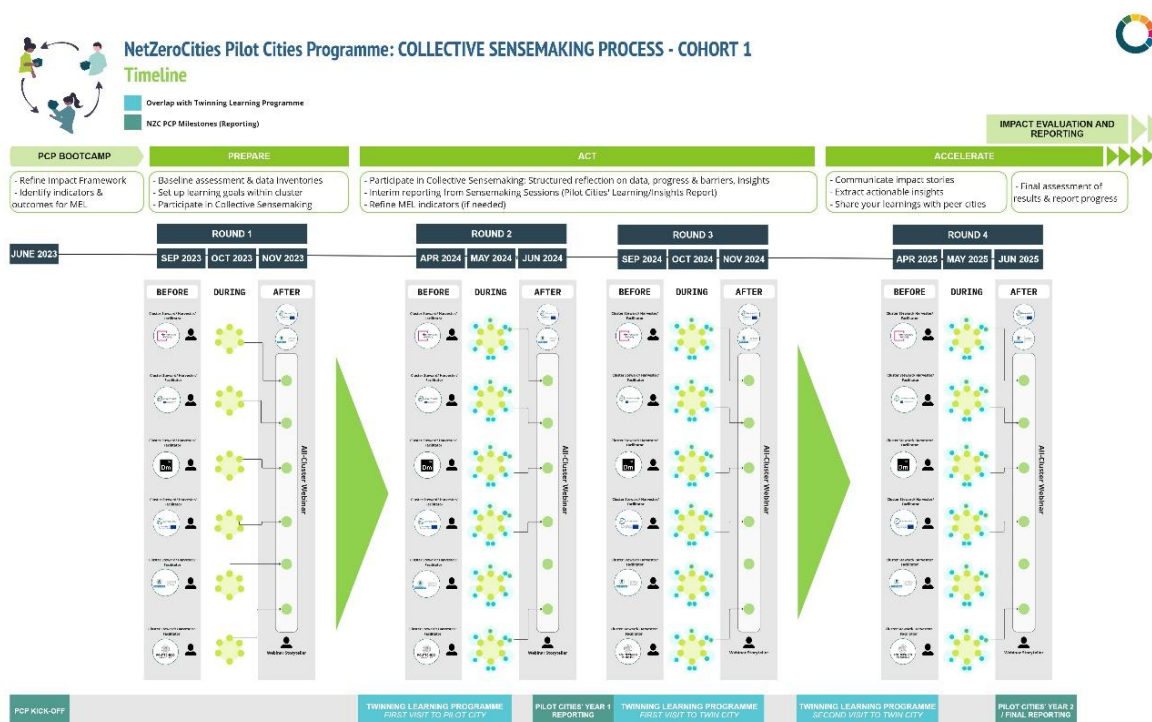


Figure 1. Three phases of the Collective Sensemaking process for Cohort 1 Pilot Cities

1.3. Outcome Harvesting methodology

Complementary to the Collective Sensemaking process, the Outcome Harvesting methodology was offered to the cities in Cohort 1 so that they can capture all their results in a more holistic way during the Pilot Cities Programme.

Outcome harvesting (OH) is fundamentally a Monitoring, Evaluation and Learning (MEL) methodology focused on identifying and analysing changes that have occurred as a result of an intervention, capturing both intended and unintended outcomes. Its core principle is to collect evidence of change (the 'outcomes') and then work backwards to assess whether and how an organisation, programme, or project contributed to that change. This retrospective approach contrasts sharply with traditional indicator-based MEL systems, which start with planned activities and track progress forward through outputs, outcomes and impact.

An "outcome" in the context of Outcome Harvesting is defined as *"a change in the behaviour, relationships, actions, activities, policies, or practices of an individual, group, community, organisation, or institution"* (Wilson-Grau and Britt 2013).

Outcome harvesting is most effective under specific conditions, as highlighted by Wilson-Grau (2015):

- **Focus on Outcomes over Activities/Outputs:** it is appropriate when the focus is mostly on outcomes rather than activities or outputs. Its purpose is to understand "what changed and why", in order to help understand change processes.
- **Complex Situations:** It is designed for use in complex situations where the relationship between cause and effect is not fully understood and/or where many different actors influence change. This makes it particularly valuable for areas like policy influencing, mobilisation, capacity development, empowerment and network development, where desired changes are often unpredictable.
- **Learning for Future Performance:** It is suitable when the purpose of an M&E exercise is to learn about change aimed at improving future performance. It encourages stakeholders not only to identify change, but also to learn about how those changes were brought about.

1.3.1. Outcome Harvesting to support the Sensemaking process

“Outcome Harvesting” is a methodology that adds value within the context of NetZeroCities, particularly within its Pilot Cities Programme, because it serves as a strategic tool for understanding, demonstrating, and learning from the real-world changes that emerge from pilot projects rather than just what was done or hoped for. This methodology is inherently stakeholder-centred, since it focuses on changes experienced by individuals, groups, communities, organizations, or institutions influenced by the pilot, including project partners. The engagement with stakeholders is deemed crucial for harvesting successful outcomes. It provides a flexible, rigorous, and learning-oriented framework to articulate the nuanced and often unpredictable changes resulting from their pilot projects, thereby enhancing accountability, improving communication, and fostering continuous adaptation towards net-zero goals.

Unlike traditional MEL approaches that might focus on predetermined or planned outcomes, Outcome Harvesting emphasizes observable changes in the behaviour, relationships, activities, or policies of stakeholders. It actively seeks to collect evidence of what has changed and then works backward to establish whether and how the pilot contributed. This allows to capture both expected and unexpected outcomes, providing a more comprehensive view of the pilot's influence.

This methodology enhances communication by helping cities to translate outcome data into clear, compelling stories of change. These stories can then be effectively used to communicate with a wider audience, including funders, policymakers, residents, and other stakeholders. For example, the great media coverage of positive shifts in a city serves as evidence of meaning. Besides, it is an excellent learning tool that supports continuous learning and adaptation.

By understanding what has happened and how the pilot contributed to observed changes, cities can adapt their strategies faster and refine their approaches for future endeavours. This adaptive management particularly useful in complex situations where the relationship between cause and effect is not fully understood, and desired changes are often unpredictable. This is highly relevant for urban climate initiatives, where multiple actors influence change and plans may need constant modification. At the same time, cross-fertilisation is always present as a possibility, when cities gather lessons not only from their own experiences (successes and failures), but also from other cities.

2. Cross-fertilization process and sessions

2.1. Prepare (Phase 1): All-Cluster Sensemaking session

The first “All-cluster” Sensemaking session took place the 16th of November of 2023, after the six clusters sessions. With a two-hour duration, more than a hundred participants were present, between Pilot City Representatives, Twin City Representatives and Consortium Partners.

Here is the list of Pilot cities and regions attending: Italian Cities, Bristol, Dutch Cities, Galway, German Cities, Guimaraes, Istanbul, Lahti, Leuven, Limassol, Liberec, Nantes, Polish Cities, Umea, Uppsala, Rivne, Slovenian Cities, Spanish Cities, and Turku.

The main objective for the session was to connect and learn from other cities from the Pilot City Programme and Twinning Learning Programme not involved in their clusters. Following this perspective, the structure of the session was slightly modified from the first sensemaking organized. The session was thought following a webinar-style format,



Figure 2. One of the breakout rooms during the

where the key insights of each cluster session were explained by the main facilitator of each cluster.

All-Cluster Sensemaking Session (miro board)

Then, Pilot Cities were given the chance to speak and share with other Pilots their own takeaways and insights from their cluster sessions in small breakout rooms in between explanations. Twin cities also had the chance to discuss in this small groups, being the first time in the process where they actively participated in the Sensemaking, which broadened the opportunities to reciprocal learnings from different environments.

The insights and inputs from participants were gathered in a Miro board during the session by the designed harvesters. Each post it represents a comment/insight from a participant. Post its were arranged according to colour coded topics.

The Miro used in the session can be found here: <https://miro.com/app/board/uXjVNOJehro=>

2.2. Act (Phase 2): All-Cluster Sensemaking session

The second “All-cluster” Sensemaking Session took place on June 16th (2024). As well as the first one, it was scheduled after all the cluster session took place and it had a duration of three hours. Like the previous All-Cluster session, more than a hundred participants were invited and participated in the process. The groups were composed of Pilot Cities representatives, Twin Cities representatives and Consortium Partners.

The cities that more actively have participated by sharing their experiences and updates on the pilot or multi-city pilot in the various breakout rooms are: Bologna, Bristol, Drammen, Galway, Guimaraes, Kozani, Kranj, Liberec, Limassol, Ljubljana, Malmo, Mannheim, Muenster, Rivne, Rzeszow, Turku, Umea, Velenje and Valladolid. These cities proved very valuable for other pilots and cities. Some of the Pilot cities from Cohort 1.

The main objective for the All-cluster was maintained from the first round: the idea was to foster a space where Pilot Cities and Twin Cities could share and discuss topics and patterns and learnings which had emerged in their own cluster sessions and stood out to them. For this second round, the format was modified considering the feedback from cities and Consortium Partners. The session was designed to be more flexible and open, with less facilitation from the NetZeroCities Consortium partners. Offering more time to discuss in breakout rooms, Pilot and Twin Cities were given the opportunity to choose which breakout room to join. This new format helped cities to engage more in conversations, by discussing the themes they were more interested in and promoting connections beyond their clusters.

The following breakout rooms were offered:

- Citizen's engagement, inclusion & behaviour change
- Private sector collaboration
- Political will & multi-level governance



Figure 3. One of the breakout rooms during the All-Cluster Session (Miro board)

- Multi-city collaborations & partnerships
- Data governance, digital solutions & platforms
- Unlocking finance & investments to sustain projects
- Good internal Governance (Breaking siloes, Enhancing synergies)
- Technological solutions: innovation, implementation, exploitation
- Scalability & Replicability for Pilots & Twins
- Municipalities Capacities and Capability building
- Monitoring, Evaluation, Learning & Reporting
- Pilot Activities & CCCs integration

The insights and inputs from participants were gathered in a Miro board during the session by the designed harvesters. The online Miro board used for the session can be found at this link: https://miro.com/app/board/uXjVNOJehro=

2.2.1. Inter-cohort Sensemaking session during Phase 2

The third “All-Cluster” session happened the 13th of December 2024. This edition was named “Inter-cohort” as it included both Pilots and Twins from both Cohort 1 and Cohort 2. The session was prepared and scheduled after their reglementary sensemaking sessions for both cohorts: For Cohort 1, it was the third round of sensemaking; for the Cohort 2, it was the first one.

Here are some of the cities from Cohort 1 which were present in the exchange: Aachen, Barcelona, Bristol, Drammen, Galway, Groningen, Guimaraes, Kozani, Lahti, Leuven, Liberec, Limassol, Nantes, Rivne, The Hague, Turku, Umea, Valladolid and Velenje.

The objective of the session was maintained at the core: to prepare and offer a space for cities to share and discuss with other cities their challenges and learnings in their Pilot and Twin journeys. However, the focus was on the interaction between both



Figure 4. One of the breakout rooms during the "Inter-cohort" Session (Miro board)

cohorts, being one of the main leading questions “what advice would you have for the other cohort on what to avoid?” The “Inter-cohort” fostered a space where Cohort 1 Pilot Cities, with larger experience in the programme, to lead the conversations and advice Cohort 2 cities, newer in the process. Due to the positive feedback received by cities and consortium partners, the design and format were maintained, adapting the themes to the interests of both cohorts.

The insights and inputs from participants were gathered in a Miro board during the session by the designed harvesters. Miro used in the session: https://miro.com/app/board/uXjVNOJehro=

2.3. Accelerate (Phase 3): Cross-fertilization session on Outcome Harvesting

The entire process of the Collective Sensemaking sessions since Round 1 has been a constant exercise in cross-fertilization, as the cities have not only learned from their own experiences, but also from others participating in PCP Cohort 1.



However, on April 30th, 2025, an optional session was organised for the entire Cohort 1 to place additional emphasis on this approach for disseminating the lessons learnt by the cities and using them to frame better outcomes through knowledge-sharing. The title of that session was "Harvesting Better Outcome Stories from your Pilot Journeys: Online Peer-to-Peer Learning Session".

Sixteen pilot cities from Cohort 1 of the Pilot Cities Programme participated in this session: Guimarães, Rivne, Torino, Lahti, Mannheim, Liberec, Malmö, València, Galway, Turku, Umeå, Muenster, Kozani, Leuven, Vitoria-Gasteiz and Drammen.

In this session, cities were split into breakout rooms not according to a specific thematic area but to maximise geographical diversity in each room, as well as affinity in relation to the theme of each pilot. The overall aim was for the conversation to take place freely and organically, guided by the questions prepared by the Consortium's facilitators.

2.3.1. Session format, components, and flow

The main objective of the session was to help cities formulate outcomes brought from their pilot experiences and facilitate exchanges between Pilot Cities from Cohort 1, offering training support on the topic of outcome harvesting.

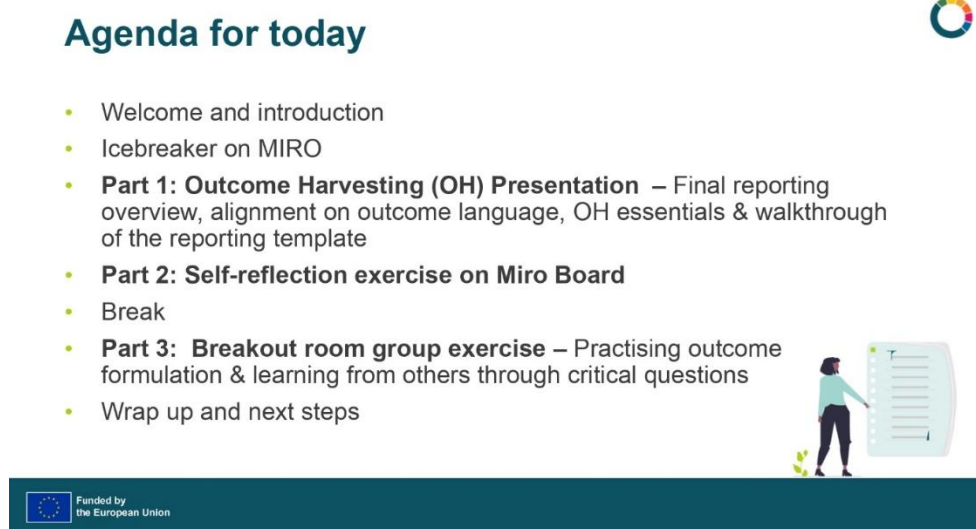


Figure 5. Agenda for the Cross-fertilization session

Training was also provided to support drafting the last Learning & Insights reports Pilot Cities due at the end of the two-year programme (summer 2025). This last report is mostly based on gathering outcomes obtained from the Programme. The template was also shared in the session. The session was designed to:

- Provide an overview of the final MEL reporting for Year 2, specifically focusing on the new "Outcomes & Insights Report" (Word template) in conjunction with the "Indicators Data Reporting Year 1+2" (Excel template).
- Align participants on key terminology, particularly distinguishing between "activities," "outcomes," and "impacts."
- Introduce and walk through the Outcome Harvesting (OH) approach as a qualitative MEL method for capturing significant changes.
- Facilitate self-reflection and peer learning exercises to practice outcome formulation.

The overall headlines shared from the session encouraged participants to join the session to "Harvest better outcome stories from your Pilot journeys" to "demonstrate your real-world impact," "Enhance your communication efforts," and "Support ongoing learning and adaptation."

In the first part of the session, the templates for MEL reporting of the final year were introduced:

- Indicators Data Reporting Year 1+2 (Excel template): This focuses on quantitative data.
- Outcomes & Insights Report (Word template): This is a new template for Year 2 reporting. It is divided into:
 - Part 1: Collect & harvest Outcomes
 - Part 2: Capture Lessons/Insights through internal/collective sensemaking.

The reporting framework builds on the original MEL Framework and conceptualises change across different timelines and levels of control/influence:

- Year 1 & 2 (2023-2025): Focus on "Activity" leading to "Early Outcomes" and "Later Outcomes." These are within the "City's control/mandate" or "City's influence in ecosystem."
- 2030 & beyond: Focus on "Long-term Impacts (GHG + co-benefits)" related to the "City's net-zero vision."

Hereafter, the session changed themes to focus on an explanation about Outcome Harvesting. A critical component of the session was the clear distinction between key terms:

- Activities/Deliverables: "What was produced as the result of pilot implementation."
 - *Examples:* "Trainings delivered," "An event, a campaign, a workshop ran," "Stakeholder group set up," "An app launched."
- Outcomes: "what has changed as a consequence of pilot results". These are observable changes of what has happened, contrasting with "Impact Framework outcomes" which are "pre-determined, planned, desirable results."
 - *Examples:* "Following advocacy campaign, the municipal budget allocated €2 million annually to green retrofit subsidies," "Procurement guidelines revised now including mandatory sustainability criteria," "Residents started biking 20% more after campaign."
- Impact: "Longer-term transformation the Pilot is aiming for system-level change."
 - *Examples:* "By embedding retrofit financing into the regular municipal budget cycle, climate action shifts from ad hoc projects to structural, sustained investment," "'Just Transition' embedded in City Governance," "Circular Economy as Economic Mainstream."

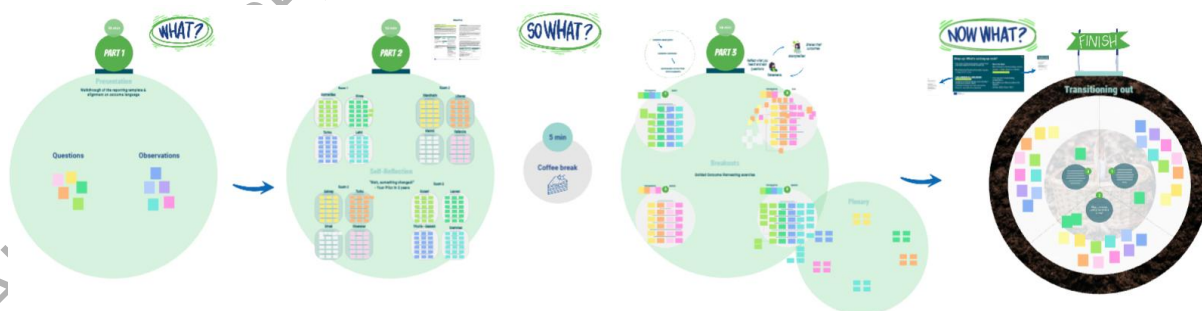


Figure 6. Miro board used during the Cross-fertilization session

After the explanation, participants engaged in a solo reflection exercise using a provided template to draft an outcome from their pilot journey. Key questions to guide this reflection included:

- "What kind of change occurred?"
- "Who changed and how?"
- "Why is this outcome important?"

- "What evidence do you have?"
- "How did your pilot contribute to this change?"
- "What would have happened differently without the pilot's efforts?"

The session encouraged participants to think of themselves as "detectives" when identifying outcomes, looking for observable and documented shifts.

Cities were then grouped in breakout rooms (three to four per room) to discuss the changes in their contexts over the past two years and to practice identifying outcomes. They shared concrete examples from their specific projects and refined their observations with guidance from a facilitator.

It is also interesting to note that collaboration among cities is already extending beyond the scope of the Pilot Cities Programme. Many cities were introduced to one another through the programme, developed strong connections, and are now exploring opportunities for future joint projects.

All the learnings and exchanges made during the Cross-fertilization session were collected on a specific [Miro board](#), a link to [the recording of the session](#) was generated and the material was shared with all the participants after the session.

3. Learnings and insights from cross-fertilization

3.1. Phase 1: Prepare

The All-Cluster sessions, held after the individual cluster-level Sensemaking sessions, acted as a platform for disseminating key insights and learnings that emerged from the six distinct clusters:

- Citizens actions for climate neutrality
- Multi-sectorial and city-wide ambition for climate neutrality
- Removing barriers of innovative financing models
- Decarbonising the built environment
- Built environment and heating systems
- Better Data, knowledge and capacities

This meant that cities participating in one cluster could learn from the experiences, findings, and common questions identified in other clusters, fostering a wider understanding of challenges and solutions across the entire cohort. Pilot Cities gained the opportunity to hear what key insights emerged from other cluster-based sessions. This is vital for cross-fertilization, as it allows cities to explore learning opportunities beyond their immediate thematic grouping, potentially discovering applicable solutions or gaining new perspectives from different intervention areas or levers of change.

Twin Cities, acting as active observers or listeners in the cluster sessions, use the All-Cluster session to gain an overarching understanding of the first Sensemaking Round. This broader view is particularly beneficial for their role in replication, enabling them to identify scalable and transferable practices from a wider range of pilot experiences, and to anticipate potential issues in their own replication projects by learning "what not to do or what to avoid". Their involvement facilitated reciprocal learning by engaging Twin Cities with the broader Pilot Cities' and Twin Cities' cohorts together for the first time. This contributed to building trust and synergies across the PCP and Twinning Learning Programme (TLP) cohorts, laying the groundwork for stronger working relationships and continued knowledge exchange.

The All-Cluster session directly addressed the identified need for cities to learn across clusters beyond their own, helping to bridge potential knowledge silos that might arise from thematic clustering and finally, it provided a significant opportunity for Pilot Cities and Twin Cities to meet for the first time on a broader scale, focusing on networking and building contacts for future peer-to-peer exchange.



3.2. Phase 2: Act

In the timeframe of the Phase 2 of the Collective Sensemaking & Learning process for the Pilot City Programme process, the NZC Consortium partners combined the second “All-cluster” Sensemaking session and the “Inter-cohort” Sensemaking Session.

3.2.1. Second “All-cluster” Sensemaking session

Building on feedback from previous cluster sessions, the format for the Round 2 All-Cluster session was redesigned to be more adaptive and participant focused. It introduced an alternative design to facilitate cross-cluster learning and interactive workshops. The session allowed participants to engage more freely in conversations about topics most pertinent to them, fostering a self-directed learning environment where cities could choose and join relevant conversations. Also, the design included reduced speaking time from NetZeroCities facilitators, allowing for significantly longer breakout room discussions. The adaptive design ensured that sessions were more aligned with participants' expectations, leading to enhanced cross-pollination of ideas and strategies among cities.

It also proved to be a valuable forum for widely sharing and discussing the learnings and patterns that emerged from the individual cluster sessions. At the same time, it facilitated cross-cluster learning, enabling cities to hear insights that surfaced in other thematic areas beyond their own learning groups.

As the last All-cluster Session, it brought together Pilot and Twin Cities representatives, enabling broader networking and connections. In that regard, Twin Cities were fully integrated into the Collective Sensemaking process in Round 2 and gained valuable insights. Their active participation in all the process facilitated reciprocal learning by creating opportunities for Twin Cities to connect with and learn from Pilot Cities they were not directly clustered with. Also, the structure of the session aimed to enhance interaction and connectivity beyond immediate thematic clusters.

The agenda of the session was structured to allow for extended breakout group discussions, providing a platform for deeper engagement on cross-cutting themes and challenges identified throughout Round 2 Cluster sessions. Specifically, one breakout session explored the coordination needs and synergies within multi-city pilots, which are particularly complex and demanding within the context of the PCP.

3.2.2. “Inter-cohort” Collective Sensemaking Session

Drawing on insights from “Inter-cohort” sensemaking sessions, challenges and initiatives are presented in topics such as data governance, stakeholder engagement, financing, and the scaling of pilot projects. It also highlights how peer exchange and the intentional adaptation of experiences across urban contexts accelerate systemic change.

At the heart of these dialogues is the recognition that peer learning environments enable cities to overcome localized constraints by integrating insights from diverse urban ecosystems. For instance, **data management** emerged as a universal challenge, with many cities encountering resistance from service providers and internal departments in sharing critical environmental data. Yet, through exchange, cities such as Wiesbaden and Guimaraes have highlighted the value of transparency platforms and sensor integration, prompting others to rethink their approaches to data architecture.

Stakeholder engagement is also being reshaped through shared narratives and mutual learning. Cities like Košice, struggling with mobilizing individual flat owners, benefited from the conversation with Malmö's strategies in breaking municipal silos and Umeå's cultural interventions encouraging reuse. Through iterative peer discussions, cities identify not only parallel problems but also compatible solutions, such as using economic framing (“you will save this and this over time”) to shift resident behaviour or the identification of “converted stakeholders” who can serve as early adopters.

Financial continuity and the democratization of access to climate finance are also mentioned. Smaller cities, often less able to attract large-scale investment, draw on the experiences of more resource-endowed peers to explore innovative funding routes. For example, Vaasa's proactive investment in biogas infrastructure has offered a replicable model of how city-led market activation can address the “chicken-and-egg” dilemma in green innovation. Likewise, cities such as Leuven and Copenhagen

demonstrate how subcontracting technical expertise and leveraging EU funds can fill internal capacity gaps—practices which are being emulated and localized by others.

Rather than defaulting to prescriptive models, cities are increasingly adopting phased **implementation strategies**, often beginning with building-scale pilots and expanding to system-level interventions. The movement from "proof of concept" to "proof of value," as articulated by Copenhagen, serves as a transferable scaling logic adopted by multiple peer cities. Twinning arrangements—for example, between Lahti, Reykjavik, and Jerusalem—further facilitate this process, allowing for real-time feedback, collaborative problem-solving, and alignment of project trajectories. Similarly, Stockholm's low-barrier Climate City contract provides a replicable framework for engaging a broad spectrum of stakeholders, especially SMEs, which is now being considered by other cities seeking to simplify stakeholder onboarding.

In terms of **institutional learning**, cities are not merely adopting solutions but are reshaping their internal governance models through observed successes elsewhere. Malmö's emphasis on aligning municipal operations with climate goals, combined with Eskisehir's reflections on data precision at the neighbourhood level, signal an emerging awareness of how internal reform and spatial specificity must converge. Cities report that structured, facilitated peer interaction—often via short but direct communication with assigned facilitators—provides a high-leverage opportunity to unlock stagnant projects.

The experiences from participating cities further underscore **how mutual inspiration leads to mutual innovation**. Lappeenranta's unexpected collaboration with student housing providers was catalysed by openness to unplanned engagement, echoing strategies shared by peers in Galway and Leuven. Umeå's circular economy interventions reflect not only endogenous innovation but also an active assimilation of reuse and waste reduction practices observed elsewhere. Meanwhile, Kosice's capacity to scale rapidly draws strength from models discussed in earlier "Inter-cohort" exchanges, reinforcing the idea that scalability often depends on the timely incorporation of external knowledge.

In light of these findings, several recommendations emerged, such as the following:

- Institutionalize peer-learning infrastructures that go beyond knowledge exchange to foster co-development and adaptive translation of practices.
- Create interoperable data and reporting standards to enable meaningful comparison and benchmarking.
- Incentivize modular, adaptable pilot designs that allow for context-sensitive scaling.
- Mainstream economic co-benefits communication strategies, building a shared narrative around cost savings and investment attractiveness.
- Decentralize technical assistance to ensure that smaller cities gain equitable access to expertise.
- Embed dynamic barrier analysis in pilot monitoring frameworks to generate shared insight into emergent systemic obstacles.

3.3. Phase 3: Accelerate

From a cross-fertilization perspective, the discussions and pilot projects highlighted several insights and learnings, demonstrating how cities can learn from each other's experiences, challenges, and successes.

A central theme across discussions was the **definition and recognition of "change" or "outcomes"** within short pilot project timelines. While some cities presented clear, demonstrable shifts, others struggled to pinpoint measurable outcomes within a two-year timeframe, highlighting the long-term nature of climate transition work. The themes of the outcomes varied from Pilots, but they can be summarised as:

- Diverse Interpretations of Outcomes: tangible, measurable shifts.



- Lessons Learnt & Strategic Realignment.
- Behavioural and Mindset Shifts.
- Increased Engagement and Collaboration.

In terms of **common challenges**, several cities found it challenging to quantify the direct impact of their pilot activities within a short timeframe, recognizing that some changes (e.g., behavioural shifts, policy adoption) take longer to manifest and verify. Leuven's experience highlighted the need to adjust ambitious initial plans (like exclusively pursuing fifth-generation heat networks) when faced with practical constraints and stakeholder feedback. This led to a more "acceptable" approach with less immediate impact on citizens' renovation needs. Besides, Rivne's experience showcased the challenge and importance of maintaining focus on climate neutrality despite political conflicts.

In terms of **replicability**, cities expressed interest in replicating successful initiatives, like Guimarães's "PEG" volunteer program, for example, is being considered for replication in its twinning city, Torras. Rivne also plans a concluding forum to share experiences within Ukraine and aims to develop a "replication plan." Moreover, there is a strong desire to continue activities beyond the pilot phase: Pilots are seen as stepping stones to broader city-wide change.

3.3.1. Strategic insights from cities' outcome harvesting

In the breakouts for the cross-fertilization event dedicated to Outcome Harvesting (see Section 2.3), all the sessions followed the same methodology: participants chose 1 outcome (or 2) outcomes from their Pilot that would make a good impact story. They reflected about direct and indirect changes, significance and evidence and use the template provided on MIRO as a reference. Once the story is over, the other participants could ask clarifications around the outcome for refinement and give feedback. While all had the same methodology, each breakout differs depending on the stories participants shared. The following sub-section outlines the detailed insights synthesised in each of the smaller breakout discussions.

Breakout 1: Guimaraes, Rivne and Lahti

A central theme emerging from the discussions in this room was the **evolving perception of climate change**, transitioning from merely an environmental challenge to a significant development opportunity for cities. This shift in perspective is driven by the potential for improved international image, attraction of new funding and support, increased international visibility, and the fostering of collaborations with other cities. The discussions highlighted the **economic benefits of energy efficiency and renewable energy**, the importance of city resilience, the value of cross-sectoral and inter-departmental cooperation, and the critical role of **stakeholder engagement** in driving climate action.

Individually, **Rivne** emphasised how the pilot project helped high-ranking city officials understand that climate change is a serious business and a new reality, closely linked to **energy efficiency and renewable energy sources**. Despite political conflicts, the city continues to focus on climate change, as it contributes to the resilience of the "rear" (cities not on the front lines) by maintaining life and economic activity and attracting investments and grants. They see climate change as a development opportunity and as part of its **public image**, something that makes the city unique. Being involved in projects like this one is way to improve their international image, attract new funding and support, and increase international visibility, facilitating partnerships with European and other countries' cities.

Focusing on **energy efficiency**, they argued its vital importance for resilience against blackouts, and the city seeks its own power capacities (like solar power plants on water supply utilities) to ensure crucial services during outages. These energy efficiency measures are seen as "low-hanging fruit" in Ukraine, offering short-term economic benefits (5-10 years). They resulted on how their pilot project will result in an energy data management system and a climate neutrality vision document for 2050. That energy management system is designed to be expandable with new modules and datasets in the future. Finally, while not a priority, they plan to organize a concluding forum in autumn to share their experience with other Ukrainian cities.

In the case of **Guimaraes**, they reported the **interdepartmental integration** of climate neutrality goals within the municipality, creating a climate transition team to align departmental actions with key documents like the Climate Action Plan. They reported unexpected results from a sports club they collaborated with, which is highly valued in the city. The club, initially not interested in topics like carbon capture or circular economy, began to ask for help managing obsolete materials and sought advice on reforestation activities. Private companies have also changed their mindset, collaborating and finding synergies, which has been an important breakthrough. They also mentioned how are monitoring the performance of these actions interdepartmentally to ensure alignment with plans.

In terms of **citizen engagement**, they remarked how the pilot project helped drive engagement and co-creation through assemblies, and their "one-stop shop", who will evolve into a mobile vehicle that will roam the territory to meet the needs of the population.

Finally, Guimarães is part of the SGA-NZC Enabling City Transformation initiative (ECT) with Porto and Lisbon, and they are working on a project called "A+ class" to build an interactive reporting and monitoring platform for performance for both public and private sectors.

Lastly, **Lahti**, focused on sustainable mobility. They recalled how being part of the Pilot City Programme and mainly its resources have allowed them to obtain new bus routes, bike stations, and broader operational areas for scooters simply by contacting and suggesting improvements. They act as an active partner that researches the needs of employees and employers and then presses local operating systems to make the necessary changes. They already work with local employers and workplaces to encourage the use of more sustainable transportation modes among employees and well as local transportation companies (buses, e-scooters, shared bikes) to improve their services. The financial boost their action and implementation.

To the group, they emphasized **the power of cooperation** between different stakeholders and the importance of being proactive in asking questions to generate change, even with scarce resources.

Climate change is increasingly recognized as a strategic opportunity for urban development, enhancing a city's public image and uniqueness. Investing in energy efficiency and renewable energy sources offers tangible and short-term economic benefits, particularly in countries like Ukraine where such measures are considered "low-hanging fruit". Effective climate action requires breaking down silos and fostering collaboration across different city departments, private companies, and even seemingly unrelated sectors like sports. This is fundamental for successful climate initiatives and their replication. Finally, all cities agreed Pilot projects are viewed as stepping stones for city-wide change, with plans for continuation, replication, and integration into broader strategic frameworks.

The outcomes extracted as quotes from the Miro board discussed within the breakout room are summarised below:

- "More energy data available & Is better structured" "City leaderships see climate activities as an opportunity" (Rivne)
- "Sports clubs' mindset is changing - they are more aware of circular economy and the need to contribute more to the environment" (Guimaraes)
- "Private companies created a community of action" (Guimaraes)
- "The Governance Ecosystem and the creation of a multidisciplinary team allowed an integration of a shared vision between all the Municipal departments" (Guimaraes)
- "Stakeholders were willing to offer changes to their services to support sustainable mobility" (Lahti)

Breakout 2: Liberec, Mannheim, Valencia

The three cities showcase diverse approaches to urban energy transition, yet several common themes emerged. A consistent thread across all cities was the recognition of the **need for enhanced communication and collaboration**, both internally within city administrations and externally with various stakeholders. One strongly remarked are citizens: providing citizens with accessible knowledge



and information, particularly regarding finances, is crucial for fostering informed decision-making and building trust. They also discussed the inherent **challenge of departmental "siloes"** and emphasize the pilot's role in fostering **cross-departmental connections**.

The success of energy transition hinges on effectively engaging a diverse range of stakeholders, from local energy companies and transportation entities to citizens and public workers. Particularly highlighted by Mannheim, shifting **citizen behaviour** is identified as a key driver for successful energy transition.

Liberec focused his story on how they have **improved communication** between local energy company, energy transportation company and city. The immediate beneficiaries and participants were Stakeholders and Partners from outside and inside of the city's ecosystems with communication being established involving local advisors. This signifies a centralized and collaborative approach that was previously lacking, transforming the energy landscape in Liberec. They also brought how they expect this Pilot to have snowball effect to other projects in the area. They learnt that to be able to achieve this change, municipality needed an internal-first approach first, stating, that energy communities need to first be organised with the key stakeholders before opening to other citizens.

In the case of **Mannheim**, their Multi-Pilot with Aachen and Munster focused on the change of **citizen's behaviours**. They are actively pursuing this through innovative approaches like a "heat transition academy" with strategic experiments in consumer behaviour and role of the citizens. This underscores their belief that citizens are the key drivers of change. The pilot prompted Mannheim to consider the entire chain of energy transition, including aspects like heating pumps and stakeholder mapping, which were not previously considered comprehensively. While citizens are the ultimate target, Mannheim acknowledges that other stakeholders must change before that (e.g. supply chain)," indicating a holistic view of the ecosystem. That is why we created a "Heat planning Map", a tangible output demonstrating the pilot's impact and a tool for future planning for other cities.

They stated the pilot enabled them to define a "Sensemaking process" within their municipalities and to leverage partners for direct and indirect changes, suggesting a structured and collaborative approach to understanding and implementing change.

Finally, **Valencia** contribution to the Spanish Multi-City project focused on **internal organizational challenges** and practical implementation. They focused on developing renovation guidelines to public and private actors and citizens, providing technical support and building the bridge between them. They highlighted how the pilot significantly impacted colleagues in the city hall department, addressing the issue of public workers operating in own capsules and siloes. It also provided access to many experts, recognising who was the best at developing guidelines, suggesting the value of external knowledge and strategic resource allocation

Prior to the pilot, departments were "following their own agendas," making it difficult to engage. Now, they have built a connection with different stakeholders changing a very low annual rate of renovations.

They also addressed the topic on **citizen engagement**, sharing their own strategy: they argue how citizens should be approached through offices of proximity trying to build trust as a transparent agent. For them anything that can give citizens more knowledge and information about finance for better discussions is truly important.

The urban energy transition pilots in Liberec, Mannheim, and Valencia, while distinct in their immediate focus, collectively underscore the critical role of enhanced communication, strategic stakeholder engagement, and the proactive breaking down of internal and external siloes. From fostering inter-organizational communication in Liberec to driving citizen behavioural change in Mannheim and bridging internal departmental divides in Valencia, these pilots demonstrate tangible progress and a commitment to sustainable urban energy futures. The emphasis on empowering citizens with knowledge and information, coupled with the recognition of long-term "snowball effects," suggests that these initiatives are laying the groundwork for more comprehensive and lasting urban energy transformations.

The outcomes extracted as quotes from the Miro board discussed within the breakout room are summarised below:



- “Improved communication between local energy company, energy transportation company and city” (Liberec)
- “Improved communication with potential participants of energy community via dedicated web page and social media channel” (Liberec)
- “Strategic experiments defined along relevant consumer behavioural changes we need” (Mannheim)
- “It was not possible to implement all experiments during 24 month” (Mannheim)
- “...surprising result, when going along new methods of defining stakeholders and instruments for the experiment” (Mannheim)
- “Creation of working groups of relevant stakeholders” “Creation of a renovation guide” (Valencia)

Breakout 3: Drammen, Leuven

The discussion highlights the **value of outcome harvesting, stakeholder engagement**, and the **iterative nature** of urban development and climate transition. A central theme emerging from both pilot experiences is the necessity of flexibility and adaptation in urban development and climate transition. Initial plans and visions may need to be revised based on real-world experiences, stakeholder input, and practical challenges. This is particularly evident in **Leuven's** shift in heat network strategy. Besides, both projects underscore the critical role of research and academic validation in informing urban sustainability initiatives. While Drammen leveraged past research to create blueprints for the future, Leuven recognized the need for ongoing practical testing and academic validation. Interactions with various stakeholders, including universities, policy makers, citizens, and other cities, were also presented as crucial for both informing project direction and increasing the reach and impact of lessons learned.

Individually, **Drammen** outcome story highlighted how the project's core contribution is to move the understanding of Drammen's regeneration from *“for the most anecdotal and not evidence-based or not scientific”* to *“enhanced the quality of this knowledge based”* through conducting a case study collecting various types of information. This has resulted in published papers and ongoing research. The city of Drammen has a very polluted history of industrial plants presence, but the city has now been regenerated by reclaiming the river, creating parks, and establishing walking/biking trails, while simultaneously improving river health and biodiversity through nature-based interventions. The research has improved the reach, taking the story beyond and attracting attention of other main cities in Norway but also beyond Norway. They discussed this was a huge milestone since Drammen was at time sometimes following Oslo and now Oslo follows Drammen.

In the case of **Leuven**, they discussed on the change in vision they had and how it was an internal change that actually happened within the team but also with our project partner. Their pilot focused on exploring opportunities to create a collective heating scenario for existing buildings and on public domain, which hasn't been done before because they also need renovation.

Initially, they aimed for fifth generation heat networks because the investment cost is much lower. However, through interactions with different stakeholders and insights from three different lighthouse districts (place-based pilots), their team concluded that this vision was not realistic, and it would not work. That is why the project shifted its approach, now considering four generation heat networks or even hybrid solutions, as these are seen as a good in between solution. They reflected how they realised these had less impact on citizens and would be more accepted.

They also underlined how the Pilot's work provided them with **practical and place-based experience** and facilitated interactions with stakeholders that are also working on the team, as beforehand they didn't work on concrete cases. They recall on future approaches identifying the need for a more higher-level heat vision to guide practical implementation, stating, *“we want heat for and by everyone so that it's social inclusive.”*

After both stories, the city representative from Drammen noted the distinct difference in focus: Drammen looks "at the past," extracting lessons from historical success, while Leuven is "so much towards the future," dealing with real-time challenges of implementation and adaptation. They also remarked the importance of practical testing and stakeholder input in refining strategies. They concluded It's not just about achieving a predetermined outcome but also about learning, adapting, and refining the approach based on real-world experiences, even if it means changing initial visions.

The outcomes extracted as quotes from the Miro board discussed within the breakout room are summarised below:

- "Enhanced evidence-based knowledge of benefits of nature-based regeneration in a "one health" perspective" (Drammen)
- "New features of an active transportation app to also foster nature connectedness and health" (Drammen)
- "Effective stakeholder collaborations based on concrete heat opportunities that arise" (Leuven)
- "Careful evolution towards transfer of management to Belgian net operator for the whole territory of Leuven " (Leuven)
- "An improved internal vision on district heating has emerged from stakeholder interactions & place-based research" (Leuven)

Breakout 4: Turku, Umeå

Successful climate transformation initiatives were highlighted by the two Nordic cities present, Turku and Umeå. Their participation in the Pilot Project enabled **multi-stakeholder engagement**, in particular private sector and citizens' participation, integration of climate considerations into existing decision-making and financial resources evaluation processes, and increased awareness around climate conversations. When speaking about outcomes, both citizens recognized the shift in both internal and external stakeholders, contributing to emissions reductions: They brought how working on their projects have helped them to increase corporate and stakeholder engagement, bringing more private sector and local organizational actors into climate action. The introduction of new partnerships to their existing ecosystem has also pushed them to **break silos and enhanced collaboration**. The pilots fostered better communication and cooperation between different departments, cities and private entities.

Another key action they addressed was **integrating climate into decision-making**: A significant shift involved embedding climate impacts into financial and project evaluation processes. This shift helped the initiatives to lead mindsets changes and establish new guidelines for sustainable practices inside and outside the municipality.

Focusing individually, **Turku's** transformation centered on **engaging private companies** and improving **inter-city communication** regarding climate initiatives. When discussing about types of changes in their Pilot, they brought up how they have had an increase in multi-stakeholder participation and climate related training. This empowered key stakeholders to make meaningful collaborations and contributions to the implementation of their CCC. Companies now are more active in participating in climate campaigns and further discussions were promoted pushing climate action beyond public sector entities. Before the work done in the Pilot, companies were not that open to participate, nor citizens encountered channels to be on board in the climate conversation. *"Before there was not much time / efforts allocations to climate-related initiatives. Now they are more engaged in climate work."* This signifies a shift from a lower priority or limited engagement to a more dedicated and active approach to climate work.

Now, participation around climate change issues have raised in this both groups: Companies are more engaged and interested in their own role in the decarbonization journey. Likewise, citizens found confidence and eagerness to engaged in climate discussions. *"Starting to have more communication among the cities and companies - recognising their own work."* They addressed the relevance in this shift as critical, due to the role of the private sector in achieving climate goals. Besides, they recalled of the importance of recognising the external work on climate issues private companies do to validate their efforts.

In the case of **Umeå**, they have focused on the transformation of embedding climate criteria into financial support mechanisms and fostering integrated work. Their outcome has highlighted an increase in transition capacity, having developed technical expertise and knowledge sharing, enabled the development of skillsets needed for the transition. The gain in knowledge and skills, allowed the introduction of new agreements, partnerships, networks and platforms, that also reflected the change in attitude and mindset in the ecosystem. There is also a new regulatory scheme and policy development, that is for instance, creating a new criteria around financial support for associations.

Before, climate was not part of the equation to determine finance flow to projects. Now, there is an increase in methods, skills, knowledge and trust among partners that enabled an applied and integrated work around climate topics. This reinforces the breaking silos approach, which is crucial to make climate an integral part of financial decision-making. As main outcomes of the pilot process they highlighted behavioural change, as well as a guideline for municipalities to provide financial support to organisations. They recalled how this is expected to include an awarding criterion based on climate impacts related features. This is a significant systemic shift, moving towards institutionalizing climate considerations in financial decisions.

Both pilots demonstrated that actively involving diverse stakeholders, particularly companies, is crucial for successful climate transformations. They also strengthened how the shift from ad-hoc initiatives to integrating climate considerations into core processes (like financial flows in Umeå) leads to more sustainable and impactful change. Finally, "breaking silos" (Umeå) and "more communication among the cities and companies" (Turku) underscored the importance of inter-organizational and inter-departmental collaboration.

The outcomes extracted as quotes from the Miro board discussed within the breakout room are summarised below:

- "Companies want to be more active than we have been prepared to facilitate/offer participation opportunities" (Turku)
- "Climate ambassador training itself encouraged climate discussions with their peers rather than the dialogues we had planned for them to organise" (Turku)
- "People really want to meet and discuss climate, they want the city to organise and facilitate meetings" (Turku)
- "Climate campaigning empowered ccc partners themselves and proved that meaningful collaboration is possible and useful" (Turku)
- "Technical expertise or skills developed for innovation officers of the City" (Umeå)
- "Knowledge gained and/or awareness raised in the form a learning platform" (Umeå)
- "New agreements, partnerships, networks or platforms formed" (Umeå)
- "New policies, guidelines, strategies, laws, regulations etc. (Climate criteria for financial support for associations)" (Umeå)
- "Attitude, mindsets, behaviour shifted (spillvatten)" (Umeå)

4. Beyond the online sessions: Peer learning and site visits

The Learning & Insights report from cities for year 1 contains a section on "Learning from Peer Cities" which includes the following guiding questions:

- Please briefly describe the details of the interactions where the following insights emerged, including – if applicable – name(s) of peer cities that you especially learnt from
- Which key learnings and findings emerged for you based on your interaction with other peer cities? (Pilot Cities or Twin Cities)

It is this section of the report, Pilot Cities have explained their interactions with other cities, either mentioning interactions in activities organized by the Consortium: Twinning Learning Programme,



Sensemaking sessions, as well as other individual interactions, led by their own initiative to connect and learn from them.

In the case of the Sensemaking and the Twinning Learning Programme, cities have an overall positive experience with the process and in the exchanges as highlighted in their reporting. **Some of the testimonies of cities recall:**

- *“...The Sensemaking process highlighted typical issues and challenges faced by projects in similar implementation phases, while the Twinning process allowed us to adapt our activities to slightly different environments. Both approaches facilitated a deeper reflection on the project's role and objectives...”*
- *“...The sensemaking workshops organised by the NetZeroCities offered the opportunity to take a look at the other pilot cities...”*
- *“...Collecting different opinions from various cities in a Miro board helped to look at the own ideas and processes from another angle...”*
- *“...meetings with our Twinning city... and in the Sensemaking sessions with Bristol and Budapest have shown that these sessions function as a good mirror for our city cooperation. We do much more together in our working sessions than we often see, since working on innovative financial instruments is a difficult process...”*
- *“...Through the sensemaking sessions, some practical ideas were sourced in relation to mobilising communities to climate action (for example, the use of a caravan as a mobile information hub) ...”*
- *“... Participation in the sensemaking sessions allowed for reflection of our own work and this was an important aspect of our project in year 1. “*
- *“...The interaction with the pilot and twin cities served as a tool for knowledge sharing and learning within the project team...”*

Outside the Pilot City Programme and the Twinning Learning Programme, several cities have connected and exchanged knowledge on achieving successful outcome within their projects and in the implementation of their missions. For example, the City of Turku deals with engagement in the Pilot Cities Programme. Wanted to gain insight in this topic, they turned to cities such as Aarhus, Oslo and Nantes. From them, they gathered information and successful experiences on how to engage the private sector.

Another example is the Multi-city Pilot of German Cities, CoLab, with Aachen, Munster and Mannheim. They were in the same cluster focussed on Citizen Engagement with Turku, where they engaged with Nantes, Bristol, Malmö and Valencia. The German Cities highlighted how they all have similar challenges, and these exchanges were helpful to them by helping them to design strategies and instruments to encourage behavioural change.

Other cities also leaned on their national peer cities for more fruitful exchanges: One example is the city of Drammen. They discussed that outside the PCP, they connected with cities with similar urbanistic characteristics, contexts and challenges, like other Norwegian cities such as Oslo, Trondheim and Stavanger. These interactions give the city valuable insights on how to better implement pilot initiatives to unlock and institutionalise novel perspectives, solutions, and approaches.

Additionally, these peer connections help them understand the importance of cooperation and how it can be useful to future research, innovation, and policymaking. Another case is Leuven, while acknowledging the valuable insights they have gained through the Collective Sensemaking session and the Twinning Learning Programme, they discussed how connecting with cities in the Belgian Flanders

region, such as Antwerp, Mechelen and Bruges was significantly more practical. This is due to their similar local context and the shared legal frameworks.

4.1. Twinning Learning Programme (TLP) as a core Cross-fertilisation experience

Throughout all the Sensemaking sessions within the Pilot Cities Programme, it is important to highlight that in parallel, the Twinning Learning Programme has been developed. The Twinning Learning Programme guided Twin Cities in their learning and replication efforts from Pilot and Mission Cities, with a practical focus on implementing the systemic transformation methodologies and innovative approaches on the journey to climate neutrality. That said, the Pilot Cities targeted by the Sensemaking sessions have therefore benefited not only from the exchange and cross-fertilization with other Pilot Cities, but also with the twin cities from the PCP Cohort 1.

The contribution of Twin Cities in this process goes beyond showcasing their best practices in a specific thematic domain. Sometimes, Twin Cities can set the example in a particular area, greatly enriching the programme and, indirectly, the Pilot Cities Programme.

5. Conclusion

Within the framework of the Pilot Cities Programme Cohort 1 of the NetZeroCities Grant Agreement, this report has compiled and analysed a broad range of cross-fertilization experiences, learnings, and collaborative processes developed and delivered with the participating cities. Continuous interaction among cities has fostered a collaborative learning environment that transcends the topics covered in the proposed thematic clusters. This approach has enabled cities to incorporate diverse knowledge, enriching their local processes with transferable external experiences. The collective Sensemaking sessions have proven fundamental in promoting a culture of shared reflection. These processes have allowed cities to identify common patterns, analyse specific challenges, and generate actionable insights — contributing to more resilient, flexible, and evidence-based practices or solutions.

Peer learning has been bidirectional. Pilot Cities not only shared their experiences but also benefited from the feedback and adaptations developed by their Twin Cities. This mutual exchange significantly enhanced the value of the programme for all stakeholders involved. One of the most significant outcomes has been the development of strong networks of trust and collaboration—both among cities and within each municipality. These relationships are strategic assets that support the long-term sustainability of climate action initiatives. Although the programme's timeframe is limited, the pilot actions have proven to be effective catalysts for broader institutional change. In many cases, pilot projects have been integrated into long-term city plans, governance strategies, and sustained participatory mechanisms.

The application of the *Outcome Harvesting* methodology has enabled the identification of relevant changes in behaviours, policies, institutional practices, and stakeholder relationships. This qualitative approach complements quantitative indicators, offering a more comprehensive view of the programme's short-term and final impacts. Unlike linear evaluation frameworks, Outcome Harvesting begins with observed changes and traces back how projects contributed to them.

This approach has helped cities build better capacities on assessing their impact in complex and uncertain environments, where multiple actors and variables influence outcomes. It has proven particularly valuable in urban settings that demand flexibility and constant adaptation. Training and collective reflection sessions around Outcome Harvesting allowed local teams to internalise and apply the methodology effectively. This process aspires towards more rigorous and insightful reporting by cities, while simultaneously building lasting institutional capacity for monitoring and evaluating climate actions, solutions and policies over the medium and long term.

Especially due to the cross-fertilization session on Outcome Harvesting, it has been possible to identify which topics were the most prominent and repeated throughout all the breakout room discussions. The thematic focus areas most highlighted in cities' interventions were – a) challenges, strategies and



learnings from citizen engagement, b) energy transition and, c) the capabilities needed for breaking silos and foster interdepartmental collaboration. Despite each city speaking about their own Pilots, these recurring topics formed the core of the conversations: in some cases, as challenges or systemic barriers and in others as learnings of their own implementation processes.

Combined with the cross-fertilization processes fostered through peer exchange and collective learning, the Outcomes Harvesting approach helped enabled participants to contextualize their progress and incorporate diverse perspectives into their pathways. Together, these methodologies are directed at strengthening the capacity of cities to navigate complexity, foster systemic transformation, and sustain long-term momentum toward climate neutrality.

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